

# COMUNE DI CAPRI

## PIAZZA MARTIRI D'UNGHERIA



### RIQUALIFICAZIONE ARCHITETTONICA DELL'EX MERCATINO COMUNALE CON NUOVA DESTINAZIONE D'USO A CENTRO POLIFUNZIONALE

#### PROGETTO DI LIVELLO ESECUTIVO

R3

RELAZIONE DI CALCOLO

DATA : maggio 2017

SCALA :

PROGETTISTI:

Arch. Claudio Oscar Stabile

COLLABORATORI:

Arch. Riccardo Teo  
Arch. Edoardo Montella  
Arch. Maria Stabile

STUDIO DI ARCHITETTURA CLAUDIO STABILE & PARTNERS

TEL. +39 081 837 6583

VIA LONGANO 8  
ISOLA DI CAPRI

INFO@CLAUDIOSTABILE.COM  
WWW.CLAUDIOSTABILE.COM

**Relazione di calcolo strutturale impostata e redatta secondo le modalità previste nel D.M. 14 Gennaio 2008 cap. 10 “Redazione dei progetti strutturali esecutivi e delle relazioni di calcolo”.**

# RELAZIONE DI CALCOLO STRUTTURALE

## Premessa

La presente relazione di calcolo strutturale, in conformità al §10.1 del DM 14/01/08, è comprensiva di una descrizione generale dell'opera e dei criteri generali di analisi e verifica. Segue inoltre le indicazioni fornite al §10.2 del DM stesso per quanto concerne analisi e verifiche svolte con l'ausilio di codici di calcolo.

## Descrizione generale dell'opera

| Descrizione generale dell'opera |                                                                                                                                               |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Fabbricato ad uso               |                                                                                                                                               |
| Ubicazione                      | Comune di CAPRI (NA) (Regione CAMPANIA)                                                                                                       |
|                                 | Località CAPRI (NA)                                                                                                                           |
|                                 | Longitudine 14.243, Latitudine 40.550                                                                                                         |
| Numero di piani                 | Fuori terra due (Magazzino facchini e fabbr. Alieno)                                                                                          |
|                                 | Interrati due                                                                                                                                 |
|                                 | le dimensioni in pianta dell'ex Mercatino sono racchiuse in un rettangolo di 14.35x19.85m (dim. Complessive con la parte aliena 14.35x29.20m) |
| Numero vani scale               | Uno                                                                                                                                           |
| Numero vani ascensore           | Da realizzare                                                                                                                                 |
| Tipo di fondazione              | Dirette a plinti isolati                                                                                                                      |

| Principali caratteristiche della struttura                                    |    |
|-------------------------------------------------------------------------------|----|
| Struttura regolare in pianta                                                  | No |
| Struttura regolare in altezza                                                 | No |
| Classe di duttilità                                                           | B  |
| Travi: ricalate o in spessore                                                 | Si |
| Pilastrì                                                                      | Si |
| Pilastrì in falso                                                             | No |
| Condizioni per cui è necessario considerare la componente verticale del sisma | No |

| Parametri della struttura |                |            |                   |
|---------------------------|----------------|------------|-------------------|
| Classe d'uso              | Vita Vn [anni] | Coeff. Uso | Periodo Vr [anni] |
| III                       | 50.0           | 1.5        | 75.0              |

| Fattore di struttura       |
|----------------------------|
| q=1.5 per elementi fragili |
| q=3 per elementi duttili   |

## Quadro normativo di riferimento adottato

Le norme ed i documenti assunti quale riferimento per la progettazione strutturale vengono indicati di seguito.

Nel capitolo “normativa di riferimento” è comunque presente l’elenco completo delle normative disponibili.

| Progetto-verifica degli elementi      |                 |
|---------------------------------------|-----------------|
| Progetto cemento armato               | D.M. 14-01-2008 |
| Progetto muratura                     | D.M. 14-01-2008 |
| Azione sismica                        |                 |
| Norma applicata per l’ azione sismica | D.M. 14-01-2008 |

## Livelli di conoscenza e fattori di confidenza

Il livello di conoscenza è LC3

Pertanto il fattore di confidenza è FC=1

## Azioni di progetto sulla costruzione

Nei capitoli “modellazione delle azioni” e “schematizzazione dei casi di carico” sono indicate le azioni sulla costruzioni.

Nel prosieguo si indicano tipo di analisi strutturale condotta (statico,dinamico, lineare o non lineare) e il metodo adottato per la risoluzione del problema strutturale nonché le metodologie seguite per la verifica o per il progetto-verifica delle sezioni. Si riportano le combinazioni di carico adottate e, nel caso di calcoli non lineari, i percorsi di carico seguiti; le configurazioni studiate per la struttura in esame ***sono risultate effettivamente esaustive per la progettazione-verifica.***

La verifica della sicurezza degli elementi strutturali avviene con i metodi della scienza delle costruzioni. L’analisi strutturale è condotta con il metodo degli spostamenti per la valutazione dello stato tensodeformativo indotto da carichi statici. L’analisi strutturale è condotta con il metodo dell’analisi modale e dello spettro di risposta in termini di accelerazione per la valutazione dello stato tensodeformativo indotto da carichi dinamici (tra cui quelli di tipo sismico).

L’analisi strutturale viene effettuata con il metodo degli elementi finiti. Il metodo sopraindicato si basa sulla schematizzazione della struttura in elementi connessi solo in corrispondenza di un numero prefissato di punti denominati nodi. I nodi sono definiti dalle tre coordinate cartesiane in un sistema di riferimento globale. Le incognite del problema (nell’ambito del metodo degli spostamenti) sono le componenti di spostamento dei nodi riferite al sistema di riferimento globale (traslazioni secondo X, Y, Z, rotazioni attorno X, Y, Z). La soluzione del problema si ottiene con un sistema di equazioni algebriche lineari i cui termini noti sono costituiti dai carichi agenti sulla struttura opportunamente concentrati ai nodi:

$$\mathbf{K} * \mathbf{u} = \mathbf{F} \quad \text{dove} \quad \begin{aligned} \mathbf{K} &= \text{matrice di rigidezza} \\ \mathbf{u} &= \text{vettore spostamenti nodali} \\ \mathbf{F} &= \text{vettore forze nodali} \end{aligned}$$

Dagli spostamenti ottenuti con la risoluzione del sistema vengono quindi dedotte le sollecitazioni e/o le tensioni di ogni elemento, riferite generalmente ad una terna locale all'elemento stesso.

Il sistema di riferimento utilizzato è costituito da una terna cartesiana destrorsa XYZ. Si assume l'asse Z verticale ed orientato verso l'alto.

Gli elementi utilizzati per la modellazione dello schema statico della struttura sono i seguenti:

- Elemento tipo **TRUSS** (biella-D2)
- Elemento tipo **BEAM** (trave-D2)
- Elemento tipo **MEMBRANE** (membrana-D3)
- Elemento tipo **PLATE** (piastra-guscio-D3)
- Elemento tipo **BOUNDARY** (molla)
- Elemento tipo **STIFFNESS** (matrice di rigidezza)
- Elemento tipo **BRICK** (elemento solido)
- Elemento tipo **SOLAIO** (macro elemento composto da più membrane)

## Modello numerico

In questa parte viene descritto il modello numerico utilizzato (o i modelli numerici utilizzati) per l'analisi della struttura. La presentazione delle informazioni deve essere, coerentemente con le prescrizioni del paragrafo 10.2 delle NTC-08, tale da garantirne la leggibilità, la corretta interpretazione e la riproducibilità

| Tipo di analisi strutturale                 |    |
|---------------------------------------------|----|
| Statica lineare                             | SI |
| Statica non lineare                         | NO |
| Sismica statica lineare                     | NO |
| Sismica dinamica lineare                    | SI |
| Sismica statica non lineare (prop. masse)   | NO |
| Sismica statica non lineare (prop. modo)    | NO |
| Sismica statica non lineare (triangolare)   | NO |
| Non linearità geometriche (fattore P delta) | NO |

Di seguito si indicano l'origine e le caratteristiche dei codici di calcolo utilizzati riportando titolo, produttore e distributore, versione:

| Informazioni sul codice di calcolo |                                                              |
|------------------------------------|--------------------------------------------------------------|
| Titolo:                            | PRO_SAP PROfessional Structural Analysis Program             |
| Versione:                          | PROFESSIONAL (build 2017-04-177)                             |
| Produttore-Distributore:           | 2S.I. Software e Servizi per l'Ingegneria s.r.l.,<br>Ferrara |

Un attento esame preliminare della documentazione a corredo del software **ha consentito di valutarne l'affidabilità e soprattutto l'idoneità al caso specifico**. La documentazione, fornita dal produttore e distributore del software, contiene una esauriente descrizione delle basi teoriche e degli algoritmi impiegati, l'individuazione dei campi d'impiego, nonché casi prova interamente risolti e commentati, corredati dei file di input necessari a riprodurre l'elaborazione:

#### Affidabilità dei codici utilizzati

2S.I. ha verificato l'affidabilità e la robustezza del codice di calcolo attraverso un numero significativo di casi prova in cui i risultati dell'analisi numerica sono stati confrontati con soluzioni teoriche.

E' possibile reperire la documentazione contenente alcuni dei più significativi casi trattati al seguente link: <http://www.2si.it/Software/Affidabilità.htm>

| Modellazione della geometria e proprietà meccaniche: |          |
|------------------------------------------------------|----------|
| nodi                                                 | 1303     |
| elementi D2 (per aste, travi, pilastri...)           | 448      |
| elementi D3 (per pareti, platee, gusci...)           | 1088     |
| elementi solaio                                      | 58       |
| elementi solidi                                      | 0        |
| Dimensione del modello strutturale [cm]:             |          |
| X min =                                              | -206.01  |
| Xmax =                                               | 1610.11  |
| Ymin =                                               | -1810.09 |
| Ymax =                                               | 1374.95  |
| Zmin =                                               | -285.50  |
| Zmax =                                               | 1475.17  |
| Strutture verticali:                                 |          |
| Elementi di tipo asta                                | NO       |
| Pilastri                                             | SI       |
| Pareti                                               | SI       |
| Setti (a comportamento membranale)                   | NO       |
| Strutture non verticali:                             |          |
| Elementi di tipo asta                                | NO       |
| Travi                                                | SI       |
| Gusci                                                | SI       |
| Membrane                                             | NO       |
| Orizzontamenti:                                      |          |
| Solai con la proprietà piano rigido                  | SI       |
| Solai senza la proprietà piano rigido                | SI       |
| Tipo di vincoli:                                     |          |
| Nodi vincolati rigidamente                           | SI       |
| Nodi vincolati elasticamente                         | NO       |
| Nodi con isolatori sismici                           | NO       |

### Modellazione delle azioni

Si veda il capitolo **“Schematizzazione dei casi di carico”** per le informazioni necessarie alla comprensione ed alla ricostruzione delle azioni applicate al modello numerico, coerentemente con quanto indicato nella parte **“2.6. Azioni di progetto sulla costruzione”**.

### Combinazioni e/o percorsi di carico

Si veda il capitolo **“Definizione delle combinazioni”** in cui sono indicate le combinazioni di carico adottate e, nel caso di calcoli non lineari, i percorsi di carico seguiti.

| Combinazioni dei casi di carico     |             |
|-------------------------------------|-------------|
| APPROCCIO PROGETTUALE               | Approccio 2 |
| Tensioni ammissibili                | NO          |
| SLU                                 | SI          |
| SLV (SLU con sisma)                 | SI          |
| SLC                                 | NO          |
| SLD                                 | NO          |
| SLO                                 | NO          |
| SLU GEO A2 (per approccio 1)        | NO          |
| SLU EQU                             | NO          |
| Combinazione caratteristica (rara)  | NO          |
| Combinazione frequente              | NO          |
| Combinazione quasi permanente (SLE) | NO          |
| SLA (accidentale quale incendio)    | NO          |

| Principali risultati                                                                                                                                                                                                                                                                                                                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>I risultati devono costituire una sintesi completa ed efficace, presentata in modo da riassumere il comportamento della struttura, per ogni tipo di analisi svolta.</p>                                                                                                                                                                 |
| <p><b>2.8.1. Risultati dell'analisi modale</b></p> <p>Viene riportato il tipo di analisi modale condotta, restituiti i risultati della stessa e valutate le informazioni desumibili in merito al comportamento della struttura.</p>                                                                                                        |
| <p><b>2.8.2. Deformate e sollecitazioni per condizioni di carico</b></p> <p>Vengono riportati i principali risultati atti a descrivere il comportamento della struttura, in termini di stati di sollecitazione e di deformazione generalizzata, distinti per condizione elementare di carico o per combinazioni omogenee delle stesse.</p> |
| <p><b>2.8.3. Inviluppo delle sollecitazioni maggiormente significative.</b> L'analisi e la restituzione degli inviluppi (nelle combinazioni considerate agli SLU e agli SLE) delle caratteristiche di sollecitazione devono essere finalizzate alla valutazione dello stato di sollecitazione nei diversi elementi della struttura.</p>    |
| <p><b>2.8.4. Reazioni vincolari</b></p> <p>Vengono riportate le reazioni dei vincoli nelle singole condizioni di carico e/o nelle combinazioni</p>                                                                                                                                                                                         |

considerate.

#### 2.8.5. Altri risultati significativi

La presente relazione, oltre ad illustrare in modo esaustivo i dati in ingresso ed i risultati delle analisi in forma tabellare, riporta una serie di immagini:

per i dati in ingresso:

- modello solido della struttura
- configurazioni di carico statiche
- configurazioni di carico sismiche (solo  $\alpha=0+$  e  $\alpha=90+$  per brevità)

per le combinazioni più significative (statisticamente più gravose per la struttura)

- configurazioni deformate
- diagrammi e involuppi delle azioni interne

per la verifica degli elementi

- mappe delle verifiche più significative per lo SLV

### **Informazioni generali sull'elaborazione e giudizio motivato di accettabilità dei risultati.**

Il programma prevede una serie di controlli automatici (check) che consentono l'individuazione di errori di modellazione. Al termine dell'analisi un controllo automatico identifica la presenza di spostamenti o rotazioni abnormi. Si può pertanto asserire che l'elaborazione sia corretta e completa. I risultati delle elaborazioni sono stati sottoposti a controlli che ne comprovano l'attendibilità. Tale valutazione ha compreso il confronto con i risultati di semplici calcoli, eseguiti con metodi tradizionali e adottati, anche in fase di primo proporzionamento della struttura. Inoltre, sulla base di considerazioni riguardanti gli stati tensionali e deformativi determinati, si è valutata la validità delle scelte operate in sede di schematizzazione e di modellazione della struttura e delle azioni.

### **Verifiche agli stati limite ultimi**

Nel capitolo relativo alla progettazione degli elementi strutturali agli SLU vengono indicate, con riferimento alla normativa adottata, le modalità ed i criteri seguiti per valutare la sicurezza della struttura nei confronti delle possibili situazioni di crisi ed i risultati delle valutazioni svolte. In via generale, oltre alle verifiche di resistenza e di spostamento, devono essere prese in considerazione verifiche nei confronti dei fenomeni di instabilità, locale e globale, di fatica, di duttilità, di degrado.

### **Verifiche agli stati limite di esercizio**

Nel capitolo relativo alla progettazione degli elementi strutturali agli SLU vengono indicate, con riferimento alla normativa adottata, le modalità seguite per valutare l'affidabilità della struttura nei confronti delle possibili situazioni di perdita di funzionalità (per eccessive deformazioni, fessurazioni, vibrazioni, etc.) ed i risultati delle valutazioni svolte.

# NORMATIVA DI RIFERIMENTO

D.Min. Infrastrutture Min. Interni e Prot. Civile 14 Gennaio 2008 e allegate [Norme tecniche per le costruzioni]

D.Min. Infrastrutture e trasporti 14 Settembre 2005 e allegate [Norme tecniche per le costruzioni]

D.M. LL.PP. 9 Gennaio 1996 [Norme tecniche per il calcolo, l'esecuzione ed il collaudo delle strutture in cemento armato, normale e precompresso e per le strutture metalliche]

D.M. LL.PP. 16 Gennaio 1996 [Norme tecniche relative ai <<Criteri generali per la verifica di sicurezza delle costruzioni e dei carichi e sovraccarichi>>]

D.M. LL.PP. 16 Gennaio 1996 [Norme tecniche per le costruzioni in zone sismiche]

Circolare 4/07/96, n.156AA.GG./STC. istruzioni per l'applicazione delle [Norme tecniche relative ai <<Criteri generali per la verifica di sicurezza delle costruzioni e dei carichi e sovraccarichi>>] di cui al D.M. 16/01/96.

Circolare 10/04/97, n.65AA.GG. istruzioni per l'applicazione delle [Norme tecniche per le costruzioni in zone sismiche] di cui al D.M. 16/01/96.

D.M. LL.PP. 20 Novembre 1987 [Norme tecniche per la progettazione, esecuzione e collaudo degli edifici in muratura e per il loro consolidamento]

Circolare 4 Gennaio 1989 n. 30787 "Istruzioni in merito alle norme tecniche per la progettazione, esecuzione e collaudo degli edifici in muratura e per il loro consolidamento".

D.M. LL.PP. 11 Marzo 1988 "Norme tecniche riguardanti le indagini sui terreni e sulle rocce, la stabilità dei pendii naturali e delle scarpate, i criteri generali e le prescrizioni per la progettazione, l'esecuzione e il collaudo delle opere di sostegno delle terre e delle opere di fondazione".

D.M. LL.PP. 3 Dicembre 1987 "Norme tecniche per la progettazione, esecuzione e collaudo delle costruzioni prefabbricate".

UNI 9502 - Procedimento analitico per valutare la resistenza al fuoco degli elementi costruttivi di conglomerato cementizio armato, normale e precompresso - edizione maggio 2001

Ordinanza del Presidente del Consiglio dei Ministri n. 3274 del 20 marzo 2003 "Primi elementi in materia di criteri generali per la classificazione sismica del territorio nazionale e di normative tecniche per le costruzioni in zona sismica" e successive modificazioni e integrazioni.

UNI EN 1990:2006 13/04/2006 Eurocodice 0 - Criteri generali di progettazione strutturale.

UNI EN 1991-1-1:2004 01/08/2004 Eurocodice 1 - Azioni sulle strutture - Parte 1-1: Azioni in generale - Pesi per unità di volume, pesi propri e sovraccarichi per gli edifici.

UNI EN 1991-2:2005 01/03/2005 Eurocodice 1 - Azioni sulle strutture - Parte 2: Carichi da traffico sui ponti.

UNI EN 1991-1-3:2004 01/10/2004 Eurocodice 1 - Azioni sulle strutture - Parte 1-3: Azioni in generale - Carichi da neve.

UNI EN 1991-1-4:2005 01/07/2005 Eurocodice 1 - Azioni sulle strutture - Parte 1-4: Azioni in generale - Azioni del vento.

UNI EN 1991-1-5:2004 01/10/2004 Eurocodice 1 - Azioni sulle strutture - Parte 1-5: Azioni in generale - Azioni termiche.

UNI EN 1992-1-1:2005 24/11/2005 Eurocodice 2 - Progettazione delle strutture di calcestruzzo - Parte 1-1: Regole generali e regole per gli edifici.

UNI EN 1992-1-2:2005 01/04/2005 Eurocodice 2 - Progettazione delle strutture di calcestruzzo - Parte 1-2: Regole generali - Progettazione strutturale contro l'incendio.

UNI EN 1993-1-1:2005 01/08/2005 Eurocodice 3 - Progettazione delle strutture di acciaio - Parte 1-1: Regole generali e regole per gli edifici.

UNI EN 1993-1-8:2005 01/08/2005 Eurocodice 3 - Progettazione delle strutture di acciaio - Parte 1-8: Progettazione dei collegamenti.

UNI EN 1994-1-1:2005 01/03/2005 Eurocodice 4 - Progettazione delle strutture composte acciaio-calcestruzzo - Parte 1-1: Regole generali e regole per gli edifici.

UNI EN 1994-2:2006 12/01/2006 Eurocodice 4 - Progettazione delle strutture composte acciaio-calcestruzzo - Parte 2: Regole generali e regole per i ponti.

UNI EN 1995-1-1:2005 01/02/2005 Eurocodice 5 - Progettazione delle strutture di legno - Parte 1-1: Regole generali - Regole comuni e regole per gli edifici.

UNI EN 1995-2:2005 01/01/2005 Eurocodice 5 - Progettazione delle strutture di legno - Parte 2: Ponti.

UNI EN 1996-1-1:2006 26/01/2006 Eurocodice 6 - Progettazione delle strutture di muratura - Parte 1-1: Regole generali per strutture di muratura armata e non armata.

UNI EN 1996-3:2006 09/03/2006 Eurocodice 6 - Progettazione delle strutture di muratura - Parte 3: Metodi di calcolo semplificato per strutture di muratura non armata.

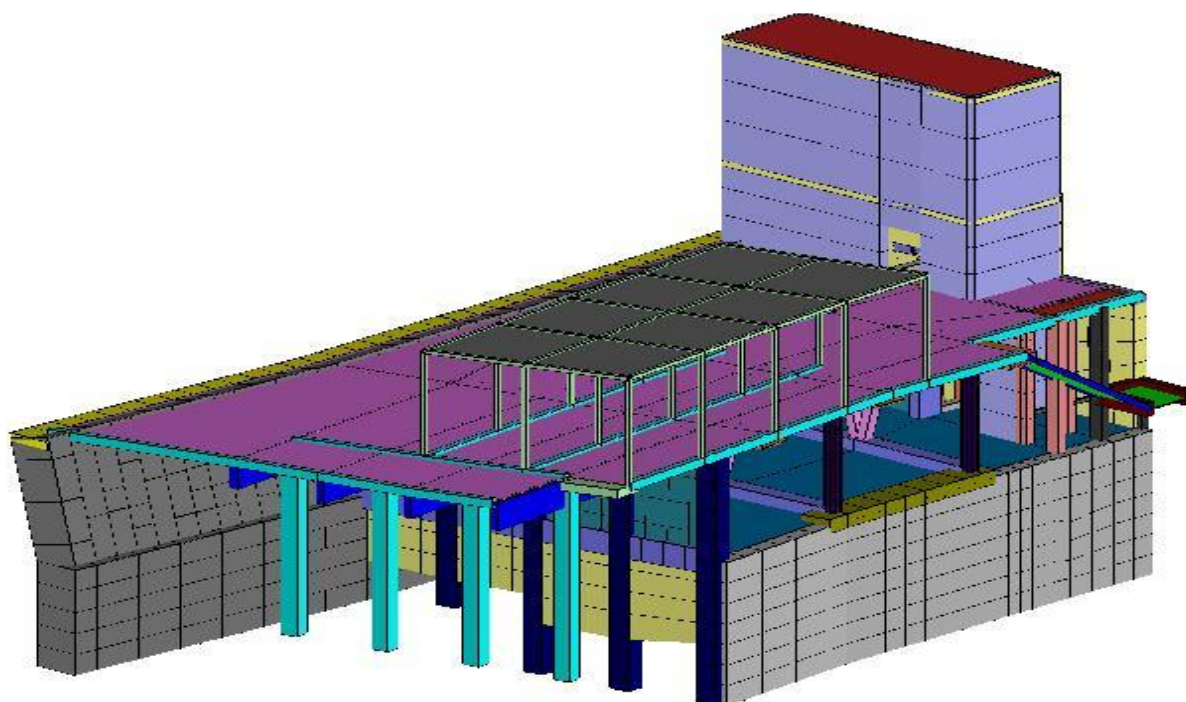
UNI EN 1997-1:2005 01/02/2005 Eurocodice 7 - Progettazione geotecnica - Parte 1: Regole generali.

UNI EN 1998-1:2005 01/03/2005 Eurocodice 8 - Progettazione delle strutture per la resistenza sismica - Parte 1: Regole generali, azioni sismiche e regole per gli edifici.

UNI EN 1998-3:2005 01/08/2005 Eurocodice 8 - Progettazione delle strutture per la resistenza sismica - Parte 3: Valutazione e adeguamento degli edifici.

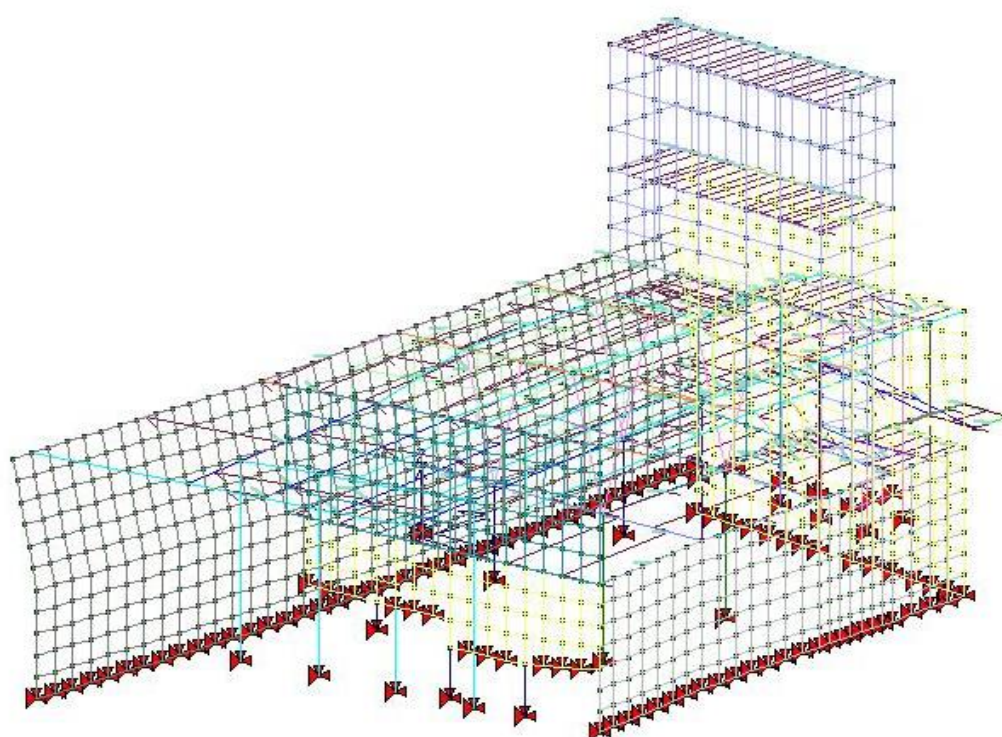
UNI EN 1998-5:2005 01/01/2005 Eurocodice 8 - Progettazione delle strutture per la resistenza sismica - Parte 5: Fondazioni, strutture di contenimento ed aspetti geotecnici.

NOTA sul capitolo [normativa di riferimento] riporta l'elenco delle normative implementate nel software. Le norme utilizzate per la struttura oggetto della presente relazione sono indicate nel precedente capitolo [RELAZIONE DI CALCOLO STRUTTURALE] [ANALISI E VERIFICHE SVOLTE CON L'AUSILIO DI CODICI DI CALCOLO] Laddove nei capitoli successivi vengano richiamate norme antecedenti al DM 14.01.08 è dovuto a una progettazione simulata di edificio esistente o ad applicazione del punto 2.7 del DM 14.01.08



Modello tridimensionale della struttura

---



Modello unifilare della struttura

# CARATTERISTICHE MATERIALI UTILIZZATI

## LEGENDA TABELLA DATI MATERIALI

Il programma consente l'uso di materiali diversi. Sono previsti i seguenti tipi di materiale:

|   |                               |
|---|-------------------------------|
| 1 | materiale tipo cemento armato |
| 2 | materiale tipo acciaio        |
| 3 | materiale tipo muratura       |
| 4 | materiale tipo legno          |
| 5 | materiale tipo generico       |

I materiali utilizzati nella modellazione sono individuati da una sigla identificativa ed un codice numerico (gli elementi strutturali richiamano quest'ultimo nella propria descrizione). Per ogni materiale vengono riportati in tabella i seguenti dati:

|         |                                         |
|---------|-----------------------------------------|
| Young   | modulo di elasticità normale            |
| Poisson | coefficiente di contrazione trasversale |
| G       | modulo di elasticità tangenziale        |
| Gamma   | peso specifico                          |
| Alfa    | coefficiente di dilatazione termica     |

I dati soprariportati vengono utilizzati per la modellazione dello schema statico e per la determinazione dei carichi inerziali e termici. In relazione al tipo di materiale vengono riportati inoltre:

|   |                |                                                                                         |                                                                                                                                                                                                                                                                                                                                                          |
|---|----------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | cemento armato | Rck<br>Fctm                                                                             | resistenza caratteristica cubica<br>resistenza media a trazione semplice                                                                                                                                                                                                                                                                                 |
| 2 | acciaio        | Ft<br>Fy<br>Fd<br>Fdt<br>Sadm<br>Sadmt                                                  | tensione di rottura a trazione<br>tensione di snervamento<br>resistenza di calcolo<br>resistenza di calcolo per spess. t>40 mm<br>tensione ammissibile<br>tensione ammissibile per spess. t>40 mm                                                                                                                                                        |
| 3 | muratura       | Resist. Fk<br>Resist. Fvko                                                              | resistenza caratteristica a compressione<br>resistenza caratteristica a taglio                                                                                                                                                                                                                                                                           |
| 4 | legno          | Resist. fc0k<br>Resist. ft0k<br>Resist. fmk<br>Resist. fvk<br>Modulo E0,05<br>Lamellare | Resistenza caratteristica (tensione amm. per REGLES) per compressione<br>Resistenza caratteristica (tensione amm. per REGLES) per trazione<br>Resistenza caratteristica (tensione amm. per REGLES) per flessione<br>Resistenza caratteristica (tensione amm. per REGLES) per taglio<br>Modulo elastico parallelo caratteristico<br>lamellare o massiccio |

Vengono inoltre riportate le tabelle contenenti il riassunto delle informazioni assegnate nei criteri di progetto in uso.

| Id | Tipo / Note                                         |         | Young     | Poisson | G         | Gamma    | Alfa     |
|----|-----------------------------------------------------|---------|-----------|---------|-----------|----------|----------|
|    |                                                     | daN/cm2 | daN/cm2   |         | daN/cm2   | daN/cm3  |          |
| 1  | Calcestruzzo Classe C25/30                          |         | 3.145e+05 | 0.20    | 1.310e+05 | 2.50e-03 | 1.00e-05 |
|    | Rck                                                 | 300.0   |           |         |           |          |          |
|    | fctm                                                | 25.6    |           |         |           |          |          |
| 2  | Calcestruzzo Classe C20/25                          |         | 3.020e+05 | 0.20    | 1.258e+05 | 2.50e-03 | 1.00e-05 |
|    | Rck                                                 | 250.0   |           |         |           |          |          |
|    | fctm                                                | 22.6    |           |         |           |          |          |
| 10 | acciaio Fe360 - S235                                |         | 2.100e+06 | 0.30    | 8.077e+05 | 7.80e-03 | 1.20e-05 |
|    | ft                                                  | 3600.0  |           |         |           |          |          |
|    | fy                                                  | 2350.0  |           |         |           |          |          |
|    | fd                                                  | 2350.0  |           |         |           |          |          |
|    | fdt                                                 | 2100.0  |           |         |           |          |          |
|    | sadm                                                | 1600.0  |           |         |           |          |          |
|    | sadmt                                               | 1400.0  |           |         |           |          |          |
| 23 | muratura E = 2.200e+04 tufo con malta M2            |         | 2.200e+04 | 0.0     | 8800.0    | 1.90e-03 | 1.00e-05 |
|    | Resist. fk                                          | 22.0    |           |         |           |          |          |
|    | Resist. fvk                                         | 1.0     |           |         |           |          |          |
| 29 | Muratura in pietrame disordinata E = 8700.00        |         | 8700.0    | 0.0     | 2900.0    | 1.90e-03 | 1.00e-05 |
|    | Resist. fk                                          | 10.0    |           |         |           |          |          |
|    | Resist. fvk                                         | 0.2     |           |         |           |          |          |
| 33 | Muratura a blocchi lapidei squadriati E = 2.800e+04 |         | 2.800e+04 | 0.0     | 8600.0    | 2.20e-03 | 1.00e-05 |
|    | Resist. fk                                          | 60.0    |           |         |           |          |          |

| Id | Tipo / Note                  |       | Young     | Poisson | G         | Gamma    | Alfa     |
|----|------------------------------|-------|-----------|---------|-----------|----------|----------|
|    | Resist. fvko                 | 0.9   |           |         |           |          |          |
| 54 | EMACO S 465 MC               |       | 3.000e+05 | 0.20    | 1.500e+05 | 2.50e-03 | 5.00e-05 |
|    | Rck                          | 700.0 |           |         |           |          |          |
|    | fctm                         | 70.0  |           |         |           |          |          |
| 55 | Emaco 475 PG                 |       | 3.000e+05 | 0.20    | 1.500e+05 | 2.50e-03 | 5.00e-05 |
|    | Rck                          | 700.0 |           |         |           |          |          |
|    | fctm                         | 70.0  |           |         |           |          |          |
| 56 | Pannelli copertura pensilina |       | 100.0     | 0.0     | 50.0      | 5.00e-04 | 0.0      |
| 57 | Muratura □locchi calcarei    |       | 2.800e+04 | 0.0     | 8600.0    | 2.20e-03 | 1.00e-05 |
|    | Resist. fk                   | 60.0  |           |         |           |          |          |
|    | Resist. fvko                 | 1.5   |           |         |           |          |          |

| Aste acc.                 | 1/7/.. | 2/8/.. | 3/9/.. | 4/10/.. | 5/11/.. | 6/12/.. |
|---------------------------|--------|--------|--------|---------|---------|---------|
| <b>Generalità</b>         |        |        |        |         |         |         |
| □eta assegnato            | 0.80   |        |        |         |         |         |
| Verifica come controvento | No     |        |        |         |         |         |
| Usa condizioni I e II     | Si     |        |        |         |         |         |
| Coefficiente gamma M0     | 1.05   |        |        |         |         |         |
| Coefficiente gamma M1     | 1.05   |        |        |         |         |         |
| Coefficiente gamma M2     | 1.25   |        |        |         |         |         |

| Pilastrì acc.                 | 1/7/..    | 2/8/.. | 3/9/.. | 4/10/.. | 5/11/.. | 6/12/.. |
|-------------------------------|-----------|--------|--------|---------|---------|---------|
| <b>Lunghezze libere</b>       |           |        |        |         |         |         |
| Metodo di calcolo 2-2         | Assegnato |        |        |         |         |         |
| 2-2 □eta assegnato            | 2.00      |        |        |         |         |         |
| 2-2 □eta * L assegnato [ cm ] | 0.0       |        |        |         |         |         |
| Metodo di calcolo 3-3         | Assegnato |        |        |         |         |         |
| 3-3 □eta assegnato            | 2.00      |        |        |         |         |         |
| 3-3 □eta * L assegnato [ cm ] | 0.0       |        |        |         |         |         |
| 1-1 □eta assegnato            | 1.00      |        |        |         |         |         |
| 1-1 □eta * L assegnato [ cm ] | 0.0       |        |        |         |         |         |
| <b>Generalità</b>             |           |        |        |         |         |         |
| Coefficiente gamma M0         | 1.05      |        |        |         |         |         |
| Coefficiente gamma M1         | 1.05      |        |        |         |         |         |
| Coefficiente gamma M2         | 1.25      |        |        |         |         |         |
| Effetti del 2 ordine          | Si        |        |        |         |         |         |
| Momenti equivalenti           | Si        |        |        |         |         |         |
| Usa condizioni I e II         | Si        |        |        |         |         |         |

| Pareti c.a.                      | 1/7/..                      | 2/8/.. | 3/9/.. | 4/10/.. | 5/11/.. | 6/12/.. |
|----------------------------------|-----------------------------|--------|--------|---------|---------|---------|
| <b>Generalità</b>                |                             |        |        |         |         |         |
| Progetto armatura                | Composto con parete sismica |        |        |         |         |         |
| <b>Armatura</b>                  |                             |        |        |         |         |         |
| Inclinazione Av [ gradi ]        | 90.00                       |        |        |         |         |         |
| Angolo Av-Ao [ gradi ]           | 90.00                       |        |        |         |         |         |
| Minima tesa                      | 0.25                        |        |        |         |         |         |
| Massima tesa                     | 4.00                        |        |        |         |         |         |
| Maglia unica centrale            | No                          |        |        |         |         |         |
| Unico strato verticale           | No                          |        |        |         |         |         |
| Unico strato orizzontale         | No                          |        |        |         |         |         |
| Copriferro [ cm ]                | 2.00                        |        |        |         |         |         |
| <b>Maglia V</b>                  |                             |        |        |         |         |         |
| diametro                         | 10                          |        |        |         |         |         |
| passo                            | 25                          |        |        |         |         |         |
| diametro aggiuntivi              | 12                          |        |        |         |         |         |
| <b>Maglia O</b>                  |                             |        |        |         |         |         |
| diametro                         | 8                           |        |        |         |         |         |
| passo                            | 25                          |        |        |         |         |         |
| diametro aggiuntivi              | 8                           |        |        |         |         |         |
| <b>Stati limite ultimi</b>       |                             |        |        |         |         |         |
| Tensione fy [daN/cm2 ]           | 4500.00                     |        |        |         |         |         |
| Tipo acciaio                     | tipo C                      |        |        |         |         |         |
| Coefficiente gamma s             | 1.15                        |        |        |         |         |         |
| Coefficiente gamma c             | 1.50                        |        |        |         |         |         |
| Fattore di confidenza FC         | 0.0                         |        |        |         |         |         |
| Verifiche con N costante         | Si                          |        |        |         |         |         |
| <b>Tensioni ammissibili</b>      |                             |        |        |         |         |         |
| Tensione amm. cls [daN/cm2 ]     | 97.50                       |        |        |         |         |         |
| Tensione amm. acciaio [daN/cm2 ] | 2600.00                     |        |        |         |         |         |

| <b>Pareti c.a.</b>                   | <b>1/7/..</b> | <b>2/8/..</b> | <b>3/9/..</b> | <b>4/10/..</b> | <b>5/11/..</b> | <b>6/12/..</b> |
|--------------------------------------|---------------|---------------|---------------|----------------|----------------|----------------|
| Rapporto omogeneizzazione N          | 15.00         |               |               |                |                |                |
| Massimo rapporto area compressa/tesa | 1.00          |               |               |                |                |                |
| <b>Parete sismica</b>                |               |               |               |                |                |                |
| Fattore amplificazione taglio V      | 1.50          |               |               |                |                |                |
| Hcrit. par. 7.4.4.5.1 [ cm ]         | 0.0           |               |               |                |                |                |
| Hcrit. par. 7.4.6.1.4 [ cm ]         | 0.0           |               |               |                |                |                |
| Usa diagramma di fig. 7.4.2          | Si            |               |               |                |                |                |
| Vincolo lati                         | nessun lato   |               |               |                |                |                |
| Verifica come fascia                 | No            |               |               |                |                |                |
| Diametro di estremità                | 0             |               |               |                |                |                |
| <b>Zona confinata</b>                |               |               |               |                |                |                |
| Minima tesa                          | 1.00          |               |               |                |                |                |
| Massima tesa                         | 4.00          |               |               |                |                |                |
| Distanza barre [ cm ]                | 2.00          |               |               |                |                |                |
| Interferro                           | 2             |               |               |                |                |                |
| <b>Armatura inclinata</b>            |               |               |               |                |                |                |
| Area barre [ cm2 ]                   | 0.0           |               |               |                |                |                |
| Angolo orizzontale [ gradi ]         | 0.0           |               |               |                |                |                |
| Distanza di base [ cm ]              | 0.0           |               |               |                |                |                |
| <b>Resistenza al fuoco</b>           |               |               |               |                |                |                |
| 3- intradosso                        | No            |               |               |                |                |                |
| 3+ estradosso                        | No            |               |               |                |                |                |
| Tempo di esposizione R               | 15            |               |               |                |                |                |

| <b>Gusci c.a.</b>                    | <b>1/7/..</b> | <b>2/8/..</b> | <b>3/9/..</b> | <b>4/10/..</b> | <b>5/11/..</b> | <b>6/12/..</b> |
|--------------------------------------|---------------|---------------|---------------|----------------|----------------|----------------|
| <b>Armatura</b>                      |               |               |               |                |                |                |
| Inclinazione Ax [ gradi ]            | 0.0           |               |               |                |                |                |
| Angolo Ax-Ay [ gradi ]               | 90.00         |               |               |                |                |                |
| Minima tesa                          | 0.31          |               |               |                |                |                |
| Massima tesa                         | 0.78          |               |               |                |                |                |
| Maglia unica centrale                | No            |               |               |                |                |                |
| Copriferro [ cm ]                    | 2.00          |               |               |                |                |                |
| <b>Maglia x</b>                      |               |               |               |                |                |                |
| diametro                             | 10            |               |               |                |                |                |
| passo                                | 20            |               |               |                |                |                |
| diametro aggiuntivi                  | 12            |               |               |                |                |                |
| <b>Maglia y</b>                      |               |               |               |                |                |                |
| diametro                             | 10            |               |               |                |                |                |
| passo                                | 20            |               |               |                |                |                |
| diametro aggiuntivi                  | 12            |               |               |                |                |                |
| <b>Stati limite ultimi</b>           |               |               |               |                |                |                |
| Tensione fy [daN/cm2 ]               | 4500.00       |               |               |                |                |                |
| Tipo acciaio                         | tipo C        |               |               |                |                |                |
| Coefficiente gamma s                 | 1.15          |               |               |                |                |                |
| Coefficiente gamma c                 | 1.50          |               |               |                |                |                |
| Fattore di confidenza FC             | 0.0           |               |               |                |                |                |
| Verifiche con N costante             | Si            |               |               |                |                |                |
| Applica SLU da DIN                   | No            |               |               |                |                |                |
| <b>Tensioni ammissibili</b>          |               |               |               |                |                |                |
| Tensione amm. cls [daN/cm2 ]         | 97.50         |               |               |                |                |                |
| Tensione amm. acciaio [daN/cm2 ]     | 2600.00       |               |               |                |                |                |
| Rapporto omogeneizzazione N          | 15.00         |               |               |                |                |                |
| Massimo rapporto area compressa/tesa | 1.00          |               |               |                |                |                |
| <b>Resistenza al fuoco</b>           |               |               |               |                |                |                |
| 3- intradosso                        | No            |               |               |                |                |                |
| 3+ estradosso                        | No            |               |               |                |                |                |
| Tempo di esposizione R               | 15            |               |               |                |                |                |

| <b>Travi c.a.</b>             | <b>1/7/..</b> | <b>2/8/..</b> | <b>3/9/..</b> | <b>4/10/..</b> | <b>5/11/..</b> | <b>6/12/..</b> |
|-------------------------------|---------------|---------------|---------------|----------------|----------------|----------------|
| <b>Generalità</b>             |               |               |               |                |                |                |
| Progetta a filo               | No            |               |               |                |                |                |
| Af inf: da q*L*L /            | 0.0           |               |               |                |                |                |
| <b>Armatura</b>               |               |               |               |                |                |                |
| Minima tesa                   | 0.31          |               |               |                |                |                |
| Minima compressa              | 0.31          |               |               |                |                |                |
| Massima tesa                  | 0.78          |               |               |                |                |                |
| Da sezione                    | Si            |               |               |                |                |                |
| Usa armatura teorica          | No            |               |               |                |                |                |
| <b>Stati limite ultimi</b>    |               |               |               |                |                |                |
| Tensione fy [daN/cm2 ]        | 4500.00       |               |               |                |                |                |
| Tensione fy staffe [daN/cm2 ] | 4500.00       |               |               |                |                |                |

| Travi c.a.                           | 1/7/..    | 2/8/.. | 3/9/.. | 4/10/.. | 5/11/.. | 6/12/.. |
|--------------------------------------|-----------|--------|--------|---------|---------|---------|
| Tipo acciaio                         | tipo C    |        |        |         |         |         |
| Coefficiente gamma s                 | 1.15      |        |        |         |         |         |
| Coefficiente gamma c                 | 1.50      |        |        |         |         |         |
| Fattore di confidenza FC             | 1.00      |        |        |         |         |         |
| Verifiche con N costante             | Si        |        |        |         |         |         |
| Fattore di ridistribuzione           | 0.0       |        |        |         |         |         |
| <b>Modello per il confinamento</b>   |           |        |        |         |         |         |
| Relazione tensio-deformativa         | Mander    |        |        |         |         |         |
| Incrudimento acciaio                 | 5.000e-03 |        |        |         |         |         |
| Fattore lambda                       | 1.00      |        |        |         |         |         |
| epsilon max,s                        | 4.000e-02 |        |        |         |         |         |
| epsilon cu2                          | 4.500e-03 |        |        |         |         |         |
| epsilon c2                           | 0.0       |        |        |         |         |         |
| epsilon cy                           | 0.0       |        |        |         |         |         |
| <b>Tensioni ammissibili</b>          |           |        |        |         |         |         |
| Tensione amm. cls [daN/cm2 ]         | 700.00    |        |        |         |         |         |
| Tensione amm. acciaio [daN/cm2 ]     | 2600.00   |        |        |         |         |         |
| Rapporto omogeneizzazione N          | 15.00     |        |        |         |         |         |
| Massimo rapporto area compressa/tesa | 1.00      |        |        |         |         |         |
| <b>Staffe</b>                        |           |        |        |         |         |         |
| Diametro staffe                      | 0.0       |        |        |         |         |         |
| Passo minimo [ cm ]                  | 4.00      |        |        |         |         |         |
| Passo massimo [ cm ]                 | 30.00     |        |        |         |         |         |
| Passo raffittito [ cm ]              | 15.00     |        |        |         |         |         |
| Lunghezza zona raffittita [ cm ]     | 50.00     |        |        |         |         |         |
| Ctg(Teta) Max                        | 2.50      |        |        |         |         |         |
| Percentuale sagomati                 | 0.0       |        |        |         |         |         |
| Luce di taglio per GR [ cm ]         | 0.0       |        |        |         |         |         |
| Adotta scorrimento medio             | No        |        |        |         |         |         |
| Torsione non essenziale inclusa      | No        |        |        |         |         |         |

| Pilastri c.a.                      | 1/7/..          | 2/8/.. | 3/9/.. | 4/10/.. | 5/11/.. | 6/12/.. |
|------------------------------------|-----------------|--------|--------|---------|---------|---------|
| <b>Generalità</b>                  |                 |        |        |         |         |         |
| Progetto armatura                  | Privilegia lati |        |        |         |         |         |
| Progetta a filo                    | No              |        |        |         |         |         |
| Effetti del 2 ordine               | Si              |        |        |         |         |         |
| eta per 2-2                        | 1.00            |        |        |         |         |         |
| eta per 3-3                        | 1.00            |        |        |         |         |         |
| <b>Armatura</b>                    |                 |        |        |         |         |         |
| Massima tesa                       | 4.00            |        |        |         |         |         |
| Minima tesa                        | 1.00            |        |        |         |         |         |
| <b>Stati limite ultimi</b>         |                 |        |        |         |         |         |
| Tensione fy [daN/cm2 ]             | 4500.00         |        |        |         |         |         |
| Tensione fy staffe [daN/cm2 ]      | 4500.00         |        |        |         |         |         |
| Tipo acciaio                       | tipo C          |        |        |         |         |         |
| Coefficiente gamma s               | 1.15            |        |        |         |         |         |
| Coefficiente gamma c               | 1.50            |        |        |         |         |         |
| Fattore di confidenza FC           | 1.00            |        |        |         |         |         |
| Verifiche con N costante           | Si              |        |        |         |         |         |
| <b>Modello per il confinamento</b> |                 |        |        |         |         |         |
| Relazione tensio-deformativa       | Mander          |        |        |         |         |         |
| Incrudimento acciaio               | 5.000e-03       |        |        |         |         |         |
| Fattore lambda                     | 1.00            |        |        |         |         |         |
| epsilon max,s                      | 4.000e-02       |        |        |         |         |         |
| epsilon cu2                        | 4.500e-03       |        |        |         |         |         |
| epsilon c2                         | 0.0             |        |        |         |         |         |
| epsilon cy                         | 0.0             |        |        |         |         |         |
| <b>Tensioni ammissibili</b>        |                 |        |        |         |         |         |
| Tensione amm. cls [daN/cm2 ]       | 700.00          |        |        |         |         |         |
| Tensione amm. acciaio [daN/cm2 ]   | 2600.00         |        |        |         |         |         |
| Rapporto omogeneizzazione N        | 15.00           |        |        |         |         |         |
| <b>Staffe</b>                      |                 |        |        |         |         |         |
| Diametro staffe                    | 0.0             |        |        |         |         |         |
| Passo minimo [ cm ]                | 5.00            |        |        |         |         |         |
| Passo massimo [ cm ]               | 25.00           |        |        |         |         |         |
| Passo raffittito [ cm ]            | 15.00           |        |        |         |         |         |
| Lunghezza zona raffittita [ cm ]   | 45.00           |        |        |         |         |         |
| Ctg(Teta) Max                      | 2.50            |        |        |         |         |         |
| Luce di taglio per GR [ cm ]       | 0.0             |        |        |         |         |         |
| Massimizza gerarchia               | No              |        |        |         |         |         |

| <b>Muratura</b>              | <b>1/7/..</b> | <b>2/8/..</b> | <b>3/9/..</b> | <b>4/10/..</b> | <b>5/11/..</b> | <b>6/12/..</b> |
|------------------------------|---------------|---------------|---------------|----------------|----------------|----------------|
| <b>Lunghezze libere</b>      |               |               |               |                |                |                |
| Altezza interpiano [ cm ]    | 0.0           |               |               |                |                |                |
| Rho                          | 0.85          |               |               |                |                |                |
| Snellezza limite             | 0.0           |               |               |                |                |                |
| <b>Generalità</b>            |               |               |               |                |                |                |
| Gamma non sismico            | 3.00          |               |               |                |                |                |
| Gamma sismico                | 2.00          |               |               |                |                |                |
| Fattore di confidenza FC     | 1.00          |               |               |                |                |                |
| Tolleranza azioni [daN/cm2 ] | 1.000e-05     |               |               |                |                |                |
| Media valori per quota       | Si            |               |               |                |                |                |
| Media valori per elemento    | Si            |               |               |                |                |                |
| Verifica come fascia         | No            |               |               |                |                |                |
| Usa formula [7.8.3]          | Si            |               |               |                |                |                |

# MODELLAZIONE DELLE SEZIONI

## LEGENDA TABELLA DATI SEZIONI

Il programma consente l'uso di sezioni diverse. Sono previsti i seguenti tipi di sezione:

- 1 sezione di tipo generico
- 2 profilati semplici
- 3 profilati accoppiati e speciali

Le sezioni utilizzate nella modellazione sono individuate da una sigla identificativa ed un codice numerico (gli elementi strutturali richiamano quest'ultimo nella propria descrizione). Per ogni sezione vengono riportati in tabella i seguenti dati:

|       |                                                                     |
|-------|---------------------------------------------------------------------|
| Area  | area della sezione                                                  |
| A V2  | area della sezione/fattore di taglio (per il taglio in direzione 2) |
| A V3  | area della sezione/fattore di taglio (per il taglio in direzione 3) |
| Jt    | fattore torsionale di rigidezza                                     |
| J2-2  | momento d'inerzia della sezione riferito all'asse 2                 |
| J3-3  | momento d'inerzia della sezione riferito all'asse 3                 |
| W2-2  | modulo di resistenza della sezione riferito all'asse 2              |
| W3-3  | modulo di resistenza della sezione riferito all'asse 3              |
| Wp2-2 | modulo di resistenza plastico della sezione riferito all'asse 2     |
| Wp3-3 | modulo di resistenza plastico della sezione riferito all'asse 3     |

I dati sopra riportati vengono utilizzati per la determinazione dei carichi inerziali e per la definizione delle rigidezze degli elementi strutturali; qualora il valore di Area V2 (e/o Area V3) sia nullo la deformabilità per taglio V2 (e/o V3) è trascurata. La valutazione delle caratteristiche inerziali delle sezioni è condotta nel riferimento 2-3 dell'elemento.

|                         |              |              |              |                      |                |
|-------------------------|--------------|--------------|--------------|----------------------|----------------|
|                         |              |              |              |                      |                |
| rettangolare            | a T          | a T rovescia | a T di colmo | a L                  | a L specchiata |
|                         |              |              |              |                      |                |
| a L specchiata rovescia | a L rovescia | a L di colmo | a doppio T   | a quattro specchiata | a quattro      |
|                         |              |              |              |                      |                |
| a U                     | a C          | a croce      | circolare    | rettangolare cava    | circolare cava |

| Id | Tipo                                                  | Area    | A V2    | A V3    | Jt        | J 2-2     | J 3-3     | W 2-2     | W 3-3     | Wp 2-2    | Wp 3-3    |
|----|-------------------------------------------------------|---------|---------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|    |                                                       | cm2     | cm2     | cm2     | cm4       | cm4       | cm4       | cm3       | cm3       | cm3       | cm3       |
| 1  | Pilastri q 40x40                                      | 1600.00 | 1333.33 | 1333.33 | 3.599e+05 | 2.133e+05 | 2.133e+05 | 1.067e+04 | 1.067e+04 | 1.600e+04 | 1.600e+04 |
| 4  | Trave r100x30                                         | 3000.00 | 2500.00 | 2500.00 | 7.299e+05 | 2.500e+06 | 2.250e+05 | 5.000e+04 | 1.500e+04 | 7.500e+04 | 2.250e+04 |
| 13 | T ribassata: bi=12.00<br>ht=24.00 bs=50.00<br>hs=4.00 | 440.00  | 0.0     | 0.0     | 1.048e+04 | 4.455e+04 | 2.398e+04 | 1781.87   | 1551.37   | 2138.24   | 1861.65   |
| 29 | Rettangolare: b=50 h=50                               | 2500.00 | 2083.33 | 2083.33 | 8.785e+05 | 5.208e+05 | 5.208e+05 | 2.083e+04 | 2.083e+04 | 3.125e+04 | 3.125e+04 |
| 32 | Rettangolare: b=30 h=20                               | 600.00  | 500.00  | 500.00  | 4.697e+04 | 4.500e+04 | 2.000e+04 | 3000.00   | 2000.00   | 4500.00   | 3000.00   |
| 34 | Rettangolare: b=60 h=30                               | 1800.00 | 1500.00 | 1500.00 | 3.699e+05 | 5.400e+05 | 1.350e+05 | 1.800e+04 | 9000.00   | 2.700e+04 | 1.350e+04 |
| 35 | Rettangolare: b=20 h=40                               | 800.00  | 666.67  | 666.67  | 7.307e+04 | 2.667e+04 | 1.067e+05 | 2666.67   | 5333.33   | 4000.00   | 8000.00   |
| 37 | Rettangolare 25x100                                   | 2500.00 | 2083.33 | 2083.33 | 4.388e+05 | 1.302e+05 | 2.083e+06 | 1.042e+04 | 4.167e+04 | 1.563e+04 | 6.250e+04 |
| 38 | Rettangolare 50x30                                    | 1500.00 | 1250.00 | 1250.00 | 2.799e+05 | 3.125e+05 | 1.125e+05 | 1.250e+04 | 7500.00   | 1.875e+04 | 1.125e+04 |
| 39 | Rettangolare 20x30                                    | 600.00  | 500.00  | 500.00  | 4.640e+04 | 2.000e+04 | 4.500e+04 | 2000.00   | 3000.00   | 3000.00   | 4500.00   |
| 40 | Trave 30x50                                           | 1500.00 | 1250.00 | 1250.00 | 2.799e+05 | 1.125e+05 | 3.125e+05 | 7500.00   | 1.250e+04 | 1.125e+04 | 1.875e+04 |
| 41 | T ribassata: bi=12 ht=30<br>bs=50 hs=5                | 550.00  | 0.0     | 0.0     | 1.488e+04 | 5.568e+04 | 4.683e+04 | 2227.33   | 2424.02   | 4025.00   | 4322.92   |
| 42 | Cordolo su muratura                                   | 5000.00 | 4166.67 | 4166.67 | 2.854e+06 | 4.167e+06 | 1.042e+06 | 8.333e+04 | 4.167e+04 | 1.250e+05 | 6.250e+04 |
| 43 | Cava 55x65                                            | 1775.00 | 0.0     | 0.0     | 1.130e+06 | 6.612e+05 | 9.549e+05 | 2.404e+04 | 2.938e+04 | 3.116e+04 | 3.784e+04 |
| 44 | Cava 60x65                                            | 1900.00 | 0.0     | 0.0     | 1.331e+06 | 9.033e+05 | 9.565e+05 | 3.011e+04 | 2.943e+04 | 3.850e+04 | 3.838e+04 |
| 46 | Circolare Cava fi50                                   | 1256.64 | 0.0     | 0.0     | 5.341e+05 | 2.670e+05 | 2.670e+05 | 1.068e+04 | 1.068e+04 | 1.633e+04 | 1.633e+04 |
| 47 | Rett 30x40                                            | 1200.00 | 1000.00 | 1000.00 | 1.946e+05 | 9.000e+04 | 1.600e+05 | 6000.00   | 8000.00   | 9000.00   | 1.200e+04 |
| 48 | Cava 30x40                                            | 600.00  | 0.0     | 0.0     | 1.276e+05 | 7.000e+04 | 1.150e+05 | 4666.67   | 5750.00   | 6000.00   | 7500.00   |

| Id | Tipo                            | Area    | A V2    | A V3    | Jt        | J 2-2     | J 3-3     | W 2-2     | W 3-3     | Wp 2-2    | Wp 3-3    |
|----|---------------------------------|---------|---------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 49 | UAP 175                         | 27.12   | 0.0     | 0.0     | 8.03      | 125.99    | 1273.10   | 25.86     | 145.49    | 47.47     | 171.97    |
| 50 | Cordolo 30x20                   | 600.00  | 500.00  | 500.00  | 4.640e+04 | 4.500e+04 | 2.000e+04 | 3000.00   | 2000.00   | 4500.00   | 3000.00   |
| 51 | T.QU 120x120x5<br>Pensilina     | 22.36   | 0.0     | 0.0     | 778.50    | 485.47    | 485.47    | 80.91     | 80.91     | 95.45     | 95.45     |
| 52 | Cordolo estremo solaio<br>20x30 | 600.00  | 500.00  | 500.00  | 4.640e+04 | 2.000e+04 | 4.500e+04 | 2000.00   | 3000.00   | 3000.00   | 4500.00   |
| 53 | Cava 50x85 per travi            | 1050.00 | 0.0     | 0.0     | 7.990e+05 | 4.588e+05 | 8.522e+05 | 1.835e+04 | 2.005e+04 | 2.113e+04 | 2.631e+04 |
| 54 | Cava 30x30 per pilastro         | 500.00  | 0.0     | 0.0     | 7.813e+04 | 5.417e+04 | 5.417e+04 | 3611.11   | 3611.11   | 4750.00   | 4750.00   |
| 55 | Cava 85x35 per pilastro         | 1100.00 | 0.0     | 0.0     | 5.236e+05 | 9.123e+05 | 2.060e+05 | 2.147e+04 | 1.177e+04 | 2.806e+04 | 1.431e+04 |
| 56 | Cava 30x50 per pilastro         | 700.00  | 0.0     | 0.0     | 1.808e+05 | 8.583e+04 | 2.058e+05 | 5722.22   | 8233.33   | 7250.00   | 1.075e+04 |
| 58 | Cava 110x40                     | 1400.00 | 0.0     | 0.0     | 9.647e+05 | 1.937e+06 | 3.617e+05 | 3.521e+04 | 1.808e+04 | 4.600e+04 | 2.150e+04 |
| 59 | Cordolo 150x30                  | 4500.00 | 3750.00 | 3750.00 | 1.180e+06 | 8.438e+06 | 3.375e+05 | 1.125e+05 | 2.250e+04 | 1.688e+05 | 3.375e+04 |
| 60 | Cava 30x55 per travi            | 650.00  | 0.0     | 0.0     | 1.681e+05 | 9.042e+04 | 2.076e+05 | 6027.78   | 7549.24   | 7375.00   | 1.019e+04 |

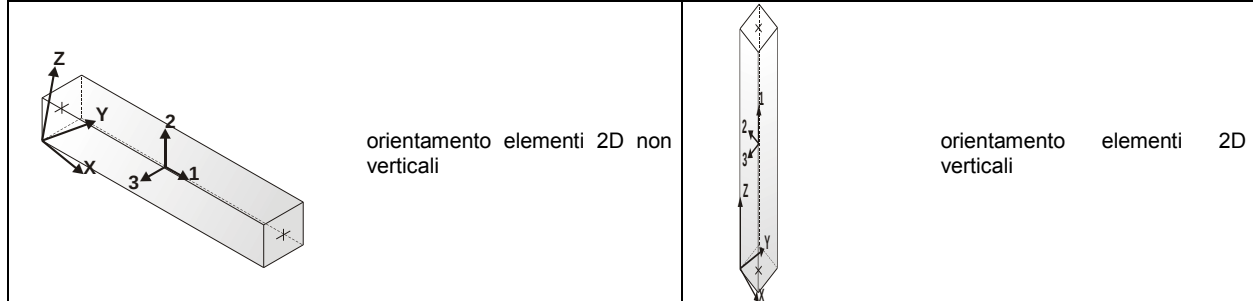
# MODELLAZIONE STRUTTURALE: ELEMENTI TRAVE

## TABELLA DATI TRAVI

Il programma utilizza per la modellazione elementi a due nodi denominati in generale travi.

Ogni elemento trave è individuato dal nodo iniziale e dal nodo finale.

Ogni elemento è caratterizzato da un insieme di proprietà riportate in tabella che ne completano la modellazione.



In particolare per ogni elemento viene indicato in tabella:

|                |                                                                                                                                                                                                                                                                                                                                                                   |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Elem.          | numero dell'elemento                                                                                                                                                                                                                                                                                                                                              |
| Note           | codice di comportamento: trave, trave di fondazione, pilastro, asta, asta tesa, asta compressa,                                                                                                                                                                                                                                                                   |
| Nodo I (□)     | numero del nodo iniziale (finale)                                                                                                                                                                                                                                                                                                                                 |
| Mat.           | codice del materiale assegnato all'elemento                                                                                                                                                                                                                                                                                                                       |
| Sez.           | codice della sezione assegnata all'elemento                                                                                                                                                                                                                                                                                                                       |
| Rotaz.         | valore della rotazione dell'elemento, attorno al proprio asse, nel caso in cui l'orientamento di default non sia adottabile; l'orientamento di default prevede per gli elementi non verticali l'asse 2 contenuto nel piano verticale e l'asse 3 orizzontale, per gli elementi verticali l'asse 2 diretto secondo X negativo e l'asse 3 diretto secondo Y negativo |
| Svincolo I (□) | codici di svincolo per le azioni interne; i primi sei codici si riferiscono al nodo iniziale, i restanti sei al nodo finale (il valore 1 indica che la relativa azione interna non è attiva)                                                                                                                                                                      |
| Wink V         | costante di sottofondo (coefficiente di Winkler) per la modellazione della trave su suolo elastico                                                                                                                                                                                                                                                                |
| Wink O         | costante di sottofondo (coefficiente di Winkler) per la modellazione del suolo elastico orizzontale                                                                                                                                                                                                                                                               |

| Elem. | Note   | Nodo I | Nodo J | Mat. | Sez. | Rotaz.<br>gradi | Svincolo I | Svincolo J | Wink V<br>daN/cm3 | Wink O<br>daN/cm3 |
|-------|--------|--------|--------|------|------|-----------------|------------|------------|-------------------|-------------------|
| 1     | Trave  | 37     | 19     | 55   | 54   |                 |            |            |                   |                   |
| 2     | Trave  | 23     | 39     | 55   | 54   |                 |            |            |                   |                   |
| 3     | Trave  | 40     | 23     | 55   | 54   |                 |            |            |                   |                   |
| 4     | Trave  | 19     | 38     | 55   | 54   |                 |            |            |                   |                   |
| 5     | Trave  | 24     | 43     | 55   | 54   |                 |            |            |                   |                   |
| 6     | Trave  | 44     | 24     | 55   | 54   |                 |            |            |                   |                   |
| 7     | Trave  | 41     | 18     | 55   | 54   |                 |            |            |                   |                   |
| 8     | Trave  | 18     | 42     | 55   | 54   |                 |            |            |                   |                   |
| 9     | Trave  | 394    | 336    | 2    | 42   |                 |            |            |                   |                   |
| 10    | Trave  | 297    | 296    | 55   | 56   | -180.00         |            |            |                   |                   |
| 11    | Pilas. | 2      | 3      | 55   | 48   | 1.71            |            |            |                   |                   |
| 12    | Pilas. | 4      | 5      | 55   | 48   | 1.71            |            |            |                   |                   |
| 13    | Pilas. | 680    | 679    | 1    | 47   |                 |            |            |                   |                   |
| 14    | Pilas. | 681    | 680    | 1    | 47   |                 |            |            |                   |                   |
| 15    | Pilas. | 10     | 294    | 55   | 55   |                 |            |            |                   |                   |
| 16    | Trave  | 5      | 308    | 55   | 60   |                 |            |            |                   |                   |
| 17    | Pilas. | 62     | 23     | 54   | 43   | 4.58            |            |            |                   |                   |
| 18    | Pilas. | 52     | 1019   | 54   | 43   | 7.97            |            |            |                   |                   |
| 19    | Trave  | 83     | 248    | 1    | 38   |                 |            |            |                   |                   |
| 20    | Trave  | 7      | 9      | 55   | 60   |                 |            |            |                   |                   |
| 21    | Trave  | 3      | 5      | 55   | 60   |                 |            |            |                   |                   |
| 22    | Trave  | 386    | 41     | 55   | 58   |                 |            |            |                   |                   |
| 23    | Trave  | 37     | 38     | 55   | 58   |                 |            |            |                   |                   |
| 24    | Trave  | 38     | 40     | 55   | 58   |                 |            |            |                   |                   |
| 25    | Trave  | 838    | 776    | 2    | 52   |                 |            |            |                   |                   |
| 26    | Pilas. | 63     | 19     | 54   | 44   | 4.58            |            |            |                   |                   |
| 27    | Trave  | 398    | 21     | 55   | 56   | -180.00         |            |            |                   |                   |
| 28    | Trave  | 21     | 1140   | 55   | 56   | -180.00         |            |            |                   |                   |
| 29    | Pilas. | 21     | 303    | 1    | 34   |                 |            |            |                   |                   |
| 30    | Trave  | 41     | 42     | 55   | 58   |                 |            |            |                   |                   |
| 31    | Trave  | 42     | 44     | 55   | 58   |                 |            |            |                   |                   |
| 32    | Trave  | 44     | 43     | 55   | 58   |                 |            |            |                   |                   |
| 33    | Trave  | 43     | 45     | 55   | 58   |                 |            |            |                   |                   |

| Elem. | Note   | Nodo I | Nodo J | Mat. | Sez. | Rotaz.  | Svincolo I | Svincolo J | Wink V | Wink O |
|-------|--------|--------|--------|------|------|---------|------------|------------|--------|--------|
| 34    | Trave  | 45     | 46     | 55   | 58   |         |            |            |        |        |
| 35    | Trave  | 39     | 26     | 55   | 58   |         |            |            |        |        |
| 36    | Pilas. | 48     | 47     | 54   | 46   |         |            |            |        |        |
| 37    | Pilas. | 50     | 45     | 54   | 46   |         |            |            |        |        |
| 38    | Trave  | 47     | 51     | 55   | 58   |         |            |            |        |        |
| 39    | Trave  | 28     | 1217   | 55   | 53   |         |            |            |        |        |
| 40    | Pilas. | 1020   | 983    | 54   | 43   | 7.97    |            |            |        |        |
| 41    | Trave  | 53     | 1205   | 55   | 53   |         |            |            |        |        |
| 42    | Trave  | 30     | 1193   | 55   | 53   |         |            |            |        |        |
| 43    | Pilas. | 30     | 1245   | 54   | 43   | 7.97    |            |            |        |        |
| 44    | Pilas. | 28     | 1285   | 54   | 43   | 7.97    |            |            |        |        |
| 45    | Pilas. | 53     | 1264   | 54   | 43   | 7.97    |            |            |        |        |
| 46    | Pilas. | 17     | 1303   | 54   | 43   | 7.97    |            |            |        |        |
| 47    | Trave  | 54     | 1253   | 55   | 58   |         |            |            |        |        |
| 48    | Trave  | 56     | 1269   | 55   | 58   |         |            |            |        |        |
| 49    | Trave  | 55     | 1287   | 55   | 58   |         |            |            |        |        |
| 50    | Trave  | 57     | 58     | 55   | 58   |         |            |            |        |        |
| 51    | Pilas. | 14     | 66     | 1    | 29   | 11.61   |            |            |        |        |
| 52    | Trave  | 398    | 9      | 55   | 56   |         |            |            |        |        |
| 53    | Trave  | 379    | 37     | 55   | 58   |         |            |            |        |        |
| 54    | Pilas. | 27     | 857    | 54   | 43   | 7.97    |            |            |        |        |
| 55    | Pilas. | 64     | 24     | 54   | 43   | 0.29    |            |            |        |        |
| 56    | Pilas. | 65     | 18     | 54   | 44   | 0.29    |            |            |        |        |
| 57    | Pilas. | 35     | 67     | 1    | 29   | 11.61   |            |            |        |        |
| 58    | Pilas. | 33     | 68     | 1    | 29   | 11.61   |            |            |        |        |
| 59    | Pilas. | 31     | 69     | 1    | 29   | 11.61   |            |            |        |        |
| 60    | Trave  | 82     | 249    | 1    | 38   |         |            |            |        |        |
| 61    | Trave  | 54     | 69     | 1    | 37   |         |            |            |        |        |
| 62    | Trave  | 56     | 68     | 1    | 37   |         |            |            |        |        |
| 63    | Trave  | 55     | 67     | 1    | 37   |         |            |            |        |        |
| 64    | Trave  | 57     | 66     | 1    | 37   |         |            |            |        |        |
| 65    | Trave  | 69     | 70     | 1    | 37   |         |            |            |        |        |
| 66    | Trave  | 68     | 71     | 1    | 37   |         |            |            |        |        |
| 67    | Trave  | 67     | 72     | 1    | 37   |         |            |            |        |        |
| 68    | Trave  | 66     | 73     | 1    | 37   |         |            |            |        |        |
| 69    | Trave  | 19     | 23     | 55   | 53   |         |            |            |        |        |
| 70    | Trave  | 23     | 48     | 55   | 53   |         |            |            |        |        |
| 71    | Trave  | 24     | 50     | 55   | 53   |         |            |            |        |        |
| 72    | Trave  | 18     | 24     | 55   | 53   |         |            |            |        |        |
| 73    | Trave  | 74     | 1181   | 55   | 53   |         |            |            |        |        |
| 74    | Trave  | 75     | 18     | 55   | 53   |         |            |            |        |        |
| 75    | Trave  | 76     | 19     | 55   | 53   |         |            |            |        |        |
| 76    | Pilas. | 682    | 681    | 1    | 47   |         |            |            |        |        |
| 77    | Pilas. | 552    | 682    | 1    | 47   |         |            |            |        |        |
| 78    | Trave  | 277    | 11     | 55   | 56   | -180.00 |            |            |        |        |
| 79    | Pilas. | 13     | 296    | 55   | 56   | -180.00 |            |            |        |        |
| 80    | Pilas. | 78     | 278    | 55   | 54   | 0.29    |            |            |        |        |
| 81    | Pilas. | 3      | 82     | 55   | 48   | 1.71    |            |            |        |        |
| 82    | Pilas. | 5      | 439    | 55   | 48   | 1.71    |            |            |        |        |
| 83    | Trave  | 80     | 458    | 1    | 38   |         |            |            |        |        |
| 84    | Trave  | 79     | 80     | 1    | 38   |         |            |            |        |        |
| 85    | Trave  | 81     | 285    | 1    | 38   |         |            |            |        |        |
| 86    | Trave  | 82     | 83     | 55   | 56   |         |            |            |        |        |
| 87    | Trave  | 77     | 80     | 1    | 39   |         |            |            |        |        |
| 88    | Trave  | 119    | 1027   | 55   | 58   |         |            |            |        |        |
| 89    | Trave  | 1      | 275    | 55   | 56   | 0.29    |            |            |        |        |
| 90    | Pilas. | 275    | 297    | 55   | 56   | 0.29    |            |            |        |        |
| 91    | Trave  | 78     | 297    | 55   | 56   | 0.29    |            |            |        |        |
| 92    | Pilas. | 308    | 248    | 55   | 48   | 1.71    |            |            |        |        |
| 93    | Trave  | 1      | 283    | 55   | 56   | -180.00 |            |            |        |        |
| 94    | Pilas. | 215    | 942    | 1    | 47   | 1.71    |            |            |        |        |
| 95    | Trave  | 71     | 72     | 2    | 52   |         |            |            |        |        |
| 96    | Trave  | 70     | 71     | 2    | 52   |         |            |            |        |        |
| 97    | Pilas. | 11     | 79     | 55   | 55   |         |            |            |        |        |
| 98    | Trave  | 11     | 303    | 55   | 56   | -180.00 |            |            |        |        |
| 99    | Trave  | 297    | 300    | 55   | 56   | 0.29    |            |            |        |        |
| 100   | Trave  | 301    | 290    | 1    | 35   | -180.00 |            |            |        |        |
| 101   | Trave  | 993    | 70     | 2    | 52   |         |            |            |        |        |
| 102   | Trave  | 296    | 291    | 55   | 56   | -180.00 |            |            |        |        |
| 103   | Trave  | 283    | 296    | 55   | 56   | -180.00 |            |            |        |        |
| 104   | Trave  | 12     | 301    | 55   | 56   | -180.00 |            |            |        |        |
| 105   | Trave  | 78     | 277    | 55   | 56   | -180.00 |            |            |        |        |
| 106   | Trave  | 300    | 753    | 1    | 35   | -180.00 |            |            |        |        |
| 107   | Pilas. | 1      | 399    | 55   | 54   | 0.29    |            |            |        |        |

| Elem. | Note   | Nodo I | Nodo J | Mat. | Sez. | Rotaz.  | Svincolo I | Svincolo J | Wink V | Wink O |
|-------|--------|--------|--------|------|------|---------|------------|------------|--------|--------|
| 108   | Trave  | 297    | 12     | 55   | 56   | -180.00 |            |            |        |        |
| 109   | Trave  | 248    | 45     | 2    | 52   |         |            |            |        |        |
| 110   | Trave  | 277    | 12     | 55   | 56   | -180.00 |            |            |        |        |
| 111   | Pilas. | 296    | 12     | 55   | 56   | -180.00 |            |            |        |        |
| 112   | Trave  | 275    | 296    | 55   | 56   | -180.00 |            |            |        |        |
| 113   | Trave  | 282    | 886    | 1    | 35   | -180.00 |            |            |        |        |
| 114   | Trave  | 22     | 12     | 55   | 56   | -180.00 |            |            |        |        |
| 115   | Trave  | 22     | 282    | 55   | 56   | -180.00 |            |            |        |        |
| 116   | Pilas. | 291    | 884    | 1    | 35   | -180.00 |            |            |        |        |
| 117   | Pilas. | 297    | 22     | 55   | 56   | -180.00 |            |            |        |        |
| 118   | Pilas. | 300    | 1155   | 1    | 35   | -180.00 |            |            |        |        |
| 119   | Pilas. | 278    | 81     | 55   | 54   | 0.29    |            |            |        |        |
| 120   | Trave  | 278    | 22     | 55   | 56   | -180.00 |            |            |        |        |
| 121   | Trave  | 285    | 79     | 1    | 38   |         |            |            |        |        |
| 122   | Trave  | 278    | 285    | 55   | 56   | -180.00 |            |            |        |        |
| 123   | Trave  | 22     | 302    | 55   | 56   | -180.00 |            |            |        |        |
| 124   | Trave  | 285    | 302    | 55   | 56   | -180.00 |            |            |        |        |
| 125   | Pilas. | 667    | 364    | 1    | 38   | 1.71    |            |            |        |        |
| 126   | Trave  | 283    | 294    | 55   | 56   | -180.00 |            |            |        |        |
| 127   | Trave  | 294    | 306    | 55   | 56   | -180.00 |            |            |        |        |
| 128   | Pilas. | 364    | 385    | 1    | 38   | 1.71    |            |            |        |        |
| 129   | Pilas. | 385    | 308    | 1    | 38   | 1.71    |            |            |        |        |
| 130   | Pilas. | 12     | 302    | 55   | 56   | -180.00 |            |            |        |        |
| 131   | Trave  | 303    | 290    | 55   | 56   | -180.00 |            |            |        |        |
| 132   | Trave  | 306    | 295    | 55   | 56   | -180.00 |            |            |        |        |
| 133   | Pilas. | 307    | 306    | 1    | 34   |         |            |            |        |        |
| 134   | Trave  | 9      | 423    | 55   | 60   |         |            |            |        |        |
| 135   | Pilas. | 294    | 398    | 55   | 55   |         |            |            |        |        |
| 136   | Pilas. | 306    | 21     | 1    | 34   |         |            |            |        |        |
| 137   | Trave  | 394    | 756    | 1    | 35   | -180.00 |            |            |        |        |
| 138   | Trave  | 942    | 45     | 10   | 49   |         |            |            |        |        |
| 139   | Trave  | 396    | 890    | 1    | 35   | -180.00 |            |            |        |        |
| 140   | Trave  | 397    | 278    | 1    | 35   | -180.00 |            |            |        |        |
| 141   | Pilas. | 398    | 11     | 55   | 55   |         |            |            |        |        |
| 142   | Pilas. | 399    | 78     | 55   | 54   | 0.29    |            |            |        |        |
| 143   | Trave  | 276    | 398    | 55   | 56   |         |            |            |        |        |
| 144   | Trave  | 399    | 276    | 55   | 56   |         |            |            |        |        |
| 145   | Trave  | 3      | 215    | 1    | 39   |         |            |            |        |        |
| 146   | Trave  | 1058   | 77     | 1    | 39   |         |            |            |        |        |
| 147   | Trave  | 752    | 291    | 1    | 35   | -180.00 |            |            |        |        |
| 148   | Trave  | 885    | 301    | 1    | 35   | -180.00 |            |            |        |        |
| 149   | Trave  | 754    | 300    | 1    | 35   | -180.00 |            |            |        |        |
| 150   | Trave  | 887    | 282    | 1    | 35   | -180.00 |            |            |        |        |
| 151   | Trave  | 753    | 752    | 1    | 35   | -180.00 |            |            |        |        |
| 152   | Trave  | 886    | 885    | 1    | 35   | -180.00 |            |            |        |        |
| 153   | Trave  | 755    | 754    | 1    | 35   | -180.00 |            |            |        |        |
| 154   | Trave  | 888    | 887    | 1    | 35   | -180.00 |            |            |        |        |
| 155   | Trave  | 756    | 755    | 1    | 35   | -180.00 |            |            |        |        |
| 156   | Trave  | 889    | 888    | 1    | 35   | -180.00 |            |            |        |        |
| 157   | Trave  | 890    | 889    | 1    | 35   | -180.00 |            |            |        |        |
| 158   | Trave  | 66     | 191    | 1    | 4    |         |            |            |        |        |
| 159   | Trave  | 103    | 1058   | 1    | 39   |         |            |            |        |        |
| 160   | Trave  | 104    | 82     | 55   | 56   |         |            |            |        |        |
| 161   | Trave  | 216    | 399    | 55   | 56   |         |            |            |        |        |
| 162   | Trave  | 7      | 3      | 1    | 39   |         |            |            |        |        |
| 163   | Trave  | 48     | 571    | 1    | 42   |         |            |            |        |        |
| 164   | Trave  | 619    | 617    | 1    | 42   |         |            |            |        |        |
| 165   | Trave  | 613    | 48     | 1    | 42   |         |            |            |        |        |
| 166   | Trave  | 615    | 613    | 1    | 42   |         |            |            |        |        |
| 167   | Trave  | 617    | 615    | 1    | 42   |         |            |            |        |        |
| 168   | Trave  | 621    | 619    | 1    | 42   |         |            |            |        |        |
| 169   | Trave  | 623    | 621    | 1    | 42   |         |            |            |        |        |
| 170   | Trave  | 50     | 623    | 1    | 42   |         |            |            |        |        |
| 171   | Trave  | 704    | 50     | 1    | 42   |         |            |            |        |        |
| 172   | Trave  | 891    | 8      | 1    | 40   |         |            |            |        |        |
| 173   | Pilas. | 551    | 891    | 1    | 47   |         |            |            |        |        |
| 174   | Pilas. | 1156   | 282    | 1    | 35   | -180.00 |            |            |        |        |
| 175   | Pilas. | 942    | 249    | 1    | 47   | 1.71    |            |            |        |        |
| 176   | Pilas. | 675    | 215    | 1    | 47   |         |            |            |        |        |
| 177   | Pilas. | 674    | 675    | 1    | 47   |         |            |            |        |        |
| 178   | Pilas. | 673    | 674    | 1    | 47   |         |            |            |        |        |
| 179   | Pilas. | 672    | 673    | 1    | 47   |         |            |            |        |        |
| 180   | Pilas. | 671    | 672    | 1    | 47   |         |            |            |        |        |
| 181   | Pilas. | 670    | 671    | 1    | 47   |         |            |            |        |        |

| Elem. | Note   | Nodo I | Nodo J | Mat. | Sez. | Rotaz.  | Svincolo I | Svincolo J | Wink V | Wink O |
|-------|--------|--------|--------|------|------|---------|------------|------------|--------|--------|
| 182   | Pilas. | 668    | 670    | 1    | 47   |         |            |            |        |        |
| 183   | Pilas. | 677    | 551    | 1    | 47   |         |            |            |        |        |
| 184   | Pilas. | 678    | 677    | 1    | 47   |         |            |            |        |        |
| 185   | Pilas. | 679    | 678    | 1    | 47   |         |            |            |        |        |
| 186   | Trave  | 8      | 942    | 1    | 40   |         |            |            |        |        |
| 187   | Trave  | 891    | 876    | 1    | 40   |         |            |            |        |        |
| 188   | Trave  | 942    | 874    | 1    | 40   |         |            |            |        |        |
| 189   | Pilas. | 9      | 438    | 55   | 48   |         |            |            |        |        |
| 190   | Pilas. | 944    | 9      | 55   | 48   |         |            |            |        |        |
| 191   | Pilas. | 884    | 1114   | 1    | 35   | -180.00 |            |            |        |        |
| 192   | Pilas. | 1114   | 301    | 1    | 35   | -180.00 |            |            |        |        |
| 193   | Pilas. | 1155   | 1156   | 1    | 35   | -180.00 |            |            |        |        |
| 194   | Trave  | 874    | 46     | 10   | 49   |         |            |            |        |        |
| 195   | Pilas. | 439    | 447    | 55   | 48   | 1.71    |            |            |        |        |
| 196   | Pilas. | 447    | 454    | 55   | 48   | 1.71    |            |            |        |        |
| 197   | Pilas. | 454    | 457    | 55   | 48   | 1.71    |            |            |        |        |
| 198   | Pilas. | 457    | 83     | 55   | 48   | 1.71    |            |            |        |        |
| 199   | Pilas. | 438    | 446    | 55   | 48   |         |            |            |        |        |
| 200   | Pilas. | 446    | 449    | 55   | 48   |         |            |            |        |        |
| 201   | Pilas. | 449    | 456    | 55   | 48   |         |            |            |        |        |
| 202   | Pilas. | 456    | 80     | 55   | 48   |         |            |            |        |        |
| 203   | Trave  | 423    | 5      | 55   | 60   |         |            |            |        |        |
| 204   | Trave  | 458    | 83     | 1    | 38   |         |            |            |        |        |
| 205   | Trave  | 909    | 81     | 1    | 38   |         |            |            |        |        |
| 206   | Trave  | 388    | 909    | 1    | 38   |         |            |            |        |        |
| 207   | Trave  | 118    | 916    | 1    | 38   |         |            |            |        |        |
| 208   | Trave  | 916    | 214    | 1    | 38   |         |            |            |        |        |
| 209   | Trave  | 214    | 213    | 1    | 38   |         |            |            |        |        |
| 210   | Trave  | 213    | 212    | 1    | 38   |         |            |            |        |        |
| 211   | Trave  | 212    | 207    | 1    | 38   |         |            |            |        |        |
| 212   | Trave  | 207    | 206    | 1    | 38   |         |            |            |        |        |
| 213   | Trave  | 206    | 203    | 1    | 38   |         |            |            |        |        |
| 214   | Trave  | 203    | 204    | 1    | 38   |         |            |            |        |        |
| 215   | Trave  | 204    | 205    | 1    | 38   |         |            |            |        |        |
| 216   | Trave  | 205    | 190    | 1    | 38   |         |            |            |        |        |
| 217   | Trave  | 190    | 189    | 1    | 38   |         |            |            |        |        |
| 218   | Trave  | 189    | 173    | 1    | 38   |         |            |            |        |        |
| 219   | Trave  | 173    | 103    | 1    | 38   |         |            |            |        |        |
| 220   | Trave  | 103    | 107    | 1    | 38   |         |            |            |        |        |
| 221   | Trave  | 107    | 106    | 1    | 38   |         |            |            |        |        |
| 222   | Trave  | 106    | 104    | 1    | 38   |         |            |            |        |        |
| 223   | Trave  | 104    | 105    | 1    | 38   |         |            |            |        |        |
| 224   | Trave  | 118    | 387    | 2    | 59   |         |            |            |        |        |
| 225   | Trave  | 387    | 61     | 2    | 59   |         |            |            |        |        |
| 226   | Trave  | 61     | 60     | 2    | 59   |         |            |            |        |        |
| 227   | Trave  | 60     | 388    | 2    | 59   |         |            |            |        |        |
| 228   | Trave  | 808    | 793    | 2    | 50   |         |            |            |        |        |
| 229   | Trave  | 779    | 808    | 2    | 50   |         |            |            |        |        |
| 230   | Trave  | 826    | 779    | 2    | 50   |         |            |            |        |        |
| 231   | Trave  | 852    | 826    | 2    | 50   |         |            |            |        |        |
| 232   | Trave  | 855    | 852    | 2    | 50   |         |            |            |        |        |
| 233   | Trave  | 848    | 855    | 2    | 50   |         |            |            |        |        |
| 234   | Trave  | 844    | 848    | 2    | 50   |         |            |            |        |        |
| 235   | Trave  | 868    | 844    | 2    | 50   |         |            |            |        |        |
| 236   | Trave  | 871    | 868    | 2    | 50   |         |            |            |        |        |
| 237   | Trave  | 800    | 871    | 2    | 50   |         |            |            |        |        |
| 238   | Trave  | 841    | 800    | 2    | 50   |         |            |            |        |        |
| 239   | Trave  | 875    | 841    | 2    | 50   |         |            |            |        |        |
| 240   | Trave  | 809    | 875    | 2    | 50   |         |            |            |        |        |
| 241   | Trave  | 809    | 941    | 2    | 50   |         |            |            |        |        |
| 242   | Trave  | 941    | 897    | 2    | 50   |         |            |            |        |        |
| 243   | Trave  | 897    | 829    | 2    | 50   |         |            |            |        |        |
| 244   | Trave  | 829    | 792    | 2    | 50   |         |            |            |        |        |
| 245   | Trave  | 792    | 768    | 2    | 50   |         |            |            |        |        |
| 246   | Trave  | 768    | 794    | 2    | 50   |         |            |            |        |        |
| 247   | Trave  | 794    | 969    | 2    | 50   |         |            |            |        |        |
| 248   | Trave  | 969    | 965    | 2    | 50   |         |            |            |        |        |
| 249   | Trave  | 965    | 951    | 2    | 50   |         |            |            |        |        |
| 250   | Trave  | 849    | 951    | 2    | 50   |         |            |            |        |        |
| 251   | Trave  | 793    | 849    | 2    | 50   |         |            |            |        |        |
| 252   | Trave  | 919    | 872    | 2    | 50   |         |            |            |        |        |
| 253   | Trave  | 872    | 975    | 2    | 50   |         |            |            |        |        |
| 254   | Trave  | 976    | 975    | 2    | 50   |         |            |            |        |        |
| 255   | Trave  | 774    | 976    | 2    | 50   |         |            |            |        |        |

| Elem. | Note   | Nodo I | Nodo J | Mat. | Sez. | Rotaz. | Svincolo I | Svincolo J | Wink V | Wink O |
|-------|--------|--------|--------|------|------|--------|------------|------------|--------|--------|
| 256   | Trave  | 903    | 774    | 2    | 50   |        |            |            |        |        |
| 257   | Trave  | 914    | 903    | 2    | 50   |        |            |            |        |        |
| 258   | Trave  | 911    | 914    | 2    | 50   |        |            |            |        |        |
| 259   | Trave  | 764    | 911    | 2    | 50   |        |            |            |        |        |
| 260   | Trave  | 782    | 764    | 2    | 50   |        |            |            |        |        |
| 261   | Trave  | 801    | 782    | 2    | 50   |        |            |            |        |        |
| 262   | Trave  | 968    | 801    | 2    | 50   |        |            |            |        |        |
| 263   | Trave  | 921    | 919    | 2    | 38   |        |            |            |        |        |
| 264   | Trave  | 895    | 921    | 2    | 38   |        |            |            |        |        |
| 265   | Trave  | 920    | 895    | 2    | 38   |        |            |            |        |        |
| 266   | Trave  | 937    | 920    | 2    | 38   |        |            |            |        |        |
| 267   | Trave  | 960    | 937    | 2    | 38   |        |            |            |        |        |
| 268   | Trave  | 963    | 960    | 2    | 38   |        |            |            |        |        |
| 269   | Trave  | 980    | 963    | 2    | 38   |        |            |            |        |        |
| 270   | Trave  | 936    | 927    | 2    | 38   |        |            |            |        |        |
| 271   | Trave  | 968    | 936    | 2    | 38   |        |            |            |        |        |
| 272   | Trave  | 879    | 980    | 2    | 38   |        |            |            |        |        |
| 273   | Trave  | 882    | 879    | 2    | 38   |        |            |            |        |        |
| 274   | Trave  | 923    | 882    | 2    | 38   |        |            |            |        |        |
| 275   | Trave  | 927    | 923    | 2    | 38   |        |            |            |        |        |
| 276   | Pilas. | 191    | 462    | 10   | 51   |        |            |            |        |        |
| 277   | Pilas. | 58     | 514    | 10   | 51   |        |            |            |        |        |
| 278   | Trave  | 58     | 515    | 2    | 52   |        |            |            |        |        |
| 279   | Trave  | 515    | 191    | 2    | 52   |        |            |            |        |        |
| 280   | Pilas. | 515    | 516    | 10   | 51   |        |            |            |        |        |
| 281   | Trave  | 51     | 524    | 2    | 52   |        |            |            |        |        |
| 282   | Pilas. | 776    | 778    | 10   | 51   |        |            |            |        |        |
| 283   | Trave  | 524    | 58     | 2    | 52   |        |            |            |        |        |
| 284   | Pilas. | 524    | 525    | 10   | 51   |        |            |            |        |        |
| 285   | Pilas. | 805    | 806    | 10   | 51   |        |            |            |        |        |
| 286   | Pilas. | 526    | 527    | 10   | 51   |        |            |            |        |        |
| 287   | Pilas. | 528    | 531    | 10   | 51   |        |            |            |        |        |
| 288   | Trave  | 528    | 66     | 2    | 52   |        |            |            |        |        |
| 289   | Trave  | 67     | 528    | 2    | 52   |        |            |            |        |        |
| 290   | Trave  | 68     | 532    | 2    | 52   |        |            |            |        |        |
| 291   | Trave  | 69     | 68     | 2    | 52   |        |            |            |        |        |
| 292   | Pilas. | 532    | 534    | 10   | 51   |        |            |            |        |        |
| 293   | Trave  | 532    | 67     | 2    | 52   |        |            |            |        |        |
| 294   | Pilas. | 539    | 535    | 10   | 51   |        |            |            |        |        |
| 295   | Pilas. | 540    | 537    | 10   | 51   |        |            |            |        |        |
| 296   | Pilas. | 541    | 538    | 10   | 51   |        |            |            |        |        |
| 297   | Pilas. | 758    | 759    | 10   | 51   |        |            |            |        |        |
| 298   | Trave  | 526    | 51     | 2    | 52   |        |            |            |        |        |
| 299   | Trave  | 46     | 526    | 2    | 52   |        |            |            |        |        |
| 300   | Pilas. | 822    | 20     | 10   | 51   |        |            |            |        |        |
| 301   | Pilas. | 811    | 25     | 10   | 51   |        |            |            |        |        |
| 302   | Trave  | 539    | 528    | 2    | 52   |        |            |            |        |        |
| 303   | Trave  | 540    | 539    | 2    | 52   |        |            |            |        |        |
| 304   | Trave  | 336    | 337    | 2    | 42   |        |            |            |        |        |
| 305   | Trave  | 822    | 26     | 2    | 52   |        |            |            |        |        |
| 306   | Trave  | 758    | 532    | 2    | 52   |        |            |            |        |        |
| 307   | Trave  | 776    | 758    | 2    | 52   |        |            |            |        |        |
| 308   | Trave  | 838    | 1278   | 55   | 58   |        |            |            |        |        |
| 309   | Trave  | 26     | 47     | 55   | 58   |        |            |            |        |        |
| 310   | Trave  | 20     | 527    | 10   | 51   |        |            |            |        |        |
| 311   | Trave  | 25     | 20     | 10   | 51   |        |            |            |        |        |
| 312   | Trave  | 25     | 806    | 10   | 51   |        |            |            |        |        |
| 313   | Trave  | 806    | 778    | 10   | 51   |        |            |            |        |        |
| 314   | Trave  | 778    | 759    | 10   | 51   |        |            |            |        |        |
| 315   | Trave  | 759    | 534    | 10   | 51   |        |            |            |        |        |
| 316   | Trave  | 534    | 531    | 10   | 51   |        |            |            |        |        |
| 317   | Trave  | 531    | 462    | 10   | 51   |        |            |            |        |        |
| 318   | Trave  | 516    | 462    | 10   | 51   |        |            |            |        |        |
| 319   | Trave  | 514    | 516    | 10   | 51   |        |            |            |        |        |
| 320   | Trave  | 525    | 514    | 10   | 51   |        |            |            |        |        |
| 321   | Trave  | 527    | 525    | 10   | 51   |        |            |            |        |        |
| 322   | Trave  | 759    | 535    | 10   | 51   |        |            |            |        |        |
| 323   | Trave  | 535    | 516    | 10   | 51   |        |            |            |        |        |
| 324   | Trave  | 778    | 537    | 10   | 51   |        |            |            |        |        |
| 325   | Trave  | 537    | 514    | 10   | 51   |        |            |            |        |        |
| 326   | Trave  | 806    | 538    | 10   | 51   |        |            |            |        |        |
| 327   | Trave  | 538    | 525    | 10   | 51   |        |            |            |        |        |
| 328   | Trave  | 535    | 531    | 10   | 51   |        |            |            |        |        |
| 329   | Trave  | 537    | 535    | 10   | 51   |        |            |            |        |        |

| Elem. | Note   | Nodo I | Nodo J | Mat. | Sez. | Rotaz. | Svincolo I | Svincolo J | Wink V | Wink O |
|-------|--------|--------|--------|------|------|--------|------------|------------|--------|--------|
| 330   | Trave  | 538    | 537    | 10   | 51   |        |            |            |        |        |
| 331   | Trave  | 20     | 538    | 10   | 51   |        |            |            |        |        |
| 332   | Trave  | 26     | 541    | 2    | 52   |        |            |            |        |        |
| 333   | Trave  | 253    | 805    | 2    | 52   |        |            |            |        |        |
| 334   | Trave  | 811    | 253    | 2    | 52   |        |            |            |        |        |
| 335   | Trave  | 253    | 39     | 55   | 58   |        |            |            |        |        |
| 336   | Trave  | 105    | 248    | 2    | 52   |        |            |            |        |        |
| 337   | Trave  | 72     | 73     | 2    | 52   |        |            |            |        |        |
| 338   | Trave  | 302    | 205    | 2    | 52   |        |            |            |        |        |
| 339   | Trave  | 396    | 299    | 2    | 42   |        |            |            |        |        |
| 340   | Trave  | 305    | 397    | 2    | 42   |        |            |            |        |        |
| 341   | Trave  | 304    | 305    | 2    | 42   |        |            |            |        |        |
| 342   | Trave  | 299    | 304    | 2    | 42   |        |            |            |        |        |
| 343   | Trave  | 338    | 395    | 2    | 42   |        |            |            |        |        |
| 344   | Trave  | 337    | 338    | 2    | 42   |        |            |            |        |        |
| 345   | Trave  | 541    | 837    | 2    | 52   |        |            |            |        |        |
| 346   | Trave  | 837    | 540    | 2    | 52   |        |            |            |        |        |
| 347   | Trave  | 837    | 1296   | 55   | 58   |        |            |            |        |        |
| 348   | Trave  | 805    | 838    | 2    | 52   |        |            |            |        |        |
| 349   | Trave  | 40     | 253    | 55   | 58   |        |            |            |        |        |
| 350   | Pilas. | 1023   | 30     | 54   | 43   | 7.97   |            |            |        |        |
| 351   | Pilas. | 1025   | 1026   | 54   | 43   | 7.97   |            |            |        |        |
| 352   | Pilas. | 1026   | 28     | 54   | 43   | 7.97   |            |            |        |        |
| 353   | Pilas. | 1019   | 858    | 54   | 43   | 7.97   |            |            |        |        |
| 354   | Pilas. | 29     | 1020   | 54   | 43   | 7.97   |            |            |        |        |
| 355   | Trave  | 1027   | 1234   | 55   | 58   |        |            |            |        |        |
| 356   | Trave  | 414    | 993    | 2    | 59   |        |            |            |        |        |
| 357   | Trave  | 993    | 999    | 2    | 59   |        |            |            |        |        |
| 358   | Trave  | 999    | 861    | 2    | 59   |        |            |            |        |        |
| 359   | Trave  | 861    | 847    | 2    | 59   |        |            |            |        |        |
| 360   | Trave  | 847    | 840    | 2    | 59   |        |            |            |        |        |
| 361   | Trave  | 840    | 247    | 2    | 59   |        |            |            |        |        |
| 362   | Trave  | 247    | 529    | 2    | 59   |        |            |            |        |        |
| 363   | Trave  | 529    | 987    | 2    | 59   |        |            |            |        |        |
| 364   | Trave  | 987    | 1029   | 2    | 59   |        |            |            |        |        |
| 365   | Trave  | 1029   | 530    | 2    | 59   |        |            |            |        |        |
| 366   | Trave  | 530    | 420    | 2    | 59   |        |            |            |        |        |
| 367   | Trave  | 420    | 452    | 2    | 59   |        |            |            |        |        |
| 368   | Trave  | 452    | 400    | 2    | 59   |        |            |            |        |        |
| 369   | Trave  | 400    | 119    | 2    | 59   |        |            |            |        |        |
| 370   | Trave  | 130    | 119    | 2    | 59   |        |            |            |        |        |
| 371   | Trave  | 131    | 130    | 2    | 59   |        |            |            |        |        |
| 372   | Trave  | 132    | 131    | 2    | 59   |        |            |            |        |        |
| 373   | Trave  | 133    | 132    | 2    | 59   |        |            |            |        |        |
| 374   | Trave  | 134    | 133    | 2    | 59   |        |            |            |        |        |
| 375   | Trave  | 98     | 134    | 2    | 59   |        |            |            |        |        |
| 376   | Trave  | 99     | 98     | 2    | 59   |        |            |            |        |        |
| 377   | Trave  | 99     | 379    | 2    | 59   |        |            |            |        |        |
| 378   | Trave  | 157    | 379    | 2    | 59   |        |            |            |        |        |
| 379   | Trave  | 162    | 157    | 2    | 59   |        |            |            |        |        |
| 380   | Trave  | 163    | 162    | 2    | 59   |        |            |            |        |        |
| 381   | Trave  | 164    | 163    | 2    | 59   |        |            |            |        |        |
| 382   | Trave  | 165    | 164    | 2    | 59   |        |            |            |        |        |
| 383   | Trave  | 250    | 165    | 2    | 59   |        |            |            |        |        |
| 384   | Trave  | 311    | 250    | 2    | 59   |        |            |            |        |        |
| 385   | Trave  | 386    | 311    | 2    | 59   |        |            |            |        |        |
| 386   | Trave  | 280    | 386    | 2    | 59   |        |            |            |        |        |
| 387   | Trave  | 281    | 280    | 2    | 59   |        |            |            |        |        |
| 388   | Trave  | 286    | 281    | 2    | 59   |        |            |            |        |        |
| 389   | Trave  | 287    | 286    | 2    | 59   |        |            |            |        |        |
| 390   | Trave  | 388    | 287    | 2    | 59   |        |            |            |        |        |
| 391   | Trave  | 47     | 57     | 2    | 52   |        |            |            |        |        |
| 392   | Trave  | 45     | 47     | 2    | 52   |        |            |            |        |        |
| 393   | Trave  | 39     | 55     | 2    | 52   |        |            |            |        |        |
| 394   | Trave  | 40     | 56     | 2    | 52   |        |            |            |        |        |
| 395   | Trave  | 37     | 54     | 2    | 52   |        |            |            |        |        |
| 396   | Pilas. | 858    | 1022   | 54   | 43   | 7.97   |            |            |        |        |
| 397   | Pilas. | 983    | 1025   | 54   | 43   | 7.97   |            |            |        |        |
| 398   | Pilas. | 1022   | 1024   | 54   | 43   | 7.97   |            |            |        |        |
| 399   | Pilas. | 1024   | 53     | 54   | 43   | 7.97   |            |            |        |        |
| 400   | Pilas. | 857    | 1021   | 54   | 43   | 7.97   |            |            |        |        |
| 401   | Pilas. | 1021   | 1023   | 54   | 43   | 7.97   |            |            |        |        |
| 402   | Pilas. | 553    | 17     | 54   | 43   | 7.97   |            |            |        |        |
| 403   | Pilas. | 554    | 553    | 54   | 43   | 7.97   |            |            |        |        |

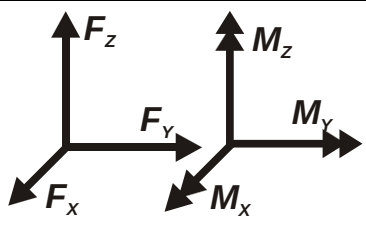
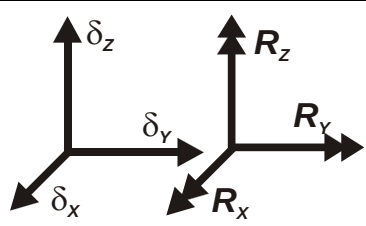
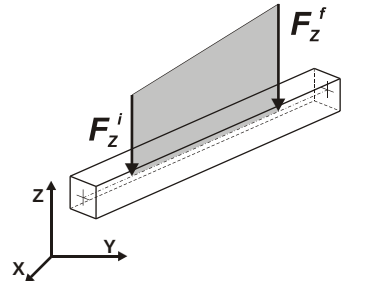
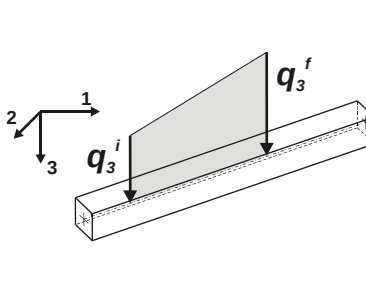
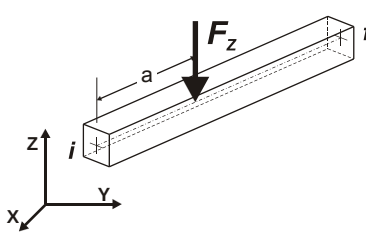
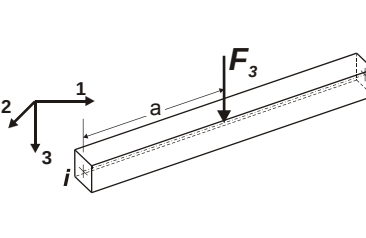
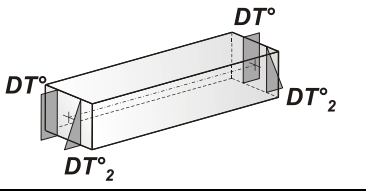
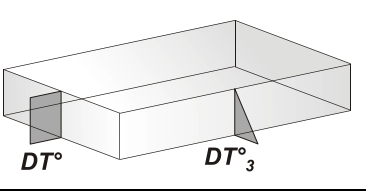
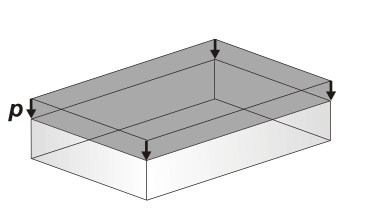
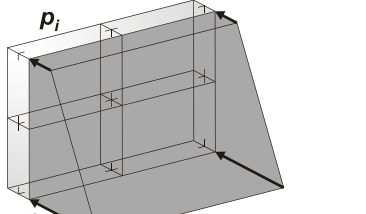
| Elem. | Note   | Nodo I | Nodo J | Mat. | Sez. | Rotaz. | Svincolo I | Svincolo J | Wink V | Wink O |
|-------|--------|--------|--------|------|------|--------|------------|------------|--------|--------|
| 404   | Pilas. | 555    | 554    | 54   | 43   | 7.97   |            |            |        |        |
| 405   | Pilas. | 556    | 555    | 54   | 43   | 7.97   |            |            |        |        |
| 406   | Pilas. | 557    | 556    | 54   | 43   | 7.97   |            |            |        |        |
| 407   | Pilas. | 558    | 557    | 54   | 43   | 7.97   |            |            |        |        |
| 408   | Pilas. | 548    | 558    | 54   | 43   | 7.97   |            |            |        |        |
| 409   | Trave  | 41     | 37     | 2    | 52   |        |            |            |        |        |
| 410   | Trave  | 44     | 40     | 2    | 52   |        |            |            |        |        |
| 411   | Trave  | 1181   | 1182   | 55   | 53   |        |            |            |        |        |
| 412   | Trave  | 1182   | 1183   | 55   | 53   |        |            |            |        |        |
| 413   | Trave  | 1183   | 30     | 55   | 53   |        |            |            |        |        |
| 414   | Trave  | 1193   | 1194   | 55   | 53   |        |            |            |        |        |
| 415   | Trave  | 1194   | 1195   | 55   | 53   |        |            |            |        |        |
| 416   | Trave  | 1195   | 53     | 55   | 53   |        |            |            |        |        |
| 417   | Trave  | 1205   | 1206   | 55   | 53   |        |            |            |        |        |
| 418   | Trave  | 1206   | 1207   | 55   | 53   |        |            |            |        |        |
| 419   | Trave  | 1207   | 28     | 55   | 53   |        |            |            |        |        |
| 420   | Trave  | 1217   | 1218   | 55   | 53   |        |            |            |        |        |
| 421   | Trave  | 1218   | 1219   | 55   | 53   |        |            |            |        |        |
| 422   | Trave  | 1219   | 17     | 55   | 53   |        |            |            |        |        |
| 423   | Trave  | 1234   | 1239   | 55   | 58   |        |            |            |        |        |
| 424   | Trave  | 1239   | 1244   | 55   | 58   |        |            |            |        |        |
| 425   | Trave  | 1244   | 54     | 55   | 58   |        |            |            |        |        |
| 426   | Pilas. | 1245   | 1246   | 54   | 43   | 7.97   |            |            |        |        |
| 427   | Pilas. | 1246   | 1247   | 54   | 43   | 7.97   |            |            |        |        |
| 428   | Pilas. | 1247   | 1248   | 54   | 43   | 7.97   |            |            |        |        |
| 429   | Trave  | 1253   | 1258   | 55   | 58   |        |            |            |        |        |
| 430   | Trave  | 1258   | 1263   | 55   | 58   |        |            |            |        |        |
| 431   | Trave  | 1263   | 56     | 55   | 58   |        |            |            |        |        |
| 432   | Pilas. | 1264   | 1265   | 54   | 43   | 7.97   |            |            |        |        |
| 433   | Pilas. | 1265   | 1266   | 54   | 43   | 7.97   |            |            |        |        |
| 434   | Pilas. | 1266   | 1267   | 54   | 43   | 7.97   |            |            |        |        |
| 435   | Pilas. | 1267   | 56     | 54   | 43   | 7.97   |            |            |        |        |
| 436   | Trave  | 1269   | 838    | 55   | 58   |        |            |            |        |        |
| 437   | Trave  | 1278   | 55     | 55   | 58   |        |            |            |        |        |
| 438   | Pilas. | 1282   | 55     | 54   | 43   | 7.97   |            |            |        |        |
| 439   | Pilas. | 1283   | 1282   | 54   | 43   | 7.97   |            |            |        |        |
| 440   | Pilas. | 1284   | 1283   | 54   | 43   | 7.97   |            |            |        |        |
| 441   | Pilas. | 1285   | 1284   | 54   | 43   | 7.97   |            |            |        |        |
| 442   | Trave  | 1287   | 837    | 55   | 58   |        |            |            |        |        |
| 443   | Trave  | 1296   | 57     | 55   | 58   |        |            |            |        |        |
| 444   | Pilas. | 1300   | 57     | 54   | 43   | 7.97   |            |            |        |        |
| 445   | Pilas. | 1301   | 1300   | 54   | 43   | 7.97   |            |            |        |        |
| 446   | Pilas. | 1302   | 1301   | 54   | 43   | 7.97   |            |            |        |        |
| 447   | Pilas. | 1303   | 1302   | 54   | 43   | 7.97   |            |            |        |        |
| 448   | Pilas. | 1248   | 54     | 54   | 43   | 7.97   |            |            |        |        |

# MODELLAZIONE DELLE AZIONI

## LEGENDA TABELLA DATI AZIONI

Il programma consente l'uso di diverse tipologie di carico (azioni). Le azioni utilizzate nella modellazione sono individuate da una sigla identificativa ed un codice numerico (gli elementi strutturali richiamano quest'ultimo nella propria descrizione). Per ogni azione applicata alla struttura viene di riportato il codice, il tipo e la sigla identificativa. Le tabelle successive dettagliano i valori caratteristici di ogni azione in relazione al tipo. Le tabelle riportano infatti i seguenti dati in relazione al tipo:

|           |                                                                                                                                                                                                                                                                                                                               |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1</b>  | <b>carico concentrato nodale</b><br>6 dati (forza $F_x$ , $F_y$ , $F_z$ , momento $M_x$ , $M_y$ , $M_z$ )                                                                                                                                                                                                                     |
| <b>2</b>  | <b>spostamento nodale impresso</b><br>6 dati (spostamento $T_x, T_y, T_z$ , rotazione $R_x, R_y, R_z$ )                                                                                                                                                                                                                       |
| <b>3</b>  | <b>carico distribuito globale su elemento tipo trave</b><br>7 dati ( $f_x, f_y, f_z, m_x, m_y, m_z$ , ascissa di inizio carico)<br>7 dati ( $f_x, f_y, f_z, m_x, m_y, m_z$ , ascissa di fine carico)                                                                                                                          |
| <b>4</b>  | <b>carico distribuito locale su elemento tipo trave</b><br>7 dati ( $f_1, f_2, f_3, m_1, m_2, m_3$ , ascissa di inizio carico)<br>7 dati ( $f_1, f_2, f_3, m_1, m_2, m_3$ , ascissa di fine carico)                                                                                                                           |
| <b>5</b>  | <b>carico concentrato globale su elemento tipo trave</b><br>7 dati ( $F_x, F_y, F_z, M_x, M_y, M_z$ , ascissa di carico)                                                                                                                                                                                                      |
| <b>6</b>  | <b>carico concentrato locale su elemento tipo trave</b><br>7 dati ( $F_1, F_2, F_3, M_1, M_2, M_3$ , ascissa di carico)                                                                                                                                                                                                       |
| <b>7</b>  | <b>variazione termica applicata ad elemento tipo trave</b><br>7 dati (variazioni termiche: uniforme, media e differenza in altezza e larghezza al nodo iniziale e finale)                                                                                                                                                     |
| <b>8</b>  | <b>carico di pressione uniforme su elemento tipo piastra</b><br>1 dato (pressione)                                                                                                                                                                                                                                            |
| <b>9</b>  | <b>carico di pressione variabile su elemento tipo piastra</b><br>4 dati (pressione, quota, pressione, quota)                                                                                                                                                                                                                  |
| <b>10</b> | <b>variazione termica applicata ad elemento tipo piastra</b><br>2 dati (variazioni termiche: media e differenza nello spessore)                                                                                                                                                                                               |
| <b>11</b> | <b>carico variabile generale su elementi tipo trave e piastra</b><br>1 dato descrizione della tipologia<br>4 dati per segmento (posizione, valore, posizione, valore)<br>la tipologia precisa l'ascissa di definizione, la direzione del carico, la modalità di carico e la larghezza d'influenza per gli elementi tipo trave |
| <b>12</b> | <b>gruppo di carichi con impronta su piastra</b><br>9 dati (numero di ripetizioni in direzione X e Y, valore di ciascun carico, posizione centrale del primo, dimensioni dell'impronta, interasse tra i carichi)                                                                                                              |

|                                                                                     |                            |                                                                                      |                            |
|-------------------------------------------------------------------------------------|----------------------------|--------------------------------------------------------------------------------------|----------------------------|
|    | Carico concentrato nodale  |    | Spostamento impresso       |
|    | Carico distribuito globale |    | Carico distribuito locale  |
|    | Carico globale concentrato |    | Carico concentrato locale  |
|   | Carico termico 2D          |   | Carico termico 3D          |
|  | Carico pressione uniforme  |  | Carico pressione variabile |

**Tipo** carico distribuito globale su trave

| Id | Tipo                     | Pos. | fx    | fy    | fz      | mx  | my  | mz  |
|----|--------------------------|------|-------|-------|---------|-----|-----|-----|
|    |                          | m    | kg/ m | kg/ m | kg/ m   | kg  | kg  | kg  |
| 9  | Pannello scala sicurezza | 0.0  | 0.0   | 0.0   | -250.00 | 0.0 | 0.0 | 0.0 |
|    |                          | 0.0  | 0.0   | 0.0   | -250.00 | 0.0 | 0.0 | 0.0 |

**Tipo** carico di pressione uniforme su piastra

| Id | Tipo                                                                      | pressione |
|----|---------------------------------------------------------------------------|-----------|
|    |                                                                           | kg/ m2    |
| 5  | ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 | 800.00    |

**Tipo** carico di pressione variabile su piastra

| Id | Tipo                                        | pressione | quota | pressione | quota |
|----|---------------------------------------------|-----------|-------|-----------|-------|
|    |                                             | kg/ m2    | m     | kg/ m2    | m     |
| 4  | spinta terreno a riposo (da personalizzare) | 0.0       | 6.96  | 3100.00   | -2.85 |

# SCHEMATIZZAZIONE DEI CASI DI CARICO

## LEGENDA TABELLA CASI DI CARICO

Il programma consente l'applicazione di diverse tipologie di casi di carico.

Sono previsti i seguenti 11 tipi di casi di carico:

|    | Sigla | Tipo | Descrizione                                                                                                 |
|----|-------|------|-------------------------------------------------------------------------------------------------------------|
| 1  | Ggk   | A    | caso di carico comprensivo del peso proprio struttura                                                       |
| 2  | Gk    | NA   | caso di carico con azioni permanenti                                                                        |
| 3  | Qk    | NA   | caso di carico con azioni variabili                                                                         |
| 4  | Gsk   | A    | caso di carico comprensivo dei carichi permanenti sui solai e sulle coperture                               |
| 5  | Qsk   | A    | caso di carico comprensivo dei carichi variabili sui solai                                                  |
| 6  | Qnk   | A    | caso di carico comprensivo dei carichi di neve sulle coperture                                              |
| 7  | Qtk   | SA   | caso di carico comprensivo di una variazione termica agente sulla struttura                                 |
| 8  | Qvk   | NA   | caso di carico comprensivo di azioni da vento sulla struttura                                               |
| 9  | Esk   | SA   | caso di carico sismico con analisi statica equivalente                                                      |
| 10 | Edk   | SA   | caso di carico sismico con analisi dinamica                                                                 |
| 11 | Etk   | NA   | caso di carico comprensivo di azioni derivanti dall' incremento di spinta delle terre in condizione sismica |
| 12 | Pk    | NA   | caso di carico comprensivo di azioni derivanti da coazioni, cedimenti e precompressioni                     |

Sono di tipo automatico A (ossia non prevedono introduzione dati da parte dell'utente) i seguenti casi di carico: 1-Ggk; 4-Gsk; 5-Qsk; 6-Qnk.

Sono di tipo semi-automatico SA (ossia prevedono una minima introduzione dati da parte dell'utente) i seguenti casi di carico:

7-Qtk, in quanto richiede solo il valore della variazione termica;

9-Esk e 10-Edk, in quanto richiedono il valore dell'angolo di ingresso del sisma e l'individuazione dei casi di carico partecipanti alla definizione delle masse.

Sono di tipo non automatico NA ossia prevedono la diretta applicazione di carichi generici agli elementi strutturali (si veda il precedente punto Modellazione delle Azioni) i restanti casi di carico.

Nella tabella successiva vengono riportati i casi di carico agenti sulla struttura, con l'indicazione dei dati relativi al caso di carico stesso: Numero Tipo e Sigla identificativa, Valore di riferimento del caso di carico (se previsto).

In successione, per i casi di carico non automatici, viene riportato l'elenco di nodi ed elementi direttamente caricati con la sigla identificativa del carico.

Per i casi di carico di tipo sismico (9-Esk e 10-Edk), viene riportata la tabella di definizione delle masse: per ogni caso di carico partecipante alla definizione delle masse viene indicata la relativa aliquota (partecipazione) considerata. Si precisa che per i caso di carico 5-Qsk e 6-Qnk la partecipazione è prevista localmente per ogni elemento solaio o copertura presente nel modello (si confronti il valore Sksol nel capitolo relativo agli elementi solaio) e pertanto la loro partecipazione è di norma pari a uno.

| CDC | Tipo | Sigla Id                                           | Note                                                                   |
|-----|------|----------------------------------------------------|------------------------------------------------------------------------|
| 1   | Ggk  | CDC=Ggk (peso proprio della struttura)             |                                                                        |
| 2   | Gsk  | CDC=G1sk (permanente solai-coperture)              |                                                                        |
| 3   | Gsk  | CDC=G2sk (permanente solai-coperture n.c.d.)       |                                                                        |
| 4   | Qsk  | CDC=Qsk (variabile solai)                          |                                                                        |
| 5   | Edk  | CDC=Ed (dinamico SLU) alfa=0.0 (ecc. +)            | partecipazione:1.00 per 1 CDC=Ggk (peso proprio della struttura)       |
|     |      |                                                    | partecipazione:1.00 per 2 CDC=G1sk (permanente solai-coperture)        |
|     |      |                                                    | partecipazione:1.00 per 3 CDC=G2sk (permanente solai-coperture n.c.d.) |
|     |      |                                                    | partecipazione:1.00 per 4 CDC=Qsk (variabile solai)                    |
| 6   | Edk  | CDC=Ed (dinamico SLU) alfa=0.0 (ecc. -)            | come precedente CDC sismico                                            |
| 7   | Edk  | CDC=Ed (dinamico SLU) alfa=90.00 (ecc. +)          | come precedente CDC sismico                                            |
| 8   | Edk  | CDC=Ed (dinamico SLU) alfa=90.00 (ecc. -)          | come precedente CDC sismico                                            |
| 9   | Gk   | CDC=G1k (permanente generico) .....Spinta a riposo | D3 :da 1 a 70 Azione : spinta terreno a riposo (da personalizzare)     |
|     |      |                                                    | D3 :da 77 a 79 Azione : spinta terreno a riposo (da personalizzare)    |
|     |      |                                                    | D3 :da 85 a 89 Azione : spinta terreno a riposo (da personalizzare)    |
|     |      |                                                    | D3 :da 97 a 99 Azione : spinta terreno a riposo (da personalizzare)    |
|     |      |                                                    | D3 :da 105 a 109 Azione : spinta terreno a riposo (da personalizzare)  |
|     |      |                                                    | D3 :da 116 a 119 Azione : spinta terreno a riposo (da personalizzare)  |
|     |      |                                                    | D3 :da 125 a 129 Azione : spinta terreno a riposo (da personalizzare)  |
|     |      |                                                    | D3 : 132 Azione : spinta terreno a riposo (da personalizzare)          |
|     |      |                                                    | D3 : 134 Azione : spinta terreno a riposo (da personalizzare)          |
|     |      |                                                    | D3 :da 135 a 185 Azione : spinta terreno a riposo (da personalizzare)  |

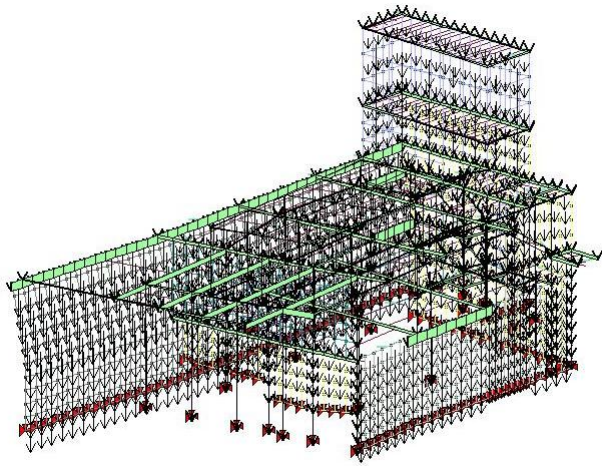
| CDC | Tipo | Sigla Id | Note                                                                  |
|-----|------|----------|-----------------------------------------------------------------------|
|     |      |          | personalizzare)                                                       |
|     |      |          | D3 :da 186 a 189 Azione : spinta terreno a riposo (da personalizzare) |
|     |      |          | D3 :da 190 a 192 Azione : spinta terreno a riposo (da personalizzare) |
|     |      |          | D3 :da 193 a 196 Azione : spinta terreno a riposo (da personalizzare) |
|     |      |          | D3 :da 197 a 199 Azione : spinta terreno a riposo (da personalizzare) |
|     |      |          | D3 :da 200 a 203 Azione : spinta terreno a riposo (da personalizzare) |
|     |      |          | D3 :da 204 a 206 Azione : spinta terreno a riposo (da personalizzare) |
|     |      |          | D3 :da 207 a 208 Azione : spinta terreno a riposo (da personalizzare) |
|     |      |          | D3 :da 209 a 216 Azione : spinta terreno a riposo (da personalizzare) |
|     |      |          | D3 :da 218 a 220 Azione : spinta terreno a riposo (da personalizzare) |
|     |      |          | D3 :da 222 a 224 Azione : spinta terreno a riposo (da personalizzare) |
|     |      |          | D3 :da 225 a 234 Azione : spinta terreno a riposo (da personalizzare) |
|     |      |          | D3 : 235 Azione : spinta terreno a riposo (da personalizzare)         |
|     |      |          | D3 :da 237 a 238 Azione : spinta terreno a riposo (da personalizzare) |
|     |      |          | D3 :da 239 a 241 Azione : spinta terreno a riposo (da personalizzare) |
|     |      |          | D3 :da 242 a 245 Azione : spinta terreno a riposo (da personalizzare) |
|     |      |          | D3 :da 246 a 248 Azione : spinta terreno a riposo (da personalizzare) |
|     |      |          | D3 :da 249 a 250 Azione : spinta terreno a riposo (da personalizzare) |
|     |      |          | D3 : 251 Azione : spinta terreno a riposo (da personalizzare)         |
|     |      |          | D3 :da 253 a 263 Azione : spinta terreno a riposo (da personalizzare) |
|     |      |          | D3 :da 269 a 275 Azione : spinta terreno a riposo (da personalizzare) |
|     |      |          | D3 :da 281 a 285 Azione : spinta terreno a riposo (da personalizzare) |
|     |      |          | D3 :da 295 a 334 Azione : spinta terreno a riposo (da personalizzare) |
|     |      |          | D3 :da 335 a 339 Azione : spinta terreno a riposo (da personalizzare) |
|     |      |          | D3 :da 357 a 358 Azione : spinta terreno a riposo (da personalizzare) |
|     |      |          | D3 :da 361 a 366 Azione : spinta terreno a riposo (da personalizzare) |
|     |      |          | D3 : 368 Azione : spinta terreno a riposo (da personalizzare)         |
|     |      |          | D3 : 374 Azione : spinta terreno a riposo (da personalizzare)         |
|     |      |          | D3 :da 375 a 400 Azione : spinta terreno a riposo (da personalizzare) |
|     |      |          | D3 :da 576 a 577 Azione : spinta terreno a riposo (da personalizzare) |
|     |      |          | D3 : 579 Azione : spinta terreno a riposo (da personalizzare)         |
|     |      |          | D3 : 580 Azione : spinta terreno a riposo (da personalizzare)         |
|     |      |          | D3 : 582 Azione : spinta terreno a riposo (da personalizzare)         |
|     |      |          | D3 : 583 Azione : spinta terreno a riposo (da personalizzare)         |
|     |      |          | D3 : 584 Azione : spinta terreno a riposo (da personalizzare)         |
|     |      |          | D3 :da 585 a 586 Azione : spinta terreno a riposo (da personalizzare) |
|     |      |          | D3 :da 587 a 588 Azione : spinta terreno a riposo (da personalizzare) |
|     |      |          | D3 : 593 Azione : spinta terreno a riposo (da personalizzare)         |
|     |      |          | D3 : 597 Azione : spinta terreno a riposo (da personalizzare)         |
|     |      |          | D3 :da 602 a 606 Azione : spinta terreno a riposo (da personalizzare) |
|     |      |          | D3 :da 609 a 610 Azione : spinta terreno a riposo (da personalizzare) |
|     |      |          | D3 : 614 Azione : spinta terreno a riposo (da personalizzare)         |
|     |      |          | D3 :da 616 a 617 Azione : spinta terreno a riposo (da personalizzare) |
|     |      |          | D3 : 619 Azione : spinta terreno a riposo (da personalizzare)         |
|     |      |          | D3 : 628 Azione : spinta terreno a riposo (da personalizzare)         |

[illegible]

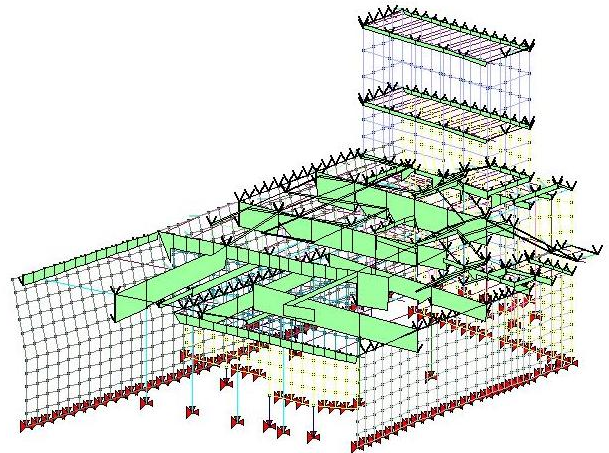
| CDC | Tipo | Sigla Id                                      | Note                                                                                                |
|-----|------|-----------------------------------------------|-----------------------------------------------------------------------------------------------------|
| 10  | Etk  | CDC=Etk (inc. sp. terreno) SLV dir + alfa=0.0 | D3 :da 85 a 89 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02   |
|     |      |                                               | D3 :da 105 a 109 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 |
|     |      |                                               | D3 :da 125 a 129 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 |
|     |      |                                               | D3 : 132 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02         |
|     |      |                                               | D3 : 134 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02         |
|     |      |                                               | D3 :da 186 a 189 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 |
|     |      |                                               | D3 :da 193 a 196 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 |
|     |      |                                               | D3 :da 200 a 203 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 |
|     |      |                                               | D3 :da 207 a 208 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 |
|     |      |                                               | D3 :da 222 a 224 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 |
|     |      |                                               | D3 : 235 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02         |
|     |      |                                               | D3 :da 237 a 238 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 |
|     |      |                                               | D3 :da 242 a 245 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 |
|     |      |                                               | D3 :da 249 a 250 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 |
|     |      |                                               | D3 :da 295 a 334 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 |
|     |      |                                               | D3 :da 375 a 400 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 |
|     |      |                                               | D3 : 579 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02         |
|     |      |                                               | D3 : 582 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02         |
|     |      |                                               | D3 : 584 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02         |
|     |      |                                               | D3 :da 587 a 588 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 |
|     |      |                                               | D3 : 593 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02         |
|     |      |                                               | D3 : 597 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02         |
|     |      |                                               | D3 :da 602 a 606 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 |
|     |      |                                               | D3 :da 609 a 610 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 |
|     |      |                                               | D3 : 619 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02         |
|     |      |                                               | D3 : 632 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02         |
|     |      |                                               | D3 :da 636 a 637 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 |
|     |      |                                               | D3 : 639 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02         |
|     |      |                                               | D3 : 641 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02         |
|     |      |                                               | D3 : 643 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02         |
|     |      |                                               | D3 : 648 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02         |
|     |      |                                               | D3 :da 650 a 652 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 |
|     |      |                                               | D3 : 658 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02         |
|     |      |                                               | D3 : 664 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02         |
|     |      |                                               | D3 : 666 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02         |
|     |      |                                               | D3 : 677 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02         |
|     |      |                                               | D3 :da 694 a 695 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 |
|     |      |                                               | D3 :da 698 a 699 Azione : ETK PAN ++ sovraspinta sismica                                            |

| CDC | Tipo | Sigla Id                                                    | Note                                                                                                |
|-----|------|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
|     |      |                                                             | terreno (da personalizzare)-P3:p=8.000e-02                                                          |
|     |      |                                                             | D3 : 702 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02         |
|     |      |                                                             | D3 :da 704 a 705 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 |
|     |      |                                                             | D3 :da 707 a 708 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 |
|     |      |                                                             | D3 :da 710 a 713 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 |
|     |      |                                                             | D3 :da 715 a 716 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 |
|     |      |                                                             | D3 :da 719 a 724 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 |
|     |      |                                                             | D3 : 728 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02         |
|     |      |                                                             | D3 : 732 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02         |
|     |      |                                                             | D3 : 735 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02         |
|     |      |                                                             | D3 : 737 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02         |
|     |      |                                                             | D3 :da 739 a 742 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 |
|     |      |                                                             | D3 :da 744 a 748 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 |
|     |      |                                                             | D3 : 750 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02         |
|     |      |                                                             | D3 : 752 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02         |
|     |      |                                                             | D3 : 754 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02         |
|     |      |                                                             | D3 :da 756 a 758 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 |
|     |      |                                                             | D3 : 772 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02         |
|     |      |                                                             | D3 :da 775 a 777 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 |
|     |      |                                                             | D3 :da 779 a 781 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 |
|     |      |                                                             | D3 : 783 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02         |
|     |      |                                                             | D3 : 785 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02         |
|     |      |                                                             | D3 :da 793 a 795 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 |
|     |      |                                                             | D3 :da 799 a 800 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 |
|     |      |                                                             | D3 :da 803 a 804 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 |
|     |      |                                                             | D3 : 807 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02         |
|     |      |                                                             | D3 :da 813 a 816 Azione : ETK PAN ++ sovraspinta sismica terreno (da personalizzare)-P3:p=8.000e-02 |
| 14  | Gk   | CDC=G1k (permanente generico) .....Pannello scala sicurezza | D2 : 194 Azione : Pannello scala sicurezza                                                          |

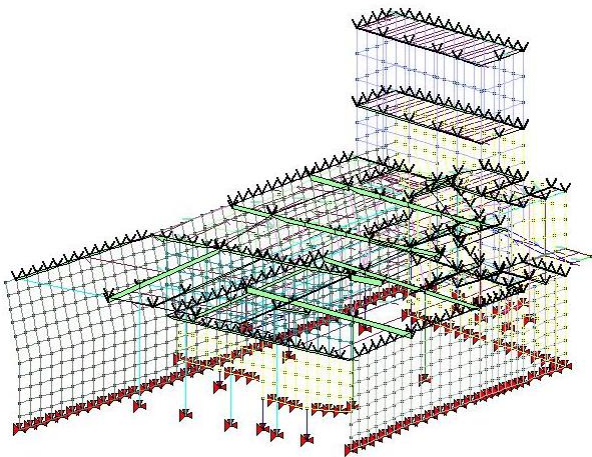
## ALCUNI SCHEMI DI CASI DI CARICO



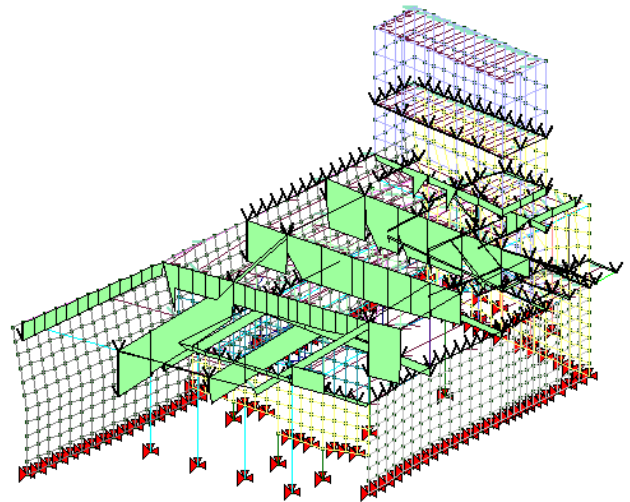
1) CDC= Ggk (Peso proprio della struttura)



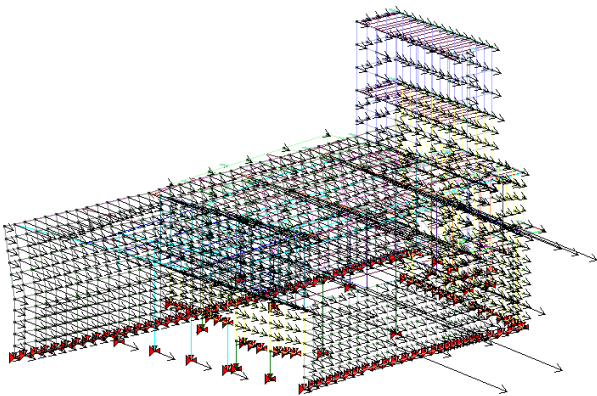
2) CDC= G1sk (Permanente solaio-copertura)



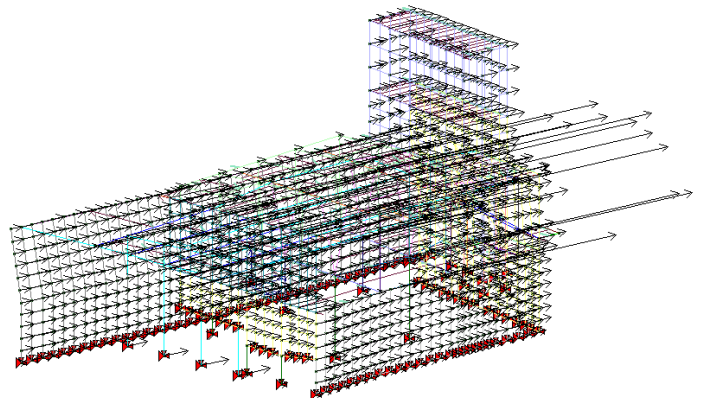
3) CDC= G2sk (Permanente solaio-copertura n.c.d.)



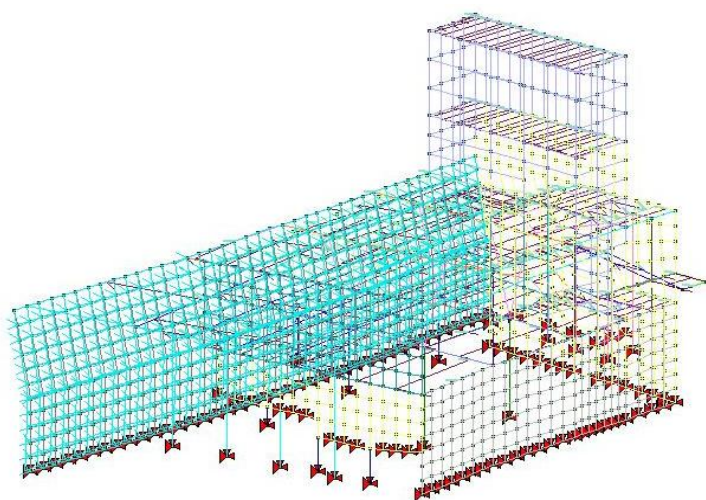
4) CDC= Qsk (Variabile solai solai)



5) CDC= Ed (Dinamico SLU)  $\alpha=0$  (ecc.+)



7) CDC= Ed (Dinamico SLU)  $\alpha=90$  (ecc.+)



9) CDC= G1k (Permanente generico) Spinta terreno

# DEFINIZIONE DELLE COMBINAZIONI

## LEGENDA TABELLA COMBINAZIONI DI CARICO

Il programma combina i diversi tipi di casi di carico (CDC) secondo le regole previste dalla normativa vigente.

Le combinazioni previste sono destinate al controllo di sicurezza della struttura ed alla verifica degli spostamenti e delle sollecitazioni.

La prima tabella delle combinazioni riportata di seguito comprende le seguenti informazioni: *Numero*, *Tipo*, *Sigla identificativa*. Una seconda tabella riporta il *peso nella combinazione* assunto per ogni caso di carico.

Ai fini delle verifiche degli stati limite si definiscono le seguenti combinazioni delle azioni:

### Combinazione fondamentale SLU

$$\gamma G1 \cdot G1 + \gamma G2 \cdot G2 + \gamma P \cdot P + \gamma Q1 \cdot Qk1 + \gamma Q2 \cdot \psi 02 \cdot Qk2 + \gamma Q3 \cdot \psi 03 \cdot Qk3 + \dots$$

### Combinazione caratteristica (rara) SLE

$$G1 + G2 + P + Qk1 + \psi 02 \cdot Qk2 + \psi 03 \cdot Qk3 + \dots$$

### Combinazione frequente SLE

$$G1 + G2 + P + \psi 11 \cdot Qk1 + \psi 22 \cdot Qk2 + \psi 23 \cdot Qk3 + \dots$$

### Combinazione quasi permanente SLE

$$G1 + G2 + P + \psi 21 \cdot Qk1 + \psi 22 \cdot Qk2 + \psi 23 \cdot Qk3 + \dots$$

**Combinazione sismica**, impiegata per gli stati limite ultimi e di esercizio connessi all'azione sismica E

$$E + G1 + G2 + P + \psi 21 \cdot Qk1 + \psi 22 \cdot Qk2 + \dots$$

**Combinazione eccezionale**, impiegata per gli stati limite connessi alle azioni eccezionali

$$G1 + G2 + P + \psi 21 \cdot Qk1 + \psi 22 \cdot Qk2 + \dots$$

*Dove:*

NTC 2008 Tabella 2.5.I

| Destinazione d'uso/azione                                  | $\psi 0$ | $\psi 1$ | $\psi 2$ |
|------------------------------------------------------------|----------|----------|----------|
| Categoria A residenziali                                   | 0,70     | 0,50     | 0,30     |
| Categoria B uffici                                         | 0,70     | 0,50     | 0,30     |
| Categoria C ambienti suscettibili di affollamento          | 0,70     | 0,70     | 0,60     |
| Categoria D ambienti ad uso commerciale                    | 0,70     | 0,70     | 0,60     |
| Categoria E biblioteche, archivi, magazzini,...            | 1,00     | 0,90     | 0,80     |
| Categoria F Rimesse e parcheggi (autoveicoli $\leq 30kN$ ) | 0,70     | 0,70     | 0,60     |
| Categoria G Rimesse e parcheggi (autoveicoli $> 30kN$ )    | 0,70     | 0,50     | 0,30     |
| Categoria H Coperture                                      | 0,00     | 0,00     | 0,00     |
| Vento                                                      | 0,60     | 0,20     | 0,00     |
| Neve a quota $\leq 1000$ m                                 | 0,50     | 0,20     | 0,00     |
| Neve a quota $> 1000$ m                                    | 0,70     | 0,50     | 0,20     |
| Variazioni Termiche                                        | 0,60     | 0,50     | 0,00     |

Nelle verifiche possono essere adottati in alternativa due diversi approcci progettuali:

- per l'approccio 1 si considerano due diverse combinazioni di gruppi di coefficienti di sicurezza parziali per le azioni, per i materiali e per la resistenza globale (combinazione 1 con coefficienti A1 e combinazione 2 con coefficienti A2),
- per l'approccio 2 si definisce un'unica combinazione per le azioni, per la resistenza dei materiali e per la resistenza globale (con coefficienti A1).

NTC 2008 Tabella 2.6.I

|                                                                    |             | Coefficiente<br>$\gamma_f$ | <b>EQU</b> | <b>A1</b> | <b>A2</b> |
|--------------------------------------------------------------------|-------------|----------------------------|------------|-----------|-----------|
| Carichi permanenti                                                 | Favorevoli  | $\gamma_{G1}$              | 0,9        | 1,0       | 1,0       |
|                                                                    | Sfavorevoli |                            | 1,1        | 1,3       | 1,0       |
| Carichi permanenti non strutturali<br>(Non compiutamente definiti) | Favorevoli  | $\gamma_{G2}$              | 0,0        | 0,0       | 0,0       |
|                                                                    | Sfavorevoli |                            | 1,5        | 1,5       | 1,3       |
| Carichi variabili                                                  | Favorevoli  | $\gamma_{Qi}$              | 0,0        | 0,0       | 0,0       |
|                                                                    | Sfavorevoli |                            | 1,5        | 1,5       | 1,3       |

| <b>Cmb</b> | <b>Tipo</b> | <b>Sigla Id</b>             | <b>effetto P-delta</b> |
|------------|-------------|-----------------------------|------------------------|
| 1          | SLU         | Comb. SLU A1 1              |                        |
| 2          | SLU         | Comb. SLU A1 2              |                        |
| 3          | SLU         | Comb. SLU A1 3              |                        |
| 4          | SLU         | Comb. SLU A1 4              |                        |
| 5          | SLU         | Comb. SLU A1 (SLV sism.) 5  |                        |
| 6          | SLU         | Comb. SLU A1 (SLV sism.) 6  |                        |
| 7          | SLU         | Comb. SLU A1 (SLV sism.) 7  |                        |
| 8          | SLU         | Comb. SLU A1 (SLV sism.) 8  |                        |
| 9          | SLU         | Comb. SLU A1 (SLV sism.) 9  |                        |
| 10         | SLU         | Comb. SLU A1 (SLV sism.) 10 |                        |
| 11         | SLU         | Comb. SLU A1 (SLV sism.) 11 |                        |
| 12         | SLU         | Comb. SLU A1 (SLV sism.) 12 |                        |
| 13         | SLU         | Comb. SLU A1 (SLV sism.) 13 |                        |
| 14         | SLU         | Comb. SLU A1 (SLV sism.) 14 |                        |
| 15         | SLU         | Comb. SLU A1 (SLV sism.) 15 |                        |
| 16         | SLU         | Comb. SLU A1 (SLV sism.) 16 |                        |
| 17         | SLU         | Comb. SLU A1 (SLV sism.) 17 |                        |
| 18         | SLU         | Comb. SLU A1 (SLV sism.) 18 |                        |
| 19         | SLU         | Comb. SLU A1 (SLV sism.) 19 |                        |
| 20         | SLU         | Comb. SLU A1 (SLV sism.) 20 |                        |
| 21         | SLU         | Comb. SLU A1 (SLV sism.) 21 |                        |
| 22         | SLU         | Comb. SLU A1 (SLV sism.) 22 |                        |
| 23         | SLU         | Comb. SLU A1 (SLV sism.) 23 |                        |
| 24         | SLU         | Comb. SLU A1 (SLV sism.) 24 |                        |
| 25         | SLU         | Comb. SLU A1 (SLV sism.) 25 |                        |
| 26         | SLU         | Comb. SLU A1 (SLV sism.) 26 |                        |
| 27         | SLU         | Comb. SLU A1 (SLV sism.) 27 |                        |
| 28         | SLU         | Comb. SLU A1 (SLV sism.) 28 |                        |
| 29         | SLU         | Comb. SLU A1 (SLV sism.) 29 |                        |
| 30         | SLU         | Comb. SLU A1 (SLV sism.) 30 |                        |
| 31         | SLU         | Comb. SLU A1 (SLV sism.) 31 |                        |
| 32         | SLU         | Comb. SLU A1 (SLV sism.) 32 |                        |
| 33         | SLU         | Comb. SLU A1 (SLV sism.) 33 |                        |
| 34         | SLU         | Comb. SLU A1 (SLV sism.) 34 |                        |
| 35         | SLU         | Comb. SLU A1 (SLV sism.) 35 |                        |
| 36         | SLU         | Comb. SLU A1 (SLV sism.) 36 |                        |

| Cmb | CDC<br>1/15... | CDC<br>2/16... | CDC<br>3/17... | CDC<br>4/18... | CDC<br>5/19... | CDC<br>6/20... | CDC<br>7/21... | CDC<br>8/22... | CDC<br>9/23... | CDC<br>10/24... | CDC<br>11/25... | CDC<br>12/26... | CDC<br>13/27... | CDC<br>14/28... |
|-----|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 1   | 1.30           | 1.30           | 1.50           | 0.0            | 0.0            | 0.0            | 0.0            | 0.0            | 1.30           | 0.0             | 0.0             | 0.0             | 0.0             | 1.30            |
| 2   | 1.30           | 1.30           | 1.50           | 1.50           | 0.0            | 0.0            | 0.0            | 0.0            | 1.30           | 0.0             | 0.0             | 0.0             | 0.0             | 1.30            |
| 3   | 1.00           | 1.00           | 0.0            | 0.0            | 0.0            | 0.0            | 0.0            | 0.0            | 1.00           | 0.0             | 0.0             | 0.0             | 0.0             | 1.00            |
| 4   | 1.00           | 1.00           | 0.0            | 1.50           | 0.0            | 0.0            | 0.0            | 0.0            | 1.00           | 0.0             | 0.0             | 0.0             | 0.0             | 1.00            |
| 5   | 1.00           | 1.00           | 1.00           | 0.60           | -1.00          | 0.0            | -0.30          | 0.0            | 1.00           | 0.0             | 1.00            | 0.0             | 0.30            | 1.00            |
| 6   | 1.00           | 1.00           | 1.00           | 0.60           | -1.00          | 0.0            | 0.30           | 0.0            | 1.00           | 0.0             | 1.00            | 0.30            | 0.0             | 1.00            |
| 7   | 1.00           | 1.00           | 1.00           | 0.60           | 1.00           | 0.0            | -0.30          | 0.0            | 1.00           | 1.00            | 0.0             | 0.0             | 0.30            | 1.00            |
| 8   | 1.00           | 1.00           | 1.00           | 0.60           | 1.00           | 0.0            | 0.30           | 0.0            | 1.00           | 1.00            | 0.0             | 0.30            | 0.0             | 1.00            |
| 9   | 1.00           | 1.00           | 1.00           | 0.60           | -1.00          | 0.0            | 0.0            | -0.30          | 1.00           | 0.0             | 1.00            | 0.0             | 0.30            | 1.00            |
| 10  | 1.00           | 1.00           | 1.00           | 0.60           | -1.00          | 0.0            | 0.0            | 0.30           | 1.00           | 0.0             | 1.00            | 0.30            | 0.0             | 1.00            |
| 11  | 1.00           | 1.00           | 1.00           | 0.60           | 1.00           | 0.0            | 0.0            | -0.30          | 1.00           | 1.00            | 0.0             | 0.0             | 0.30            | 1.00            |
| 12  | 1.00           | 1.00           | 1.00           | 0.60           | 1.00           | 0.0            | 0.0            | 0.30           | 1.00           | 1.00            | 0.0             | 0.30            | 0.0             | 1.00            |
| 13  | 1.00           | 1.00           | 1.00           | 0.60           | 0.0            | -1.00          | -0.30          | 0.0            | 1.00           | 0.0             | 1.00            | 0.0             | 0.30            | 1.00            |
| 14  | 1.00           | 1.00           | 1.00           | 0.60           | 0.0            | -1.00          | 0.30           | 0.0            | 1.00           | 0.0             | 1.00            | 0.30            | 0.0             | 1.00            |
| 15  | 1.00           | 1.00           | 1.00           | 0.60           | 0.0            | 1.00           | -0.30          | 0.0            | 1.00           | 1.00            | 0.0             | 0.0             | 0.30            | 1.00            |
| 16  | 1.00           | 1.00           | 1.00           | 0.60           | 0.0            | 1.00           | 0.30           | 0.0            | 1.00           | 1.00            | 0.0             | 0.30            | 0.0             | 1.00            |
| 17  | 1.00           | 1.00           | 1.00           | 0.60           | 0.0            | -1.00          | 0.0            | -0.30          | 1.00           | 0.0             | 1.00            | 0.0             | 0.30            | 1.00            |
| 18  | 1.00           | 1.00           | 1.00           | 0.60           | 0.0            | -1.00          | 0.0            | 0.30           | 1.00           | 0.0             | 1.00            | 0.30            | 0.0             | 1.00            |
| 19  | 1.00           | 1.00           | 1.00           | 0.60           | 0.0            | 1.00           | 0.0            | -0.30          | 1.00           | 1.00            | 0.0             | 0.0             | 0.30            | 1.00            |
| 20  | 1.00           | 1.00           | 1.00           | 0.60           | 0.0            | 1.00           | 0.0            | 0.30           | 1.00           | 1.00            | 0.0             | 0.30            | 0.0             | 1.00            |
| 21  | 1.00           | 1.00           | 1.00           | 0.60           | -0.30          | 0.0            | -1.00          | 0.0            | 1.00           | 0.0             | 0.30            | 0.0             | 1.00            | 1.00            |
| 22  | 1.00           | 1.00           | 1.00           | 0.60           | -0.30          | 0.0            | 1.00           | 0.0            | 1.00           | 0.0             | 0.30            | 1.00            | 0.0             | 1.00            |
| 23  | 1.00           | 1.00           | 1.00           | 0.60           | 0.30           | 0.0            | -1.00          | 0.0            | 1.00           | 0.30            | 0.0             | 0.0             | 1.00            | 1.00            |
| 24  | 1.00           | 1.00           | 1.00           | 0.60           | 0.30           | 0.0            | 1.00           | 0.0            | 1.00           | 0.30            | 0.0             | 1.00            | 0.0             | 1.00            |
| 25  | 1.00           | 1.00           | 1.00           | 0.60           | 0.0            | -0.30          | -1.00          | 0.0            | 1.00           | 0.0             | 0.30            | 0.0             | 1.00            | 1.00            |
| 26  | 1.00           | 1.00           | 1.00           | 0.60           | 0.0            | -0.30          | 1.00           | 0.0            | 1.00           | 0.0             | 0.30            | 1.00            | 0.0             | 1.00            |
| 27  | 1.00           | 1.00           | 1.00           | 0.60           | 0.0            | 0.30           | -1.00          | 0.0            | 1.00           | 0.30            | 0.0             | 0.0             | 1.00            | 1.00            |
| 28  | 1.00           | 1.00           | 1.00           | 0.60           | 0.0            | 0.30           | 1.00           | 0.0            | 1.00           | 0.30            | 0.0             | 1.00            | 0.0             | 1.00            |
| 29  | 1.00           | 1.00           | 1.00           | 0.60           | -0.30          | 0.0            | 0.0            | -1.00          | 1.00           | 0.0             | 0.30            | 0.0             | 1.00            | 1.00            |
| 30  | 1.00           | 1.00           | 1.00           | 0.60           | -0.30          | 0.0            | 0.0            | 1.00           | 1.00           | 0.0             | 0.30            | 1.00            | 0.0             | 1.00            |
| 31  | 1.00           | 1.00           | 1.00           | 0.60           | 0.30           | 0.0            | 0.0            | -1.00          | 1.00           | 0.30            | 0.0             | 0.0             | 1.00            | 1.00            |
| 32  | 1.00           | 1.00           | 1.00           | 0.60           | 0.30           | 0.0            | 0.0            | 1.00           | 1.00           | 0.30            | 0.0             | 1.00            | 0.0             | 1.00            |
| 33  | 1.00           | 1.00           | 1.00           | 0.60           | 0.0            | -0.30          | 0.0            | -1.00          | 1.00           | 0.0             | 0.30            | 0.0             | 1.00            | 1.00            |
| 34  | 1.00           | 1.00           | 1.00           | 0.60           | 0.0            | -0.30          | 0.0            | 1.00           | 1.00           | 0.0             | 0.30            | 1.00            | 0.0             | 1.00            |
| 35  | 1.00           | 1.00           | 1.00           | 0.60           | 0.0            | 0.30           | 0.0            | -1.00          | 1.00           | 0.30            | 0.0             | 0.0             | 1.00            | 1.00            |
| 36  | 1.00           | 1.00           | 1.00           | 0.60           | 0.0            | 0.30           | 0.0            | 1.00           | 1.00           | 0.30            | 0.0             | 1.00            | 0.0             | 1.00            |

# AZIONE SISMICA

## VALUTAZIONE DELL' AZIONE SISMICA

L'azione sismica sulle costruzioni è valutata a partire dalla "pericolosità sismica di base", in condizioni ideali di sito di riferimento rigido con superficie topografica orizzontale.

Allo stato attuale, la pericolosità sismica su reticolo di riferimento nell'intervallo di riferimento è fornita dai dati pubblicati sul sito <http://esse1.mi.ingv.it/>. Per punti non coincidenti con il reticolo di riferimento e periodi di ritorno non contemplati direttamente si opera come indicato nell' allegato alle NTC (rispettivamente media pesata e interpolazione).

L' azione sismica viene definita in relazione ad un periodo di riferimento  $V_r$  che si ricava, per ciascun tipo di costruzione, moltiplicandone la vita nominale per il coefficiente d'uso (vedi tabella Parametri della struttura). Fissato il periodo di riferimento  $V_r$  e la probabilità di superamento  $P_{ver}$  associata a ciascuno degli stati limite considerati, si ottiene il periodo di ritorno  $T_r$  e i relativi parametri di pericolosità sismica (vedi tabella successiva):

ag: accelerazione orizzontale massima del terreno;

Fo: valore massimo del fattore di amplificazione dello spettro in accelerazione orizzontale;

T\*c: periodo di inizio del tratto a velocità costante dello spettro in accelerazione orizzontale;

| Parametri della struttura |                   |            |                      |               |                       |
|---------------------------|-------------------|------------|----------------------|---------------|-----------------------|
| Classe d'uso              | Vita $V_n$ [anni] | Coeff. Uso | Periodo $V_r$ [anni] | Tipo di suolo | Categoria topografica |
| III                       | 50.0              | 1.5        | 75.0                 | C             | T2                    |

Individuati su reticolo di riferimento i parametri di pericolosità sismica si valutano i parametri spettrali riportati in tabella:

S è il coefficiente che tiene conto della categoria di sottosuolo e delle condizioni topografiche mediante la relazione seguente  $S = S_s \cdot S_t$  (3.2.5)

Fo è il fattore che quantifica l'amplificazione spettrale massima, su sito di riferimento rigido orizzontale

Fv è il fattore che quantifica l'amplificazione spettrale massima verticale, in termini di accelerazione orizzontale massima del terreno ag su sito di riferimento rigido orizzontale

Tb è il periodo corrispondente all'inizio del tratto dello spettro ad accelerazione costante.

Tc è il periodo corrispondente all'inizio del tratto dello spettro a velocità costante.

Td è il periodo corrispondente all'inizio del tratto dello spettro a spostamento costante.

| Id nodo | Longitudine | Latitudine | Distanza |
|---------|-------------|------------|----------|
|         |             |            | Km       |
| Loc.    | 14.243      | 40.550     |          |
| 34532   | 14.214      | 40.533     | 3.085    |
| 34533   | 14.280      | 40.532     | 3.700    |
| 34311   | 14.280      | 40.582     | 4.720    |
| 34310   | 14.214      | 40.583     | 4.397    |

| SL  | Pver | Tr   | ag (10%) | Fo    | T*c   |
|-----|------|------|----------|-------|-------|
|     |      | Anni | g        |       | sec   |
| SLO | 92.0 | 30.0 | 0.032    | 2.310 | 0.270 |
| SLD | 92.0 | 30.0 | 0.032    | 2.310 | 0.270 |
| SLV | 92.0 | 30.0 | 0.032    | 2.310 | 0.270 |
| SLC | 92.0 | 30.0 | 0.032    | 2.310 | 0.270 |

| SL  | ag    | S     | Fo    | Fv    | Tb    | Tc    | Td    |
|-----|-------|-------|-------|-------|-------|-------|-------|
|     | g     |       |       |       | sec   | sec   | sec   |
| SLO | 0.032 | 1.800 | 2.310 | 0.556 | 0.146 | 0.437 | 1.727 |
| SLD | 0.032 | 1.800 | 2.310 | 0.556 | 0.146 | 0.437 | 1.727 |
| SLV | 0.032 | 1.800 | 2.310 | 0.556 | 0.146 | 0.437 | 1.727 |
| SLC | 0.032 | 1.800 | 2.310 | 0.556 | 0.146 | 0.437 | 1.727 |

# RISULTATI ANALISI SISMICHE

## LEGENDA TABELLA ANALISI SISMICHE

Il programma consente l'analisi di diverse configurazioni sismiche.

Sono previsti, infatti, i seguenti casi di carico:

**9. Esk** caso di carico sismico con analisi statica equivalente

**10. Edk** caso di carico sismico con analisi dinamica

Ciascun caso di carico è caratterizzato da un angolo di ingresso e da una configurazione di masse determinante la forza sismica complessiva (si rimanda al capitolo relativo ai casi di carico per chiarimenti inerenti questo aspetto).

Nella colonna Note, in funzione della norma in uso sono riportati i parametri fondamentali che caratterizzano l'azione sismica: in particolare possono essere presenti i seguenti valori:

|                            |                                                                                                                                           |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Angolo di ingresso         | Angolo di ingresso dell'azione sismica orizzontale                                                                                        |
| Fattore di importanza      | Fattore di importanza dell'edificio, in base alla categoria di appartenenza                                                               |
| □ona sismica               | □ona sismica                                                                                                                              |
| Accelerazione ag           | Accelerazione orizzontale massima sul suolo                                                                                               |
| Categoria suolo            | Categoria di profilo stratigrafico del suolo di fondazione                                                                                |
| Fattore di struttura q     | Fattore dipendente dalla tipologia strutturale                                                                                            |
| Fattore di sito S          | Fattore dipendente dalla stratigrafia e dal profilo topografico                                                                           |
| Classe di duttilità CD     | Classe di duttilità della struttura – "A" duttilità alta, "B" duttilità bassa                                                             |
| Fattore riduz. SLD         | Fattore di riduzione dello spettro elastico per lo stato limite di danno                                                                  |
| Periodo proprio T1         | Periodo proprio di vibrazione della struttura                                                                                             |
| Coefficiente Lambda        | Coefficiente dipendente dal periodo proprio T1 e dal numero di piani della struttura                                                      |
| Ordinata spettro Sd(T1)    | Valore delle ordinate dello spettro di progetto per lo stato limite ultimo, componente orizzontale (verticale Svd)                        |
| Ordinata spettro Se(T1)    | Valore delle ordinate dello spettro elastico ridotta del fattore SLD per lo stato limite di danno, componente orizzontale (verticale Sve) |
| Ordinata spettro S (Tb-Tc) | Valore dell' ordinata dello spettro in uso nel tratto costante                                                                            |
| numero di modi considerati | Numero di modi di vibrare della struttura considerati nell'analisi dinamica                                                               |

Per ciascun caso di carico sismico viene riportato l'insieme di dati sotto riportati (le masse sono espresse in unità di forza):

analisi sismica statica equivalente:

quota, posizione del centro di applicazione e azione orizzontale risultante, posizione del baricentro delle rigidezze, rapporto r/Ls (per strutture a nucleo), indici di regolarità e/r secondo EC8 4.2.3.2

azione sismica complessiva

analisi sismica dinamica con spettro di risposta:

quota, posizione del centro di massa e massa risultante, posizione del baricentro delle rigidezze, rapporto r/Ls (per strutture a nucleo) , indici di regolarità e/r secondo EC8 4.2.3.2

frequenza, periodo, accelerazione spettrale, massa eccitata nelle tre direzioni globali per tutti i modi

massa complessiva ed aliquota di massa complessiva eccitata.

| CDC | Tipo | Sigla Id                                | Note                                      |
|-----|------|-----------------------------------------|-------------------------------------------|
| 5   | Edk  | CDC=Ed (dinamico SLU) alfa=0.0 (ecc. +) |                                           |
|     |      |                                         | verifica esistenti: fattore FC 1.000      |
|     |      |                                         | categoria suolo: C                        |
|     |      |                                         | fattore di sito S = 1.800                 |
|     |      |                                         | ordinata spettro (tratto Tb-Tc) = 0.088 g |
|     |      |                                         | angolo di ingresso:0.0                    |
|     |      |                                         | eccentricità aggiuntiva: positiva         |
|     |      |                                         | periodo proprio T1: 0.169 sec.            |
|     |      |                                         | fattore di struttura q: 1.500             |
|     |      |                                         | fattore per spost. mu d: 2.296            |
|     |      |                                         | classe di duttilità CD: □                 |
|     |      |                                         | numero di modi considerati: 62            |
|     |      |                                         | combinaz. modale: CQC                     |

| Quota | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| m     | kg            | m       | m       | m          | m          | m       | m       |            |             |             |
| 14.75 | 1045.17       | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.75 | 1012.25       | 8.01    | 11.69   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.75 | 1520.35       | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.73 | 898.87        | 7.16    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.72 | 892.50        | 6.39    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.71 | 2066.49       | 6.12    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.70 | 889.89        | 5.63    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.68 | 889.79        | 4.86    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.67 | 2201.83       | 4.50    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 14.66 | 888.95        | 4.09    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.64 | 887.38        | 3.32    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.62 | 885.78        | 2.55    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.62 | 2439.98       | 2.31    | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.61 | 884.18        | 1.78    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.59 | 882.59        | 1.01    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.57 | 881.00        | 0.25    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.57 | 2347.14       | 0.27    | 10.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.55 | 875.52        | -0.52   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.53 | 870.51        | -1.28   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.52 | 1430.34       | -1.78   | 10.46   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.52 | 508.48        | -1.85   | 11.29   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.52 | 495.90        | -1.92   | 12.12   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.52 | 483.49        | -1.99   | 12.94   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.51 | 612.68        | -2.06   | 13.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.25 | 1180.27       | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.25 | 1471.56       | 8.01    | 11.69   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.25 | 1450.26       | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.23 | 657.12        | 7.16    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.22 | 657.12        | 6.39    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.21 | 1522.34       | 6.12    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.20 | 657.12        | 5.63    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.18 | 657.12        | 4.86    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.17 | 1627.66       | 4.50    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.16 | 657.12        | 4.09    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.14 | 657.12        | 3.32    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.12 | 657.13        | 2.55    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.12 | 1811.04       | 2.31    | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.11 | 657.12        | 1.78    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.09 | 657.12        | 1.01    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.07 | 657.12        | 0.25    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.07 | 1750.63       | 0.27    | 10.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.05 | 654.22        | -0.52   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.03 | 658.38        | -1.28   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.02 | 1230.22       | -1.78   | 10.46   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.02 | 707.30        | -1.85   | 11.29   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.02 | 704.77        | -1.92   | 12.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.02 | 702.25        | -1.99   | 12.93   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.01 | 682.58        | -2.06   | 13.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.75 | 1179.95       | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.75 | 1471.56       | 8.01    | 11.69   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.75 | 1450.57       | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.73 | 657.12        | 7.16    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.72 | 657.12        | 6.39    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.71 | 1522.34       | 6.12    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.70 | 657.12        | 5.63    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.68 | 657.12        | 4.86    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.67 | 1627.66       | 4.50    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.66 | 657.12        | 4.09    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.64 | 657.12        | 3.32    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.62 | 657.13        | 2.55    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.62 | 1811.04       | 2.31    | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.61 | 657.12        | 1.78    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.59 | 657.12        | 1.01    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.57 | 657.12        | 0.25    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.57 | 1750.63       | 0.27    | 10.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.55 | 654.22        | -0.52   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.55 | 398.09        | 16.10   | -11.25  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.54 | 726.99        | 15.56   | -7.85   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.54 | 714.20        | 15.03   | -4.44   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.53 | 658.38        | -1.28   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.53 | 746.56        | 14.49   | -1.19   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.52 | 1228.96       | -1.78   | 10.46   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.52 | 706.03        | -1.85   | 11.29   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.52 | 704.77        | -1.92   | 12.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.52 | 1135.80       | 4.11    | 8.96    | 0.0        | -0.52      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.51 | 683.84        | -2.06   | 13.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.37 | 710.46        | 12.66   | -11.87  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.36 | 1331.60       | 12.12   | -8.46   | 0.0        | 0.0        | 12.12   | -8.46   | 1.1073e-05 | 0.0         | 0.0         |
| 11.36 | 1301.70       | 11.59   | -5.06   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.35 | 1364.30       | 11.05   | -1.80   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.34 | 782.03        | 10.44   | 1.90    | 0.0        | 0.0        | 10.44   | 1.90    | 2.7682e-06 | 0.0         | 0.0         |
| 11.25 | 379.84        | 9.41    | -12.57  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.24 | 694.54        | 8.88    | -9.16   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 11.23 | 683.74        | 8.34    | -5.76   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.23 | 721.19        | 7.81    | -2.50   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.22 | 418.51        | 7.17    | 1.36    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.25 | 1675.16       | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.25 | 1508.53       | 8.01    | 11.69   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.25 | 2174.58       | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.23 | 1579.92       | 7.16    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.22 | 1571.54       | 6.39    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.21 | 2900.22       | 6.12    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.20 | 1568.11       | 5.63    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.18 | 1567.98       | 4.86    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.17 | 3090.84       | 4.50    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.16 | 1566.87       | 4.09    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.14 | 1564.81       | 3.32    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.12 | 1562.71       | 2.55    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.12 | 3426.03       | 2.31    | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.11 | 1560.61       | 1.78    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.09 | 1558.51       | 1.01    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.07 | 1556.42       | 0.25    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.07 | 3296.71       | 0.27    | 10.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.05 | 1547.46       | -0.52   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.03 | 1543.42       | -1.28   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.02 | 2025.34       | -1.78   | 10.46   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.02 | 750.54        | -1.85   | 11.29   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.02 | 737.17        | -1.92   | 12.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.02 | 723.90        | -1.99   | 12.93   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.01 | 1052.81       | -2.06   | 13.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.25  | 932.31        | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.25  | 981.04        | 8.01    | 11.69   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.25  | 967.40        | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.23  | 730.14        | 7.16    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.22  | 730.14        | 6.39    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.21  | 784.25        | 6.12    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.20  | 730.14        | 5.63    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.18  | 730.14        | 4.86    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.17  | 854.46        | 4.50    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.16  | 730.14        | 4.09    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.14  | 730.14        | 3.32    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.12  | 730.14        | 2.55    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.12  | 1207.36       | 2.31    | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.11  | 730.14        | 1.78    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.09  | 730.14        | 1.01    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.07  | 730.14        | 0.25    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.07  | 1167.09       | 0.27    | 10.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.05  | 726.91        | -0.52   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.03  | 731.53        | -1.28   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.02  | 818.47        | -1.78   | 10.46   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.02  | 469.85        | -1.85   | 11.29   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.02  | 469.85        | -1.92   | 12.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.02  | 469.85        | -1.99   | 12.93   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.01  | 604.61        | -2.06   | 13.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.25  | 896.73        | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.25  | 1040.09       | 8.01    | 11.69   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.25  | 967.55        | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.23  | 730.14        | 7.16    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.22  | 730.14        | 6.39    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.21  | 553.60        | 6.12    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.20  | 730.14        | 5.63    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.18  | 730.14        | 4.86    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.17  | 623.82        | 4.50    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.16  | 730.14        | 4.09    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.14  | 730.14        | 3.32    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.12  | 730.14        | 2.55    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.12  | 1207.36       | 2.31    | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.11  | 730.14        | 1.78    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.09  | 730.14        | 1.01    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.07  | 730.14        | 0.25    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.07  | 1167.09       | 0.27    | 10.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.05  | 726.91        | -0.52   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.03  | 731.53        | -1.28   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.02  | 818.47        | -1.78   | 10.46   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.02  | 469.86        | -1.85   | 11.29   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.02  | 469.86        | -1.92   | 12.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.02  | 469.85        | -1.99   | 12.93   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 8.01  | 604.61        | -2.06   | 13.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.55  | 5119.68       | 16.10   | -11.25  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.54  | 551.84        | 15.56   | -7.85   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.54  | 1.248e+04     | 15.03   | -4.44   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.53  | 472.83        | 14.49   | -1.19   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.52  | 7643.45       | 14.13   | 1.00    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.52  | 458.48        | 14.04   | 2.49    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.50  | 5663.51       | 13.79   | 6.57    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.45  | 3905.73       | 14.54   | -14.96  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.44  | 1.859e+04     | 14.01   | -11.58  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.43  | 2.205e+04     | 12.93   | -4.77   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.42  | 1.428e+04     | 12.02   | 0.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.40  | 2.030e+04     | 11.66   | 6.57    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.39  | 1124.67       | 11.33   | 12.01   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.39  | 3234.26       | 12.25   | -4.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.38  | 2137.76       | 11.44   | 10.18   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.37  | 518.66        | 12.66   | -11.87  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.36  | 551.84        | 12.12   | -8.46   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.36  | 7289.55       | 11.05   | 3.29    | 0.0        | -0.94      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.35  | 469.68        | 11.05   | -1.80   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.34  | 1.200e+04     | 10.63   | 0.74    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.34  | 3908.77       | 10.14   | 11.90   | 0.0        | 0.0        | 10.14   | 11.90   | 1.0770e-05 | 0.0         | 0.0         |
| 7.34  | 123.07        | 10.44   | 1.90    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.33  | 3625.20       | 10.19   | 10.20   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.32  | 621.33        | 9.37    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.31  | 3793.07       | 10.78   | -5.10   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.29  | 1.015e+04     | 11.58   | -15.43  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.29  | 3830.43       | 9.13    | 10.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.29  | 651.88        | 8.65    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.29  | 3.284e+04     | 11.08   | -12.21  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.27  | 2.497e+04     | 9.99    | -5.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.26  | 3.735e+04     | 8.76    | 4.37    | 0.0        | -0.30      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.25  | 4176.46       | 9.15    | -5.34   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.25  | 2442.30       | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.25  | 4909.63       | 7.99    | 12.17   | 0.0        | -0.05      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.25  | 6140.83       | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.25  | 518.42        | 9.41    | -12.57  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.24  | 551.84        | 8.88    | -9.16   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.23  | 315.73        | 8.34    | -5.76   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.23  | 5614.50       | 7.96    | 0.30    | 0.0        | -0.96      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.23  | 488.06        | 7.81    | -2.50   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.22  | 3986.75       | 8.61    | -15.84  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.22  | 1.044e+04     | 7.32    | 0.51    | 0.0        | -0.04      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.22  | 1.982e+04     | 8.07    | -11.67  | 0.0        | -0.36      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.22  | 1614.79       | 6.39    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.21  | 6025.35       | 6.12    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.20  | 1.469e+04     | 7.02    | -5.64   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.20  | 2.255e+04     | 6.13    | 6.55    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.20  | 1.329e+04     | 6.48    | 0.44    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.20  | 1590.41       | 5.63    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.18  | 3697.86       | 6.28    | -5.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.18  | 1486.84       | 4.86    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.17  | 8487.89       | 4.50    | 10.66   | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.17  | 3719.42       | 5.54    | -5.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.16  | 809.57        | 4.09    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.15  | 1.512e+04     | 5.65    | -16.29  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.15  | 4.425e+04     | 4.18    | 2.80    | 0.0        | -0.63      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.14  | 4.915e+04     | 5.21    | -13.47  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.14  | 824.71        | 3.32    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.13  | 3.702e+04     | 4.06    | -6.09   | 0.0        | 0.0        | 4.06    | -6.09   | 5.3001e-06 | 0.0         | 0.0         |
| 7.12  | 1364.52       | 2.55    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.12  | 5544.00       | 2.31    | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.11  | 1195.08       | 1.78    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.10  | 3678.96       | 3.17    | -6.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.09  | 4.957e+04     | 1.67    | 3.42    | 0.0        | -0.32      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.09  | 1188.46       | 1.01    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.07  | 1181.45       | 0.25    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.07  | 4791.59       | 0.27    | 10.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.06  | 4668.00       | 2.27    | -6.35   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.05  | 1169.84       | -0.52   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.04  | 1.408e+04     | -0.88   | -0.10   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.03  | 2048.06       | -0.95   | 0.73    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.03  | 1136.48       | -1.28   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.03  | 2039.84       | -1.02   | 1.55    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 7.03  | 4702.17       | 1.38    | -6.48   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.03  | 2030.29       | -1.09   | 2.37    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.03  | 2020.81       | -1.16   | 3.19    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.03  | 2011.37       | -1.23   | 4.01    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.03  | 2001.78       | -1.30   | 4.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.02  | 1992.10       | -1.37   | 5.65    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.02  | 2.767e+04     | -1.53   | 7.60    | 0.0        | -0.20      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.02  | 2128.08       | -1.85   | 11.29   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.02  | 2130.69       | -1.92   | 12.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.02  | 2123.57       | -1.99   | 12.93   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.01  | 1548.84       | -2.06   | 13.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.01  | 2015.68       | -0.91   | -0.94   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.00  | 2008.78       | -0.86   | -1.77   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.00  | 5457.39       | 0.48    | -6.61   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.00  | 2006.79       | -0.80   | -2.60   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.99  | 2005.33       | -0.75   | -3.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.98  | 2003.64       | -0.70   | -4.27   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.98  | 2001.18       | -0.65   | -5.10   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.97  | 1998.13       | -0.60   | -5.93   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.96  | 6.187e+04     | -0.55   | -12.12  | 0.0        | -0.57      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.66  | 374.28        | 3.83    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.56  | 473.04        | 4.59    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.53  | 425.96        | 11.22   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.47  | 658.23        | 6.33    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.46  | 614.82        | 5.34    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.44  | 644.18        | 12.93   | -4.77   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.43  | 791.82        | 10.17   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.41  | 344.55        | 12.24   | -4.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.38  | 363.95        | 11.55   | -4.98   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.36  | 534.17        | 10.19   | 10.20   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.35  | 383.02        | 10.77   | -5.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.34  | 1884.64       | -1.61   | 10.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.33  | 1195.13       | -1.90   | 13.72   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.33  | 1928.69       | -1.69   | 11.25   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.33  | 1914.34       | -1.83   | 12.90   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.33  | 771.91        | 9.13    | 10.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.32  | 1936.70       | -1.76   | 12.08   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.32  | 1888.71       | -1.54   | 9.64    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.31  | 845.79        | 9.99    | -5.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.31  | 2651.41       | 1.51    | 10.17   | 0.0        | -0.24      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.30  | 397.08        | 9.17    | -5.34   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.30  | 1958.12       | -1.40   | 8.06    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.29  | 526.94        | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.28  | 1994.76       | -1.32   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.28  | 357.55        | 8.34    | -5.46   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.27  | 2127.57       | -0.72   | -0.08   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.27  | 2112.81       | -0.79   | 0.73    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.27  | 2114.16       | -0.86   | 1.56    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.27  | 2112.11       | -0.93   | 2.38    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.27  | 2382.16       | -0.06   | 4.87    | 0.0        | -0.60      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.27  | 2110.86       | -1.00   | 3.20    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.27  | 2110.17       | -1.07   | 4.02    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.27  | 2109.75       | -1.14   | 4.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.26  | 2108.06       | -1.21   | 5.66    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.26  | 746.88        | 7.13    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.26  | 784.74        | 7.02    | -5.64   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.25  | 2140.51       | -0.73   | -0.92   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.25  | 2134.52       | -0.68   | -1.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.24  | 2481.76       | 0.35    | -3.03   | 0.0        | -0.16      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.23  | 2126.03       | -0.58   | -3.42   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.23  | 2123.12       | -0.53   | -4.25   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.23  | 350.60        | 5.54    | -5.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.22  | 2120.46       | -0.48   | -5.08   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.22  | 2115.12       | -0.43   | -5.91   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.21  | 3.018e+04     | -0.32   | -12.14  | 0.0        | -0.61      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.20  | 827.14        | 4.06    | -6.09   | 0.0        | 0.0        | 4.06    | -6.09   | 5.3001e-06 | 0.0         | 0.0         |
| 6.18  | 785.26        | 8.68    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.17  | 418.51        | 3.17    | -6.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.17  | 491.53        | 3.57    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.15  | 415.54        | 2.27    | -6.35   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.12  | 412.59        | 1.38    | -6.48   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.09  | 205.18        | 0.48    | -6.62   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.06  | 2633.84       | 7.96    | 13.01   | 0.0        | -0.10      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.94  | 498.93        | 4.32    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 5.72  | 753.05        | 6.26    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.71  | 703.24        | 5.06    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.71  | 395.75        | 11.22   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.67  | 467.22        | 3.30    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.65  | 1.876e+04     | 0.74    | 12.27   | 0.0        | -0.16      | 1.00    | 13.66   | 0.183      | 0.144       | 5.042       |
| 5.64  | 3818.73       | -1.52   | 11.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.64  | 3787.96       | -1.67   | 12.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.64  | 3833.82       | -1.59   | 12.06   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.62  | 1889.48       | -1.36   | 9.63    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.59  | 1930.95       | -1.29   | 8.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.57  | 1956.50       | -1.22   | 8.05    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.54  | 1984.56       | -1.14   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.52  | 2054.34       | -1.07   | 6.48    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 2120.44       | -0.55   | -0.07   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 2107.72       | -0.62   | 0.74    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 2109.51       | -0.69   | 1.56    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 2106.74       | -0.76   | 2.38    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 2882.00       | 2.15    | 6.03    | 0.0        | -0.52      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 2105.58       | -0.90   | 4.02    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 2106.31       | -0.97   | 4.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 2104.77       | -1.04   | 5.66    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.50  | 2133.81       | -0.56   | -0.90   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.49  | 2129.73       | -0.51   | -1.74   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.49  | 2123.64       | -0.46   | -2.57   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.48  | 2119.33       | -0.41   | -3.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.48  | 2116.93       | -0.36   | -4.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.47  | 2115.98       | -0.31   | -5.06   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.47  | 2110.26       | -0.26   | -5.89   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.46  | 2.987e+04     | -0.21   | -12.20  | 0.0        | -0.57      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.44  | 646.99        | 12.93   | -4.77   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.42  | 350.16        | 12.23   | -4.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.40  | 364.03        | 11.53   | -4.99   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.39  | 534.17        | 10.19   | 10.20   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.38  | 377.58        | 10.76   | -5.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.36  | 771.91        | 9.13    | 10.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.35  | 838.28        | 9.99    | -5.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.34  | 387.49        | 9.19    | -5.34   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.34  | 526.94        | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.33  | 357.48        | 8.38    | -5.45   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.32  | 524.82        | 4.04    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.32  | 327.74        | 7.70    | -5.55   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.31  | 789.46        | 7.02    | -5.64   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.30  | 351.95        | 6.28    | -5.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.29  | 753.38        | 9.47    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.29  | 785.57        | 7.09    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.29  | 350.60        | 5.54    | -5.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.28  | 349.25        | 4.80    | -5.98   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.27  | 827.16        | 4.06    | -6.09   | 0.0        | 0.0        | 4.06    | -6.09   | 5.3001e-06 | 0.0         | 0.0         |
| 5.25  | 418.56        | 3.17    | -6.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.23  | 415.60        | 2.27    | -6.36   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.21  | 412.64        | 1.38    | -6.49   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.19  | 205.21        | 0.48    | -6.62   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.18  | 1390.16       | 3.04    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.08  | 814.48        | 8.70    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.98  | 847.88        | 6.19    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.97  | 791.66        | 4.78    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.94  | 1929.26       | -1.26   | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.94  | 1180.88       | -1.57   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.94  | 1978.48       | -1.36   | 11.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.94  | 3938.90       | -1.47   | 12.46   | 0.0        | -0.04      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.91  | 1908.04       | -1.19   | 9.62    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.88  | 365.54        | 11.22   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.87  | 1938.22       | -1.11   | 8.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.86  | 2667.79       | 7.96    | 13.02   | 0.0        | -0.10      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.83  | 1963.06       | -1.03   | 8.05    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.80  | 1986.57       | -0.96   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.76  | 2053.20       | -0.88   | 6.49    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.75  | 4222.05       | -0.43   | 0.35    | 0.0        | -0.04      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.75  | 2107.58       | -0.53   | 1.57    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.75  | 2104.15       | -0.60   | 2.39    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.75  | 2103.20       | -0.67   | 3.21    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.75  | 4207.15       | -0.77   | 4.44    | 0.0        | -0.04      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.75  | 2103.93       | -0.88   | 5.66    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.74  | 2131.04       | -0.38   | -0.89   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota | M Sismica x g | Pos. GX   | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|-----------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 4.74  | 2129.36       | -0.33     | -1.72   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.73  | 2121.99       | -0.28     | -2.55   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.73  | 2117.94       | -0.23     | -3.38   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.73  | 2115.13       | -0.18     | -4.21   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.72  | 2114.11       | -0.13     | -5.04   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.72  | 2107.61       | -0.08     | -5.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.72  | 2.991e+04     | -0.03     | -12.19  | 0.0        | -0.57      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.70  | 4873.05       | 1.49      | 13.68   | 0.0        | 0.0        | 0.83    | 13.68   | 0.057      | 1.327       | 1.2866e-05  |
| 4.59  | 760.61        | 10.32     | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.45  | 649.79        | 12.93     | -4.77   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.44  | 355.77        | 12.22     | -4.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.42  | 364.12        | 11.51     | -4.99   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.41  | 534.17        | 10.19     | 10.20   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.41  | 372.14        | 10.75     | -5.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.40  | 771.91        | 9.13      | 10.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.39  | 830.77        | 9.99      | -5.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.38  | 377.91        | 9.21      | -5.34   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.38  | 526.94        | 8.06      | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.38  | 357.41        | 8.42      | -5.45   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.37  | 337.18        | 7.72      | -5.54   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.36  | 794.18        | 7.02      | -5.64   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.36  | 351.95        | 6.28      | -5.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.35  | 350.60        | 5.54      | -5.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.34  | 349.25        | 4.80      | -5.98   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.33  | 827.19        | 4.06      | -6.09   | 0.0        | 0.0        | 4.06    | -6.09   | 5.3001e-06 | 0.0         | 0.0         |
| 4.32  | 824.27        | 7.06      | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.32  | 418.62        | 3.17      | -6.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.31  | 415.66        | 2.27      | -6.36   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.29  | 412.70        | 1.38      | -6.49   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.28  | 205.24        | 0.48      | -6.62   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.28  | 782.59        | 9.52      | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.24  | 1931.13       | -1.09     | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.23  | 1.821e+04     | 3.36      | 11.91   | 0.0        | -0.17      | 5.95    | 12.48   | 0.637      | 1.431       | 0.379       |
| 4.23  | 2625.08       | -0.24     | 13.07   | 0.0        | -0.04      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.19  | 1911.84       | -1.01     | 9.62    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.15  | 1937.03       | -0.93     | 8.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.10  | 1960.81       | -0.85     | 8.05    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.06  | 6107.00       | 11.91     | 12.62   | 0.0        | -0.08      | 11.27   | 12.84   | 1.080      | 0.572       | 0.267       |
| 4.05  | 1983.85       | -0.78     | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.01  | 2052.82       | -0.70     | 6.49    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.99  | 4214.66       | -0.26     | 0.36    | 0.0        | -0.04      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.99  | 2102.67       | -0.37     | 1.58    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.99  | 4197.67       | -0.47     | 2.81    | 0.0        | -0.04      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.99  | 4197.38       | -0.61     | 4.44    | 0.0        | -0.04      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.99  | 2102.75       | -0.72     | 5.67    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.98  | 2126.26       | -0.20     | -0.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.98  | 2123.45       | -0.16     | -1.71   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.98  | 2116.75       | -0.11     | -2.54   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.98  | 2113.08       | -0.06     | -3.36   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.98  | 2110.41       | -8.64e-03 | -4.19   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.97  | 2109.97       | 0.04      | -5.02   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.97  | 843.69        | 8.73      | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.97  | 2103.93       | 0.09      | -5.85   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.97  | 2.994e+04     | 0.14      | -12.18  | 0.0        | -0.57      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.76  | 3673.89       | 0.81      | 13.68   | 0.0        | 0.0        | 0.81    | 13.68   | 0.081      | 0.003       | 3.4876e-05  |
| 3.75  | 657.63        | 3.77      | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.67  | 2701.75       | 7.96      | 13.03   | 0.0        | -0.10      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.66  | 1323.84       | 10.42     | 13.36   | 0.0        | -0.09      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.53  | 1935.74       | -0.91     | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.52  | 1987.11       | -1.10     | 12.04   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.52  | 3960.25       | -1.10     | 12.04   | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.52  | 1046.17       | -1.24     | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.48  | 1916.74       | -0.83     | 9.62    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.46  | 652.60        | 12.93     | -4.77   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.45  | 361.38        | 12.21     | -4.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.45  | 364.21        | 11.48     | -4.99   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.44  | 534.17        | 10.19     | 10.20   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.44  | 366.71        | 10.74     | -5.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.43  | 771.91        | 9.13      | 10.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.43  | 823.26        | 9.99      | -5.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.43  | 368.32        | 9.23      | -5.33   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.43  | 526.94        | 8.06      | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.42  | 357.34        | 8.46      | -5.44   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.42  | 1944.71       | -0.75     | 8.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 3.42  | 346.62        | 7.74    | -5.54   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.42  | 798.90        | 7.02    | -5.64   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.41  | 351.95        | 6.28    | -5.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.41  | 350.60        | 5.54    | -5.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.41  | 349.25        | 4.80    | -5.98   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.40  | 827.22        | 4.06    | -6.09   | 0.0        | 0.0        | 4.06    | -6.09   | 5.3001e-06 | 0.0         | 0.0         |
| 3.40  | 418.67        | 3.17    | -6.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.39  | 415.71        | 2.27    | -6.36   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.38  | 412.75        | 1.38    | -6.49   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.38  | 205.27        | 0.48    | -6.63   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.37  | 1971.10       | -0.67   | 8.06    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.35  | 763.52        | 7.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.31  | 1996.08       | -0.59   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.28  | 656.86        | 3.04    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.28  | 2366.63       | 5.27    | 13.68   | 0.0        | 0.0        | 5.16    | 13.68   | 0.220      | 0.331       | 0.0         |
| 3.27  | 1235.61       | 9.59    | 13.31   | 0.0        | -0.09      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.26  | 2065.67       | -0.51   | 6.49    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.23  | 1.260e+04     | -0.31   | 2.81    | 0.0        | -0.20      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.23  | 4216.23       | -0.31   | 2.81    | 0.0        | -0.29      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.23  | 2125.07       | -0.03   | -0.86   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.23  | 2123.13       | 0.02    | -1.69   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.23  | 2119.17       | 0.07    | -2.52   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.23  | 2115.90       | 0.12    | -3.35   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.23  | 2113.16       | 0.16    | -4.17   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.22  | 2111.37       | 0.21    | -5.00   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.22  | 2105.10       | 0.26    | -5.83   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.22  | 2.998e+04     | 0.31    | -12.16  | 0.0        | -0.57      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.87  | 1141.38       | 8.77    | 13.24   | 0.0        | -0.10      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.81  | 2.554e+04     | 0.31    | 12.24   | 0.0        | -0.16      | -0.87   | 13.34   | 0.567      | 1.441       | 1.435       |
| 2.81  | 657.63        | 3.77    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.74  | 2055.40       | -0.73   | 9.62    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.67  | 1934.23       | -0.66   | 8.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.61  | 1910.39       | -0.59   | 8.05    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.60  | 616.09        | 7.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.58  | 915.20        | -0.94   | 12.06   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.54  | 1889.09       | -0.53   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.52  | 998.78        | -0.87   | 11.25   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.47  | 1836.36       | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.47  | 2.814e+05     | 4.70    | 1.28    | 0.0        | -1.59      | 0.91    | -5.08   | 0.301      | 1.261       | 0.824       |
| 2.47  | 2395.97       | 12.03   | 2.98    | 0.0        | -0.49      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.46  | 2407.24       | 12.03   | 2.60    | 0.0        | -0.41      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.46  | 2418.51       | 12.03   | 2.24    | 0.0        | -0.32      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.46  | 2429.79       | 12.03   | 1.88    | 0.0        | -0.24      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.45  | 2441.06       | 12.03   | 1.52    | 0.0        | -0.16      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.45  | 2959.82       | 12.05   | 0.98    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.44  | 1.544e+04     | 12.02   | 0.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.33  | 1232.15       | 3.04    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.33  | 2512.17       | 5.32    | 13.68   | 0.0        | 0.0        | 5.16    | 13.68   | 0.220      | 0.489       | 0.0         |
| 2.00  | 4816.89       | -1.00   | 12.83   | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.94  | 1576.69       | -0.87   | 11.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.89  | 1605.34       | -0.80   | 10.44   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.86  | 3045.84       | 1.04    | 11.23   | 0.0        | -0.20      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.85  | 616.09        | 7.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.82  | 1850.13       | -0.66   | 8.85    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.79  | 1811.24       | -0.60   | 8.06    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.75  | 1769.11       | -0.53   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.71  | 1.510e+04     | 11.39   | 9.09    | 0.0        | -0.92      | 11.47   | 9.76    | 0.184      | 0.081       | 0.130       |
| 1.71  | 2718.77       | 12.26   | 0.92    | 0.0        | -0.49      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.71  | 2718.77       | 12.22   | 0.91    | 0.0        | -0.41      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.70  | 2718.77       | 12.18   | 0.89    | 0.0        | -0.32      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.70  | 2718.77       | 12.14   | 0.88    | 0.0        | -0.24      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.70  | 634.63        | 12.20   | -4.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.69  | 2718.77       | 12.10   | 0.87    | 0.0        | -0.16      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.69  | 6.390e+04     | 0.25    | -5.61   | 0.0        | -1.23      | 0.20    | -4.79   | 0.117      | 0.055       | 0.132       |
| 1.69  | 2718.77       | 12.06   | 0.85    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.69  | 1359.39       | 12.02   | 0.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.68  | 3530.14       | 1.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.68  | 393.96        | 1.38    | -6.50   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.68  | 2225.38       | 11.41   | 6.41    | 0.0        | -0.80      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.67  | 796.57        | 2.27    | -6.36   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.66  | 661.77        | 10.72   | -5.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.66  | 808.10        | 3.17    | -6.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.65  | 1183.75       | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.65  | 8260.73       | 7.11    | -3.65   | 0.0        | -0.94      | 7.02    | -5.65   | 0.362      | 0.034       | 0.975       |

| Quota    | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|----------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 1.38     | 1.092e+04     | 5.13    | 12.08   | 0.0        | -0.17      | 5.98    | 13.00   | 1.119      | 0.680       | 0.771       |
| 1.30     | 715.69        | 3.04    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.20     | 1850.07       | -0.94   | 12.05   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.19     | 1878.97       | -1.01   | 12.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.19     | 1304.01       | -1.08   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.15     | 1821.62       | -0.87   | 11.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.11     | 1792.31       | -0.80   | 10.44   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.10     | 679.86        | 7.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.07     | 1774.64       | -0.73   | 9.65    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.04     | 1774.64       | -0.66   | 8.85    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.00     | 1774.64       | -0.60   | 8.06    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.97     | 1767.21       | -0.53   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.96     | 1.527e+04     | 11.39   | 9.10    | 0.0        | -0.92      | 11.47   | 9.76    | 0.184      | 0.081       | 0.128       |
| 0.95     | 2718.77       | 12.26   | 0.92    | 0.0        | -0.49      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.95     | 2718.77       | 12.22   | 0.91    | 0.0        | -0.41      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.95     | 2718.77       | 12.18   | 0.89    | 0.0        | -0.32      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.94     | 2718.77       | 12.14   | 0.88    | 0.0        | -0.24      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.94     | 2718.77       | 12.10   | 0.87    | 0.0        | -0.16      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.93     | 2718.77       | 12.06   | 0.85    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.93     | 1359.39       | 12.02   | 0.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.92     | 634.63        | 12.20   | -4.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.92     | 649.62        | 3.77    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.92     | 6.391e+04     | 0.25    | -5.61   | 0.0        | -1.23      | 0.20    | -4.79   | 0.117      | 0.055       | 0.132       |
| 0.89     | 393.96        | 1.38    | -6.50   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.89     | 2250.41       | 11.41   | 6.46    | 0.0        | -0.80      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.87     | 796.57        | 2.27    | -6.36   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.86     | 661.77        | 10.72   | -5.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.85     | 808.10        | 3.17    | -6.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.82     | 1078.36       | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.82     | 8260.73       | 7.11    | -3.65   | 0.0        | -0.94      | 7.02    | -5.65   | 0.362      | 0.034       | 0.975       |
| 0.55     | 3530.14       | 1.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.54     | 1950.66       | 5.34    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.40     | 1849.07       | -0.94   | 12.05   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.39     | 1875.67       | -1.01   | 12.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.38     | 1302.36       | -1.08   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.36     | 1822.93       | -0.87   | 11.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.32     | 1792.96       | -0.80   | 10.44   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.32     | 676.05        | 7.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.29     | 1774.64       | -0.73   | 9.65    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.27     | 715.69        | 3.04    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.25     | 1774.64       | -0.66   | 8.86    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.22     | 1774.64       | -0.60   | 8.06    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.20     | 1.361e+04     | 11.38   | 8.96    | 0.0        | -0.92      | 11.47   | 9.74    | 0.184      | 0.086       | 0.148       |
| 0.20     | 2718.77       | 12.26   | 0.92    | 0.0        | -0.49      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.19     | 2718.77       | 12.22   | 0.91    | 0.0        | -0.41      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.19     | 2718.77       | 12.18   | 0.89    | 0.0        | -0.32      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.19     | 1769.04       | -0.53   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.18     | 2718.77       | 12.14   | 0.88    | 0.0        | -0.24      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.18     | 2718.77       | 12.10   | 0.87    | 0.0        | -0.16      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.18     | 2718.77       | 12.06   | 0.85    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.17     | 1359.39       | 12.02   | 0.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.15     | 652.74        | 12.20   | -4.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.14     | 6.391e+04     | 0.25    | -5.61   | 0.0        | -1.23      | 0.20    | -4.79   | 0.117      | 0.055       | 0.132       |
| 0.10     | 196.98        | 1.38    | -6.50   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.10     | 2236.57       | 11.41   | 6.17    | 0.0        | -0.80      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.07     | 398.28        | 2.27    | -6.36   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.05     | 716.11        | 10.72   | -5.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.03     | 404.05        | 3.17    | -6.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.90e-04 | 860.60        | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.0      | 2.112e+04     | 8.05    | -4.02   | 0.0        | -1.31      | 7.31    | -5.48   | 0.120      | 0.323       | 1.469       |
| -0.02    | 649.62        | 3.77    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.30    | 1950.66       | 5.34    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.39    | 1848.08       | -0.94   | 12.05   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.41    | 1872.37       | -1.01   | 12.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.43    | 1824.25       | -0.87   | 11.25   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.43    | 1272.32       | -1.08   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.46    | 1793.62       | -0.80   | 10.44   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.47    | 671.08        | 7.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.50    | 1774.64       | -0.73   | 9.65    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.53    | 1774.64       | -0.66   | 8.86    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.56    | 1.342e+04     | 11.37   | 9.12    | 0.0        | -0.92      | 11.47   | 9.74    | 0.184      | 0.103       | 0.119       |
| -0.56    | 2718.77       | 12.26   | 0.92    | 0.0        | -0.49      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.56    | 1774.64       | -0.60   | 8.07    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.57    | 2718.77       | 12.22   | 0.91    | 0.0        | -0.41      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota   | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|---------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| -0.57   | 2718.77       | 12.18   | 0.89    | 0.0        | -0.32      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.57   | 2718.77       | 12.14   | 0.88    | 0.0        | -0.24      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.57   | 3530.14       | 1.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.58   | 2718.77       | 12.10   | 0.87    | 0.0        | -0.16      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.58   | 2718.77       | 12.06   | 0.85    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.58   | 1359.39       | 12.02   | 0.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.60   | 1770.87       | -0.53   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.63   | 1477.05       | 11.38   | 11.09   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.64   | 673.95        | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.64   | 6.391e+04     | 0.25    | -5.61   | 0.0        | -1.23      | 0.20    | -4.79   | 0.117      | 0.055       | 0.131       |
| -0.67   | 335.43        | 12.20   | -4.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.71   | 1128.39       | 11.44   | 10.18   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.76   | 715.69        | 3.04    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.78   | 360.33        | 11.46   | -5.00   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.89   | 385.23        | 10.72   | -5.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.96   | 649.62        | 3.77    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.00   | 5091.45       | 6.56    | -2.61   | 0.0        | -0.63      | 8.50    | -5.43   | 0.301      | 1.286       | 2.237       |
| -1.15   | 1950.66       | 5.34    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.19   | 923.67        | -0.94   | 12.06   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.22   | 1847.57       | -0.94   | 12.07   | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.25   | 1530.77       | -0.91   | 11.78   | 0.0        | -0.16      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.26   | 676.05        | 7.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.28   | 887.32        | -0.73   | 9.65    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.31   | 887.32        | -0.66   | 8.86    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.32   | 1.327e+04     | 11.35   | 9.28    | 0.0        | -0.92      | 11.47   | 9.74    | 0.184      | 0.122       | 0.087       |
| -1.32   | 2718.77       | 12.26   | 0.92    | 0.0        | -0.49      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.32   | 2718.77       | 12.22   | 0.91    | 0.0        | -0.41      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.33   | 2718.77       | 12.18   | 0.89    | 0.0        | -0.32      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.33   | 2718.77       | 12.14   | 0.88    | 0.0        | -0.24      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.33   | 2718.77       | 12.10   | 0.87    | 0.0        | -0.16      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.34   | 2718.77       | 12.06   | 0.85    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.34   | 1359.39       | 12.02   | 0.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.35   | 887.32        | -0.60   | 8.07    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.37   | 1470.80       | 11.38   | 11.09   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.37   | 707.05        | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.38   | 886.12        | -0.53   | 7.28    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.42   | 3.305e+04     | 0.62    | -5.08   | 0.0        | -1.41      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.70   | 3561.50       | 1.02    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.80   | 715.69        | 3.04    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.89   | 649.62        | 3.77    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.99   | 1950.66       | 5.34    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.04   | 507.50        | -0.78   | 13.68   | 0.0        | 0.0        | -0.86   | 13.68   | 1.1727e-06 | 5.8694e+05  | 4.213       |
| -2.04   | 676.05        | 7.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.07   | 1.440e+04     | 11.35   | 9.35    | 0.0        | -0.92      | 11.47   | 9.75    | 0.184      | 0.114       | 0.077       |
| -2.08   | 2718.77       | 12.26   | 0.92    | 0.0        | -0.49      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.08   | 2718.77       | 12.22   | 0.91    | 0.0        | -0.41      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.08   | 2718.77       | 12.18   | 0.89    | 0.0        | -0.32      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.09   | 2718.77       | 12.14   | 0.88    | 0.0        | -0.24      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.09   | 2718.77       | 12.10   | 0.87    | 0.0        | -0.16      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.09   | 2718.77       | 12.06   | 0.85    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.10   | 2836.44       | 11.69   | 6.18    | 0.0        | -0.51      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.10   | 707.05        | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.83   | 1.224e+04     | 8.58    | 10.97   | 0.0        | -0.92      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.83   | 1359.39       | 12.26   | 0.92    | 0.0        | -0.49      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.84   | 1359.39       | 12.22   | 0.91    | 0.0        | -0.41      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.84   | 1359.39       | 12.18   | 0.89    | 0.0        | -0.32      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.84   | 1359.39       | 12.14   | 0.88    | 0.0        | -0.24      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.85   | 1359.39       | 12.10   | 0.87    | 0.0        | -0.16      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.85   | 3239.50       | 7.85    | 1.11    | 0.0        | -0.61      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.85   | 1359.39       | 12.06   | 0.85    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| Risulta | 2.500e+06     |         |         |            |            |         |         |            |             |             |

| Modo | Frequenza | Periodo | Acc. Spettrale | M efficace X x g | %        | M efficace Y x g | %        | M efficace Z % | Energia  | Energia x v |
|------|-----------|---------|----------------|------------------|----------|------------------|----------|----------------|----------|-------------|
|      | Hz        | sec     | g              | kg               |          | kg               |          | kg             |          |             |
| 1    | 1.989     | 0.503   | 0.077          | 1.515e+04        | 0.6      | 248.41           | 9.94e-03 | 6.54           | 2.62e-04 | 0.0         |
| 2    | 2.153     | 0.465   | 0.083          | 154.25           | 6.17e-03 | 1.617e+04        | 0.6      | 2.05           | 8.21e-05 | 0.0         |
| 3    | 2.353     | 0.425   | 0.088          | 178.56           | 7.14e-03 | 82.82            | 3.31e-03 | 0.71           | 2.85e-05 | 0.0         |
| 4    | 3.538     | 0.283   | 0.088          | 249.64           | 9.99e-03 | 18.38            | 7.35e-04 | 1.23           | 4.91e-05 | 0.0         |
| 5    | 3.604     | 0.277   | 0.088          | 231.62           | 9.27e-03 | 43.39            | 1.74e-03 | 0.01           | 0.0      | 0.0         |
| 6    | 4.709     | 0.212   | 0.088          | 3523.16          | 0.1      | 5.251e+04        | 2.1      | 29.07          | 1.16e-03 | 0.0         |
| 7    | 4.737     | 0.211   | 0.088          | 2.325e+04        | 0.9      | 4.813e+05        | 19.3     | 163.04         | 6.52e-03 | 0.0         |

| Modo           | Frequenza | Periodo | Acc. Spettrale | M efficace X x g | %        | M efficace Y x g | %        | M efficace Z x g | %        | Energia | Energia x v |
|----------------|-----------|---------|----------------|------------------|----------|------------------|----------|------------------|----------|---------|-------------|
| 8              | 5.055     | 0.198   | 0.088          | 163.85           | 6.55e-03 | 521.12           | 2.08e-02 | 0.06             | 2.41e-06 | 0.0     | 0.0         |
| 9              | 5.529     | 0.181   | 0.088          | 1.346e+05        | 5.4      | 1.716e+04        | 0.7      | 3.14             | 1.25e-04 | 0.0     | 0.0         |
| 10             | 5.671     | 0.176   | 0.088          | 52.28            | 2.09e-03 | 0.23             | 9.07e-06 | 8.62e-05         | 0.0      | 0.0     | 0.0         |
| 11             | 5.929     | 0.169   | 0.088          | 1.563e+06        | 62.5     | 1.098e+04        | 0.4      | 6095.96          | 0.2      | 0.0     | 0.0         |
| 12             | 7.956     | 0.126   | 0.084          | 7717.71          | 0.3      | 1185.45          | 4.74e-02 | 1.050e+04        | 0.4      | 0.0     | 0.0         |
| 13             | 8.273     | 0.121   | 0.083          | 1017.90          | 4.07e-02 | 5.90             | 2.36e-04 | 1.058e+04        | 0.4      | 0.0     | 0.0         |
| 14             | 8.577     | 0.117   | 0.082          | 508.95           | 2.04e-02 | 1.848e+05        | 7.4      | 1.666e+04        | 0.7      | 0.0     | 0.0         |
| 15             | 8.795     | 0.114   | 0.081          | 705.19           | 2.82e-02 | 6.915e+05        | 27.7     | 5628.43          | 0.2      | 0.0     | 0.0         |
| 16             | 8.894     | 0.112   | 0.081          | 1599.41          | 6.40e-02 | 2343.19          | 9.37e-02 | 3566.48          | 0.1      | 0.0     | 0.0         |
| 17             | 9.175     | 0.109   | 0.080          | 6005.68          | 0.2      | 7514.15          | 0.3      | 3759.73          | 0.2      | 0.0     | 0.0         |
| 18             | 9.635     | 0.104   | 0.079          | 277.63           | 1.11e-02 | 1.265e+04        | 0.5      | 2.519e+04        | 1.0      | 0.0     | 0.0         |
| 19             | 10.370    | 0.096   | 0.078          | 1.605e+04        | 0.6      | 9778.18          | 0.4      | 7846.56          | 0.3      | 0.0     | 0.0         |
| 20             | 10.422    | 0.096   | 0.078          | 1079.74          | 4.32e-02 | 969.31           | 3.88e-02 | 694.59           | 2.78e-02 | 0.0     | 0.0         |
| 21             | 10.926    | 0.092   | 0.077          | 274.37           | 1.10e-02 | 8684.57          | 0.3      | 3523.57          | 0.1      | 0.0     | 0.0         |
| 22             | 11.338    | 0.088   | 0.076          | 3.628e+04        | 1.5      | 1738.26          | 6.95e-02 | 954.00           | 3.82e-02 | 0.0     | 0.0         |
| 23             | 11.505    | 0.087   | 0.076          | 5584.72          | 0.2      | 7494.17          | 0.3      | 435.17           | 1.74e-02 | 0.0     | 0.0         |
| 24             | 11.573    | 0.086   | 0.076          | 2.529e+04        | 1.0      | 2.603e+04        | 1.0      | 2072.85          | 8.29e-02 | 0.0     | 0.0         |
| 25             | 11.708    | 0.085   | 0.075          | 2.651e+04        | 1.1      | 6.109e+04        | 2.4      | 2726.84          | 0.1      | 0.0     | 0.0         |
| 26             | 12.142    | 0.082   | 0.075          | 93.68            | 3.75e-03 | 5063.20          | 0.2      | 588.95           | 2.36e-02 | 0.0     | 0.0         |
| 27             | 12.386    | 0.081   | 0.074          | 832.23           | 3.33e-02 | 490.66           | 1.96e-02 | 4637.39          | 0.2      | 0.0     | 0.0         |
| 28             | 12.705    | 0.079   | 0.074          | 323.18           | 1.29e-02 | 13.06            | 5.22e-04 | 1.047e+04        | 0.4      | 0.0     | 0.0         |
| 29             | 12.725    | 0.079   | 0.074          | 3.73             | 1.49e-04 | 1369.81          | 5.48e-02 | 298.74           | 1.20e-02 | 0.0     | 0.0         |
| 30             | 13.468    | 0.074   | 0.073          | 16.98            | 6.79e-04 | 349.40           | 1.40e-02 | 481.00           | 1.92e-02 | 0.0     | 0.0         |
| 31             | 13.845    | 0.072   | 0.073          | 160.99           | 6.44e-03 | 1077.59          | 4.31e-02 | 1.74             | 6.97e-05 | 0.0     | 0.0         |
| 32             | 14.230    | 0.070   | 0.072          | 512.44           | 2.05e-02 | 13.61            | 5.44e-04 | 7.565e+04        | 3.0      | 0.0     | 0.0         |
| 33             | 14.415    | 0.069   | 0.072          | 2766.88          | 0.1      | 46.44            | 1.86e-03 | 1.313e+05        | 5.3      | 0.0     | 0.0         |
| 34             | 14.485    | 0.069   | 0.072          | 1.923e+04        | 0.8      | 245.10           | 9.81e-03 | 4033.94          | 0.2      | 0.0     | 0.0         |
| 35             | 15.063    | 0.066   | 0.071          | 7123.01          | 0.3      | 527.86           | 2.11e-02 | 5208.70          | 0.2      | 0.0     | 0.0         |
| 36             | 15.152    | 0.066   | 0.071          | 702.99           | 2.81e-02 | 36.55            | 1.46e-03 | 2.181e+04        | 0.9      | 0.0     | 0.0         |
| 37             | 15.409    | 0.065   | 0.071          | 3.357e+04        | 1.3      | 543.76           | 2.18e-02 | 0.37             | 1.47e-05 | 0.0     | 0.0         |
| 38             | 15.732    | 0.064   | 0.071          | 4.457e+04        | 1.8      | 4372.11          | 0.2      | 7.625e+04        | 3.1      | 0.0     | 0.0         |
| 39             | 16.073    | 0.062   | 0.070          | 5619.75          | 0.2      | 2.08e-04         | 0.0      | 1.408e+04        | 0.6      | 0.0     | 0.0         |
| 40             | 16.427    | 0.061   | 0.070          | 3997.53          | 0.2      | 726.94           | 2.91e-02 | 40.87            | 1.64e-03 | 0.0     | 0.0         |
| 41             | 16.563    | 0.060   | 0.070          | 4.893e+04        | 2.0      | 2284.31          | 9.14e-02 | 3.189e+04        | 1.3      | 0.0     | 0.0         |
| 42             | 16.900    | 0.059   | 0.070          | 424.44           | 1.70e-02 | 1.072e+04        | 0.4      | 1397.53          | 5.59e-02 | 0.0     | 0.0         |
| 43             | 16.980    | 0.059   | 0.070          | 6.456e+04        | 2.6      | 6402.91          | 0.3      | 37.20            | 1.49e-03 | 0.0     | 0.0         |
| 44             | 17.213    | 0.058   | 0.070          | 54.23            | 2.17e-03 | 28.29            | 1.13e-03 | 1619.90          | 6.48e-02 | 0.0     | 0.0         |
| 45             | 17.418    | 0.057   | 0.069          | 2029.28          | 8.12e-02 | 1.271e+05        | 5.1      | 1545.86          | 6.18e-02 | 0.0     | 0.0         |
| 46             | 18.047    | 0.055   | 0.069          | 953.14           | 3.81e-02 | 9.819e+04        | 3.9      | 1.049e+05        | 4.2      | 0.0     | 0.0         |
| 47             | 18.105    | 0.055   | 0.069          | 109.07           | 4.36e-03 | 1.747e+04        | 0.7      | 84.75            | 3.39e-03 | 0.0     | 0.0         |
| 48             | 18.780    | 0.053   | 0.069          | 911.83           | 3.65e-02 | 1.158e+05        | 4.6      | 2.393e+05        | 9.6      | 0.0     | 0.0         |
| 49             | 19.410    | 0.052   | 0.068          | 2859.76          | 0.1      | 2519.26          | 0.1      | 287.98           | 1.15e-02 | 0.0     | 0.0         |
| 50             | 19.562    | 0.051   | 0.068          | 3.936e+04        | 1.6      | 2.334e+04        | 0.9      | 1797.85          | 7.19e-02 | 0.0     | 0.0         |
| 51             | 20.092    | 0.050   | 0.068          | 1618.68          | 6.47e-02 | 0.93             | 3.71e-05 | 5009.22          | 0.2      | 0.0     | 0.0         |
| 52             | 20.211    | 0.049   | 0.068          | 5567.39          | 0.2      | 3235.88          | 0.1      | 9440.40          | 0.4      | 0.0     | 0.0         |
| 53             | 20.424    | 0.049   | 0.068          | 398.71           | 1.59e-02 | 1118.16          | 4.47e-02 | 4669.70          | 0.2      | 0.0     | 0.0         |
| 54             | 20.948    | 0.048   | 0.067          | 0.01             | 0.0      | 428.61           | 1.71e-02 | 1.193e+04        | 0.5      | 0.0     | 0.0         |
| 55             | 21.213    | 0.047   | 0.067          | 589.62           | 2.36e-02 | 8035.64          | 0.3      | 888.27           | 3.55e-02 | 0.0     | 0.0         |
| 56             | 21.305    | 0.047   | 0.067          | 3.16             | 1.26e-04 | 954.06           | 3.82e-02 | 543.05           | 2.17e-02 | 0.0     | 0.0         |
| 57             | 21.714    | 0.046   | 0.067          | 99.62            | 3.98e-03 | 628.26           | 2.51e-02 | 9180.84          | 0.4      | 0.0     | 0.0         |
| 58             | 21.905    | 0.046   | 0.067          | 354.09           | 1.42e-02 | 8580.35          | 0.3      | 308.67           | 1.23e-02 | 0.0     | 0.0         |
| 59             | 22.736    | 0.044   | 0.067          | 2674.56          | 0.1      | 3.734e+04        | 1.5      | 1.062e+04        | 0.4      | 0.0     | 0.0         |
| 60             | 22.878    | 0.044   | 0.066          | 233.35           | 9.33e-03 | 1.156e+04        | 0.5      | 51.16            | 2.05e-03 | 0.0     | 0.0         |
| 61             | 23.240    | 0.043   | 0.066          | 78.31            | 3.13e-03 | 802.61           | 3.21e-02 | 4535.22          | 0.2      | 0.0     | 0.0         |
| 62             | 23.404    | 0.043   | 0.066          | 281.78           | 1.13e-02 | 6108.32          | 0.2      | 2103.94          | 8.42e-02 | 0.0     | 0.0         |
| Risulta        |           |         |                | 2.161e+06        |          | 2.092e+06        |          | 8.874e+05        |          |         |             |
| In percentuale |           |         |                | 86.44            |          | 83.70            |          | 35.50            |          |         |             |

| CDC | Tipo | Sigla Id                                | Note                                      |
|-----|------|-----------------------------------------|-------------------------------------------|
| 6   | Edk  | CDC=Ed (dinamico SLU) alfa=0.0 (ecc. -) |                                           |
|     |      |                                         | verifica esistenti: fattore FC 1.000      |
|     |      |                                         | categoria suolo: C                        |
|     |      |                                         | fattore di sito S = 1.800                 |
|     |      |                                         | ordinata spettro (tratto Tb-Tc) = 0.088 g |
|     |      |                                         | angolo di ingresso:0.0                    |
|     |      |                                         | eccentricità aggiuntiva: negativa         |
|     |      |                                         | periodo proprio T1: 0.169 sec.            |
|     |      |                                         | fattore di struttura q: 1.500             |
|     |      |                                         | fattore per spost. mu d: 2.293            |
|     |      |                                         | classe di duttilità CD: □                 |

| CDC | Tipo | Sigla Id | Note                           |
|-----|------|----------|--------------------------------|
|     |      |          | numero di modi considerati: 62 |
|     |      |          | combinaz. modale: CQC          |

| Quota | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| m     | kg            | m       | m       | m          | m          | m       | m       |            |             |             |
| 14.75 | 1045.17       | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.75 | 1012.25       | 8.01    | 11.69   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.75 | 1520.35       | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.73 | 898.87        | 7.16    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.72 | 892.50        | 6.39    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.71 | 2066.49       | 6.12    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.70 | 889.89        | 5.63    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.68 | 889.79        | 4.86    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.67 | 2201.83       | 4.50    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.66 | 888.95        | 4.09    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.64 | 887.38        | 3.32    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.62 | 885.78        | 2.55    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.62 | 2439.98       | 2.31    | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.61 | 884.18        | 1.78    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.59 | 882.59        | 1.01    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.57 | 881.00        | 0.25    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.57 | 2347.14       | 0.27    | 10.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.55 | 875.52        | -0.52   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.53 | 870.51        | -1.28   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.52 | 1430.34       | -1.78   | 10.46   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.52 | 508.48        | -1.85   | 11.29   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.52 | 495.90        | -1.92   | 12.12   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.52 | 483.49        | -1.99   | 12.94   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.51 | 612.68        | -2.06   | 13.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.25 | 1180.27       | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.25 | 1471.56       | 8.01    | 11.69   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.25 | 1450.26       | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.23 | 657.12        | 7.16    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.22 | 657.12        | 6.39    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.21 | 1522.34       | 6.12    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.20 | 657.12        | 5.63    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.18 | 657.12        | 4.86    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.17 | 1627.66       | 4.50    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.16 | 657.12        | 4.09    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.14 | 657.12        | 3.32    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.12 | 657.13        | 2.55    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.12 | 1811.04       | 2.31    | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.11 | 657.12        | 1.78    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.09 | 657.12        | 1.01    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.07 | 657.12        | 0.25    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.07 | 1750.63       | 0.27    | 10.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.05 | 654.22        | -0.52   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.03 | 658.38        | -1.28   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.02 | 1230.22       | -1.78   | 10.46   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.02 | 707.30        | -1.85   | 11.29   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.02 | 704.77        | -1.92   | 12.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.02 | 702.25        | -1.99   | 12.93   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.01 | 682.58        | -2.06   | 13.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.75 | 1179.95       | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.75 | 1471.56       | 8.01    | 11.69   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.75 | 1450.57       | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.73 | 657.12        | 7.16    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.72 | 657.12        | 6.39    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.71 | 1522.34       | 6.12    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.70 | 657.12        | 5.63    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.68 | 657.12        | 4.86    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.67 | 1627.66       | 4.50    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.66 | 657.12        | 4.09    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.64 | 657.12        | 3.32    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.62 | 657.13        | 2.55    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.62 | 1811.04       | 2.31    | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.61 | 657.12        | 1.78    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.59 | 657.12        | 1.01    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.57 | 657.12        | 0.25    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.57 | 1750.63       | 0.27    | 10.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.55 | 654.22        | -0.52   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.55 | 398.09        | 16.10   | -11.25  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 11.54 | 726.99        | 15.56   | -7.85   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.54 | 714.20        | 15.03   | -4.44   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.53 | 658.38        | -1.28   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.53 | 746.56        | 14.49   | -1.19   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.52 | 1228.96       | -1.78   | 10.46   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.52 | 706.03        | -1.85   | 11.29   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.52 | 704.77        | -1.92   | 12.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.52 | 1135.80       | 4.11    | 8.96    | 0.0        | 0.52       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.51 | 683.84        | -2.06   | 13.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.37 | 710.46        | 12.66   | -11.87  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.36 | 1331.60       | 12.12   | -8.46   | 0.0        | 0.0        | 12.12   | -8.46   | 1.1073e-05 | 0.0         | 0.0         |
| 11.36 | 1301.70       | 11.59   | -5.06   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.35 | 1364.30       | 11.05   | -1.80   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.34 | 782.03        | 10.44   | 1.90    | 0.0        | 0.0        | 10.44   | 1.90    | 2.7682e-06 | 0.0         | 0.0         |
| 11.25 | 379.84        | 9.41    | -12.57  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.24 | 694.54        | 8.88    | -9.16   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.23 | 683.74        | 8.34    | -5.76   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.23 | 721.19        | 7.81    | -2.50   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.22 | 418.51        | 7.17    | 1.36    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.25 | 1675.16       | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.25 | 1508.53       | 8.01    | 11.69   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.25 | 2174.58       | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.23 | 1579.92       | 7.16    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.22 | 1571.54       | 6.39    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.21 | 2900.22       | 6.12    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.20 | 1568.11       | 5.63    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.18 | 1567.98       | 4.86    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.17 | 3090.84       | 4.50    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.16 | 1566.87       | 4.09    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.14 | 1564.81       | 3.32    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.12 | 1562.71       | 2.55    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.12 | 3426.03       | 2.31    | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.11 | 1560.61       | 1.78    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.09 | 1558.51       | 1.01    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.07 | 1556.42       | 0.25    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.07 | 3296.71       | 0.27    | 10.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.05 | 1547.46       | -0.52   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.03 | 1543.42       | -1.28   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.02 | 2025.34       | -1.78   | 10.46   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.02 | 750.54        | -1.85   | 11.29   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.02 | 737.17        | -1.92   | 12.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.02 | 723.90        | -1.99   | 12.93   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.01 | 1052.81       | -2.06   | 13.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.25  | 932.31        | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.25  | 981.04        | 8.01    | 11.69   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.25  | 967.40        | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.23  | 730.14        | 7.16    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.22  | 730.14        | 6.39    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.21  | 784.25        | 6.12    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.20  | 730.14        | 5.63    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.18  | 730.14        | 4.86    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.17  | 854.46        | 4.50    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.16  | 730.14        | 4.09    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.14  | 730.14        | 3.32    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.12  | 730.14        | 2.55    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.12  | 1207.36       | 2.31    | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.11  | 730.14        | 1.78    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.09  | 730.14        | 1.01    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.07  | 730.14        | 0.25    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.07  | 1167.09       | 0.27    | 10.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.05  | 726.91        | -0.52   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.03  | 731.53        | -1.28   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.02  | 818.47        | -1.78   | 10.46   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.02  | 469.85        | -1.85   | 11.29   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.02  | 469.85        | -1.92   | 12.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.02  | 469.85        | -1.99   | 12.93   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.01  | 604.61        | -2.06   | 13.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.25  | 896.73        | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.25  | 1040.09       | 8.01    | 11.69   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.25  | 967.55        | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.23  | 730.14        | 7.16    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.22  | 730.14        | 6.39    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.21  | 553.60        | 6.12    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.20  | 730.14        | 5.63    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 8.18  | 730.14        | 4.86    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.17  | 623.82        | 4.50    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.16  | 730.14        | 4.09    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.14  | 730.14        | 3.32    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.12  | 730.14        | 2.55    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.12  | 1207.36       | 2.31    | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.11  | 730.14        | 1.78    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.09  | 730.14        | 1.01    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.07  | 730.14        | 0.25    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.07  | 1167.09       | 0.27    | 10.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.05  | 726.91        | -0.52   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.03  | 731.53        | -1.28   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.02  | 818.47        | -1.78   | 10.46   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.02  | 469.86        | -1.85   | 11.29   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.02  | 469.86        | -1.92   | 12.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.02  | 469.85        | -1.99   | 12.93   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.01  | 604.61        | -2.06   | 13.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.55  | 5119.68       | 16.10   | -11.25  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.54  | 551.84        | 15.56   | -7.85   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.54  | 1.248e+04     | 15.03   | -4.44   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.53  | 472.83        | 14.49   | -1.19   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.52  | 7643.45       | 14.13   | 1.00    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.52  | 458.48        | 14.04   | 2.49    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.50  | 5663.51       | 13.79   | 6.57    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.45  | 3905.73       | 14.54   | -14.96  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.44  | 1.859e+04     | 14.01   | -11.58  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.43  | 2.205e+04     | 12.93   | -4.77   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.42  | 1.428e+04     | 12.02   | 0.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.40  | 2.030e+04     | 11.66   | 6.57    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.39  | 1124.67       | 11.33   | 12.01   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.39  | 3234.26       | 12.25   | -4.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.38  | 2137.76       | 11.44   | 10.18   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.37  | 518.66        | 12.66   | -11.87  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.36  | 551.84        | 12.12   | -8.46   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.36  | 7289.55       | 11.05   | 3.29    | 0.0        | 0.94       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.35  | 469.68        | 11.05   | -1.80   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.34  | 1.200e+04     | 10.63   | 0.74    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.34  | 3908.77       | 10.14   | 11.90   | 0.0        | 0.0        | 10.14   | 11.90   | 1.0770e-05 | 0.0         | 0.0         |
| 7.34  | 123.07        | 10.44   | 1.90    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.33  | 3625.20       | 10.19   | 10.20   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.32  | 621.33        | 9.37    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.31  | 3793.07       | 10.78   | -5.10   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.29  | 1.015e+04     | 11.58   | -15.43  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.29  | 3830.43       | 9.13    | 10.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.29  | 651.88        | 8.65    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.29  | 3.284e+04     | 11.08   | -12.21  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.27  | 2.497e+04     | 9.99    | -5.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.26  | 3.735e+04     | 8.76    | 4.37    | 0.0        | 0.30       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.25  | 4176.46       | 9.15    | -5.34   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.25  | 2442.30       | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.25  | 4909.63       | 7.99    | 12.17   | 0.0        | 0.05       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.25  | 6140.83       | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.25  | 518.42        | 9.41    | -12.57  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.24  | 551.84        | 8.88    | -9.16   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.23  | 315.73        | 8.34    | -5.76   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.23  | 5614.50       | 7.96    | 0.30    | 0.0        | 0.96       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.23  | 488.06        | 7.81    | -2.50   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.22  | 3986.75       | 8.61    | -15.84  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.22  | 1.044e+04     | 7.32    | 0.51    | 0.0        | 0.04       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.22  | 1.982e+04     | 8.07    | -11.67  | 0.0        | 0.36       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.22  | 1614.79       | 6.39    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.21  | 6025.35       | 6.12    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.20  | 1.469e+04     | 7.02    | -5.64   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.20  | 2.255e+04     | 6.13    | 6.55    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.20  | 1.329e+04     | 6.48    | 0.44    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.20  | 1590.41       | 5.63    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.18  | 3697.86       | 6.28    | -5.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.18  | 1486.84       | 4.86    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.17  | 8487.89       | 4.50    | 10.66   | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.17  | 3719.42       | 5.54    | -5.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.16  | 809.57        | 4.09    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.15  | 1.512e+04     | 5.65    | -16.29  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.15  | 4.425e+04     | 4.18    | 2.80    | 0.0        | 0.63       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.14  | 4.915e+04     | 5.21    | -13.47  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 7.14  | 824.71        | 3.32    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.13  | 3.702e+04     | 4.06    | -6.09   | 0.0        | 0.0        | 4.06    | -6.09   | 5.3001e-06 | 0.0         | 0.0         |
| 7.12  | 1364.52       | 2.55    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.12  | 5544.00       | 2.31    | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.11  | 1195.08       | 1.78    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.10  | 3678.96       | 3.17    | -6.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.09  | 4.957e+04     | 1.67    | 3.42    | 0.0        | 0.32       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.09  | 1188.46       | 1.01    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.07  | 1181.45       | 0.25    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.07  | 4791.59       | 0.27    | 10.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.06  | 4668.00       | 2.27    | -6.35   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.05  | 1169.84       | -0.52   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.04  | 1.408e+04     | -0.88   | -0.10   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.03  | 2048.06       | -0.95   | 0.73    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.03  | 1136.48       | -1.28   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.03  | 2039.84       | -1.02   | 1.55    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.03  | 4702.17       | 1.38    | -6.48   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.03  | 2030.29       | -1.09   | 2.37    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.03  | 2020.81       | -1.16   | 3.19    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.03  | 2011.37       | -1.23   | 4.01    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.03  | 2001.78       | -1.30   | 4.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.02  | 1992.10       | -1.37   | 5.65    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.02  | 2.767e+04     | -1.53   | 7.60    | 0.0        | 0.20       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.02  | 2128.08       | -1.85   | 11.29   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.02  | 2130.69       | -1.92   | 12.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.02  | 2123.57       | -1.99   | 12.93   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.01  | 1548.84       | -2.06   | 13.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.01  | 2015.68       | -0.91   | -0.94   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.00  | 2008.78       | -0.86   | -1.77   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.00  | 5457.39       | 0.48    | -6.61   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.00  | 2006.79       | -0.80   | -2.60   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.99  | 2005.33       | -0.75   | -3.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.98  | 2003.64       | -0.70   | -4.27   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.98  | 2001.18       | -0.65   | -5.10   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.97  | 1998.13       | -0.60   | -5.93   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.96  | 6.187e+04     | -0.55   | -12.12  | 0.0        | 0.57       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.66  | 374.28        | 3.83    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.56  | 473.04        | 4.59    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.53  | 425.96        | 11.22   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.47  | 658.23        | 6.33    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.46  | 614.82        | 5.34    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.44  | 644.18        | 12.93   | -4.77   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.43  | 791.82        | 10.17   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.41  | 344.55        | 12.24   | -4.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.38  | 363.95        | 11.55   | -4.98   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.36  | 534.17        | 10.19   | 10.20   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.35  | 383.02        | 10.77   | -5.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.34  | 1884.64       | -1.61   | 10.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.33  | 1195.13       | -1.90   | 13.72   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.33  | 1928.69       | -1.69   | 11.25   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.33  | 1914.34       | -1.83   | 12.90   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.33  | 771.91        | 9.13    | 10.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.32  | 1936.70       | -1.76   | 12.08   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.32  | 1888.71       | -1.54   | 9.64    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.31  | 845.79        | 9.99    | -5.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.31  | 2651.41       | 1.51    | 10.17   | 0.0        | 0.24       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.30  | 397.08        | 9.17    | -5.34   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.30  | 1958.12       | -1.40   | 8.06    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.29  | 526.94        | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.28  | 1994.76       | -1.32   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.28  | 357.55        | 8.34    | -5.46   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.27  | 2127.57       | -0.72   | -0.08   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.27  | 2112.81       | -0.79   | 0.73    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.27  | 2114.16       | -0.86   | 1.56    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.27  | 2112.11       | -0.93   | 2.38    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.27  | 2382.16       | -0.06   | 4.87    | 0.0        | 0.60       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.27  | 2110.86       | -1.00   | 3.20    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.27  | 2110.17       | -1.07   | 4.02    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.27  | 2109.75       | -1.14   | 4.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.26  | 2108.06       | -1.21   | 5.66    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.26  | 746.88        | 7.13    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.26  | 784.74        | 7.02    | -5.64   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.25  | 2140.51       | -0.73   | -0.92   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.25  | 2134.52       | -0.68   | -1.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 6.24  | 2481.76       | 0.35    | -3.03   | 0.0        | 0.16       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.23  | 2126.03       | -0.58   | -3.42   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.23  | 2123.12       | -0.53   | -4.25   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.23  | 350.60        | 5.54    | -5.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.22  | 2120.46       | -0.48   | -5.08   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.22  | 2115.12       | -0.43   | -5.91   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.21  | 3.018e+04     | -0.32   | -12.14  | 0.0        | 0.61       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.20  | 827.14        | 4.06    | -6.09   | 0.0        | 0.0        | 4.06    | -6.09   | 5.3001e-06 | 0.0         | 0.0         |
| 6.18  | 785.26        | 8.68    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.17  | 418.51        | 3.17    | -6.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.17  | 491.53        | 3.57    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.15  | 415.54        | 2.27    | -6.35   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.12  | 412.59        | 1.38    | -6.48   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.09  | 205.18        | 0.48    | -6.62   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.06  | 2633.84       | 7.96    | 13.01   | 0.0        | 0.10       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.94  | 498.93        | 4.32    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.72  | 753.05        | 6.26    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.71  | 703.24        | 5.06    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.71  | 395.75        | 11.22   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.67  | 467.22        | 3.30    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.65  | 1.876e+04     | 0.74    | 12.27   | 0.0        | 0.16       | 1.00    | 13.66   | 0.183      | 0.144       | 5.042       |
| 5.64  | 3818.73       | -1.52   | 11.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.64  | 3787.96       | -1.67   | 12.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.64  | 3833.82       | -1.59   | 12.06   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.62  | 1889.48       | -1.36   | 9.63    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.59  | 1930.95       | -1.29   | 8.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.57  | 1956.50       | -1.22   | 8.05    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.54  | 1984.56       | -1.14   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.52  | 2054.34       | -1.07   | 6.48    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 2120.44       | -0.55   | -0.07   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 2107.72       | -0.62   | 0.74    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 2109.51       | -0.69   | 1.56    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 2106.74       | -0.76   | 2.38    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 2882.00       | 2.15    | 6.03    | 0.0        | 0.52       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 2105.58       | -0.90   | 4.02    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 2106.31       | -0.97   | 4.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 2104.77       | -1.04   | 5.66    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.50  | 2133.81       | -0.56   | -0.90   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.49  | 2129.73       | -0.51   | -1.74   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.49  | 2123.64       | -0.46   | -2.57   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.48  | 2119.33       | -0.41   | -3.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.48  | 2116.93       | -0.36   | -4.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.47  | 2115.98       | -0.31   | -5.06   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.47  | 2110.26       | -0.26   | -5.89   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.46  | 2.987e+04     | -0.21   | -12.20  | 0.0        | 0.57       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.44  | 646.99        | 12.93   | -4.77   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.42  | 350.16        | 12.23   | -4.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.40  | 364.03        | 11.53   | -4.99   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.39  | 534.17        | 10.19   | 10.20   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.38  | 377.58        | 10.76   | -5.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.36  | 771.91        | 9.13    | 10.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.35  | 838.28        | 9.99    | -5.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.34  | 387.49        | 9.19    | -5.34   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.34  | 526.94        | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.33  | 357.48        | 8.38    | -5.45   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.32  | 524.82        | 4.04    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.32  | 327.74        | 7.70    | -5.55   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.31  | 789.46        | 7.02    | -5.64   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.30  | 351.95        | 6.28    | -5.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.29  | 753.38        | 9.47    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.29  | 785.57        | 7.09    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.29  | 350.60        | 5.54    | -5.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.28  | 349.25        | 4.80    | -5.98   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.27  | 827.16        | 4.06    | -6.09   | 0.0        | 0.0        | 4.06    | -6.09   | 5.3001e-06 | 0.0         | 0.0         |
| 5.25  | 418.56        | 3.17    | -6.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.23  | 415.60        | 2.27    | -6.36   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.21  | 412.64        | 1.38    | -6.49   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.19  | 205.21        | 0.48    | -6.62   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.18  | 1390.16       | 3.04    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.08  | 814.48        | 8.70    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.98  | 847.88        | 6.19    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.97  | 791.66        | 4.78    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.94  | 1929.26       | -1.26   | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.94  | 1180.88       | -1.57   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota | M Sismica x g | Pos. GX   | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|-----------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 4.94  | 1978.48       | -1.36     | 11.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.94  | 3938.90       | -1.47     | 12.46   | 0.0        | 0.04       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.91  | 1908.04       | -1.19     | 9.62    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.88  | 365.54        | 11.22     | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.87  | 1938.22       | -1.11     | 8.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.86  | 2667.79       | 7.96      | 13.02   | 0.0        | 0.10       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.83  | 1963.06       | -1.03     | 8.05    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.80  | 1986.57       | -0.96     | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.76  | 2053.20       | -0.88     | 6.49    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.75  | 4222.05       | -0.43     | 0.35    | 0.0        | 0.04       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.75  | 2107.58       | -0.53     | 1.57    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.75  | 2104.15       | -0.60     | 2.39    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.75  | 2103.20       | -0.67     | 3.21    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.75  | 4207.15       | -0.77     | 4.44    | 0.0        | 0.04       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.75  | 2103.93       | -0.88     | 5.66    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.74  | 2131.04       | -0.38     | -0.89   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.74  | 2129.36       | -0.33     | -1.72   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.73  | 2121.99       | -0.28     | -2.55   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.73  | 2117.94       | -0.23     | -3.38   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.73  | 2115.13       | -0.18     | -4.21   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.72  | 2114.11       | -0.13     | -5.04   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.72  | 2107.61       | -0.08     | -5.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.72  | 2.991e+04     | -0.03     | -12.19  | 0.0        | 0.57       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.70  | 4873.05       | 1.49      | 13.68   | 0.0        | 0.0        | 0.83    | 13.68   | 0.057      | 1.327       | 1.2866e-05  |
| 4.59  | 760.61        | 10.32     | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.45  | 649.79        | 12.93     | -4.77   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.44  | 355.77        | 12.22     | -4.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.42  | 364.12        | 11.51     | -4.99   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.41  | 534.17        | 10.19     | 10.20   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.41  | 372.14        | 10.75     | -5.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.40  | 771.91        | 9.13      | 10.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.39  | 830.77        | 9.99      | -5.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.38  | 377.91        | 9.21      | -5.34   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.38  | 526.94        | 8.06      | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.38  | 357.41        | 8.42      | -5.45   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.37  | 337.18        | 7.72      | -5.54   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.36  | 794.18        | 7.02      | -5.64   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.36  | 351.95        | 6.28      | -5.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.35  | 350.60        | 5.54      | -5.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.34  | 349.25        | 4.80      | -5.98   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.33  | 827.19        | 4.06      | -6.09   | 0.0        | 0.0        | 4.06    | -6.09   | 5.3001e-06 | 0.0         | 0.0         |
| 4.32  | 824.27        | 7.06      | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.32  | 418.62        | 3.17      | -6.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.31  | 415.66        | 2.27      | -6.36   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.29  | 412.70        | 1.38      | -6.49   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.28  | 205.24        | 0.48      | -6.62   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.28  | 782.59        | 9.52      | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.24  | 1931.13       | -1.09     | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.23  | 1.821e+04     | 3.36      | 11.91   | 0.0        | 0.17       | 5.95    | 12.48   | 0.637      | 1.431       | 0.379       |
| 4.23  | 2625.08       | -0.24     | 13.07   | 0.0        | 0.04       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.19  | 1911.84       | -1.01     | 9.62    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.15  | 1937.03       | -0.93     | 8.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.10  | 1960.81       | -0.85     | 8.05    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.06  | 6107.00       | 11.91     | 12.62   | 0.0        | 0.08       | 11.27   | 12.84   | 1.080      | 0.572       | 0.267       |
| 4.05  | 1983.85       | -0.78     | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.01  | 2052.82       | -0.70     | 6.49    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.99  | 4214.66       | -0.26     | 0.36    | 0.0        | 0.04       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.99  | 2102.67       | -0.37     | 1.58    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.99  | 4197.67       | -0.47     | 2.81    | 0.0        | 0.04       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.99  | 4197.38       | -0.61     | 4.44    | 0.0        | 0.04       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.99  | 2102.75       | -0.72     | 5.67    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.98  | 2126.26       | -0.20     | -0.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.98  | 2123.45       | -0.16     | -1.71   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.98  | 2116.75       | -0.11     | -2.54   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.98  | 2113.08       | -0.06     | -3.36   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.98  | 2110.41       | -8.64e-03 | -4.19   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.97  | 2109.97       | 0.04      | -5.02   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.97  | 843.69        | 8.73      | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.97  | 2103.93       | 0.09      | -5.85   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.97  | 2.994e+04     | 0.14      | -12.18  | 0.0        | 0.57       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.76  | 3673.89       | 0.81      | 13.68   | 0.0        | 0.0        | 0.81    | 13.68   | 0.081      | 0.003       | 3.4876e-05  |
| 3.75  | 657.63        | 3.77      | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.67  | 2701.75       | 7.96      | 13.03   | 0.0        | 0.10       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.66  | 1323.84       | 10.42     | 13.36   | 0.0        | 0.09       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 3.53  | 1935.74       | -0.91   | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.52  | 1987.11       | -1.10   | 12.04   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.52  | 3960.25       | -1.10   | 12.04   | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.52  | 1046.17       | -1.24   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.48  | 1916.74       | -0.83   | 9.62    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.46  | 652.60        | 12.93   | -4.77   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.45  | 361.38        | 12.21   | -4.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.45  | 364.21        | 11.48   | -4.99   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.44  | 534.17        | 10.19   | 10.20   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.44  | 366.71        | 10.74   | -5.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.43  | 771.91        | 9.13    | 10.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.43  | 823.26        | 9.99    | -5.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.43  | 368.32        | 9.23    | -5.33   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.43  | 526.94        | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.42  | 357.34        | 8.46    | -5.44   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.42  | 1944.71       | -0.75   | 8.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.42  | 346.62        | 7.74    | -5.54   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.42  | 798.90        | 7.02    | -5.64   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.41  | 351.95        | 6.28    | -5.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.41  | 350.60        | 5.54    | -5.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.41  | 349.25        | 4.80    | -5.98   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.40  | 827.22        | 4.06    | -6.09   | 0.0        | 0.0        | 4.06    | -6.09   | 5.3001e-06 | 0.0         | 0.0         |
| 3.40  | 418.67        | 3.17    | -6.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.39  | 415.71        | 2.27    | -6.36   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.38  | 412.75        | 1.38    | -6.49   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.38  | 205.27        | 0.48    | -6.63   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.37  | 1971.10       | -0.67   | 8.06    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.35  | 763.52        | 7.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.31  | 1996.08       | -0.59   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.28  | 656.86        | 3.04    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.28  | 2366.63       | 5.27    | 13.68   | 0.0        | 0.0        | 5.16    | 13.68   | 0.220      | 0.331       | 0.0         |
| 3.27  | 1235.61       | 9.59    | 13.31   | 0.0        | 0.09       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.26  | 2065.67       | -0.51   | 6.49    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.23  | 1.260e+04     | -0.31   | 2.81    | 0.0        | 0.20       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.23  | 4216.23       | -0.31   | 2.81    | 0.0        | 0.29       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.23  | 2125.07       | -0.03   | -0.86   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.23  | 2123.13       | 0.02    | -1.69   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.23  | 2119.17       | 0.07    | -2.52   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.23  | 2115.90       | 0.12    | -3.35   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.23  | 2113.16       | 0.16    | -4.17   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.22  | 2111.37       | 0.21    | -5.00   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.22  | 2105.10       | 0.26    | -5.83   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.22  | 2.998e+04     | 0.31    | -12.16  | 0.0        | 0.57       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.87  | 1141.38       | 8.77    | 13.24   | 0.0        | 0.10       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.81  | 2.554e+04     | 0.31    | 12.24   | 0.0        | 0.16       | -0.87   | 13.34   | 0.567      | 1.441       | 1.435       |
| 2.81  | 657.63        | 3.77    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.74  | 2055.40       | -0.73   | 9.62    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.67  | 1934.23       | -0.66   | 8.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.61  | 1910.39       | -0.59   | 8.05    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.60  | 616.09        | 7.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.58  | 915.20        | -0.94   | 12.06   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.54  | 1889.09       | -0.53   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.52  | 998.78        | -0.87   | 11.25   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.47  | 1836.36       | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.47  | 2.814e+05     | 4.70    | 1.28    | 0.0        | 1.59       | 0.91    | -5.08   | 0.301      | 1.261       | 0.824       |
| 2.47  | 2395.97       | 12.03   | 2.98    | 0.0        | 0.49       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.46  | 2407.24       | 12.03   | 2.60    | 0.0        | 0.41       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.46  | 2418.51       | 12.03   | 2.24    | 0.0        | 0.32       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.46  | 2429.79       | 12.03   | 1.88    | 0.0        | 0.24       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.45  | 2441.06       | 12.03   | 1.52    | 0.0        | 0.16       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.45  | 2959.82       | 12.05   | 0.98    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.44  | 1.544e+04     | 12.02   | 0.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.33  | 1232.15       | 3.04    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.33  | 2512.17       | 5.32    | 13.68   | 0.0        | 0.0        | 5.16    | 13.68   | 0.220      | 0.489       | 0.0         |
| 2.00  | 4816.89       | -1.00   | 12.83   | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.94  | 1576.69       | -0.87   | 11.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.89  | 1605.34       | -0.80   | 10.44   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.86  | 3045.84       | 1.04    | 11.23   | 0.0        | 0.20       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.85  | 616.09        | 7.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.82  | 1850.13       | -0.66   | 8.85    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.79  | 1811.24       | -0.60   | 8.06    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.75  | 1769.11       | -0.53   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.71  | 1.510e+04     | 11.39   | 9.09    | 0.0        | 0.92       | 11.47   | 9.76    | 0.184      | 0.081       | 0.130       |
| 1.71  | 2718.77       | 12.26   | 0.92    | 0.0        | 0.49       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 1.71  | 2718.77       | 12.22   | 0.91    | 0.0        | 0.41       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.70  | 2718.77       | 12.18   | 0.89    | 0.0        | 0.32       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.70  | 2718.77       | 12.14   | 0.88    | 0.0        | 0.24       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.70  | 634.63        | 12.20   | -4.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.69  | 2718.77       | 12.10   | 0.87    | 0.0        | 0.16       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.69  | 6.390e+04     | 0.25    | -5.61   | 0.0        | 1.23       | 0.20    | -4.79   | 0.117      | 0.055       | 0.132       |
| 1.69  | 2718.77       | 12.06   | 0.85    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.69  | 1359.39       | 12.02   | 0.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.68  | 3530.14       | 1.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.68  | 393.96        | 1.38    | -6.50   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.68  | 2225.38       | 11.41   | 6.41    | 0.0        | 0.80       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.67  | 796.57        | 2.27    | -6.36   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.66  | 661.77        | 10.72   | -5.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.66  | 808.10        | 3.17    | -6.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.65  | 1183.75       | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.65  | 8260.73       | 7.11    | -3.65   | 0.0        | 0.94       | 7.02    | -5.65   | 0.362      | 0.034       | 0.975       |
| 1.38  | 1.092e+04     | 5.13    | 12.08   | 0.0        | 0.17       | 5.98    | 13.00   | 1.119      | 0.680       | 0.771       |
| 1.30  | 715.69        | 3.04    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.20  | 1850.07       | -0.94   | 12.05   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.19  | 1878.97       | -1.01   | 12.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.19  | 1304.01       | -1.08   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.15  | 1821.62       | -0.87   | 11.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.11  | 1792.31       | -0.80   | 10.44   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.10  | 679.86        | 7.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.07  | 1774.64       | -0.73   | 9.65    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.04  | 1774.64       | -0.66   | 8.85    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.00  | 1774.64       | -0.60   | 8.06    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.97  | 1767.21       | -0.53   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.96  | 1.527e+04     | 11.39   | 9.10    | 0.0        | 0.92       | 11.47   | 9.76    | 0.184      | 0.081       | 0.128       |
| 0.95  | 2718.77       | 12.26   | 0.92    | 0.0        | 0.49       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.95  | 2718.77       | 12.22   | 0.91    | 0.0        | 0.41       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.95  | 2718.77       | 12.18   | 0.89    | 0.0        | 0.32       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.94  | 2718.77       | 12.14   | 0.88    | 0.0        | 0.24       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.94  | 2718.77       | 12.10   | 0.87    | 0.0        | 0.16       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.93  | 2718.77       | 12.06   | 0.85    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.93  | 1359.39       | 12.02   | 0.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.92  | 634.63        | 12.20   | -4.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.92  | 649.62        | 3.77    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.92  | 6.391e+04     | 0.25    | -5.61   | 0.0        | 1.23       | 0.20    | -4.79   | 0.117      | 0.055       | 0.132       |
| 0.89  | 393.96        | 1.38    | -6.50   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.89  | 2250.41       | 11.41   | 6.46    | 0.0        | 0.80       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.87  | 796.57        | 2.27    | -6.36   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.86  | 661.77        | 10.72   | -5.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.85  | 808.10        | 3.17    | -6.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.82  | 1078.36       | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.82  | 8260.73       | 7.11    | -3.65   | 0.0        | 0.94       | 7.02    | -5.65   | 0.362      | 0.034       | 0.975       |
| 0.55  | 3530.14       | 1.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.54  | 1950.66       | 5.34    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.40  | 1849.07       | -0.94   | 12.05   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.39  | 1875.67       | -1.01   | 12.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.38  | 1302.36       | -1.08   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.36  | 1822.93       | -0.87   | 11.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.32  | 1792.96       | -0.80   | 10.44   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.32  | 676.05        | 7.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.29  | 1774.64       | -0.73   | 9.65    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.27  | 715.69        | 3.04    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.25  | 1774.64       | -0.66   | 8.86    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.22  | 1774.64       | -0.60   | 8.06    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.20  | 1.361e+04     | 11.38   | 8.96    | 0.0        | 0.92       | 11.47   | 9.74    | 0.184      | 0.086       | 0.148       |
| 0.20  | 2718.77       | 12.26   | 0.92    | 0.0        | 0.49       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.19  | 2718.77       | 12.22   | 0.91    | 0.0        | 0.41       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.19  | 2718.77       | 12.18   | 0.89    | 0.0        | 0.32       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.19  | 1769.04       | -0.53   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.18  | 2718.77       | 12.14   | 0.88    | 0.0        | 0.24       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.18  | 2718.77       | 12.10   | 0.87    | 0.0        | 0.16       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.18  | 2718.77       | 12.06   | 0.85    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.17  | 1359.39       | 12.02   | 0.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.15  | 652.74        | 12.20   | -4.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.14  | 6.391e+04     | 0.25    | -5.61   | 0.0        | 1.23       | 0.20    | -4.79   | 0.117      | 0.055       | 0.132       |
| 0.10  | 196.98        | 1.38    | -6.50   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.10  | 2236.57       | 11.41   | 6.17    | 0.0        | 0.80       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.07  | 398.28        | 2.27    | -6.36   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.05  | 716.11        | 10.72   | -5.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.03  | 404.05        | 3.17    | -6.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota    | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|----------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 9.90e-04 | 860.60        | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.0      | 2.112e+04     | 8.05    | -4.02   | 0.0        | 1.31       | 7.31    | -5.48   | 0.120      | 0.323       | 1.469       |
| -0.02    | 649.62        | 3.77    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.30    | 1950.66       | 5.34    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.39    | 1848.08       | -0.94   | 12.05   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.41    | 1872.37       | -1.01   | 12.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.43    | 1824.25       | -0.87   | 11.25   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.43    | 1272.32       | -1.08   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.46    | 1793.62       | -0.80   | 10.44   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.47    | 671.08        | 7.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.50    | 1774.64       | -0.73   | 9.65    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.53    | 1774.64       | -0.66   | 8.86    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.56    | 1.342e+04     | 11.37   | 9.12    | 0.0        | 0.92       | 11.47   | 9.74    | 0.184      | 0.103       | 0.119       |
| -0.56    | 2718.77       | 12.26   | 0.92    | 0.0        | 0.49       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.56    | 1774.64       | -0.60   | 8.07    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.57    | 2718.77       | 12.22   | 0.91    | 0.0        | 0.41       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.57    | 2718.77       | 12.18   | 0.89    | 0.0        | 0.32       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.57    | 2718.77       | 12.14   | 0.88    | 0.0        | 0.24       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.57    | 3530.14       | 1.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.58    | 2718.77       | 12.10   | 0.87    | 0.0        | 0.16       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.58    | 2718.77       | 12.06   | 0.85    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.58    | 1359.39       | 12.02   | 0.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.60    | 1770.87       | -0.53   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.63    | 1477.05       | 11.38   | 11.09   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.64    | 673.95        | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.64    | 6.391e+04     | 0.25    | -5.61   | 0.0        | 1.23       | 0.20    | -4.79   | 0.117      | 0.055       | 0.131       |
| -0.67    | 335.43        | 12.20   | -4.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.71    | 1128.39       | 11.44   | 10.18   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.76    | 715.69        | 3.04    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.78    | 360.33        | 11.46   | -5.00   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.89    | 385.23        | 10.72   | -5.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.96    | 649.62        | 3.77    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.00    | 5091.45       | 6.56    | -2.61   | 0.0        | 0.63       | 8.50    | -5.43   | 0.301      | 1.286       | 2.237       |
| -1.15    | 1950.66       | 5.34    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.19    | 923.67        | -0.94   | 12.06   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.22    | 1847.57       | -0.94   | 12.07   | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.25    | 1530.77       | -0.91   | 11.78   | 0.0        | 0.16       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.26    | 676.05        | 7.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.28    | 887.32        | -0.73   | 9.65    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.31    | 887.32        | -0.66   | 8.86    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.32    | 1.327e+04     | 11.35   | 9.28    | 0.0        | 0.92       | 11.47   | 9.74    | 0.184      | 0.122       | 0.087       |
| -1.32    | 2718.77       | 12.26   | 0.92    | 0.0        | 0.49       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.32    | 2718.77       | 12.22   | 0.91    | 0.0        | 0.41       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.33    | 2718.77       | 12.18   | 0.89    | 0.0        | 0.32       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.33    | 2718.77       | 12.14   | 0.88    | 0.0        | 0.24       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.33    | 2718.77       | 12.10   | 0.87    | 0.0        | 0.16       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.34    | 2718.77       | 12.06   | 0.85    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.34    | 1359.39       | 12.02   | 0.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.35    | 887.32        | -0.60   | 8.07    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.37    | 1470.80       | 11.38   | 11.09   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.37    | 707.05        | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.38    | 886.12        | -0.53   | 7.28    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.42    | 3.305e+04     | 0.62    | -5.08   | 0.0        | 1.41       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.70    | 3561.50       | 1.02    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.80    | 715.69        | 3.04    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.89    | 649.62        | 3.77    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.99    | 1950.66       | 5.34    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.04    | 507.50        | -0.78   | 13.68   | 0.0        | 0.0        | -0.86   | 13.68   | 1.1727e-06 | 5.8694e+05  | 4.213       |
| -2.04    | 676.05        | 7.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.07    | 1.440e+04     | 11.35   | 9.35    | 0.0        | 0.92       | 11.47   | 9.75    | 0.184      | 0.114       | 0.077       |
| -2.08    | 2718.77       | 12.26   | 0.92    | 0.0        | 0.49       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.08    | 2718.77       | 12.22   | 0.91    | 0.0        | 0.41       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.08    | 2718.77       | 12.18   | 0.89    | 0.0        | 0.32       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.09    | 2718.77       | 12.14   | 0.88    | 0.0        | 0.24       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.09    | 2718.77       | 12.10   | 0.87    | 0.0        | 0.16       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.09    | 2718.77       | 12.06   | 0.85    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.10    | 2836.44       | 11.69   | 6.18    | 0.0        | 0.51       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.10    | 707.05        | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.83    | 1.224e+04     | 8.58    | 10.97   | 0.0        | 0.92       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.83    | 1359.39       | 12.26   | 0.92    | 0.0        | 0.49       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.84    | 1359.39       | 12.22   | 0.91    | 0.0        | 0.41       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.84    | 1359.39       | 12.18   | 0.89    | 0.0        | 0.32       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.84    | 1359.39       | 12.14   | 0.88    | 0.0        | 0.24       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.85    | 1359.39       | 12.10   | 0.87    | 0.0        | 0.16       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota   | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|---------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| -2.85   | 3239.50       | 7.85    | 1.11    | 0.0        | 0.61       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.85   | 1359.39       | 12.06   | 0.85    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| Risulta | 2.500e+06     |         |         |            |            |         |         |            |             |             |

| Modo           | Frequenza | Periodo | Acc. Spettrale | M efficace X x g | %        | M efficace Y x g | %        | M efficace Z x g | %        | Energia | Energia x v |
|----------------|-----------|---------|----------------|------------------|----------|------------------|----------|------------------|----------|---------|-------------|
|                | Hz        | sec     | g              | kg               |          | kg               |          | kg               |          |         |             |
| 1              | 1.997     | 0.501   | 0.077          | 1.493e+04        | 0.6      | 276.27           | 1.11e-02 | 6.74             | 2.70e-04 | 0.0     | 0.0         |
| 2              | 2.153     | 0.464   | 0.083          | 203.10           | 8.13e-03 | 1.612e+04        | 0.6      | 2.01             | 8.06e-05 | 0.0     | 0.0         |
| 3              | 2.376     | 0.421   | 0.088          | 75.96            | 3.04e-03 | 88.88            | 3.56e-03 | 0.59             | 2.35e-05 | 0.0     | 0.0         |
| 4              | 3.558     | 0.281   | 0.088          | 97.98            | 3.92e-03 | 2.58             | 1.03e-04 | 1.21             | 4.82e-05 | 0.0     | 0.0         |
| 5              | 3.636     | 0.275   | 0.088          | 397.02           | 1.59e-02 | 54.63            | 2.19e-03 | 0.11             | 4.30e-06 | 0.0     | 0.0         |
| 6              | 4.733     | 0.211   | 0.088          | 281.38           | 1.13e-02 | 1.426e+04        | 0.6      | 13.99            | 5.60e-04 | 0.0     | 0.0         |
| 7              | 4.779     | 0.209   | 0.088          | 4110.51          | 0.2      | 5.500e+05        | 22.0     | 260.01           | 1.04e-02 | 0.0     | 0.0         |
| 8              | 5.058     | 0.198   | 0.088          | 92.77            | 3.71e-03 | 777.40           | 3.11e-02 | 0.16             | 6.59e-06 | 0.0     | 0.0         |
| 9              | 5.613     | 0.178   | 0.088          | 1.321e+04        | 0.5      | 1698.26          | 6.79e-02 | 179.38           | 7.18e-03 | 0.0     | 0.0         |
| 10             | 5.678     | 0.176   | 0.088          | 844.08           | 3.38e-02 | 7.03             | 2.81e-04 | 4.68             | 1.87e-04 | 0.0     | 0.0         |
| 11             | 5.918     | 0.169   | 0.088          | 1.705e+06        | 68.2     | 4427.71          | 0.2      | 5627.83          | 0.2      | 0.0     | 0.0         |
| 12             | 7.958     | 0.126   | 0.084          | 8450.02          | 0.3      | 2724.39          | 0.1      | 1.047e+04        | 0.4      | 0.0     | 0.0         |
| 13             | 8.273     | 0.121   | 0.083          | 1116.04          | 4.46e-02 | 66.90            | 2.68e-03 | 1.064e+04        | 0.4      | 0.0     | 0.0         |
| 14             | 8.588     | 0.116   | 0.082          | 286.44           | 1.15e-02 | 1.152e+05        | 4.6      | 1.840e+04        | 0.7      | 0.0     | 0.0         |
| 15             | 8.854     | 0.113   | 0.081          | 728.18           | 2.91e-02 | 7.717e+05        | 30.9     | 3111.48          | 0.1      | 0.0     | 0.0         |
| 16             | 8.894     | 0.112   | 0.081          | 1499.15          | 6.00e-02 | 63.52            | 2.54e-03 | 3921.23          | 0.2      | 0.0     | 0.0         |
| 17             | 9.177     | 0.109   | 0.080          | 6167.57          | 0.2      | 2226.58          | 8.91e-02 | 3714.95          | 0.1      | 0.0     | 0.0         |
| 18             | 9.643     | 0.104   | 0.079          | 178.57           | 7.14e-03 | 2.081e+04        | 0.8      | 2.538e+04        | 1.0      | 0.0     | 0.0         |
| 19             | 10.419    | 0.096   | 0.078          | 59.82            | 2.39e-03 | 109.87           | 4.40e-03 | 2977.31          | 0.1      | 0.0     | 0.0         |
| 20             | 10.495    | 0.095   | 0.077          | 1.959e+04        | 0.8      | 391.91           | 1.57e-02 | 1.008e+04        | 0.4      | 0.0     | 0.0         |
| 21             | 10.942    | 0.091   | 0.077          | 911.27           | 3.65e-02 | 5355.34          | 0.2      | 2043.29          | 8.17e-02 | 0.0     | 0.0         |
| 22             | 11.359    | 0.088   | 0.076          | 7.497e+04        | 3.0      | 1.342e+04        | 0.5      | 3733.29          | 0.1      | 0.0     | 0.0         |
| 23             | 11.532    | 0.087   | 0.076          | 4488.36          | 0.2      | 1677.25          | 6.71e-02 | 458.55           | 1.83e-02 | 0.0     | 0.0         |
| 24             | 11.577    | 0.086   | 0.076          | 9370.18          | 0.4      | 1.160e+04        | 0.5      | 689.70           | 2.76e-02 | 0.0     | 0.0         |
| 25             | 11.820    | 0.085   | 0.075          | 1.130e+04        | 0.5      | 5.430e+04        | 2.2      | 787.64           | 3.15e-02 | 0.0     | 0.0         |
| 26             | 12.156    | 0.082   | 0.075          | 75.33            | 3.01e-03 | 8669.63          | 0.3      | 463.19           | 1.85e-02 | 0.0     | 0.0         |
| 27             | 12.386    | 0.081   | 0.074          | 915.05           | 3.66e-02 | 854.24           | 3.42e-02 | 4590.71          | 0.2      | 0.0     | 0.0         |
| 28             | 12.705    | 0.079   | 0.074          | 323.13           | 1.29e-02 | 4.11             | 1.64e-04 | 1.052e+04        | 0.4      | 0.0     | 0.0         |
| 29             | 12.728    | 0.079   | 0.074          | 18.38            | 7.35e-04 | 1765.29          | 7.06e-02 | 197.94           | 7.92e-03 | 0.0     | 0.0         |
| 30             | 13.468    | 0.074   | 0.073          | 31.16            | 1.25e-03 | 320.14           | 1.28e-02 | 392.01           | 1.57e-02 | 0.0     | 0.0         |
| 31             | 13.850    | 0.072   | 0.073          | 34.77            | 1.39e-03 | 1346.49          | 5.39e-02 | 156.72           | 6.27e-03 | 0.0     | 0.0         |
| 32             | 14.230    | 0.070   | 0.072          | 773.84           | 3.10e-02 | 0.22             | 8.69e-06 | 7.661e+04        | 3.1      | 0.0     | 0.0         |
| 33             | 14.434    | 0.069   | 0.072          | 3740.29          | 0.1      | 67.40            | 2.70e-03 | 1.005e+05        | 4.0      | 0.0     | 0.0         |
| 34             | 14.915    | 0.067   | 0.071          | 3.888e+04        | 1.6      | 3960.13          | 0.2      | 5.353e+04        | 2.1      | 0.0     | 0.0         |
| 35             | 15.093    | 0.066   | 0.071          | 7337.70          | 0.3      | 1194.55          | 4.78e-02 | 1332.92          | 5.33e-02 | 0.0     | 0.0         |
| 36             | 15.150    | 0.066   | 0.071          | 1426.73          | 5.71e-02 | 300.14           | 1.20e-02 | 1.892e+04        | 0.8      | 0.0     | 0.0         |
| 37             | 15.374    | 0.065   | 0.071          | 9.069e+04        | 3.6      | 1.300e+04        | 0.5      | 4.705e+04        | 1.9      | 0.0     | 0.0         |
| 38             | 16.016    | 0.062   | 0.070          | 5282.39          | 0.2      | 129.17           | 5.17e-03 | 2.147e+04        | 0.9      | 0.0     | 0.0         |
| 39             | 16.403    | 0.061   | 0.070          | 2.202e+04        | 0.9      | 2496.94          | 9.99e-02 | 1064.21          | 4.26e-02 | 0.0     | 0.0         |
| 40             | 16.461    | 0.061   | 0.070          | 2.090e+04        | 0.8      | 1524.28          | 6.10e-02 | 5904.26          | 0.2      | 0.0     | 0.0         |
| 41             | 16.855    | 0.059   | 0.070          | 1.707e+04        | 0.7      | 1.962e+04        | 0.8      | 1.256e+04        | 0.5      | 0.0     | 0.0         |
| 42             | 16.871    | 0.059   | 0.070          | 1377.88          | 5.51e-02 | 2.195e+04        | 0.9      | 93.00            | 3.72e-03 | 0.0     | 0.0         |
| 43             | 17.087    | 0.059   | 0.070          | 661.04           | 2.64e-02 | 6.214e+04        | 2.5      | 441.07           | 1.76e-02 | 0.0     | 0.0         |
| 44             | 17.216    | 0.058   | 0.070          | 4.86             | 1.94e-04 | 3827.86          | 0.2      | 1297.72          | 5.19e-02 | 0.0     | 0.0         |
| 45             | 17.881    | 0.056   | 0.069          | 946.92           | 3.79e-02 | 7719.89          | 0.3      | 7.469e+04        | 3.0      | 0.0     | 0.0         |
| 46             | 18.100    | 0.055   | 0.069          | 313.77           | 1.26e-02 | 1326.23          | 5.31e-02 | 6188.60          | 0.2      | 0.0     | 0.0         |
| 47             | 18.640    | 0.054   | 0.069          | 5781.26          | 0.2      | 2.076e+05        | 8.3      | 4771.14          | 0.2      | 0.0     | 0.0         |
| 48             | 18.740    | 0.053   | 0.069          | 984.80           | 3.94e-02 | 6.113e+04        | 2.4      | 2.863e+05        | 11.5     | 0.0     | 0.0         |
| 49             | 19.398    | 0.052   | 0.068          | 36.62            | 1.47e-03 | 3681.20          | 0.1      | 2111.51          | 8.45e-02 | 0.0     | 0.0         |
| 50             | 19.557    | 0.051   | 0.068          | 4.250e+04        | 1.7      | 4522.11          | 0.2      | 4080.23          | 0.2      | 0.0     | 0.0         |
| 51             | 20.107    | 0.050   | 0.068          | 112.90           | 4.52e-03 | 255.85           | 1.02e-02 | 224.24           | 8.97e-03 | 0.0     | 0.0         |
| 52             | 20.410    | 0.049   | 0.068          | 38.82            | 1.55e-03 | 206.25           | 8.25e-03 | 2390.53          | 9.56e-02 | 0.0     | 0.0         |
| 53             | 20.661    | 0.048   | 0.067          | 2418.33          | 9.68e-02 | 4341.88          | 0.2      | 59.40            | 2.38e-03 | 0.0     | 0.0         |
| 54             | 21.257    | 0.047   | 0.067          | 76.02            | 3.04e-03 | 3565.54          | 0.1      | 1.44             | 5.75e-05 | 0.0     | 0.0         |
| 55             | 21.335    | 0.047   | 0.067          | 105.24           | 4.21e-03 | 4220.57          | 0.2      | 263.98           | 1.06e-02 | 0.0     | 0.0         |
| 56             | 21.774    | 0.046   | 0.067          | 1211.06          | 4.85e-02 | 6044.15          | 0.2      | 0.71             | 2.86e-05 | 0.0     | 0.0         |
| 57             | 21.915    | 0.046   | 0.067          | 7062.82          | 0.3      | 4564.78          | 0.2      | 5.144e+04        | 2.1      | 0.0     | 0.0         |
| 58             | 22.342    | 0.045   | 0.067          | 48.05            | 1.92e-03 | 1.137e+04        | 0.5      | 8328.18          | 0.3      | 0.0     | 0.0         |
| 59             | 22.686    | 0.044   | 0.067          | 1003.50          | 4.01e-02 | 1.899e+04        | 0.8      | 478.49           | 1.91e-02 | 0.0     | 0.0         |
| 60             | 22.983    | 0.044   | 0.066          | 554.13           | 2.22e-02 | 1.164e+04        | 0.5      | 41.87            | 1.68e-03 | 0.0     | 0.0         |
| 61             | 23.322    | 0.043   | 0.066          | 102.58           | 4.10e-03 | 58.24            | 2.33e-03 | 5286.80          | 0.2      | 0.0     | 0.0         |
| 62             | 23.509    | 0.043   | 0.066          | 1641.21          | 6.57e-02 | 6460.42          | 0.3      | 253.37           | 1.01e-02 | 0.0     | 0.0         |
| Risulta        |           |         |                | 2.155e+06        |          | 2.088e+06        |          | 9.064e+05        |          |         |             |
| In percentuale |           |         |                | 86.22            |          | 83.55            |          | 36.26            |          |         |             |

| CDC | Tipo | Sigla Id                                  | Note                                      |
|-----|------|-------------------------------------------|-------------------------------------------|
| 7   | Edk  | CDC=Ed (dinamico SLU) alfa=90.00 (ecc. +) |                                           |
|     |      |                                           | verifica esistenti: fattore FC 1.000      |
|     |      |                                           | categoria suolo: C                        |
|     |      |                                           | fattore di sito S = 1.800                 |
|     |      |                                           | ordinata spettro (tratto Tb-Tc) = 0.088 g |
|     |      |                                           | angolo di ingresso:90.00                  |
|     |      |                                           | eccentricità aggiuntiva: positiva         |
|     |      |                                           | periodo proprio T1: 0.113 sec.            |
|     |      |                                           | fattore di struttura q: 1.500             |
|     |      |                                           | fattore per spost. mu d: 2.929            |
|     |      |                                           | classe di duttilità CD: □                 |
|     |      |                                           | numero di modi considerati: 62            |
|     |      |                                           | combinaz. modale: CQC                     |

| Quota | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| m     | kg            | m       | m       | m          | m          | m       | m       |            |             |             |
| 14.75 | 1045.17       | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.75 | 1012.25       | 8.01    | 11.69   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.75 | 1520.35       | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.73 | 898.87        | 7.16    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.72 | 892.50        | 6.39    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.71 | 2066.49       | 6.12    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.70 | 889.89        | 5.63    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.68 | 889.79        | 4.86    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.67 | 2201.83       | 4.50    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.66 | 888.95        | 4.09    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.64 | 887.38        | 3.32    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.62 | 885.78        | 2.55    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.62 | 2439.98       | 2.31    | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.61 | 884.18        | 1.78    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.59 | 882.59        | 1.01    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.57 | 881.00        | 0.25    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.57 | 2347.14       | 0.27    | 10.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.55 | 875.52        | -0.52   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.53 | 870.51        | -1.28   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.52 | 1430.34       | -1.78   | 10.46   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.52 | 508.48        | -1.85   | 11.29   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.52 | 495.90        | -1.92   | 12.12   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.52 | 483.49        | -1.99   | 12.94   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.51 | 612.68        | -2.06   | 13.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.25 | 1180.27       | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.25 | 1471.56       | 8.01    | 11.69   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.25 | 1450.26       | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.23 | 657.12        | 7.16    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.22 | 657.12        | 6.39    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.21 | 1522.34       | 6.12    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.20 | 657.12        | 5.63    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.18 | 657.12        | 4.86    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.17 | 1627.66       | 4.50    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.16 | 657.12        | 4.09    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.14 | 657.12        | 3.32    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.12 | 657.13        | 2.55    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.12 | 1811.04       | 2.31    | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.11 | 657.12        | 1.78    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.09 | 657.12        | 1.01    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.07 | 657.12        | 0.25    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.07 | 1750.63       | 0.27    | 10.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.05 | 654.22        | -0.52   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.03 | 658.38        | -1.28   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.02 | 1230.22       | -1.78   | 10.46   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.02 | 707.30        | -1.85   | 11.29   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.02 | 704.77        | -1.92   | 12.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.02 | 702.25        | -1.99   | 12.93   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.01 | 682.58        | -2.06   | 13.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.75 | 1179.95       | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.75 | 1471.56       | 8.01    | 11.69   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.75 | 1450.57       | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.73 | 657.12        | 7.16    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.72 | 657.12        | 6.39    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.71 | 1522.34       | 6.12    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 11.70 | 657.12        | 5.63    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.68 | 657.12        | 4.86    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.67 | 1627.66       | 4.50    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.66 | 657.12        | 4.09    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.64 | 657.12        | 3.32    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.62 | 657.13        | 2.55    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.62 | 1811.04       | 2.31    | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.61 | 657.12        | 1.78    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.59 | 657.12        | 1.01    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.57 | 657.12        | 0.25    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.57 | 1750.63       | 0.27    | 10.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.55 | 654.22        | -0.52   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.55 | 398.09        | 16.10   | -11.25  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.54 | 726.99        | 15.56   | -7.85   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.54 | 714.20        | 15.03   | -4.44   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.53 | 658.38        | -1.28   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.53 | 746.56        | 14.49   | -1.19   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.52 | 1228.96       | -1.78   | 10.46   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.52 | 706.03        | -1.85   | 11.29   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.52 | 704.77        | -1.92   | 12.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.52 | 1135.80       | 4.11    | 8.96    | 0.80       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.51 | 683.84        | -2.06   | 13.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.37 | 710.46        | 12.66   | -11.87  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.36 | 1331.60       | 12.12   | -8.46   | 0.0        | 0.0        | 12.12   | -8.46   | 1.1073e-05 | 0.0         | 0.0         |
| 11.36 | 1301.70       | 11.59   | -5.06   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.35 | 1364.30       | 11.05   | -1.80   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.34 | 782.03        | 10.44   | 1.90    | 0.0        | 0.0        | 10.44   | 1.90    | 2.7682e-06 | 0.0         | 0.0         |
| 11.25 | 379.84        | 9.41    | -12.57  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.24 | 694.54        | 8.88    | -9.16   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.23 | 683.74        | 8.34    | -5.76   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.23 | 721.19        | 7.81    | -2.50   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.22 | 418.51        | 7.17    | 1.36    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.25 | 1675.16       | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.25 | 1508.53       | 8.01    | 11.69   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.25 | 2174.58       | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.23 | 1579.92       | 7.16    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.22 | 1571.54       | 6.39    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.21 | 2900.22       | 6.12    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.20 | 1568.11       | 5.63    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.18 | 1567.98       | 4.86    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.17 | 3090.84       | 4.50    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.16 | 1566.87       | 4.09    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.14 | 1564.81       | 3.32    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.12 | 1562.71       | 2.55    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.12 | 3426.03       | 2.31    | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.11 | 1560.61       | 1.78    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.09 | 1558.51       | 1.01    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.07 | 1556.42       | 0.25    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.07 | 3296.71       | 0.27    | 10.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.05 | 1547.46       | -0.52   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.03 | 1543.42       | -1.28   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.02 | 2025.34       | -1.78   | 10.46   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.02 | 750.54        | -1.85   | 11.29   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.02 | 737.17        | -1.92   | 12.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.02 | 723.90        | -1.99   | 12.93   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.01 | 1052.81       | -2.06   | 13.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.25  | 932.31        | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.25  | 981.04        | 8.01    | 11.69   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.25  | 967.40        | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.23  | 730.14        | 7.16    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.22  | 730.14        | 6.39    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.21  | 784.25        | 6.12    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.20  | 730.14        | 5.63    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.18  | 730.14        | 4.86    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.17  | 854.46        | 4.50    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.16  | 730.14        | 4.09    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.14  | 730.14        | 3.32    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.12  | 730.14        | 2.55    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.12  | 1207.36       | 2.31    | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.11  | 730.14        | 1.78    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.09  | 730.14        | 1.01    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.07  | 730.14        | 0.25    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.07  | 1167.09       | 0.27    | 10.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.05  | 726.91        | -0.52   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 9.03  | 731.53        | -1.28   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.02  | 818.47        | -1.78   | 10.46   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.02  | 469.85        | -1.85   | 11.29   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.02  | 469.85        | -1.92   | 12.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.02  | 469.85        | -1.99   | 12.93   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.01  | 604.61        | -2.06   | 13.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.25  | 896.73        | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.25  | 1040.09       | 8.01    | 11.69   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.25  | 967.55        | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.23  | 730.14        | 7.16    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.22  | 730.14        | 6.39    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.21  | 553.60        | 6.12    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.20  | 730.14        | 5.63    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.18  | 730.14        | 4.86    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.17  | 623.82        | 4.50    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.16  | 730.14        | 4.09    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.14  | 730.14        | 3.32    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.12  | 730.14        | 2.55    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.12  | 1207.36       | 2.31    | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.11  | 730.14        | 1.78    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.09  | 730.14        | 1.01    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.07  | 730.14        | 0.25    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.07  | 1167.09       | 0.27    | 10.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.05  | 726.91        | -0.52   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.03  | 731.53        | -1.28   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.02  | 818.47        | -1.78   | 10.46   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.02  | 469.86        | -1.85   | 11.29   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.02  | 469.86        | -1.92   | 12.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.02  | 469.85        | -1.99   | 12.93   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.01  | 604.61        | -2.06   | 13.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.55  | 5119.68       | 16.10   | -11.25  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.54  | 551.84        | 15.56   | -7.85   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.54  | 1.248e+04     | 15.03   | -4.44   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.53  | 472.83        | 14.49   | -1.19   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.52  | 7643.45       | 14.13   | 1.00    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.52  | 458.48        | 14.04   | 2.49    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.50  | 5663.51       | 13.79   | 6.57    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.45  | 3905.73       | 14.54   | -14.96  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.44  | 1.859e+04     | 14.01   | -11.58  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.43  | 2.205e+04     | 12.93   | -4.77   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.42  | 1.428e+04     | 12.02   | 0.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.40  | 2.030e+04     | 11.66   | 6.57    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.39  | 1124.67       | 11.33   | 12.01   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.39  | 3234.26       | 12.25   | -4.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.38  | 2137.76       | 11.44   | 10.18   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.37  | 518.66        | 12.66   | -11.87  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.36  | 551.84        | 12.12   | -8.46   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.36  | 7289.55       | 11.05   | 3.29    | 0.07       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.35  | 469.68        | 11.05   | -1.80   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.34  | 1.200e+04     | 10.63   | 0.74    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.34  | 3908.77       | 10.14   | 11.90   | 0.0        | 0.0        | 10.14   | 11.90   | 1.0770e-05 | 0.0         | 0.0         |
| 7.34  | 123.07        | 10.44   | 1.90    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.33  | 3625.20       | 10.19   | 10.20   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.32  | 621.33        | 9.37    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.31  | 3793.07       | 10.78   | -5.10   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.29  | 1.015e+04     | 11.58   | -15.43  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.29  | 3830.43       | 9.13    | 10.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.29  | 651.88        | 8.65    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.29  | 3.284e+04     | 11.08   | -12.21  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.27  | 2.497e+04     | 9.99    | -5.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.26  | 3.735e+04     | 8.76    | 4.37    | 0.02       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.25  | 4176.46       | 9.15    | -5.34   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.25  | 2442.30       | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.25  | 4909.63       | 7.99    | 12.17   | 1.86e-03   | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.25  | 6140.83       | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.25  | 518.42        | 9.41    | -12.57  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.24  | 551.84        | 8.88    | -9.16   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.23  | 315.73        | 8.34    | -5.76   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.23  | 5614.50       | 7.96    | 0.30    | 0.06       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.23  | 488.06        | 7.81    | -2.50   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.22  | 3986.75       | 8.61    | -15.84  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.22  | 1.044e+04     | 7.32    | 0.51    | 7.74e-03   | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.22  | 1.982e+04     | 8.07    | -11.67  | 0.02       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.22  | 1614.79       | 6.39    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 7.21  | 6025.35       | 6.12    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.20  | 1.469e+04     | 7.02    | -5.64   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.20  | 2.255e+04     | 6.13    | 6.55    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.20  | 1.329e+04     | 6.48    | 0.44    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.20  | 1590.41       | 5.63    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.18  | 3697.86       | 6.28    | -5.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.18  | 1486.84       | 4.86    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.17  | 8487.89       | 4.50    | 10.66   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.17  | 3719.42       | 5.54    | -5.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.16  | 809.57        | 4.09    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.15  | 1.512e+04     | 5.65    | -16.29  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.15  | 4.425e+04     | 4.18    | 2.80    | 0.04       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.14  | 4.915e+04     | 5.21    | -13.47  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.14  | 824.71        | 3.32    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.13  | 3.702e+04     | 4.06    | -6.09   | 0.0        | 0.0        | 4.06    | -6.09   | 5.3001e-06 | 0.0         | 0.0         |
| 7.12  | 1364.52       | 2.55    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.12  | 5544.00       | 2.31    | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.11  | 1195.08       | 1.78    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.10  | 3678.96       | 3.17    | -6.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.09  | 4.957e+04     | 1.67    | 3.42    | 0.02       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.09  | 1188.46       | 1.01    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.07  | 1181.45       | 0.25    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.07  | 4791.59       | 0.27    | 10.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.06  | 4668.00       | 2.27    | -6.35   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.05  | 1169.84       | -0.52   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.04  | 1.408e+04     | -0.88   | -0.10   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.03  | 2048.06       | -0.95   | 0.73    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.03  | 1136.48       | -1.28   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.03  | 2039.84       | -1.02   | 1.55    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.03  | 4702.17       | 1.38    | -6.48   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.03  | 2030.29       | -1.09   | 2.37    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.03  | 2020.81       | -1.16   | 3.19    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.03  | 2011.37       | -1.23   | 4.01    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.03  | 2001.78       | -1.30   | 4.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.02  | 1992.10       | -1.37   | 5.65    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.02  | 2.767e+04     | -1.53   | 7.60    | 0.02       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.02  | 2128.08       | -1.85   | 11.29   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.02  | 2130.69       | -1.92   | 12.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.02  | 2123.57       | -1.99   | 12.93   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.01  | 1548.84       | -2.06   | 13.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.01  | 2015.68       | -0.91   | -0.94   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.00  | 2008.78       | -0.86   | -1.77   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.00  | 5457.39       | 0.48    | -6.61   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.00  | 2006.79       | -0.80   | -2.60   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.99  | 2005.33       | -0.75   | -3.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.98  | 2003.64       | -0.70   | -4.27   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.98  | 2001.18       | -0.65   | -5.10   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.97  | 1998.13       | -0.60   | -5.93   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.96  | 6.187e+04     | -0.55   | -12.12  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.66  | 374.28        | 3.83    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.56  | 473.04        | 4.59    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.53  | 425.96        | 11.22   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.47  | 658.23        | 6.33    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.46  | 614.82        | 5.34    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.44  | 644.18        | 12.93   | -4.77   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.43  | 791.82        | 10.17   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.41  | 344.55        | 12.24   | -4.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.38  | 363.95        | 11.55   | -4.98   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.36  | 534.17        | 10.19   | 10.20   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.35  | 383.02        | 10.77   | -5.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.34  | 1884.64       | -1.61   | 10.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.33  | 1195.13       | -1.90   | 13.72   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.33  | 1928.69       | -1.69   | 11.25   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.33  | 1914.34       | -1.83   | 12.90   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.33  | 771.91        | 9.13    | 10.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.32  | 1936.70       | -1.76   | 12.08   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.32  | 1888.71       | -1.54   | 9.64    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.31  | 845.79        | 9.99    | -5.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.31  | 2651.41       | 1.51    | 10.17   | 0.54       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.30  | 397.08        | 9.17    | -5.34   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.30  | 1958.12       | -1.40   | 8.06    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.29  | 526.94        | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.28  | 1994.76       | -1.32   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.28  | 357.55        | 8.34    | -5.46   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 6.27  | 2127.57       | -0.72   | -0.08   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.27  | 2112.81       | -0.79   | 0.73    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.27  | 2114.16       | -0.86   | 1.56    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.27  | 2112.11       | -0.93   | 2.38    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.27  | 2382.16       | -0.06   | 4.87    | 0.45       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.27  | 2110.86       | -1.00   | 3.20    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.27  | 2110.17       | -1.07   | 4.02    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.27  | 2109.75       | -1.14   | 4.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.26  | 2108.06       | -1.21   | 5.66    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.26  | 746.88        | 7.13    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.26  | 784.74        | 7.02    | -5.64   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.25  | 2140.51       | -0.73   | -0.92   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.25  | 2134.52       | -0.68   | -1.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.24  | 2481.76       | 0.35    | -3.03   | 0.35       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.23  | 2126.03       | -0.58   | -3.42   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.23  | 2123.12       | -0.53   | -4.25   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.23  | 350.60        | 5.54    | -5.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.22  | 2120.46       | -0.48   | -5.08   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.22  | 2115.12       | -0.43   | -5.91   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.21  | 3.018e+04     | -0.32   | -12.14  | 0.26       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.20  | 827.14        | 4.06    | -6.09   | 0.0        | 0.0        | 4.06    | -6.09   | 5.3001e-06 | 0.0         | 0.0         |
| 6.18  | 785.26        | 8.68    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.17  | 418.51        | 3.17    | -6.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.17  | 491.53        | 3.57    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.15  | 415.54        | 2.27    | -6.35   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.12  | 412.59        | 1.38    | -6.48   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.09  | 205.18        | 0.48    | -6.62   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.06  | 2633.84       | 7.96    | 13.01   | 3.72e-03   | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.94  | 498.93        | 4.32    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.72  | 753.05        | 6.26    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.71  | 703.24        | 5.06    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.71  | 395.75        | 11.22   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.67  | 467.22        | 3.30    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.65  | 1.876e+04     | 0.74    | 12.27   | 0.20       | 0.0        | 1.00    | 13.66   | 0.183      | 0.144       | 5.042       |
| 5.64  | 3818.73       | -1.52   | 11.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.64  | 3787.96       | -1.67   | 12.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.64  | 3833.82       | -1.59   | 12.06   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.62  | 1889.48       | -1.36   | 9.63    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.59  | 1930.95       | -1.29   | 8.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.57  | 1956.50       | -1.22   | 8.05    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.54  | 1984.56       | -1.14   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.52  | 2054.34       | -1.07   | 6.48    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 2120.44       | -0.55   | -0.07   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 2107.72       | -0.62   | 0.74    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 2109.51       | -0.69   | 1.56    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 2106.74       | -0.76   | 2.38    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 2882.00       | 2.15    | 6.03    | 0.55       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 2105.58       | -0.90   | 4.02    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 2106.31       | -0.97   | 4.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 2104.77       | -1.04   | 5.66    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.50  | 2133.81       | -0.56   | -0.90   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.49  | 2129.73       | -0.51   | -1.74   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.49  | 2123.64       | -0.46   | -2.57   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.48  | 2119.33       | -0.41   | -3.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.48  | 2116.93       | -0.36   | -4.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.47  | 2115.98       | -0.31   | -5.06   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.47  | 2110.26       | -0.26   | -5.89   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.46  | 2.987e+04     | -0.21   | -12.20  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.44  | 646.99        | 12.93   | -4.77   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.42  | 350.16        | 12.23   | -4.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.40  | 364.03        | 11.53   | -4.99   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.39  | 534.17        | 10.19   | 10.20   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.38  | 377.58        | 10.76   | -5.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.36  | 771.91        | 9.13    | 10.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.35  | 838.28        | 9.99    | -5.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.34  | 387.49        | 9.19    | -5.34   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.34  | 526.94        | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.33  | 357.48        | 8.38    | -5.45   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.32  | 524.82        | 4.04    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.32  | 327.74        | 7.70    | -5.55   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.31  | 789.46        | 7.02    | -5.64   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.30  | 351.95        | 6.28    | -5.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.29  | 753.38        | 9.47    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.29  | 785.57        | 7.09    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 5.29  | 350.60        | 5.54    | -5.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.28  | 349.25        | 4.80    | -5.98   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.27  | 827.16        | 4.06    | -6.09   | 0.0        | 0.0        | 4.06    | -6.09   | 5.3001e-06 | 0.0         | 0.0         |
| 5.25  | 418.56        | 3.17    | -6.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.23  | 415.60        | 2.27    | -6.36   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.21  | 412.64        | 1.38    | -6.49   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.19  | 205.21        | 0.48    | -6.62   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.18  | 1390.16       | 3.04    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.08  | 814.48        | 8.70    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.98  | 847.88        | 6.19    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.97  | 791.66        | 4.78    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.94  | 1929.26       | -1.26   | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.94  | 1180.88       | -1.57   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.94  | 1978.48       | -1.36   | 11.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.94  | 3938.90       | -1.47   | 12.46   | 3.53e-03   | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.91  | 1908.04       | -1.19   | 9.62    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.88  | 365.54        | 11.22   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.87  | 1938.22       | -1.11   | 8.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.86  | 2667.79       | 7.96    | 13.02   | 3.72e-03   | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.83  | 1963.06       | -1.03   | 8.05    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.80  | 1986.57       | -0.96   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.76  | 2053.20       | -0.88   | 6.49    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.75  | 4222.05       | -0.43   | 0.35    | 3.49e-03   | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.75  | 2107.58       | -0.53   | 1.57    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.75  | 2104.15       | -0.60   | 2.39    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.75  | 2103.20       | -0.67   | 3.21    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.75  | 4207.15       | -0.77   | 4.44    | 3.50e-03   | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.75  | 2103.93       | -0.88   | 5.66    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.74  | 2131.04       | -0.38   | -0.89   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.74  | 2129.36       | -0.33   | -1.72   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.73  | 2121.99       | -0.28   | -2.55   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.73  | 2117.94       | -0.23   | -3.38   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.73  | 2115.13       | -0.18   | -4.21   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.72  | 2114.11       | -0.13   | -5.04   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.72  | 2107.61       | -0.08   | -5.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.72  | 2.991e+04     | -0.03   | -12.19  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.70  | 4873.05       | 1.49    | 13.68   | 0.24       | 0.0        | 0.83    | 13.68   | 0.057      | 1.327       | 1.2866e-05  |
| 4.59  | 760.61        | 10.32   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.45  | 649.79        | 12.93   | -4.77   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.44  | 355.77        | 12.22   | -4.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.42  | 364.12        | 11.51   | -4.99   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.41  | 534.17        | 10.19   | 10.20   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.41  | 372.14        | 10.75   | -5.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.40  | 771.91        | 9.13    | 10.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.39  | 830.77        | 9.99    | -5.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.38  | 377.91        | 9.21    | -5.34   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.38  | 526.94        | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.38  | 357.41        | 8.42    | -5.45   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.37  | 337.18        | 7.72    | -5.54   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.36  | 794.18        | 7.02    | -5.64   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.36  | 351.95        | 6.28    | -5.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.35  | 350.60        | 5.54    | -5.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.34  | 349.25        | 4.80    | -5.98   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.33  | 827.19        | 4.06    | -6.09   | 0.0        | 0.0        | 4.06    | -6.09   | 5.3001e-06 | 0.0         | 0.0         |
| 4.32  | 824.27        | 7.06    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.32  | 418.62        | 3.17    | -6.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.31  | 415.66        | 2.27    | -6.36   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.29  | 412.70        | 1.38    | -6.49   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.28  | 205.24        | 0.48    | -6.62   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.28  | 782.59        | 9.52    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.24  | 1931.13       | -1.09   | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.23  | 1.821e+04     | 3.36    | 11.91   | 0.38       | 0.0        | 5.95    | 12.48   | 0.637      | 1.431       | 0.379       |
| 4.23  | 2625.08       | -0.24   | 13.07   | 0.22       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.19  | 1911.84       | -1.01   | 9.62    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.15  | 1937.03       | -0.93   | 8.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.10  | 1960.81       | -0.85   | 8.05    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.06  | 6107.00       | 11.91   | 12.62   | 0.11       | 0.0        | 11.27   | 12.84   | 1.080      | 0.572       | 0.267       |
| 4.05  | 1983.85       | -0.78   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.01  | 2052.82       | -0.70   | 6.49    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.99  | 4214.66       | -0.26   | 0.36    | 3.49e-03   | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.99  | 2102.67       | -0.37   | 1.58    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.99  | 4197.67       | -0.47   | 2.81    | 3.49e-03   | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.99  | 4197.38       | -0.61   | 4.44    | 3.49e-03   | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.99  | 2102.75       | -0.72   | 5.67    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota | M Sismica x g | Pos. GX   | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|-----------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 3.98  | 2126.26       | -0.20     | -0.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.98  | 2123.45       | -0.16     | -1.71   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.98  | 2116.75       | -0.11     | -2.54   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.98  | 2113.08       | -0.06     | -3.36   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.98  | 2110.41       | -8.64e-03 | -4.19   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.97  | 2109.97       | 0.04      | -5.02   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.97  | 843.69        | 8.73      | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.97  | 2103.93       | 0.09      | -5.85   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.97  | 2.994e+04     | 0.14      | -12.18  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.76  | 3673.89       | 0.81      | 13.68   | 0.17       | 0.0        | 0.81    | 13.68   | 0.081      | 0.003       | 3.4876e-05  |
| 3.75  | 657.63        | 3.77      | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.67  | 2701.75       | 7.96      | 13.03   | 3.72e-03   | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.66  | 1323.84       | 10.42     | 13.36   | 4.84e-03   | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.53  | 1935.74       | -0.91     | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.52  | 1987.11       | -1.10     | 12.04   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.52  | 3960.25       | -1.10     | 12.04   | 7.04e-03   | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.52  | 1046.17       | -1.24     | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.48  | 1916.74       | -0.83     | 9.62    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.46  | 652.60        | 12.93     | -4.77   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.45  | 361.38        | 12.21     | -4.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.45  | 364.21        | 11.48     | -4.99   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.44  | 534.17        | 10.19     | 10.20   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.44  | 366.71        | 10.74     | -5.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.43  | 771.91        | 9.13      | 10.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.43  | 823.26        | 9.99      | -5.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.43  | 368.32        | 9.23      | -5.33   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.43  | 526.94        | 8.06      | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.42  | 357.34        | 8.46      | -5.44   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.42  | 1944.71       | -0.75     | 8.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.42  | 346.62        | 7.74      | -5.54   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.42  | 798.90        | 7.02      | -5.64   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.41  | 351.95        | 6.28      | -5.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.41  | 350.60        | 5.54      | -5.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.41  | 349.25        | 4.80      | -5.98   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.40  | 827.22        | 4.06      | -6.09   | 0.0        | 0.0        | 4.06    | -6.09   | 5.3001e-06 | 0.0         | 0.0         |
| 3.40  | 418.67        | 3.17      | -6.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.39  | 415.71        | 2.27      | -6.36   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.38  | 412.75        | 1.38      | -6.49   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.38  | 205.27        | 0.48      | -6.63   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.37  | 1971.10       | -0.67     | 8.06    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.35  | 763.52        | 7.03      | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.31  | 1996.08       | -0.59     | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.28  | 656.86        | 3.04      | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.28  | 2366.63       | 5.27      | 13.68   | 0.08       | 0.0        | 5.16    | 13.68   | 0.220      | 0.331       | 0.0         |
| 3.27  | 1235.61       | 9.59      | 13.31   | 4.47e-03   | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.26  | 2065.67       | -0.51     | 6.49    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.23  | 1.260e+04     | -0.31     | 2.81    | 0.02       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.23  | 4216.23       | -0.31     | 2.81    | 0.02       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.23  | 2125.07       | -0.03     | -0.86   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.23  | 2123.13       | 0.02      | -1.69   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.23  | 2119.17       | 0.07      | -2.52   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.23  | 2115.90       | 0.12      | -3.35   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.23  | 2113.16       | 0.16      | -4.17   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.22  | 2111.37       | 0.21      | -5.00   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.22  | 2105.10       | 0.26      | -5.83   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.22  | 2.998e+04     | 0.31      | -12.16  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.87  | 1141.38       | 8.77      | 13.24   | 4.09e-03   | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.81  | 2.554e+04     | 0.31      | 12.24   | 0.17       | 0.0        | -0.87   | 13.34   | 0.567      | 1.441       | 1.435       |
| 2.81  | 657.63        | 3.77      | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.74  | 2055.40       | -0.73     | 9.62    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.67  | 1934.23       | -0.66     | 8.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.61  | 1910.39       | -0.59     | 8.05    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.60  | 616.09        | 7.03      | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.58  | 915.20        | -0.94     | 12.06   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.54  | 1889.09       | -0.53     | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.52  | 998.78        | -0.87     | 11.25   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.47  | 1836.36       | 7.93      | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.47  | 2.814e+05     | 4.70      | 1.28    | 0.69       | 0.0        | 0.91    | -5.08   | 0.301      | 1.261       | 0.824       |
| 2.47  | 2395.97       | 12.03     | 2.98    | 0.05       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.46  | 2407.24       | 12.03     | 2.60    | 0.05       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.46  | 2418.51       | 12.03     | 2.24    | 0.04       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.46  | 2429.79       | 12.03     | 1.88    | 0.03       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.45  | 2441.06       | 12.03     | 1.52    | 0.02       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.45  | 2959.82       | 12.05     | 0.98    | 9.07e-03   | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 2.44  | 1.544e+04     | 12.02   | 0.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.33  | 1232.15       | 3.04    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.33  | 2512.17       | 5.32    | 13.68   | 0.08       | 0.0        | 5.16    | 13.68   | 0.220      | 0.489       | 0.0         |
| 2.00  | 4816.89       | -1.00   | 12.83   | 7.01e-03   | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.94  | 1576.69       | -0.87   | 11.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.89  | 1605.34       | -0.80   | 10.44   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.86  | 3045.84       | 1.04    | 11.23   | 0.23       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.85  | 616.09        | 7.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.82  | 1850.13       | -0.66   | 8.85    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.79  | 1811.24       | -0.60   | 8.06    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.75  | 1769.11       | -0.53   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.71  | 1.510e+04     | 11.39   | 9.09    | 0.19       | 0.0        | 11.47   | 9.76    | 0.184      | 0.081       | 0.130       |
| 1.71  | 2718.77       | 12.26   | 0.92    | 0.05       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.71  | 2718.77       | 12.22   | 0.91    | 0.05       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.70  | 2718.77       | 12.18   | 0.89    | 0.04       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.70  | 2718.77       | 12.14   | 0.88    | 0.03       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.70  | 634.63        | 12.20   | -4.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.69  | 2718.77       | 12.10   | 0.87    | 0.02       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.69  | 6.390e+04     | 0.25    | -5.61   | 0.05       | 0.0        | 0.20    | -4.79   | 0.117      | 0.055       | 0.132       |
| 1.69  | 2718.77       | 12.06   | 0.85    | 9.07e-03   | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.69  | 1359.39       | 12.02   | 0.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.68  | 3530.14       | 1.03    | 13.68   | 0.13       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.68  | 393.96        | 1.38    | -6.50   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.68  | 2225.38       | 11.41   | 6.41    | 3.91e-03   | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.67  | 796.57        | 2.27    | -6.36   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.66  | 661.77        | 10.72   | -5.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.66  | 808.10        | 3.17    | -6.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.65  | 1183.75       | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.65  | 8260.73       | 7.11    | -3.65   | 0.30       | 0.0        | 7.02    | -5.65   | 0.362      | 0.034       | 0.975       |
| 1.38  | 1.092e+04     | 5.13    | 12.08   | 0.08       | 0.0        | 5.98    | 13.00   | 1.119      | 0.680       | 0.771       |
| 1.30  | 715.69        | 3.04    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.20  | 1850.07       | -0.94   | 12.05   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.19  | 1878.97       | -1.01   | 12.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.19  | 1304.01       | -1.08   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.15  | 1821.62       | -0.87   | 11.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.11  | 1792.31       | -0.80   | 10.44   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.10  | 679.86        | 7.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.07  | 1774.64       | -0.73   | 9.65    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.04  | 1774.64       | -0.66   | 8.85    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.00  | 1774.64       | -0.60   | 8.06    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.97  | 1767.21       | -0.53   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.96  | 1.527e+04     | 11.39   | 9.10    | 0.19       | 0.0        | 11.47   | 9.76    | 0.184      | 0.081       | 0.128       |
| 0.95  | 2718.77       | 12.26   | 0.92    | 0.05       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.95  | 2718.77       | 12.22   | 0.91    | 0.05       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.95  | 2718.77       | 12.18   | 0.89    | 0.04       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.94  | 2718.77       | 12.14   | 0.88    | 0.03       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.94  | 2718.77       | 12.10   | 0.87    | 0.02       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.93  | 2718.77       | 12.06   | 0.85    | 9.07e-03   | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.93  | 1359.39       | 12.02   | 0.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.92  | 634.63        | 12.20   | -4.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.92  | 649.62        | 3.77    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.92  | 6.391e+04     | 0.25    | -5.61   | 0.05       | 0.0        | 0.20    | -4.79   | 0.117      | 0.055       | 0.132       |
| 0.89  | 393.96        | 1.38    | -6.50   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.89  | 2250.41       | 11.41   | 6.46    | 3.91e-03   | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.87  | 796.57        | 2.27    | -6.36   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.86  | 661.77        | 10.72   | -5.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.85  | 808.10        | 3.17    | -6.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.82  | 1078.36       | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.82  | 8260.73       | 7.11    | -3.65   | 0.30       | 0.0        | 7.02    | -5.65   | 0.362      | 0.034       | 0.975       |
| 0.55  | 3530.14       | 1.03    | 13.68   | 0.13       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.54  | 1950.66       | 5.34    | 13.68   | 0.08       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.40  | 1849.07       | -0.94   | 12.05   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.39  | 1875.67       | -1.01   | 12.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.38  | 1302.36       | -1.08   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.36  | 1822.93       | -0.87   | 11.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.32  | 1792.96       | -0.80   | 10.44   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.32  | 676.05        | 7.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.29  | 1774.64       | -0.73   | 9.65    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.27  | 715.69        | 3.04    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.25  | 1774.64       | -0.66   | 8.86    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.22  | 1774.64       | -0.60   | 8.06    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.20  | 1.361e+04     | 11.38   | 8.96    | 0.19       | 0.0        | 11.47   | 9.74    | 0.184      | 0.086       | 0.148       |
| 0.20  | 2718.77       | 12.26   | 0.92    | 0.05       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.19  | 2718.77       | 12.22   | 0.91    | 0.05       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota    | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|----------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 0.19     | 2718.77       | 12.18   | 0.89    | 0.04       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.19     | 1769.04       | -0.53   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.18     | 2718.77       | 12.14   | 0.88    | 0.03       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.18     | 2718.77       | 12.10   | 0.87    | 0.02       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.18     | 2718.77       | 12.06   | 0.85    | 9.07e-03   | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.17     | 1359.39       | 12.02   | 0.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.15     | 652.74        | 12.20   | -4.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.14     | 6.391e+04     | 0.25    | -5.61   | 0.05       | 0.0        | 0.20    | -4.79   | 0.117      | 0.055       | 0.132       |
| 0.10     | 196.98        | 1.38    | -6.50   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.10     | 2236.57       | 11.41   | 6.17    | 3.91e-03   | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.07     | 398.28        | 2.27    | -6.36   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.05     | 716.11        | 10.72   | -5.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.03     | 404.05        | 3.17    | -6.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.90e-04 | 860.60        | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.0      | 2.112e+04     | 8.05    | -4.02   | 0.58       | 0.0        | 7.31    | -5.48   | 0.120      | 0.323       | 1.469       |
| -0.02    | 649.62        | 3.77    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.30    | 1950.66       | 5.34    | 13.68   | 0.08       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.39    | 1848.08       | -0.94   | 12.05   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.41    | 1872.37       | -1.01   | 12.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.43    | 1824.25       | -0.87   | 11.25   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.43    | 1272.32       | -1.08   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.46    | 1793.62       | -0.80   | 10.44   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.47    | 671.08        | 7.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.50    | 1774.64       | -0.73   | 9.65    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.53    | 1774.64       | -0.66   | 8.86    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.56    | 1.342e+04     | 11.37   | 9.12    | 0.19       | 0.0        | 11.47   | 9.74    | 0.184      | 0.103       | 0.119       |
| -0.56    | 2718.77       | 12.26   | 0.92    | 0.05       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.56    | 1774.64       | -0.60   | 8.07    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.57    | 2718.77       | 12.22   | 0.91    | 0.05       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.57    | 2718.77       | 12.18   | 0.89    | 0.04       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.57    | 2718.77       | 12.14   | 0.88    | 0.03       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.57    | 3530.14       | 1.03    | 13.68   | 0.13       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.58    | 2718.77       | 12.10   | 0.87    | 0.02       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.58    | 2718.77       | 12.06   | 0.85    | 9.07e-03   | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.58    | 1359.39       | 12.02   | 0.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.60    | 1770.87       | -0.53   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.63    | 1477.05       | 11.38   | 11.09   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.64    | 673.95        | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.64    | 6.391e+04     | 0.25    | -5.61   | 0.05       | 0.0        | 0.20    | -4.79   | 0.117      | 0.055       | 0.131       |
| -0.67    | 335.43        | 12.20   | -4.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.71    | 1128.39       | 11.44   | 10.18   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.76    | 715.69        | 3.04    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.78    | 360.33        | 11.46   | -5.00   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.89    | 385.23        | 10.72   | -5.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.96    | 649.62        | 3.77    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.00    | 5091.45       | 6.56    | -2.61   | 0.36       | 0.0        | 8.50    | -5.43   | 0.301      | 1.286       | 2.237       |
| -1.15    | 1950.66       | 5.34    | 13.68   | 0.08       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.19    | 923.67        | -0.94   | 12.06   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.22    | 1847.57       | -0.94   | 12.07   | 6.94e-03   | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.25    | 1530.77       | -0.91   | 11.78   | 0.01       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.26    | 676.05        | 7.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.28    | 887.32        | -0.73   | 9.65    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.31    | 887.32        | -0.66   | 8.86    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.32    | 1.327e+04     | 11.35   | 9.28    | 0.19       | 0.0        | 11.47   | 9.74    | 0.184      | 0.122       | 0.087       |
| -1.32    | 2718.77       | 12.26   | 0.92    | 0.05       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.32    | 2718.77       | 12.22   | 0.91    | 0.05       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.33    | 2718.77       | 12.18   | 0.89    | 0.04       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.33    | 2718.77       | 12.14   | 0.88    | 0.03       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.33    | 2718.77       | 12.10   | 0.87    | 0.02       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.34    | 2718.77       | 12.06   | 0.85    | 9.07e-03   | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.34    | 1359.39       | 12.02   | 0.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.35    | 887.32        | -0.60   | 8.07    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.37    | 1470.80       | 11.38   | 11.09   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.37    | 707.05        | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.38    | 886.12        | -0.53   | 7.28    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.42    | 3.305e+04     | 0.62    | -5.08   | 0.60       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.70    | 3561.50       | 1.02    | 13.68   | 0.13       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.80    | 715.69        | 3.04    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.89    | 649.62        | 3.77    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.99    | 1950.66       | 5.34    | 13.68   | 0.08       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.04    | 507.50        | -0.78   | 13.68   | 0.02       | 0.0        | -0.86   | 13.68   | 1.1727e-06 | 5.8694e+05  | 4.213       |
| -2.04    | 676.05        | 7.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.07    | 1.440e+04     | 11.35   | 9.35    | 0.19       | 0.0        | 11.47   | 9.75    | 0.184      | 0.114       | 0.077       |
| -2.08    | 2718.77       | 12.26   | 0.92    | 0.05       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota   | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|---------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| -2.08   | 2718.77       | 12.22   | 0.91    | 0.05       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.08   | 2718.77       | 12.18   | 0.89    | 0.04       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.09   | 2718.77       | 12.14   | 0.88    | 0.03       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.09   | 2718.77       | 12.10   | 0.87    | 0.02       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.09   | 2718.77       | 12.06   | 0.85    | 9.07e-03   | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.10   | 2836.44       | 11.69   | 6.18    | 0.03       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.10   | 707.05        | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.83   | 1.224e+04     | 8.58    | 10.97   | 0.70       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.83   | 1359.39       | 12.26   | 0.92    | 0.05       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.84   | 1359.39       | 12.22   | 0.91    | 0.05       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.84   | 1359.39       | 12.18   | 0.89    | 0.04       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.84   | 1359.39       | 12.14   | 0.88    | 0.03       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.85   | 1359.39       | 12.10   | 0.87    | 0.02       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.85   | 3239.50       | 7.85    | 1.11    | 0.15       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.85   | 1359.39       | 12.06   | 0.85    | 9.07e-03   | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| Risulta | 2.500e+06     |         |         |            |            |         |         |            |             |             |

| Modo | Frequenza | Periodo | Acc. Spettrale | M efficace X x g | %        | M efficace Y x g | %        | M efficace Z x g | %        | Energia | Energia x v |
|------|-----------|---------|----------------|------------------|----------|------------------|----------|------------------|----------|---------|-------------|
|      | Hz        | sec     | g              | kg               |          | kg               |          | kg               |          |         |             |
| 1    | 1.993     | 0.502   | 0.077          | 1.503e+04        | 0.6      | 272.98           | 1.09e-02 | 6.66             | 2.66e-04 | 0.0     | 0.0         |
| 2    | 2.148     | 0.466   | 0.083          | 181.85           | 7.28e-03 | 1.624e+04        | 0.6      | 2.02             | 8.07e-05 | 0.0     | 0.0         |
| 3    | 2.364     | 0.423   | 0.088          | 122.75           | 4.91e-03 | 68.49            | 2.74e-03 | 0.62             | 2.48e-05 | 0.0     | 0.0         |
| 4    | 3.543     | 0.282   | 0.088          | 116.12           | 4.65e-03 | 6.67             | 2.67e-04 | 1.26             | 5.03e-05 | 0.0     | 0.0         |
| 5    | 3.609     | 0.277   | 0.088          | 368.22           | 1.47e-02 | 49.48            | 1.98e-03 | 0.05             | 2.07e-06 | 0.0     | 0.0         |
| 6    | 4.716     | 0.212   | 0.088          | 832.40           | 3.33e-02 | 1.977e+04        | 0.8      | 15.80            | 6.32e-04 | 0.0     | 0.0         |
| 7    | 4.757     | 0.210   | 0.088          | 1.201e+04        | 0.5      | 5.346e+05        | 21.4     | 218.22           | 8.73e-03 | 0.0     | 0.0         |
| 8    | 5.049     | 0.198   | 0.088          | 123.91           | 4.96e-03 | 681.62           | 2.73e-02 | 0.11             | 4.22e-06 | 0.0     | 0.0         |
| 9    | 5.573     | 0.179   | 0.088          | 6.642e+04        | 2.7      | 6642.80          | 0.3      | 24.63            | 9.86e-04 | 0.0     | 0.0         |
| 10   | 5.674     | 0.176   | 0.088          | 224.43           | 8.98e-03 | 2.34             | 9.36e-05 | 0.59             | 2.36e-05 | 0.0     | 0.0         |
| 11   | 5.921     | 0.169   | 0.088          | 1.644e+06        | 65.8     | 7718.43          | 0.3      | 5930.63          | 0.2      | 0.0     | 0.0         |
| 12   | 7.957     | 0.126   | 0.084          | 8103.07          | 0.3      | 1991.63          | 7.97e-02 | 1.049e+04        | 0.4      | 0.0     | 0.0         |
| 13   | 8.273     | 0.121   | 0.083          | 1067.49          | 4.27e-02 | 26.15            | 1.05e-03 | 1.062e+04        | 0.4      | 0.0     | 0.0         |
| 14   | 8.585     | 0.116   | 0.082          | 356.88           | 1.43e-02 | 1.367e+05        | 5.5      | 1.790e+04        | 0.7      | 0.0     | 0.0         |
| 15   | 8.828     | 0.113   | 0.081          | 686.25           | 2.75e-02 | 7.399e+05        | 29.6     | 4063.45          | 0.2      | 0.0     | 0.0         |
| 16   | 8.894     | 0.112   | 0.081          | 1572.29          | 6.29e-02 | 969.50           | 3.88e-02 | 3675.07          | 0.1      | 0.0     | 0.0         |
| 17   | 9.176     | 0.109   | 0.080          | 6067.07          | 0.2      | 4386.93          | 0.2      | 3740.56          | 0.1      | 0.0     | 0.0         |
| 18   | 9.639     | 0.104   | 0.079          | 220.74           | 8.83e-03 | 1.733e+04        | 0.7      | 2.530e+04        | 1.0      | 0.0     | 0.0         |
| 19   | 10.417    | 0.096   | 0.078          | 1598.02          | 6.39e-02 | 39.07            | 1.56e-03 | 5385.12          | 0.2      | 0.0     | 0.0         |
| 20   | 10.445    | 0.096   | 0.078          | 1.743e+04        | 0.7      | 2660.26          | 0.1      | 5679.50          | 0.2      | 0.0     | 0.0         |
| 21   | 10.931    | 0.091   | 0.077          | 688.50           | 2.75e-02 | 6589.55          | 0.3      | 2586.43          | 0.1      | 0.0     | 0.0         |
| 22   | 11.360    | 0.088   | 0.076          | 5.723e+04        | 2.3      | 7247.63          | 0.3      | 2357.45          | 9.43e-02 | 0.0     | 0.0         |
| 23   | 11.523    | 0.087   | 0.076          | 106.37           | 4.26e-03 | 187.79           | 7.51e-03 | 15.96            | 6.39e-04 | 0.0     | 0.0         |
| 24   | 11.575    | 0.086   | 0.076          | 1.800e+04        | 0.7      | 1.897e+04        | 0.8      | 1425.74          | 5.70e-02 | 0.0     | 0.0         |
| 25   | 11.763    | 0.085   | 0.075          | 2.010e+04        | 0.8      | 6.147e+04        | 2.5      | 1846.62          | 7.39e-02 | 0.0     | 0.0         |
| 26   | 12.148    | 0.082   | 0.075          | 107.97           | 4.32e-03 | 6657.36          | 0.3      | 550.45           | 2.20e-02 | 0.0     | 0.0         |
| 27   | 12.386    | 0.081   | 0.074          | 852.11           | 3.41e-02 | 641.71           | 2.57e-02 | 4627.10          | 0.2      | 0.0     | 0.0         |
| 28   | 12.705    | 0.079   | 0.074          | 322.74           | 1.29e-02 | 8.17             | 3.27e-04 | 1.049e+04        | 0.4      | 0.0     | 0.0         |
| 29   | 12.727    | 0.079   | 0.074          | 7.84             | 3.14e-04 | 1552.57          | 6.21e-02 | 245.51           | 9.82e-03 | 0.0     | 0.0         |
| 30   | 13.468    | 0.074   | 0.073          | 29.26            | 1.17e-03 | 325.31           | 1.30e-02 | 418.92           | 1.68e-02 | 0.0     | 0.0         |
| 31   | 13.849    | 0.072   | 0.073          | 38.57            | 1.54e-03 | 1299.48          | 5.20e-02 | 90.76            | 3.63e-03 | 0.0     | 0.0         |
| 32   | 14.230    | 0.070   | 0.072          | 583.44           | 2.33e-02 | 4.91             | 1.96e-04 | 7.640e+04        | 3.1      | 0.0     | 0.0         |
| 33   | 14.437    | 0.069   | 0.072          | 1902.11          | 7.61e-02 | 13.95            | 5.58e-04 | 1.100e+05        | 4.4      | 0.0     | 0.0         |
| 34   | 14.842    | 0.067   | 0.072          | 1.802e+04        | 0.7      | 2948.78          | 0.1      | 3.831e+04        | 1.5      | 0.0     | 0.0         |
| 35   | 15.070    | 0.066   | 0.071          | 1.032e+04        | 0.4      | 528.62           | 2.11e-02 | 1207.79          | 4.83e-02 | 0.0     | 0.0         |
| 36   | 15.152    | 0.066   | 0.071          | 867.80           | 3.47e-02 | 99.21            | 3.97e-03 | 2.106e+04        | 0.8      | 0.0     | 0.0         |
| 37   | 15.501    | 0.065   | 0.071          | 9.105e+04        | 3.6      | 1.133e+04        | 0.5      | 4.566e+04        | 1.8      | 0.0     | 0.0         |
| 38   | 15.974    | 0.063   | 0.070          | 6041.97          | 0.2      | 140.02           | 5.60e-03 | 3.488e+04        | 1.4      | 0.0     | 0.0         |
| 39   | 16.338    | 0.061   | 0.070          | 89.37            | 3.58e-03 | 1897.96          | 7.59e-02 | 1345.55          | 5.38e-02 | 0.0     | 0.0         |
| 40   | 16.441    | 0.061   | 0.070          | 4186.22          | 0.2      | 3026.20          | 0.1      | 395.38           | 1.58e-02 | 0.0     | 0.0         |
| 41   | 16.517    | 0.061   | 0.070          | 5.117e+04        | 2.0      | 6297.83          | 0.3      | 1.557e+04        | 0.6      | 0.0     | 0.0         |
| 42   | 16.906    | 0.059   | 0.070          | 3.087e+04        | 1.2      | 1458.36          | 5.83e-02 | 1272.19          | 5.09e-02 | 0.0     | 0.0         |
| 43   | 16.915    | 0.059   | 0.070          | 5607.63          | 0.2      | 1.018e+04        | 0.4      | 2889.63          | 0.1      | 0.0     | 0.0         |
| 44   | 17.214    | 0.058   | 0.070          | 36.17            | 1.45e-03 | 417.16           | 1.67e-02 | 1573.37          | 6.29e-02 | 0.0     | 0.0         |
| 45   | 17.520    | 0.057   | 0.069          | 7053.51          | 0.3      | 9.181e+04        | 3.7      | 1895.53          | 7.58e-02 | 0.0     | 0.0         |
| 46   | 18.077    | 0.055   | 0.069          | 2392.63          | 9.57e-02 | 8.528e+04        | 3.4      | 1.096e+05        | 4.4      | 0.0     | 0.0         |
| 47   | 18.109    | 0.055   | 0.069          | 128.81           | 5.15e-03 | 5.387e+04        | 2.2      | 9767.24          | 0.4      | 0.0     | 0.0         |
| 48   | 18.751    | 0.053   | 0.069          | 47.06            | 1.88e-03 | 1.469e+05        | 5.9      | 2.296e+05        | 9.2      | 0.0     | 0.0         |
| 49   | 19.403    | 0.052   | 0.068          | 216.20           | 8.65e-03 | 5022.44          | 0.2      | 1521.61          | 6.09e-02 | 0.0     | 0.0         |
| 50   | 19.517    | 0.051   | 0.068          | 3.584e+04        | 1.4      | 1.457e+04        | 0.6      | 9725.35          | 0.4      | 0.0     | 0.0         |
| 51   | 20.110    | 0.050   | 0.068          | 116.59           | 4.66e-03 | 405.81           | 1.62e-02 | 416.11           | 1.66e-02 | 0.0     | 0.0         |
| 52   | 20.413    | 0.049   | 0.068          | 168.08           | 6.72e-03 | 598.85           | 2.40e-02 | 2845.62          | 0.1      | 0.0     | 0.0         |

| Modo           | Frequenza | Periodo | Acc. Spettrale | M efficace X x g | %        | M efficace Y x g | %        | M efficace Z x g | %        | Energia | Energia x v |
|----------------|-----------|---------|----------------|------------------|----------|------------------|----------|------------------|----------|---------|-------------|
| 53             | 20.506    | 0.049   | 0.068          | 8182.92          | 0.3      | 3480.87          | 0.1      | 2963.80          | 0.1      | 0.0     | 0.0         |
| 54             | 21.081    | 0.047   | 0.067          | 3096.41          | 0.1      | 1726.15          | 6.90e-02 | 4729.82          | 0.2      | 0.0     | 0.0         |
| 55             | 21.269    | 0.047   | 0.067          | 169.75           | 6.79e-03 | 1594.57          | 6.38e-02 | 1573.08          | 6.29e-02 | 0.0     | 0.0         |
| 56             | 21.302    | 0.047   | 0.067          | 2248.86          | 9.00e-02 | 6593.96          | 0.3      | 1.740e+04        | 0.7      | 0.0     | 0.0         |
| 57             | 21.534    | 0.046   | 0.067          | 595.72           | 2.38e-02 | 1.262e+04        | 0.5      | 1.949e+04        | 0.8      | 0.0     | 0.0         |
| 58             | 21.949    | 0.046   | 0.067          | 7.00             | 2.80e-04 | 3908.35          | 0.2      | 4579.64          | 0.2      | 0.0     | 0.0         |
| 59             | 22.546    | 0.044   | 0.067          | 2100.11          | 8.40e-02 | 3.074e+04        | 1.2      | 4163.79          | 0.2      | 0.0     | 0.0         |
| 60             | 22.836    | 0.044   | 0.067          | 728.56           | 2.91e-02 | 1.091e+04        | 0.4      | 8.49             | 3.40e-04 | 0.0     | 0.0         |
| 61             | 23.200    | 0.043   | 0.066          | 182.54           | 7.30e-03 | 843.84           | 3.38e-02 | 779.56           | 3.12e-02 | 0.0     | 0.0         |
| 62             | 23.353    | 0.043   | 0.066          | 45.52            | 1.82e-03 | 4230.38          | 0.2      | 7450.10          | 0.3      | 0.0     | 0.0         |
| Risulta        |           |         |                | 2.158e+06        |          | 2.108e+06        |          | 8.967e+05        |          |         |             |
| In percentuale |           |         |                | 86.33            |          | 84.34            |          | 35.87            |          |         |             |

| CDC | Tipo | Sigla Id                                  | Note                                      |
|-----|------|-------------------------------------------|-------------------------------------------|
| 8   | Edk  | CDC=Ed (dinamico SLU) alfa=90.00 (ecc. -) |                                           |
|     |      |                                           | verifica esistenti: fattore FC 1.000      |
|     |      |                                           | categoria suolo: C                        |
|     |      |                                           | fattore di sito S = 1.800                 |
|     |      |                                           | ordinata spettro (tratto Tb-Tc) = 0.088 g |
|     |      |                                           | angolo di ingresso:90.00                  |
|     |      |                                           | eccentricità aggiuntiva: negativa         |
|     |      |                                           | periodo proprio T1: 0.113 sec.            |
|     |      |                                           | fattore di struttura q: 1.500             |
|     |      |                                           | fattore per spost. mu d: 2.928            |
|     |      |                                           | classe di duttilità CD: □                 |
|     |      |                                           | numero di modi considerati: 62            |
|     |      |                                           | combinaz. modale: CQC                     |

| Quota | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| m     | kg            | m       | m       | m          | m          | m       | m       |            |             |             |
| 14.75 | 1045.17       | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.75 | 1012.25       | 8.01    | 11.69   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.75 | 1520.35       | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.73 | 898.87        | 7.16    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.72 | 892.50        | 6.39    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.71 | 2066.49       | 6.12    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.70 | 889.89        | 5.63    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.68 | 889.79        | 4.86    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.67 | 2201.83       | 4.50    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.66 | 888.95        | 4.09    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.64 | 887.38        | 3.32    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.62 | 885.78        | 2.55    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.62 | 2439.98       | 2.31    | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.61 | 884.18        | 1.78    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.59 | 882.59        | 1.01    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.57 | 881.00        | 0.25    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.57 | 2347.14       | 0.27    | 10.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.55 | 875.52        | -0.52   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.53 | 870.51        | -1.28   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.52 | 1430.34       | -1.78   | 10.46   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.52 | 508.48        | -1.85   | 11.29   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.52 | 495.90        | -1.92   | 12.12   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.52 | 483.49        | -1.99   | 12.94   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 14.51 | 612.68        | -2.06   | 13.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.25 | 1180.27       | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.25 | 1471.56       | 8.01    | 11.69   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.25 | 1450.26       | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.23 | 657.12        | 7.16    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.22 | 657.12        | 6.39    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.21 | 1522.34       | 6.12    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.20 | 657.12        | 5.63    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.18 | 657.12        | 4.86    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.17 | 1627.66       | 4.50    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.16 | 657.12        | 4.09    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.14 | 657.12        | 3.32    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.12 | 657.13        | 2.55    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.12 | 1811.04       | 2.31    | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.11 | 657.12        | 1.78    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.09 | 657.12        | 1.01    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 13.07 | 657.12        | 0.25    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.07 | 1750.63       | 0.27    | 10.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.05 | 654.22        | -0.52   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.03 | 658.38        | -1.28   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.02 | 1230.22       | -1.78   | 10.46   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.02 | 707.30        | -1.85   | 11.29   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.02 | 704.77        | -1.92   | 12.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.02 | 702.25        | -1.99   | 12.93   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 13.01 | 682.58        | -2.06   | 13.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.75 | 1179.95       | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.75 | 1471.56       | 8.01    | 11.69   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.75 | 1450.57       | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.73 | 657.12        | 7.16    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.72 | 657.12        | 6.39    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.71 | 1522.34       | 6.12    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.70 | 657.12        | 5.63    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.68 | 657.12        | 4.86    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.67 | 1627.66       | 4.50    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.66 | 657.12        | 4.09    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.64 | 657.12        | 3.32    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.62 | 657.13        | 2.55    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.62 | 1811.04       | 2.31    | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.61 | 657.12        | 1.78    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.59 | 657.12        | 1.01    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.57 | 657.12        | 0.25    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.57 | 1750.63       | 0.27    | 10.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.55 | 654.22        | -0.52   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.55 | 398.09        | 16.10   | -11.25  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.54 | 726.99        | 15.56   | -7.85   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.54 | 714.20        | 15.03   | -4.44   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.53 | 658.38        | -1.28   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.53 | 746.56        | 14.49   | -1.19   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.52 | 1228.96       | -1.78   | 10.46   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.52 | 706.03        | -1.85   | 11.29   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.52 | 704.77        | -1.92   | 12.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.52 | 1135.80       | 4.11    | 8.96    | -0.80      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.51 | 683.84        | -2.06   | 13.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.37 | 710.46        | 12.66   | -11.87  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.36 | 1331.60       | 12.12   | -8.46   | 0.0        | 0.0        | 12.12   | -8.46   | 1.1073e-05 | 0.0         | 0.0         |
| 11.36 | 1301.70       | 11.59   | -5.06   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.35 | 1364.30       | 11.05   | -1.80   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.34 | 782.03        | 10.44   | 1.90    | 0.0        | 0.0        | 10.44   | 1.90    | 2.7682e-06 | 0.0         | 0.0         |
| 11.25 | 379.84        | 9.41    | -12.57  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.24 | 694.54        | 8.88    | -9.16   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.23 | 683.74        | 8.34    | -5.76   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.23 | 721.19        | 7.81    | -2.50   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 11.22 | 418.51        | 7.17    | 1.36    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.25 | 1675.16       | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.25 | 1508.53       | 8.01    | 11.69   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.25 | 2174.58       | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.23 | 1579.92       | 7.16    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.22 | 1571.54       | 6.39    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.21 | 2900.22       | 6.12    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.20 | 1568.11       | 5.63    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.18 | 1567.98       | 4.86    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.17 | 3090.84       | 4.50    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.16 | 1566.87       | 4.09    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.14 | 1564.81       | 3.32    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.12 | 1562.71       | 2.55    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.12 | 3426.03       | 2.31    | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.11 | 1560.61       | 1.78    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.09 | 1558.51       | 1.01    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.07 | 1556.42       | 0.25    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.07 | 3296.71       | 0.27    | 10.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.05 | 1547.46       | -0.52   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.03 | 1543.42       | -1.28   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.02 | 2025.34       | -1.78   | 10.46   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.02 | 750.54        | -1.85   | 11.29   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.02 | 737.17        | -1.92   | 12.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.02 | 723.90        | -1.99   | 12.93   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 10.01 | 1052.81       | -2.06   | 13.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.25  | 932.31        | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.25  | 981.04        | 8.01    | 11.69   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.25  | 967.40        | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 9.23  | 730.14        | 7.16    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.22  | 730.14        | 6.39    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.21  | 784.25        | 6.12    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.20  | 730.14        | 5.63    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.18  | 730.14        | 4.86    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.17  | 854.46        | 4.50    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.16  | 730.14        | 4.09    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.14  | 730.14        | 3.32    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.12  | 730.14        | 2.55    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.12  | 1207.36       | 2.31    | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.11  | 730.14        | 1.78    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.09  | 730.14        | 1.01    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.07  | 730.14        | 0.25    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.07  | 1167.09       | 0.27    | 10.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.05  | 726.91        | -0.52   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.03  | 731.53        | -1.28   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.02  | 818.47        | -1.78   | 10.46   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.02  | 469.85        | -1.85   | 11.29   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.02  | 469.85        | -1.92   | 12.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.02  | 469.85        | -1.99   | 12.93   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.01  | 604.61        | -2.06   | 13.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.25  | 896.73        | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.25  | 1040.09       | 8.01    | 11.69   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.25  | 967.55        | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.23  | 730.14        | 7.16    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.22  | 730.14        | 6.39    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.21  | 553.60        | 6.12    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.20  | 730.14        | 5.63    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.18  | 730.14        | 4.86    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.17  | 623.82        | 4.50    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.16  | 730.14        | 4.09    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.14  | 730.14        | 3.32    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.12  | 730.14        | 2.55    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.12  | 1207.36       | 2.31    | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.11  | 730.14        | 1.78    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.09  | 730.14        | 1.01    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.07  | 730.14        | 0.25    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.07  | 1167.09       | 0.27    | 10.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.05  | 726.91        | -0.52   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.03  | 731.53        | -1.28   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.02  | 818.47        | -1.78   | 10.46   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.02  | 469.86        | -1.85   | 11.29   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.02  | 469.86        | -1.92   | 12.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.02  | 469.85        | -1.99   | 12.93   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 8.01  | 604.61        | -2.06   | 13.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.55  | 5119.68       | 16.10   | -11.25  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.54  | 551.84        | 15.56   | -7.85   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.54  | 1.248e+04     | 15.03   | -4.44   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.53  | 472.83        | 14.49   | -1.19   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.52  | 7643.45       | 14.13   | 1.00    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.52  | 458.48        | 14.04   | 2.49    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.50  | 5663.51       | 13.79   | 6.57    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.45  | 3905.73       | 14.54   | -14.96  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.44  | 1.859e+04     | 14.01   | -11.58  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.43  | 2.205e+04     | 12.93   | -4.77   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.42  | 1.428e+04     | 12.02   | 0.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.40  | 2.030e+04     | 11.66   | 6.57    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.39  | 1124.67       | 11.33   | 12.01   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.39  | 3234.26       | 12.25   | -4.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.38  | 2137.76       | 11.44   | 10.18   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.37  | 518.66        | 12.66   | -11.87  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.36  | 551.84        | 12.12   | -8.46   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.36  | 7289.55       | 11.05   | 3.29    | -0.07      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.35  | 469.68        | 11.05   | -1.80   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.34  | 1.200e+04     | 10.63   | 0.74    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.34  | 3908.77       | 10.14   | 11.90   | 0.0        | 0.0        | 10.14   | 11.90   | 1.0770e-05 | 0.0         | 0.0         |
| 7.34  | 123.07        | 10.44   | 1.90    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.33  | 3625.20       | 10.19   | 10.20   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.32  | 621.33        | 9.37    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.31  | 3793.07       | 10.78   | -5.10   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.29  | 1.015e+04     | 11.58   | -15.43  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.29  | 3830.43       | 9.13    | 10.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.29  | 651.88        | 8.65    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.29  | 3.284e+04     | 11.08   | -12.21  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 7.27  | 2.497e+04     | 9.99    | -5.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.26  | 3.735e+04     | 8.76    | 4.37    | -0.02      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.25  | 4176.46       | 9.15    | -5.34   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.25  | 2442.30       | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.25  | 4909.63       | 7.99    | 12.17   | -1.86e-03  | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.25  | 6140.83       | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.25  | 518.42        | 9.41    | -12.57  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.24  | 551.84        | 8.88    | -9.16   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.23  | 315.73        | 8.34    | -5.76   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.23  | 5614.50       | 7.96    | 0.30    | -0.06      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.23  | 488.06        | 7.81    | -2.50   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.22  | 3986.75       | 8.61    | -15.84  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.22  | 1.044e+04     | 7.32    | 0.51    | -7.74e-03  | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.22  | 1.982e+04     | 8.07    | -11.67  | -0.02      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.22  | 1614.79       | 6.39    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.21  | 6025.35       | 6.12    | 10.37   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.20  | 1.469e+04     | 7.02    | -5.64   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.20  | 2.255e+04     | 6.13    | 6.55    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.20  | 1.329e+04     | 6.48    | 0.44    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.20  | 1590.41       | 5.63    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.18  | 3697.86       | 6.28    | -5.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.18  | 1486.84       | 4.86    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.17  | 8487.89       | 4.50    | 10.66   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.17  | 3719.42       | 5.54    | -5.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.16  | 809.57        | 4.09    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.15  | 1.512e+04     | 5.65    | -16.29  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.15  | 4.425e+04     | 4.18    | 2.80    | -0.04      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.14  | 4.915e+04     | 5.21    | -13.47  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.14  | 824.71        | 3.32    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.13  | 3.702e+04     | 4.06    | -6.09   | 0.0        | 0.0        | 4.06    | -6.09   | 5.3001e-06 | 0.0         | 0.0         |
| 7.12  | 1364.52       | 2.55    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.12  | 5544.00       | 2.31    | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.11  | 1195.08       | 1.78    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.10  | 3678.96       | 3.17    | -6.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.09  | 4.957e+04     | 1.67    | 3.42    | -0.02      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.09  | 1188.46       | 1.01    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.07  | 1181.45       | 0.25    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.07  | 4791.59       | 0.27    | 10.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.06  | 4668.00       | 2.27    | -6.35   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.05  | 1169.84       | -0.52   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.04  | 1.408e+04     | -0.88   | -0.10   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.03  | 2048.06       | -0.95   | 0.73    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.03  | 1136.48       | -1.28   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.03  | 2039.84       | -1.02   | 1.55    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.03  | 4702.17       | 1.38    | -6.48   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.03  | 2030.29       | -1.09   | 2.37    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.03  | 2020.81       | -1.16   | 3.19    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.03  | 2011.37       | -1.23   | 4.01    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.03  | 2001.78       | -1.30   | 4.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.02  | 1992.10       | -1.37   | 5.65    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.02  | 2.767e+04     | -1.53   | 7.60    | -0.02      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.02  | 2128.08       | -1.85   | 11.29   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.02  | 2130.69       | -1.92   | 12.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.02  | 2123.57       | -1.99   | 12.93   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.01  | 1548.84       | -2.06   | 13.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.01  | 2015.68       | -0.91   | -0.94   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.00  | 2008.78       | -0.86   | -1.77   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.00  | 5457.39       | 0.48    | -6.61   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.00  | 2006.79       | -0.80   | -2.60   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.99  | 2005.33       | -0.75   | -3.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.98  | 2003.64       | -0.70   | -4.27   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.98  | 2001.18       | -0.65   | -5.10   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.97  | 1998.13       | -0.60   | -5.93   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.96  | 6.187e+04     | -0.55   | -12.12  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.66  | 374.28        | 3.83    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.56  | 473.04        | 4.59    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.53  | 425.96        | 11.22   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.47  | 658.23        | 6.33    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.46  | 614.82        | 5.34    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.44  | 644.18        | 12.93   | -4.77   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.43  | 791.82        | 10.17   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.41  | 344.55        | 12.24   | -4.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.38  | 363.95        | 11.55   | -4.98   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.36  | 534.17        | 10.19   | 10.20   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 6.35  | 383.02        | 10.77   | -5.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.34  | 1884.64       | -1.61   | 10.43   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.33  | 1195.13       | -1.90   | 13.72   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.33  | 1928.69       | -1.69   | 11.25   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.33  | 1914.34       | -1.83   | 12.90   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.33  | 771.91        | 9.13    | 10.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.32  | 1936.70       | -1.76   | 12.08   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.32  | 1888.71       | -1.54   | 9.64    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.31  | 845.79        | 9.99    | -5.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.31  | 2651.41       | 1.51    | 10.17   | -0.54      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.30  | 397.08        | 9.17    | -5.34   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.30  | 1958.12       | -1.40   | 8.06    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.29  | 526.94        | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.28  | 1994.76       | -1.32   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.28  | 357.55        | 8.34    | -5.46   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.27  | 2127.57       | -0.72   | -0.08   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.27  | 2112.81       | -0.79   | 0.73    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.27  | 2114.16       | -0.86   | 1.56    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.27  | 2112.11       | -0.93   | 2.38    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.27  | 2382.16       | -0.06   | 4.87    | -0.45      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.27  | 2110.86       | -1.00   | 3.20    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.27  | 2110.17       | -1.07   | 4.02    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.27  | 2109.75       | -1.14   | 4.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.26  | 2108.06       | -1.21   | 5.66    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.26  | 746.88        | 7.13    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.26  | 784.74        | 7.02    | -5.64   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.25  | 2140.51       | -0.73   | -0.92   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.25  | 2134.52       | -0.68   | -1.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.24  | 2481.76       | 0.35    | -3.03   | -0.35      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.23  | 2126.03       | -0.58   | -3.42   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.23  | 2123.12       | -0.53   | -4.25   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.23  | 350.60        | 5.54    | -5.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.22  | 2120.46       | -0.48   | -5.08   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.22  | 2115.12       | -0.43   | -5.91   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.21  | 3.018e+04     | -0.32   | -12.14  | -0.26      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.20  | 827.14        | 4.06    | -6.09   | 0.0        | 0.0        | 4.06    | -6.09   | 5.3001e-06 | 0.0         | 0.0         |
| 6.18  | 785.26        | 8.68    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.17  | 418.51        | 3.17    | -6.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.17  | 491.53        | 3.57    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.15  | 415.54        | 2.27    | -6.35   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.12  | 412.59        | 1.38    | -6.48   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.09  | 205.18        | 0.48    | -6.62   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.06  | 2633.84       | 7.96    | 13.01   | -3.72e-03  | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.94  | 498.93        | 4.32    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.72  | 753.05        | 6.26    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.71  | 703.24        | 5.06    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.71  | 395.75        | 11.22   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.67  | 467.22        | 3.30    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.65  | 1.876e+04     | 0.74    | 12.27   | -0.20      | 0.0        | 1.00    | 13.66   | 0.183      | 0.144       | 5.042       |
| 5.64  | 3818.73       | -1.52   | 11.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.64  | 3787.96       | -1.67   | 12.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.64  | 3833.82       | -1.59   | 12.06   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.62  | 1889.48       | -1.36   | 9.63    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.59  | 1930.95       | -1.29   | 8.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.57  | 1956.50       | -1.22   | 8.05    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.54  | 1984.56       | -1.14   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.52  | 2054.34       | -1.07   | 6.48    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 2120.44       | -0.55   | -0.07   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 2107.72       | -0.62   | 0.74    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 2109.51       | -0.69   | 1.56    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 2106.74       | -0.76   | 2.38    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 2882.00       | 2.15    | 6.03    | -0.55      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 2105.58       | -0.90   | 4.02    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 2106.31       | -0.97   | 4.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 2104.77       | -1.04   | 5.66    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.50  | 2133.81       | -0.56   | -0.90   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.49  | 2129.73       | -0.51   | -1.74   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.49  | 2123.64       | -0.46   | -2.57   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.48  | 2119.33       | -0.41   | -3.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.48  | 2116.93       | -0.36   | -4.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.47  | 2115.98       | -0.31   | -5.06   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.47  | 2110.26       | -0.26   | -5.89   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.46  | 2.987e+04     | -0.21   | -12.20  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.44  | 646.99        | 12.93   | -4.77   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 5.42  | 350.16        | 12.23   | -4.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.40  | 364.03        | 11.53   | -4.99   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.39  | 534.17        | 10.19   | 10.20   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.38  | 377.58        | 10.76   | -5.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.36  | 771.91        | 9.13    | 10.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.35  | 838.28        | 9.99    | -5.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.34  | 387.49        | 9.19    | -5.34   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.34  | 526.94        | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.33  | 357.48        | 8.38    | -5.45   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.32  | 524.82        | 4.04    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.32  | 327.74        | 7.70    | -5.55   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.31  | 789.46        | 7.02    | -5.64   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.30  | 351.95        | 6.28    | -5.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.29  | 753.38        | 9.47    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.29  | 785.57        | 7.09    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.29  | 350.60        | 5.54    | -5.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.28  | 349.25        | 4.80    | -5.98   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.27  | 827.16        | 4.06    | -6.09   | 0.0        | 0.0        | 4.06    | -6.09   | 5.3001e-06 | 0.0         | 0.0         |
| 5.25  | 418.56        | 3.17    | -6.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.23  | 415.60        | 2.27    | -6.36   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.21  | 412.64        | 1.38    | -6.49   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.19  | 205.21        | 0.48    | -6.62   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.18  | 1390.16       | 3.04    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.08  | 814.48        | 8.70    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.98  | 847.88        | 6.19    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.97  | 791.66        | 4.78    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.94  | 1929.26       | -1.26   | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.94  | 1180.88       | -1.57   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.94  | 1978.48       | -1.36   | 11.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.94  | 3938.90       | -1.47   | 12.46   | -3.53e-03  | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.91  | 1908.04       | -1.19   | 9.62    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.88  | 365.54        | 11.22   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.87  | 1938.22       | -1.11   | 8.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.86  | 2667.79       | 7.96    | 13.02   | -3.72e-03  | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.83  | 1963.06       | -1.03   | 8.05    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.80  | 1986.57       | -0.96   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.76  | 2053.20       | -0.88   | 6.49    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.75  | 4222.05       | -0.43   | 0.35    | -3.49e-03  | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.75  | 2107.58       | -0.53   | 1.57    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.75  | 2104.15       | -0.60   | 2.39    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.75  | 2103.20       | -0.67   | 3.21    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.75  | 4207.15       | -0.77   | 4.44    | -3.50e-03  | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.75  | 2103.93       | -0.88   | 5.66    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.74  | 2131.04       | -0.38   | -0.89   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.74  | 2129.36       | -0.33   | -1.72   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.73  | 2121.99       | -0.28   | -2.55   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.73  | 2117.94       | -0.23   | -3.38   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.73  | 2115.13       | -0.18   | -4.21   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.72  | 2114.11       | -0.13   | -5.04   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.72  | 2107.61       | -0.08   | -5.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.72  | 2.991e+04     | -0.03   | -12.19  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.70  | 4873.05       | 1.49    | 13.68   | -0.24      | 0.0        | 0.83    | 13.68   | 0.057      | 1.327       | 1.2866e-05  |
| 4.59  | 760.61        | 10.32   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.45  | 649.79        | 12.93   | -4.77   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.44  | 355.77        | 12.22   | -4.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.42  | 364.12        | 11.51   | -4.99   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.41  | 534.17        | 10.19   | 10.20   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.41  | 372.14        | 10.75   | -5.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.40  | 771.91        | 9.13    | 10.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.39  | 830.77        | 9.99    | -5.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.38  | 377.91        | 9.21    | -5.34   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.38  | 526.94        | 8.06    | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.38  | 357.41        | 8.42    | -5.45   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.37  | 337.18        | 7.72    | -5.54   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.36  | 794.18        | 7.02    | -5.64   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.36  | 351.95        | 6.28    | -5.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.35  | 350.60        | 5.54    | -5.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.34  | 349.25        | 4.80    | -5.98   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.33  | 827.19        | 4.06    | -6.09   | 0.0        | 0.0        | 4.06    | -6.09   | 5.3001e-06 | 0.0         | 0.0         |
| 4.32  | 824.27        | 7.06    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.32  | 418.62        | 3.17    | -6.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.31  | 415.66        | 2.27    | -6.36   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.29  | 412.70        | 1.38    | -6.49   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.28  | 205.24        | 0.48    | -6.62   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota | M Sismica x g | Pos. GX   | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|-----------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 4.28  | 782.59        | 9.52      | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.24  | 1931.13       | -1.09     | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.23  | 1.821e+04     | 3.36      | 11.91   | -0.38      | 0.0        | 5.95    | 12.48   | 0.637      | 1.431       | 0.379       |
| 4.23  | 2625.08       | -0.24     | 13.07   | -0.22      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.19  | 1911.84       | -1.01     | 9.62    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.15  | 1937.03       | -0.93     | 8.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.10  | 1960.81       | -0.85     | 8.05    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.06  | 6107.00       | 11.91     | 12.62   | -0.11      | 0.0        | 11.27   | 12.84   | 1.080      | 0.572       | 0.267       |
| 4.05  | 1983.85       | -0.78     | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.01  | 2052.82       | -0.70     | 6.49    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.99  | 4214.66       | -0.26     | 0.36    | -3.49e-03  | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.99  | 2102.67       | -0.37     | 1.58    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.99  | 4197.67       | -0.47     | 2.81    | -3.49e-03  | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.99  | 4197.38       | -0.61     | 4.44    | -3.49e-03  | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.99  | 2102.75       | -0.72     | 5.67    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.98  | 2126.26       | -0.20     | -0.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.98  | 2123.45       | -0.16     | -1.71   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.98  | 2116.75       | -0.11     | -2.54   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.98  | 2113.08       | -0.06     | -3.36   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.98  | 2110.41       | -8.64e-03 | -4.19   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.97  | 2109.97       | 0.04      | -5.02   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.97  | 843.69        | 8.73      | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.97  | 2103.93       | 0.09      | -5.85   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.97  | 2.994e+04     | 0.14      | -12.18  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.76  | 3673.89       | 0.81      | 13.68   | -0.17      | 0.0        | 0.81    | 13.68   | 0.081      | 0.003       | 3.4876e-05  |
| 3.75  | 657.63        | 3.77      | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.67  | 2701.75       | 7.96      | 13.03   | -3.72e-03  | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.66  | 1323.84       | 10.42     | 13.36   | -4.84e-03  | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.53  | 1935.74       | -0.91     | 10.40   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.52  | 1987.11       | -1.10     | 12.04   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.52  | 3960.25       | -1.10     | 12.04   | -7.04e-03  | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.52  | 1046.17       | -1.24     | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.48  | 1916.74       | -0.83     | 9.62    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.46  | 652.60        | 12.93     | -4.77   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.45  | 361.38        | 12.21     | -4.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.45  | 364.21        | 11.48     | -4.99   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.44  | 534.17        | 10.19     | 10.20   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.44  | 366.71        | 10.74     | -5.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.43  | 771.91        | 9.13      | 10.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.43  | 823.26        | 9.99      | -5.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.43  | 368.32        | 9.23      | -5.33   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.43  | 526.94        | 8.06      | 10.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.42  | 357.34        | 8.46      | -5.44   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.42  | 1944.71       | -0.75     | 8.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.42  | 346.62        | 7.74      | -5.54   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.42  | 798.90        | 7.02      | -5.64   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.41  | 351.95        | 6.28      | -5.75   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.41  | 350.60        | 5.54      | -5.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.41  | 349.25        | 4.80      | -5.98   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.40  | 827.22        | 4.06      | -6.09   | 0.0        | 0.0        | 4.06    | -6.09   | 5.3001e-06 | 0.0         | 0.0         |
| 3.40  | 418.67        | 3.17      | -6.22   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.39  | 415.71        | 2.27      | -6.36   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.38  | 412.75        | 1.38      | -6.49   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.38  | 205.27        | 0.48      | -6.63   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.37  | 1971.10       | -0.67     | 8.06    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.35  | 763.52        | 7.03      | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.31  | 1996.08       | -0.59     | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.28  | 656.86        | 3.04      | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.28  | 2366.63       | 5.27      | 13.68   | -0.08      | 0.0        | 5.16    | 13.68   | 0.220      | 0.331       | 0.0         |
| 3.27  | 1235.61       | 9.59      | 13.31   | -4.47e-03  | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.26  | 2065.67       | -0.51     | 6.49    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.23  | 1.260e+04     | -0.31     | 2.81    | -0.02      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.23  | 4216.23       | -0.31     | 2.81    | -0.02      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.23  | 2125.07       | -0.03     | -0.86   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.23  | 2123.13       | 0.02      | -1.69   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.23  | 2119.17       | 0.07      | -2.52   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.23  | 2115.90       | 0.12      | -3.35   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.23  | 2113.16       | 0.16      | -4.17   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.22  | 2111.37       | 0.21      | -5.00   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.22  | 2105.10       | 0.26      | -5.83   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.22  | 2.998e+04     | 0.31      | -12.16  | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.87  | 1141.38       | 8.77      | 13.24   | -4.09e-03  | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.81  | 2.554e+04     | 0.31      | 12.24   | -0.17      | 0.0        | -0.87   | 13.34   | 0.567      | 1.441       | 1.435       |
| 2.81  | 657.63        | 3.77      | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 2.74  | 2055.40       | -0.73   | 9.62    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.67  | 1934.23       | -0.66   | 8.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.61  | 1910.39       | -0.59   | 8.05    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.60  | 616.09        | 7.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.58  | 915.20        | -0.94   | 12.06   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.54  | 1889.09       | -0.53   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.52  | 998.78        | -0.87   | 11.25   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.47  | 1836.36       | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.47  | 2.814e+05     | 4.70    | 1.28    | -0.69      | 0.0        | 0.91    | -5.08   | 0.301      | 1.261       | 0.824       |
| 2.47  | 2395.97       | 12.03   | 2.98    | -0.05      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.46  | 2407.24       | 12.03   | 2.60    | -0.05      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.46  | 2418.51       | 12.03   | 2.24    | -0.04      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.46  | 2429.79       | 12.03   | 1.88    | -0.03      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.45  | 2441.06       | 12.03   | 1.52    | -0.02      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.45  | 2959.82       | 12.05   | 0.98    | -9.07e-03  | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.44  | 1.544e+04     | 12.02   | 0.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.33  | 1232.15       | 3.04    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.33  | 2512.17       | 5.32    | 13.68   | -0.08      | 0.0        | 5.16    | 13.68   | 0.220      | 0.489       | 0.0         |
| 2.00  | 4816.89       | -1.00   | 12.83   | -7.01e-03  | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.94  | 1576.69       | -0.87   | 11.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.89  | 1605.34       | -0.80   | 10.44   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.86  | 3045.84       | 1.04    | 11.23   | -0.23      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.85  | 616.09        | 7.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.82  | 1850.13       | -0.66   | 8.85    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.79  | 1811.24       | -0.60   | 8.06    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.75  | 1769.11       | -0.53   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.71  | 1.510e+04     | 11.39   | 9.09    | -0.19      | 0.0        | 11.47   | 9.76    | 0.184      | 0.081       | 0.130       |
| 1.71  | 2718.77       | 12.26   | 0.92    | -0.05      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.71  | 2718.77       | 12.22   | 0.91    | -0.05      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.70  | 2718.77       | 12.18   | 0.89    | -0.04      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.70  | 2718.77       | 12.14   | 0.88    | -0.03      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.70  | 634.63        | 12.20   | -4.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.69  | 2718.77       | 12.10   | 0.87    | -0.02      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.69  | 6.390e+04     | 0.25    | -5.61   | -0.05      | 0.0        | 0.20    | -4.79   | 0.117      | 0.055       | 0.132       |
| 1.69  | 2718.77       | 12.06   | 0.85    | -9.07e-03  | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.69  | 1359.39       | 12.02   | 0.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.68  | 3530.14       | 1.03    | 13.68   | -0.13      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.68  | 393.96        | 1.38    | -6.50   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.68  | 2225.38       | 11.41   | 6.41    | -3.91e-03  | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.67  | 796.57        | 2.27    | -6.36   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.66  | 661.77        | 10.72   | -5.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.66  | 808.10        | 3.17    | -6.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.65  | 1183.75       | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.65  | 8260.73       | 7.11    | -3.65   | -0.30      | 0.0        | 7.02    | -5.65   | 0.362      | 0.034       | 0.975       |
| 1.38  | 1.092e+04     | 5.13    | 12.08   | -0.08      | 0.0        | 5.98    | 13.00   | 1.119      | 0.680       | 0.771       |
| 1.30  | 715.69        | 3.04    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.20  | 1850.07       | -0.94   | 12.05   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.19  | 1878.97       | -1.01   | 12.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.19  | 1304.01       | -1.08   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.15  | 1821.62       | -0.87   | 11.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.11  | 1792.31       | -0.80   | 10.44   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.10  | 679.86        | 7.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.07  | 1774.64       | -0.73   | 9.65    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.04  | 1774.64       | -0.66   | 8.85    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.00  | 1774.64       | -0.60   | 8.06    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.97  | 1767.21       | -0.53   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.96  | 1.527e+04     | 11.39   | 9.10    | -0.19      | 0.0        | 11.47   | 9.76    | 0.184      | 0.081       | 0.128       |
| 0.95  | 2718.77       | 12.26   | 0.92    | -0.05      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.95  | 2718.77       | 12.22   | 0.91    | -0.05      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.95  | 2718.77       | 12.18   | 0.89    | -0.04      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.94  | 2718.77       | 12.14   | 0.88    | -0.03      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.94  | 2718.77       | 12.10   | 0.87    | -0.02      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.93  | 2718.77       | 12.06   | 0.85    | -9.07e-03  | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.93  | 1359.39       | 12.02   | 0.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.92  | 634.63        | 12.20   | -4.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.92  | 649.62        | 3.77    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.92  | 6.391e+04     | 0.25    | -5.61   | -0.05      | 0.0        | 0.20    | -4.79   | 0.117      | 0.055       | 0.132       |
| 0.89  | 393.96        | 1.38    | -6.50   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.89  | 2250.41       | 11.41   | 6.46    | -3.91e-03  | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.87  | 796.57        | 2.27    | -6.36   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.86  | 661.77        | 10.72   | -5.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.85  | 808.10        | 3.17    | -6.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.82  | 1078.36       | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.82  | 8260.73       | 7.11    | -3.65   | -0.30      | 0.0        | 7.02    | -5.65   | 0.362      | 0.034       | 0.975       |

| Quota    | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|----------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 0.55     | 3530.14       | 1.03    | 13.68   | -0.13      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.54     | 1950.66       | 5.34    | 13.68   | -0.08      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.40     | 1849.07       | -0.94   | 12.05   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.39     | 1875.67       | -1.01   | 12.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.38     | 1302.36       | -1.08   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.36     | 1822.93       | -0.87   | 11.24   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.32     | 1792.96       | -0.80   | 10.44   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.32     | 676.05        | 7.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.29     | 1774.64       | -0.73   | 9.65    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.27     | 715.69        | 3.04    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.25     | 1774.64       | -0.66   | 8.86    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.22     | 1774.64       | -0.60   | 8.06    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.20     | 1.361e+04     | 11.38   | 8.96    | -0.19      | 0.0        | 11.47   | 9.74    | 0.184      | 0.086       | 0.148       |
| 0.20     | 2718.77       | 12.26   | 0.92    | -0.05      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.19     | 2718.77       | 12.22   | 0.91    | -0.05      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.19     | 2718.77       | 12.18   | 0.89    | -0.04      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.19     | 1769.04       | -0.53   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.18     | 2718.77       | 12.14   | 0.88    | -0.03      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.18     | 2718.77       | 12.10   | 0.87    | -0.02      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.18     | 2718.77       | 12.06   | 0.85    | -9.07e-03  | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.17     | 1359.39       | 12.02   | 0.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.15     | 652.74        | 12.20   | -4.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.14     | 6.391e+04     | 0.25    | -5.61   | -0.05      | 0.0        | 0.20    | -4.79   | 0.117      | 0.055       | 0.132       |
| 0.10     | 196.98        | 1.38    | -6.50   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.10     | 2236.57       | 11.41   | 6.17    | -3.91e-03  | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.07     | 398.28        | 2.27    | -6.36   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.05     | 716.11        | 10.72   | -5.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.03     | 404.05        | 3.17    | -6.23   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 9.90e-04 | 860.60        | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.0      | 2.112e+04     | 8.05    | -4.02   | -0.58      | 0.0        | 7.31    | -5.48   | 0.120      | 0.323       | 1.469       |
| -0.02    | 649.62        | 3.77    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.30    | 1950.66       | 5.34    | 13.68   | -0.08      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.39    | 1848.08       | -0.94   | 12.05   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.41    | 1872.37       | -1.01   | 12.87   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.43    | 1824.25       | -0.87   | 11.25   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.43    | 1272.32       | -1.08   | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.46    | 1793.62       | -0.80   | 10.44   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.47    | 671.08        | 7.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.50    | 1774.64       | -0.73   | 9.65    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.53    | 1774.64       | -0.66   | 8.86    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.56    | 1.342e+04     | 11.37   | 9.12    | -0.19      | 0.0        | 11.47   | 9.74    | 0.184      | 0.103       | 0.119       |
| -0.56    | 2718.77       | 12.26   | 0.92    | -0.05      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.56    | 1774.64       | -0.60   | 8.07    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.57    | 2718.77       | 12.22   | 0.91    | -0.05      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.57    | 2718.77       | 12.18   | 0.89    | -0.04      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.57    | 2718.77       | 12.14   | 0.88    | -0.03      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.57    | 3530.14       | 1.03    | 13.68   | -0.13      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.58    | 2718.77       | 12.10   | 0.87    | -0.02      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.58    | 2718.77       | 12.06   | 0.85    | -9.07e-03  | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.58    | 1359.39       | 12.02   | 0.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.60    | 1770.87       | -0.53   | 7.27    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.63    | 1477.05       | 11.38   | 11.09   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.64    | 673.95        | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.64    | 6.391e+04     | 0.25    | -5.61   | -0.05      | 0.0        | 0.20    | -4.79   | 0.117      | 0.055       | 0.131       |
| -0.67    | 335.43        | 12.20   | -4.88   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.71    | 1128.39       | 11.44   | 10.18   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.76    | 715.69        | 3.04    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.78    | 360.33        | 11.46   | -5.00   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.89    | 385.23        | 10.72   | -5.11   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.96    | 649.62        | 3.77    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.00    | 5091.45       | 6.56    | -2.61   | -0.36      | 0.0        | 8.50    | -5.43   | 0.301      | 1.286       | 2.237       |
| -1.15    | 1950.66       | 5.34    | 13.68   | -0.08      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.19    | 923.67        | -0.94   | 12.06   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.22    | 1847.57       | -0.94   | 12.07   | -6.94e-03  | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.25    | 1530.77       | -0.91   | 11.78   | -0.01      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.26    | 676.05        | 7.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.28    | 887.32        | -0.73   | 9.65    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.31    | 887.32        | -0.66   | 8.86    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.32    | 1.327e+04     | 11.35   | 9.28    | -0.19      | 0.0        | 11.47   | 9.74    | 0.184      | 0.122       | 0.087       |
| -1.32    | 2718.77       | 12.26   | 0.92    | -0.05      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.32    | 2718.77       | 12.22   | 0.91    | -0.05      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.33    | 2718.77       | 12.18   | 0.89    | -0.04      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.33    | 2718.77       | 12.14   | 0.88    | -0.03      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.33    | 2718.77       | 12.10   | 0.87    | -0.02      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota   | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|---------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| -1.34   | 2718.77       | 12.06   | 0.85    | -9.07e-03  | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.34   | 1359.39       | 12.02   | 0.84    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.35   | 887.32        | -0.60   | 8.07    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.37   | 1470.80       | 11.38   | 11.09   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.37   | 707.05        | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.38   | 886.12        | -0.53   | 7.28    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.42   | 3.305e+04     | 0.62    | -5.08   | -0.60      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.70   | 3561.50       | 1.02    | 13.68   | -0.13      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.80   | 715.69        | 3.04    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.89   | 649.62        | 3.77    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -1.99   | 1950.66       | 5.34    | 13.68   | -0.08      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.04   | 507.50        | -0.78   | 13.68   | -0.02      | 0.0        | -0.86   | 13.68   | 1.1727e-06 | 5.8694e+05  | 4.213       |
| -2.04   | 676.05        | 7.03    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.07   | 1.440e+04     | 11.35   | 9.35    | -0.19      | 0.0        | 11.47   | 9.75    | 0.184      | 0.114       | 0.077       |
| -2.08   | 2718.77       | 12.26   | 0.92    | -0.05      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.08   | 2718.77       | 12.22   | 0.91    | -0.05      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.08   | 2718.77       | 12.18   | 0.89    | -0.04      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.09   | 2718.77       | 12.14   | 0.88    | -0.03      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.09   | 2718.77       | 12.10   | 0.87    | -0.02      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.09   | 2718.77       | 12.06   | 0.85    | -9.07e-03  | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.10   | 2836.44       | 11.69   | 6.18    | -0.03      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.10   | 707.05        | 7.93    | 13.68   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.83   | 1.224e+04     | 8.58    | 10.97   | -0.70      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.83   | 1359.39       | 12.26   | 0.92    | -0.05      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.84   | 1359.39       | 12.22   | 0.91    | -0.05      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.84   | 1359.39       | 12.18   | 0.89    | -0.04      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.84   | 1359.39       | 12.14   | 0.88    | -0.03      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.85   | 1359.39       | 12.10   | 0.87    | -0.02      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.85   | 3239.50       | 7.85    | 1.11    | -0.15      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -2.85   | 1359.39       | 12.06   | 0.85    | -9.07e-03  | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| Risulta | 2.500e+06     |         |         |            |            |         |         |            |             |             |

| Modo | Frequenza | Periodo | Acc. Spettrale | M efficace X x g | %        | M efficace Y x g | %        | M efficace Z x g | %        | Energia | Energia x v |
|------|-----------|---------|----------------|------------------|----------|------------------|----------|------------------|----------|---------|-------------|
|      | Hz        | sec     | g              | kg               |          | kg               |          | kg               |          |         |             |
| 1    | 1.993     | 0.502   | 0.077          | 1.505e+04        | 0.6      | 252.84           | 1.01e-02 | 6.63             | 2.65e-04 | 0.0     | 0.0         |
| 2    | 2.157     | 0.464   | 0.083          | 175.13           | 7.01e-03 | 1.606e+04        | 0.6      | 2.05             | 8.19e-05 | 0.0     | 0.0         |
| 3    | 2.365     | 0.423   | 0.088          | 119.08           | 4.76e-03 | 106.21           | 4.25e-03 | 0.68             | 2.70e-05 | 0.0     | 0.0         |
| 4    | 3.556     | 0.281   | 0.088          | 213.70           | 8.55e-03 | 10.50            | 4.20e-04 | 1.24             | 4.98e-05 | 0.0     | 0.0         |
| 5    | 3.627     | 0.276   | 0.088          | 272.82           | 1.09e-02 | 53.38            | 2.13e-03 | 3.00e-04         | 0.0      | 0.0     | 0.0         |
| 6    | 4.727     | 0.212   | 0.088          | 1112.94          | 4.45e-02 | 2.931e+04        | 1.2      | 21.19            | 8.48e-04 | 0.0     | 0.0         |
| 7    | 4.761     | 0.210   | 0.088          | 1.173e+04        | 0.5      | 5.195e+05        | 20.8     | 210.53           | 8.42e-03 | 0.0     | 0.0         |
| 8    | 5.064     | 0.197   | 0.088          | 127.05           | 5.08e-03 | 611.84           | 2.45e-02 | 0.11             | 4.38e-06 | 0.0     | 0.0         |
| 9    | 5.574     | 0.179   | 0.088          | 6.966e+04        | 2.8      | 7525.74          | 0.3      | 22.84            | 9.14e-04 | 0.0     | 0.0         |
| 10   | 5.674     | 0.176   | 0.088          | 191.60           | 7.67e-03 | 0.92             | 3.68e-05 | 0.56             | 2.23e-05 | 0.0     | 0.0         |
| 11   | 5.921     | 0.169   | 0.088          | 1.640e+06        | 65.6     | 7797.75          | 0.3      | 5941.98          | 0.2      | 0.0     | 0.0         |
| 12   | 7.957     | 0.126   | 0.084          | 8090.52          | 0.3      | 1885.02          | 7.54e-02 | 1.049e+04        | 0.4      | 0.0     | 0.0         |
| 13   | 8.273     | 0.121   | 0.083          | 1070.21          | 4.28e-02 | 35.25            | 1.41e-03 | 1.062e+04        | 0.4      | 0.0     | 0.0         |
| 14   | 8.583     | 0.117   | 0.082          | 391.80           | 1.57e-02 | 1.505e+05        | 6.0      | 1.753e+04        | 0.7      | 0.0     | 0.0         |
| 15   | 8.822     | 0.113   | 0.081          | 714.23           | 2.86e-02 | 7.456e+05        | 29.8     | 4439.21          | 0.2      | 0.0     | 0.0         |
| 16   | 8.894     | 0.112   | 0.081          | 1570.62          | 6.28e-02 | 893.78           | 3.57e-02 | 3679.13          | 0.1      | 0.0     | 0.0         |
| 17   | 9.176     | 0.109   | 0.080          | 6087.89          | 0.2      | 4435.90          | 0.2      | 3734.91          | 0.1      | 0.0     | 0.0         |
| 18   | 9.639     | 0.104   | 0.079          | 222.54           | 8.90e-03 | 1.658e+04        | 0.7      | 2.529e+04        | 1.0      | 0.0     | 0.0         |
| 19   | 10.417    | 0.096   | 0.078          | 1888.00          | 7.55e-02 | 112.93           | 4.51e-03 | 5673.83          | 0.2      | 0.0     | 0.0         |
| 20   | 10.443    | 0.096   | 0.078          | 1.666e+04        | 0.7      | 3559.26          | 0.1      | 5192.85          | 0.2      | 0.0     | 0.0         |
| 21   | 10.938    | 0.091   | 0.077          | 507.19           | 2.03e-02 | 6921.52          | 0.3      | 2773.88          | 0.1      | 0.0     | 0.0         |
| 22   | 11.352    | 0.088   | 0.076          | 5.927e+04        | 2.4      | 8163.92          | 0.3      | 2469.82          | 9.88e-02 | 0.0     | 0.0         |
| 23   | 11.522    | 0.087   | 0.076          | 79.71            | 3.19e-03 | 187.06           | 7.48e-03 | 14.32            | 5.73e-04 | 0.0     | 0.0         |
| 24   | 11.573    | 0.086   | 0.076          | 1.778e+04        | 0.7      | 1.993e+04        | 0.8      | 1439.79          | 5.76e-02 | 0.0     | 0.0         |
| 25   | 11.758    | 0.085   | 0.075          | 1.900e+04        | 0.8      | 6.058e+04        | 2.4      | 1779.03          | 7.12e-02 | 0.0     | 0.0         |
| 26   | 12.148    | 0.082   | 0.075          | 82.59            | 3.30e-03 | 6500.11          | 0.3      | 537.79           | 2.15e-02 | 0.0     | 0.0         |
| 27   | 12.386    | 0.081   | 0.074          | 877.88           | 3.51e-02 | 650.84           | 2.60e-02 | 4609.53          | 0.2      | 0.0     | 0.0         |
| 28   | 12.705    | 0.079   | 0.074          | 322.72           | 1.29e-02 | 8.12             | 3.25e-04 | 1.049e+04        | 0.4      | 0.0     | 0.0         |
| 29   | 12.727    | 0.079   | 0.074          | 9.61             | 3.84e-04 | 1553.63          | 6.21e-02 | 246.17           | 9.85e-03 | 0.0     | 0.0         |
| 30   | 13.468    | 0.074   | 0.073          | 26.80            | 1.07e-03 | 338.30           | 1.35e-02 | 424.06           | 1.70e-02 | 0.0     | 0.0         |
| 31   | 13.849    | 0.072   | 0.073          | 36.56            | 1.46e-03 | 1160.65          | 4.64e-02 | 98.10            | 3.92e-03 | 0.0     | 0.0         |
| 32   | 14.230    | 0.070   | 0.072          | 582.73           | 2.33e-02 | 6.05             | 2.42e-04 | 7.633e+04        | 3.1      | 0.0     | 0.0         |
| 33   | 14.437    | 0.069   | 0.072          | 1887.23          | 7.55e-02 | 7.20             | 2.88e-04 | 1.102e+05        | 4.4      | 0.0     | 0.0         |
| 34   | 14.847    | 0.067   | 0.071          | 1.767e+04        | 0.7      | 1534.06          | 6.13e-02 | 3.770e+04        | 1.5      | 0.0     | 0.0         |
| 35   | 15.070    | 0.066   | 0.071          | 9472.35          | 0.4      | 759.06           | 3.03e-02 | 941.79           | 3.77e-02 | 0.0     | 0.0         |

| Modo           | Frequenza | Periodo | Acc. Spettrale | M efficace X x g | %        | M efficace Y x g | %        | M efficace Z x g | %        | Energia | Energia x v |
|----------------|-----------|---------|----------------|------------------|----------|------------------|----------|------------------|----------|---------|-------------|
| 36             | 15.152    | 0.066   | 0.071          | 933.90           | 3.74e-02 | 101.25           | 4.05e-03 | 2.071e+04        | 0.8      | 0.0     | 0.0         |
| 37             | 15.507    | 0.064   | 0.071          | 9.251e+04        | 3.7      | 8957.62          | 0.4      | 4.747e+04        | 1.9      | 0.0     | 0.0         |
| 38             | 15.979    | 0.063   | 0.070          | 5259.79          | 0.2      | 152.32           | 6.09e-03 | 3.391e+04        | 1.4      | 0.0     | 0.0         |
| 39             | 16.328    | 0.061   | 0.070          | 24.78            | 9.91e-04 | 4723.95          | 0.2      | 943.18           | 3.77e-02 | 0.0     | 0.0         |
| 40             | 16.435    | 0.061   | 0.070          | 5373.85          | 0.2      | 4860.24          | 0.2      | 81.25            | 3.25e-03 | 0.0     | 0.0         |
| 41             | 16.519    | 0.061   | 0.070          | 5.035e+04        | 2.0      | 7597.91          | 0.3      | 1.726e+04        | 0.7      | 0.0     | 0.0         |
| 42             | 16.909    | 0.059   | 0.070          | 3.560e+04        | 1.4      | 3567.38          | 0.1      | 1661.18          | 6.65e-02 | 0.0     | 0.0         |
| 43             | 16.917    | 0.059   | 0.070          | 1676.09          | 6.71e-02 | 7701.55          | 0.3      | 2094.89          | 8.38e-02 | 0.0     | 0.0         |
| 44             | 17.214    | 0.058   | 0.070          | 35.12            | 1.41e-03 | 250.78           | 1.00e-02 | 1588.57          | 6.36e-02 | 0.0     | 0.0         |
| 45             | 17.492    | 0.057   | 0.069          | 7583.73          | 0.3      | 1.009e+05        | 4.0      | 2062.91          | 8.25e-02 | 0.0     | 0.0         |
| 46             | 18.064    | 0.055   | 0.069          | 2466.65          | 9.87e-02 | 9.113e+04        | 3.6      | 1.079e+05        | 4.3      | 0.0     | 0.0         |
| 47             | 18.106    | 0.055   | 0.069          | 9.98             | 3.99e-04 | 2.786e+04        | 1.1      | 1254.60          | 5.02e-02 | 0.0     | 0.0         |
| 48             | 18.746    | 0.053   | 0.069          | 187.50           | 7.50e-03 | 1.163e+05        | 4.6      | 2.463e+05        | 9.9      | 0.0     | 0.0         |
| 49             | 19.403    | 0.052   | 0.068          | 826.67           | 3.31e-02 | 2763.77          | 0.1      | 974.93           | 3.90e-02 | 0.0     | 0.0         |
| 50             | 19.587    | 0.051   | 0.068          | 3.617e+04        | 1.4      | 1.676e+04        | 0.7      | 5790.27          | 0.2      | 0.0     | 0.0         |
| 51             | 20.110    | 0.050   | 0.068          | 176.64           | 7.07e-03 | 348.56           | 1.39e-02 | 392.31           | 1.57e-02 | 0.0     | 0.0         |
| 52             | 20.416    | 0.049   | 0.068          | 0.03             | 1.39e-06 | 260.05           | 1.04e-02 | 2068.89          | 8.28e-02 | 0.0     | 0.0         |
| 53             | 20.682    | 0.048   | 0.067          | 7432.30          | 0.3      | 3475.78          | 0.1      | 2390.03          | 9.56e-02 | 0.0     | 0.0         |
| 54             | 21.231    | 0.047   | 0.067          | 3670.96          | 0.1      | 1122.71          | 4.49e-02 | 2.035e+04        | 0.8      | 0.0     | 0.0         |
| 55             | 21.315    | 0.047   | 0.067          | 1409.70          | 5.64e-02 | 300.76           | 1.20e-02 | 1.429e+04        | 0.6      | 0.0     | 0.0         |
| 56             | 21.609    | 0.046   | 0.067          | 259.18           | 1.04e-02 | 7700.06          | 0.3      | 710.75           | 2.84e-02 | 0.0     | 0.0         |
| 57             | 22.111    | 0.045   | 0.067          | 42.54            | 1.70e-03 | 883.03           | 3.53e-02 | 4704.88          | 0.2      | 0.0     | 0.0         |
| 58             | 22.194    | 0.045   | 0.067          | 7.09             | 2.84e-04 | 1.209e+04        | 0.5      | 5897.49          | 0.2      | 0.0     | 0.0         |
| 59             | 22.808    | 0.044   | 0.067          | 14.06            | 5.63e-04 | 282.12           | 1.13e-02 | 1088.77          | 4.36e-02 | 0.0     | 0.0         |
| 60             | 22.990    | 0.043   | 0.066          | 1737.75          | 6.95e-02 | 2.858e+04        | 1.1      | 4058.13          | 0.2      | 0.0     | 0.0         |
| 61             | 23.278    | 0.043   | 0.066          | 534.37           | 2.14e-02 | 685.53           | 2.74e-02 | 7799.57          | 0.3      | 0.0     | 0.0         |
| 62             | 23.449    | 0.043   | 0.066          | 1743.69          | 6.98e-02 | 6831.00          | 0.3      | 87.87            | 3.52e-03 | 0.0     | 0.0         |
| Risulta        |           |         |                | 2.159e+06        |          | 2.069e+06        |          | 8.968e+05        |          |         |             |
| In percentuale |           |         |                | 86.40            |          | 82.73            |          | 35.88            |          |         |             |

# RISULTATI NODALI

## LEGENDA RISULTATI NODALI

Il controllo dei risultati delle analisi condotte, per quanto concerne i nodi strutturali, è possibile in relazione alle tabelle sottoportate.

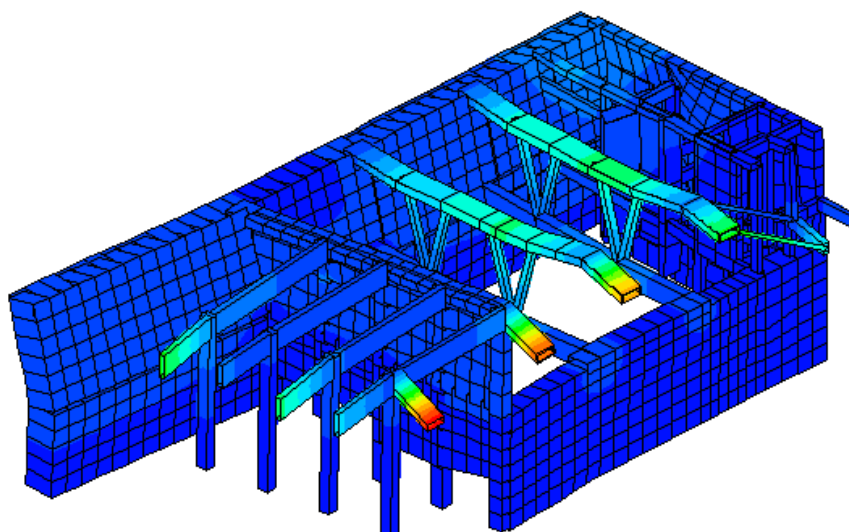
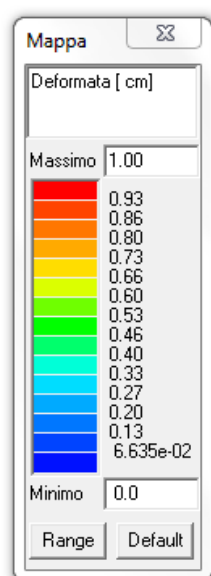
Una prima tabella riporta infatti per ogni nodo e per ogni combinazione (o caso di carico) gli spostamenti nodali.

Una seconda tabella riporta per ogni nodo a cui sia associato un vincolo rigido e/o elastico o una fondazione speciale e per ogni combinazione (o caso di carico) i valori delle azioni esercitate dalla struttura sui vincoli (reazioni vincolari cambiate di segno).

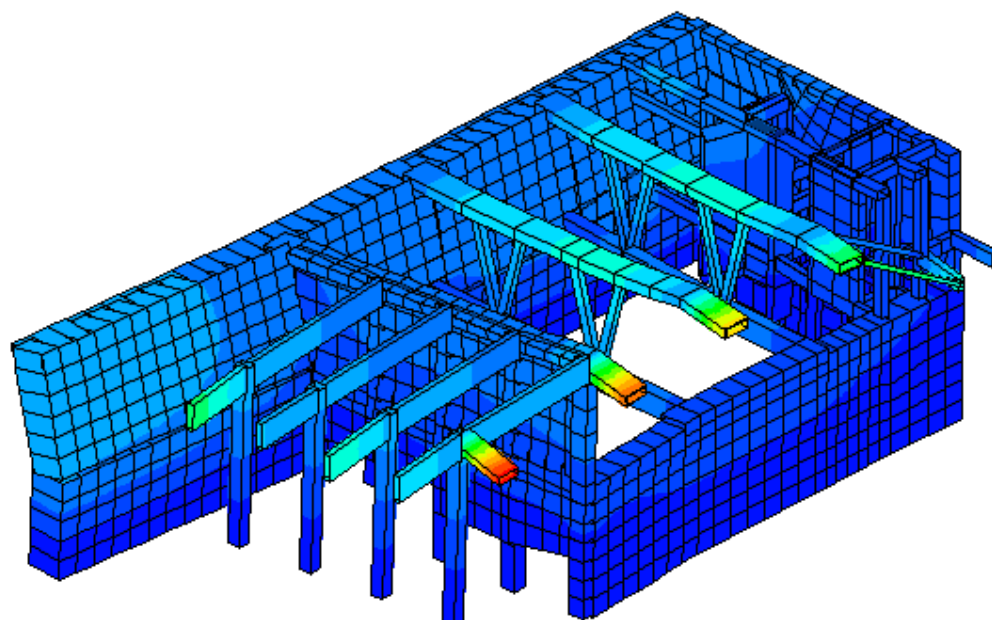
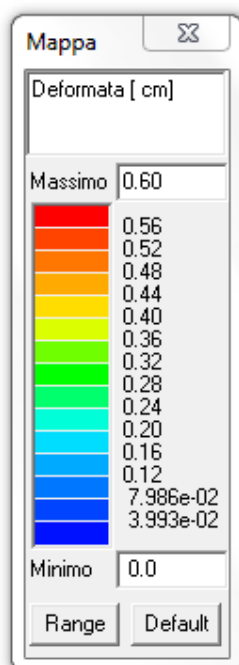
Una terza tabella, infine riassume per ogni nodo le sei combinazioni in cui si attingono i valori minimi e massimi della reazione Fz, della reazione Mx e della reazione My.

| Nodo | Cmb | Traslazione X | Traslazione Y | Traslazione Z | Rotazione X | Rotazione Y | Rotazione Z |
|------|-----|---------------|---------------|---------------|-------------|-------------|-------------|
|      |     | cm            | cm            | cm            |             |             |             |
| 1    | 1   | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 2   | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 3   | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 4   | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 5   | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 6   | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 7   | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 8   | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 9   | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 10  | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 11  | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 12  | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 13  | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 14  | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 15  | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 16  | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 17  | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 18  | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 19  | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 20  | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 21  | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 22  | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 23  | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 24  | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 25  | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 26  | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 27  | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 28  | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 29  | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 30  | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 31  | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 32  | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 33  | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 34  | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 35  | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 1    | 36  | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 2    | 1   | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 2    | 2   | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 2    | 3   | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 2    | 4   | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 2    | 5   | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 2    | 6   | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 2    | 7   | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 2    | 8   | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 2    | 9   | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 2    | 10  | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 2    | 11  | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| 2    | 12  | 0.0           | 0.0           | 0.0           | 0.0         | 0.0         | 0.0         |
| ...  |     |               |               |               |             |             |             |
| 1303 | 36  | -3.69e-03     | -9.03e-03     | -0.03         | 8.77e-06    | -1.15e-05   | -1.59e-05   |
| Nodo |     | Traslazione X | Traslazione Y | Traslazione Z | Rotazione X | Rotazione Y | Rotazione Z |
|      |     | -0.43         | -0.49         | -1.17         | -9.02e-03   | -1.90e-03   | -0.02       |
|      |     | 0.87          | 0.68          | 3.19e-03      | 8.74e-03    | 4.13e-03    | 0.02        |

Si riportano le deformate per gli spostamenti massimi.



Deformata - Max spostamento per combinazione statica SLU A1 2



Deformata - Max spostamento per combinazione sismica SLU A1 (SLV sismica dir.x) 13

# RISULTATI ELEMENTI TIPO TRAVE

## LEGENDA RISULTATI ELEMENTI TIPO TRAVE

Il controllo dei risultati delle analisi condotte, per quanto concerne gli elementi tipo trave, è possibile in relazione alle tabelle sotto riportate.

Gli elementi vengono suddivisi in relazione alle proprietà in elementi:

tipo pilastro

tipo trave in elevazione

tipo trave in fondazione

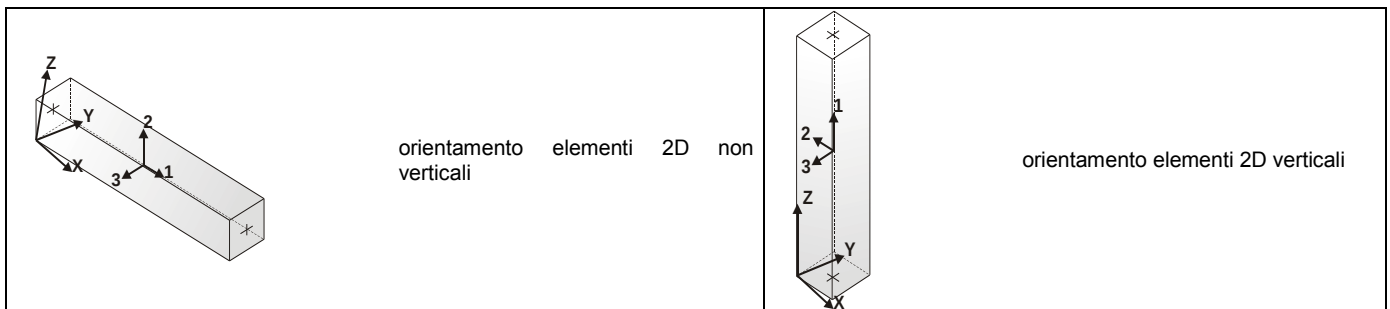
Per ogni elemento e per ogni combinazione (o caso di carico) vengono riportati i risultati più significativi.

Per gli elementi tipo *pilastro* sono riportati in tabella i seguenti valori:

|              |                                                                          |
|--------------|--------------------------------------------------------------------------|
| Pilas.       | numero dell'elemento pilastro                                            |
| Cmb          | combinazione in cui si verificano i valori riportati                     |
| M3 mx/mn     | momento flettente in campata M3 max (prima riga) / min (seconda riga)    |
| M2 mx/mn     | momento flettente in campata M2 max (prima riga) / min (seconda riga)    |
| D2/D3        | freccia massima in direzione 2 (prima riga) / direzione 3 (seconda riga) |
| Q2/Q3        | carico totale in direzione 2 (prima riga) / direzione 3 (seconda riga)   |
| Pos.         | ascissa del punto iniziale e finale dell'elemento                        |
| N, V2, ecc.. | sei componenti di sollecitazione al piede ed in sommità dell'elemento    |

Per gli elementi tipo *trave in elevazione* sono riportati, oltre al numero dell'elemento, i medesimi risultati visti per i pilastri.

Per gli elementi tipo *trave in fondazione* (trave f.) sono riportati, oltre al numero dell'elemento, i medesimi risultati visti per i pilastri e la massima pressione sul terreno.



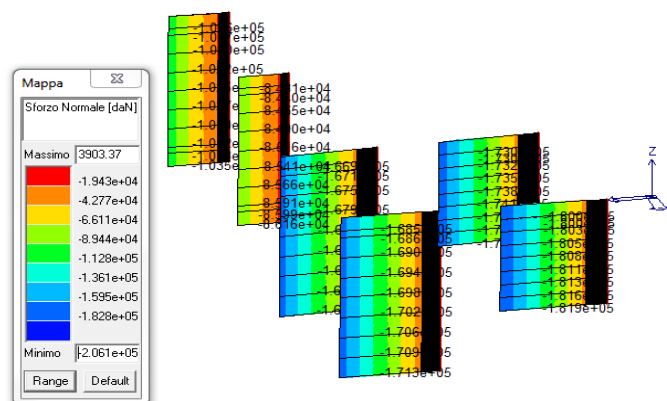
| Pilas. | Cmb | M3 mx/mn   | M2 mx/mn   | D 2 / D 3 | Q 2 / Q 3 | Pos.  | N          | V 2     | V 3    | T       | M 2        | M 3        |
|--------|-----|------------|------------|-----------|-----------|-------|------------|---------|--------|---------|------------|------------|
|        |     | daN cm     | daN cm     | cm        | daN       | cm    | daN        | daN     | daN    | daN cm  | daN cm     | daN cm     |
| 11     | 1   | 3.342e+04  | 1.630e+04  | -0.02     | 0.0       | 0.0   | -8485.47   | 315.67  | 127.31 | 1861.15 | -1.514e+04 | -4.455e+04 |
|        |     | -4.455e+04 | -1.514e+04 | -6.77e-03 | 0.0       | 247.0 | -8003.82   | 315.67  | 127.31 | 1861.15 | 1.630e+04  | 3.342e+04  |
| 11     | 2   | 4.556e+04  | 2.839e+04  | -0.02     | 0.0       | 0.0   | -1.665e+04 | 414.79  | 192.22 | 2371.89 | -1.909e+04 | -5.690e+04 |
|        |     | -5.690e+04 | -1.909e+04 | -5.90e-03 | 0.0       | 247.0 | -1.617e+04 | 414.79  | 192.22 | 2371.89 | 2.839e+04  | 4.556e+04  |
| 11     | 3   | 2.409e+04  | 1.128e+04  | -0.01     | 0.0       | 0.0   | -5990.31   | 232.25  | 90.41  | 1412.69 | -1.105e+04 | -3.328e+04 |
|        |     | -3.328e+04 | -1.105e+04 | -5.24e-03 | 0.0       | 247.0 | -5619.81   | 232.25  | 90.41  | 1412.69 | 1.128e+04  | 2.409e+04  |
| 11     | 4   | 3.623e+04  | 2.337e+04  | -0.02     | 0.0       | 0.0   | -1.416e+04 | 331.37  | 155.32 | 1923.43 | -1.500e+04 | -4.562e+04 |
|        |     | -4.562e+04 | -1.500e+04 | -4.42e-03 | 0.0       | 247.0 | -1.379e+04 | 331.37  | 155.32 | 1923.43 | 2.337e+04  | 3.623e+04  |
| 11     | 5   | 7.083e+04  | 2.833e+04  | -0.04     | 0.0       | 0.0   | -1.044e+04 | 677.97  | 195.50 | 2732.78 | -2.117e+04 | -9.662e+04 |
|        |     | -9.662e+04 | -2.117e+04 | -8.87e-03 | 0.0       | 247.0 | -1.007e+04 | 677.97  | 195.50 | 2732.78 | 2.833e+04  | 7.083e+04  |
| 11     | 6   | 8.274e+04  | 2.455e+04  | -0.04     | 0.0       | 0.0   | -1.024e+04 | 788.19  | 169.19 | 2644.23 | -1.644e+04 | -1.120e+05 |
|        |     | -1.120e+05 | -1.644e+04 | -4.72e-03 | 0.0       | 247.0 | -9869.68   | 788.19  | 169.19 | 2644.23 | 2.455e+04  | 8.274e+04  |
| 11     | 7   | 2.194e+04  | 1.072e+04  | 9.03e-03  | 0.0       | 0.0   | -9210.63   | -142.34 | 84.78  | 863.25  | -1.102e+04 | 2.194e+04  |
|        |     | -1.324e+04 | -1.102e+04 | -5.93e-03 | 0.0       | 247.0 | -8840.13   | -142.34 | 84.78  | 863.25  | 1.072e+04  | -1.324e+04 |
| 11     | 8   | 6586.27    | 6936.70    | 3.55e-03  | 0.0       | 0.0   | -9012.55   | -32.12  | 58.47  | 774.70  | -6288.74   | 6586.27    |
|        |     | -1332.25   | -6288.74   | -1.32e-03 | 0.0       | 247.0 | -8642.05   | -32.12  | 58.47  | 774.70  | 6936.70    | -1332.25   |
| 11     | 9   | 7.087e+04  | 2.824e+04  | -0.04     | 0.0       | 0.0   | -1.044e+04 | 678.28  | 194.22 | 2731.74 | -2.101e+04 | -9.665e+04 |
|        |     | -9.665e+04 | -2.101e+04 | -8.80e-03 | 0.0       | 247.0 | -1.007e+04 | 678.28  | 194.22 | 2731.74 | 2.824e+04  | 7.087e+04  |
| 11     | 10  | 8.270e+04  | 2.464e+04  | -0.04     | 0.0       | 0.0   | -1.024e+04 | 787.87  | 170.48 | 2645.27 | -1.659e+04 | -1.119e+05 |
|        |     | -1.119e+05 | -1.659e+04 | -4.77e-03 | 0.0       | 247.0 | -9868.95   | 787.87  | 170.48 | 2645.27 | 2.464e+04  | 8.270e+04  |
| 11     | 11  | 2.190e+04  | 1.063e+04  | 9.02e-03  | 0.0       | 0.0   | -9211.37   | -142.02 | 83.50  | 862.20  | -1.087e+04 | 2.190e+04  |
|        |     | -1.320e+04 | -1.087e+04 | -5.86e-03 | 0.0       | 247.0 | -8840.87   | -142.02 | 83.50  | 862.20  | 1.063e+04  | -1.320e+04 |
| 11     | 12  | 6624.02    | 7029.50    | 3.56e-03  | 0.0       | 0.0   | -9011.81   | -32.43  | 59.75  | 775.74  | -6445.67   | 6624.02    |
|        |     | -1371.89   | -6445.67   | -1.39e-03 | 0.0       | 247.0 | -8641.31   | -32.43  | 59.75  | 775.74  | 7029.50    | -1371.89   |
| 11     | 13  | 7.176e+04  | 2.848e+04  | -0.04     | 0.0       | 0.0   | -1.045e+04 | 688.20  | 199.39 | 2769.35 | -2.181e+04 | -9.821e+04 |
|        |     | -9.821e+04 | -2.181e+04 | -8.90e-03 | 0.0       | 247.0 | -1.008e+04 | 688.20  | 199.39 | 2769.35 | 2.848e+04  | 7.176e+04  |
| 11     | 14  | 8.368e+04  | 2.470e+04  | -0.04     | 0.0       | 0.0   | -1.025e+04 | 798.43  | 173.08 | 2680.81 | -1.707e+04 | -1.136e+05 |

| Pilas. | Cmb | M3 mx/mn   | M2 mx/mn   | D 2 / D 3 | Q 2 / Q 3 | Pos.  | N          | V 2        | V 3       | T          | M 2        | M 3        |
|--------|-----|------------|------------|-----------|-----------|-------|------------|------------|-----------|------------|------------|------------|
|        |     | -1.136e+05 | -1.707e+04 | -4.72e-03 | 0.0       | 247.0 | -9882.59   | 798.43     | 173.08    | 2680.81    | 2.470e+04  | 8.368e+04  |
| 11     | 15  | 2.353e+04  | 1.057e+04  | 9.67e-03  | 0.0       | 0.0   | -9197.73   | -152.58    | 80.90     | 826.67     | -1.039e+04 | 2.353e+04  |
|        |     | -1.418e+04 | -1.039e+04 | -5.87e-03 | 0.0       | 247.0 | -8827.23   | -152.58    | 80.90     | 826.67     | 1.057e+04  | -1.418e+04 |
| 11     | 16  | 8175.56    | 6786.88    | 4.19e-03  | 0.0       | 0.0   | -8999.64   | -42.36     | 54.58     | 738.13     | -5651.46   | 8175.56    |
|        |     | -2271.09   | -5651.46   | -1.29e-03 | 0.0       | 247.0 | -8629.14   | -42.36     | 54.58     | 738.13     | 6786.88    | -2271.09   |
| 11     | 17  | 7.180e+04  | 2.839e+04  | -0.04     | 0.0       | 0.0   | -1.045e+04 | 688.52     | 198.10    | 2768.31    | -2.165e+04 | -9.824e+04 |
|        |     | -9.824e+04 | -2.165e+04 | -8.84e-03 | 0.0       | 247.0 | -1.008e+04 | 688.52     | 198.10    | 2768.31    | 2.839e+04  | 7.180e+04  |
| 11     | 18  | 8.364e+04  | 2.479e+04  | -0.04     | 0.0       | 0.0   | -1.025e+04 | 798.11     | 174.36    | 2681.85    | -1.723e+04 | -1.135e+05 |
|        |     | -1.135e+05 | -1.723e+04 | -4.77e-03 | 0.0       | 247.0 | -9881.85   | 798.11     | 174.36    | 2681.85    | 2.479e+04  | 8.364e+04  |
| 11     | 19  | 2.349e+04  | 1.048e+04  | 9.66e-03  | 0.0       | 0.0   | -9198.46   | -152.26    | 79.61     | 825.63     | -1.023e+04 | 2.349e+04  |
|        |     | -1.414e+04 | -1.023e+04 | -5.80e-03 | 0.0       | 247.0 | -8827.96   | -152.26    | 79.61     | 825.63     | 1.048e+04  | -1.414e+04 |
| 11     | 20  | 8213.31    | 6879.67    | 4.19e-03  | 0.0       | 0.0   | -8998.91   | -42.67     | 55.87     | 739.17     | -5808.40   | 8213.31    |
|        |     | -2310.72   | -5808.40   | -1.36e-03 | 0.0       | 247.0 | -8628.41   | -42.67     | 55.87     | 739.17     | 6879.67    | -2310.72   |
| 11     | 21  | 2.442e+04  | 2.628e+04  | -0.01     | 0.0       | 0.0   | -1.024e+04 | 232.96     | 184.58    | 2097.52    | -2.274e+04 | -3.305e+04 |
|        |     | -3.305e+04 | -2.274e+04 | -0.01     | 0.0       | 247.0 | -9867.25   | 232.96     | 184.58    | 2097.52    | 2.628e+04  | 2.442e+04  |
| 11     | 22  | 6.413e+04  | 1.367e+04  | -0.03     | 0.0       | 0.0   | -9577.47   | 600.37     | 96.87     | 1802.37    | -6951.94   | -8.423e+04 |
|        |     | -8.423e+04 | -6951.94   | 3.09e-03  | 0.0       | 247.0 | -9206.97   | 600.37     | 96.87     | 1802.37    | 1.367e+04  | 6.413e+04  |
| 11     | 23  | 2512.77    | 2.100e+04  | 1.16e-03  | 0.0       | 0.0   | -9869.46   | -13.13     | 151.37    | 1536.67    | -1.969e+04 | 2512.77    |
|        |     | -797.81    | -1.969e+04 | -0.01     | 0.0       | 247.0 | -9498.96   | -13.13     | 151.37    | 1536.67    | 2.100e+04  | -797.81    |
| 11     | 24  | 3.891e+04  | 8386.90    | -0.02     | 0.0       | 0.0   | -9209.18   | 354.27     | 63.66     | 1241.51    | -3907.69   | -4.866e+04 |
|        |     | -4.866e+04 | -3907.69   | 3.82e-03  | 0.0       | 247.0 | -8838.68   | 354.27     | 63.66     | 1241.51    | 8386.90    | 3.891e+04  |
| ...    |     |            |            |           |           |       |            |            |           |            |            |            |
| 448    | 36  | -6.724e+04 | 1.100e+06  | 0.05      | 0.0       | 93.2  | -2.002e+04 | -959.39    | 5019.02   | 1.062e+04  | 1.628e+06  | -6.724e+04 |
| Pilas. |     | M3 mx/mn   | M2 mx/mn   | D 2 / D 3 | Q 2 / Q 3 |       | N          | V 2        | V 3       | T          |            |            |
|        |     | -2.394e+06 | -8.264e+05 | -0.76     | -2.92e-03 |       | -2.061e+05 | -1.348e+04 | -5537.26  | -3.549e+04 |            |            |
|        |     | 1.042e+06  | 3.561e+06  | 0.46      | 2.92e-03  |       | 3903.37    | 1.006e+04  | 1.090e+04 | 8.128e+04  |            |            |

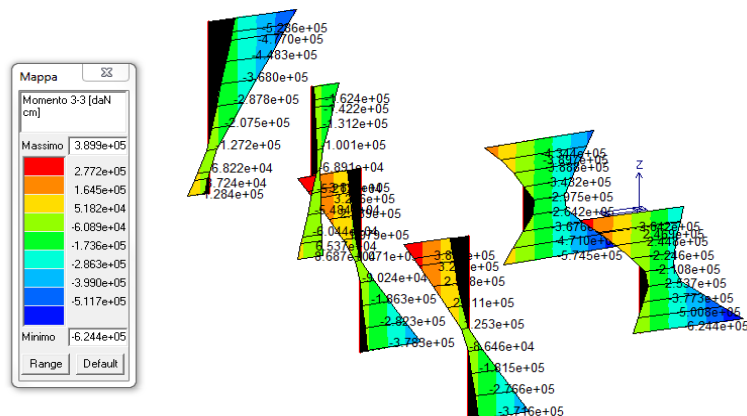
| Trave | Cmb | M3 mx/mn   | M2 mx/mn   | D 2 / D 3 | Q 2 / Q 3 | Pos.  | N          | V 2     | V 3     | T        | M 2        | M 3        |
|-------|-----|------------|------------|-----------|-----------|-------|------------|---------|---------|----------|------------|------------|
|       |     | daN cm     | daN cm     | cm        | daN       | cm    | daN        | daN     | daN     | daN cm   | daN cm     | daN cm     |
| 1     | 1   | 2.016e+04  | 1.799e+04  | 0.05      | -211.20   | 0.0   | -1.280e+04 | -27.42  | -59.35  | 24.76    | 1.799e+04  | 2.016e+04  |
|       |     | -4.367e+04 | -1.049e+04 | 0.02      | 0.0       | 479.8 | -1.355e+04 | -238.62 | -59.35  | 24.76    | -1.049e+04 | -4.367e+04 |
| 1     | 2   | 9.141e+04  | 7.517e+04  | 0.09      | -211.20   | 0.0   | -6.211e+04 | -305.28 | -229.93 | -3418.54 | 7.517e+04  | 9.141e+04  |
|       |     | -1.057e+05 | -3.515e+04 | -0.04     | 0.0       | 479.8 | -6.286e+04 | -516.47 | -229.93 | -3418.54 | -3.515e+04 | -1.057e+05 |
| 1     | 3   | 1.224e+04  | 1.209e+04  | 0.03      | -162.46   | 0.0   | -8414.45   | -7.22   | -40.34  | 109.73   | 1.209e+04  | 1.224e+04  |
|       |     | -3.021e+04 | -7262.39   | 0.01      | 0.0       | 479.8 | -8991.82   | -169.68 | -40.34  | 109.73   | -7262.39   | -3.021e+04 |
| 1     | 4   | 8.349e+04  | 6.928e+04  | 0.07      | -162.46   | 0.0   | -5.772e+04 | -285.08 | -210.92 | -3333.57 | 6.928e+04  | 8.349e+04  |
|       |     | -9.227e+04 | -3.193e+04 | -0.04     | 0.0       | 479.8 | -5.830e+04 | -447.54 | -210.92 | -3333.57 | -3.193e+04 | -9.227e+04 |
| 1     | 5   | 3.423e+04  | 3.589e+04  | 0.02      | -162.46   | 0.0   | -3.057e+04 | -90.52  | -111.31 | -677.73  | 3.589e+04  | 3.423e+04  |
|       |     | -4.817e+04 | -2.036e+04 | 0.02      | 0.0       | 479.8 | -3.115e+04 | -252.98 | -111.31 | -677.73  | -2.036e+04 | -4.817e+04 |
| 1     | 6   | 3.309e+04  | 3.332e+04  | 0.01      | -162.46   | 0.0   | -3.073e+04 | -85.52  | -101.43 | -1333.56 | 3.332e+04  | 3.309e+04  |
|       |     | -4.692e+04 | -1.811e+04 | -0.01     | 0.0       | 479.8 | -3.130e+04 | -247.98 | -101.43 | -1333.56 | -1.811e+04 | -4.692e+04 |
| 1     | 7   | 5.491e+04  | 3.968e+04  | 0.09      | -162.46   | 0.0   | -2.798e+04 | -180.22 | -125.24 | -1296.04 | 3.968e+04  | 5.491e+04  |
|       |     | -7.055e+04 | -1.766e+04 | -0.02     | 0.0       | 479.8 | -2.856e+04 | -342.68 | -125.24 | -1296.04 | -1.766e+04 | -7.055e+04 |
| 1     | 8   | 5.376e+04  | 3.710e+04  | 0.09      | -162.46   | 0.0   | -2.813e+04 | -175.21 | -115.36 | -1951.88 | 3.710e+04  | 5.376e+04  |
|       |     | -6.929e+04 | -1.541e+04 | -0.02     | 0.0       | 479.8 | -2.871e+04 | -337.67 | -115.36 | -1951.88 | -1.541e+04 | -6.929e+04 |
| 1     | 9   | 3.422e+04  | 3.586e+04  | 0.02      | -162.46   | 0.0   | -3.058e+04 | -90.48  | -111.13 | -683.93  | 3.586e+04  | 3.422e+04  |
|       |     | -4.816e+04 | -2.031e+04 | 0.02      | 0.0       | 479.8 | -3.116e+04 | -252.94 | -111.13 | -683.93  | -2.031e+04 | -4.816e+04 |
| 1     | 10  | 3.310e+04  | 3.335e+04  | 0.01      | -162.46   | 0.0   | -3.072e+04 | -85.56  | -101.61 | -1327.36 | 3.335e+04  | 3.310e+04  |
|       |     | -4.693e+04 | -1.816e+04 | -0.01     | 0.0       | 479.8 | -3.130e+04 | -248.02 | -101.61 | -1327.36 | -1.816e+04 | -4.693e+04 |
| 1     | 11  | 5.490e+04  | 3.965e+04  | 0.09      | -162.46   | 0.0   | -2.798e+04 | -180.17 | -125.06 | -1302.24 | 3.965e+04  | 5.490e+04  |
|       |     | -7.054e+04 | -1.760e+04 | -0.02     | 0.0       | 479.8 | -2.856e+04 | -342.63 | -125.06 | -1302.24 | -1.760e+04 | -7.054e+04 |
| 1     | 12  | 5.377e+04  | 3.714e+04  | 0.09      | -162.46   | 0.0   | -2.813e+04 | -175.26 | -115.53 | -1945.67 | 3.714e+04  | 5.377e+04  |
|       |     | -6.931e+04 | -1.546e+04 | -0.02     | 0.0       | 479.8 | -2.870e+04 | -337.72 | -115.53 | -1945.67 | -1.546e+04 | -6.931e+04 |
| 1     | 13  | 3.427e+04  | 3.643e+04  | 0.02      | -162.46   | 0.0   | -3.053e+04 | -90.86  | -113.63 | -892.35  | 3.643e+04  | 3.427e+04  |
|       |     | -4.830e+04 | -1.813e+04 | -0.02     | 0.0       | 479.8 | -3.110e+04 | -253.32 | -113.63 | -892.35  | -1.813e+04 | -4.830e+04 |
| 1     | 14  | 3.312e+04  | 3.385e+04  | 0.01      | -162.46   | 0.0   | -3.068e+04 | -85.86  | -103.75 | -1548.19 | 3.385e+04  | 3.312e+04  |
|       |     | -4.705e+04 | -1.588e+04 | -0.02     | 0.0       | 479.8 | -3.126e+04 | -248.32 | -103.75 | -1548.19 | -1.588e+04 | -4.705e+04 |
| 1     | 15  | 5.487e+04  | 3.915e+04  | 0.09      | -162.46   | 0.0   | -2.803e+04 | -179.88 | -122.91 | -1081.41 | 3.915e+04  | 5.487e+04  |
|       |     | -7.042e+04 | -1.989e+04 | 0.02      | 0.0       | 479.8 | -2.860e+04 | -342.34 | -122.91 | -1081.41 | -1.989e+04 | -7.042e+04 |
| 1     | 16  | 5.373e+04  | 3.657e+04  | 0.09      | -162.46   | 0.0   | -2.818e+04 | -174.88 | -113.04 | -1737.25 | 3.657e+04  | 5.373e+04  |
|       |     | -6.917e+04 | -1.764e+04 | -0.02     | 0.0       | 479.8 | -2.876e+04 | -337.34 | -113.04 | -1737.25 | -1.764e+04 | -6.917e+04 |
| 1     | 17  | 3.426e+04  | 3.639e+04  | 0.02      | -162.46   | 0.0   | -3.053e+04 | -90.82  | -113.46 | -898.55  | 3.639e+04  | 3.426e+04  |
|       |     | -4.829e+04 | -1.807e+04 | -0.02     | 0.0       | 479.8 | -3.111e+04 | -253.28 | -113.46 | -898.55  | -1.807e+04 | -4.829e+04 |
| 1     | 18  | 3.313e+04  | 3.388e+04  | 0.01      | -162.46   | 0.0   | -3.067e+04 | -85.90  | -103.93 | -1541.99 | 3.388e+04  | 3.313e+04  |
|       |     | -4.706e+04 | -1.593e+04 | -0.02     | 0.0       | 479.8 | -3.125e+04 | -248.36 | -103.93 | -1541.99 | -1.593e+04 | -4.706e+04 |
| 1     | 19  | 5.486e+04  | 3.911e+04  | 0.09      | -162.46   | 0.0   | -2.803e+04 | -179.83 | -122.74 | -1087.62 | 3.911e+04  | 5.486e+04  |
|       |     | -7.041e+04 | -1.984e+04 | 0.02      | 0.0       | 479.8 | -2.861e+04 | -342.29 | -122.74 | -1087.62 | -1.984e+04 | -7.041e+04 |
| 1     | 20  | 5.374e+04  | 3.660e+04  | 0.09      | -162.46   | 0.0   | -2.817e+04 | -174.92 | -113.21 | -1731.05 | 3.660e+04  | 5.374e+04  |
|       |     | -6.918e+04 | -1.769e+04 | -0.02     | 0.0       | 479.8 | -2.875e+04 | -337.38 | -113.21 | -1731.05 | -1.769e+04 | -6.918e+04 |
| 1     | 21  | 4.251e+04  | 4.021e+04  | 0.05      | -162.46   | 0.0   | -2.951e+04 | -126.01 | -127.60 | -150.96  | 4.021e+04  | 4.251e+04  |
|       |     | -5.693e+04 | -2.199e+04 | 0.03      | 0.0       | 479.8 | -3.008e+04 | -288.47 | -127.60 | -150.96  | -2.199e+04 | -5.693e+04 |
| 1     | 22  | 3.869e+04  | 3.162e+04  | 0.03      | -162.46   | 0.0   | -3.002e+04 | -109.34 | -94.67  | -2337.08 | 3.162e+04  | 3.869e+04  |

| Trave | Cmb | M3 mx/mn   | M2 mx/mn   | D 2 / D 3 | Q 2 / Q 3  | Pos.  | N          | V 2        | V 3      | T          | M 2        | M 3        |
|-------|-----|------------|------------|-----------|------------|-------|------------|------------|----------|------------|------------|------------|
| 1     | 23  | -5.275e+04 | -1.450e+04 | -0.02     | 0.0        | 479.8 | -3.060e+04 | -271.80    | -94.67   | -2337.08   | -1.450e+04 | -5.275e+04 |
|       |     | 4.871e+04  | 4.135e+04  | 0.07      | -162.46    | 0.0   | -2.873e+04 | -152.92    | -131.77  | -336.45    | 4.135e+04  | 4.871e+04  |
|       |     | -6.365e+04 | -2.118e+04 | 0.03      | 0.0        | 479.8 | -2.930e+04 | -315.38    | -131.77  | -336.45    | -2.118e+04 | -6.365e+04 |
| 1     | 24  | 4.489e+04  | 3.276e+04  | 0.06      | -162.46    | 0.0   | -2.924e+04 | -136.25    | -98.85   | -2522.58   | 3.276e+04  | 4.489e+04  |
|       |     | -5.946e+04 | -1.369e+04 | -0.02     | 0.0        | 479.8 | -2.982e+04 | -298.71    | -98.85   | -2522.58   | -1.369e+04 | -5.946e+04 |
| ...   |     |            |            |           |            |       |            |            |          |            |            |            |
| 443   | 36  | -3.031e+05 | -2.383e+04 | 6.90e-04  | 0.0        | 69.0  | 1435.78    | -2511.03   | -38.85   | -1.276e+05 | -2.383e+04 | -2.787e+05 |
| Trave |     | M3 mx/mn   | M2 mx/mn   | D 2 / D 3 | Q 2 / Q 3  |       | N          | V 2        | V 3      | T          |            |            |
|       |     | -1.418e+07 | -1.052e+06 | -1.79     | -2.011e+05 |       | -8.110e+04 | -1.117e+05 | -7954.41 | -7.115e+05 |            |            |
|       |     | 7.941e+06  | 8.648e+05  | 0.54      | 4120.19    |       | 2.867e+04  | 8.946e+04  | 4729.24  | 9.463e+05  |            |            |

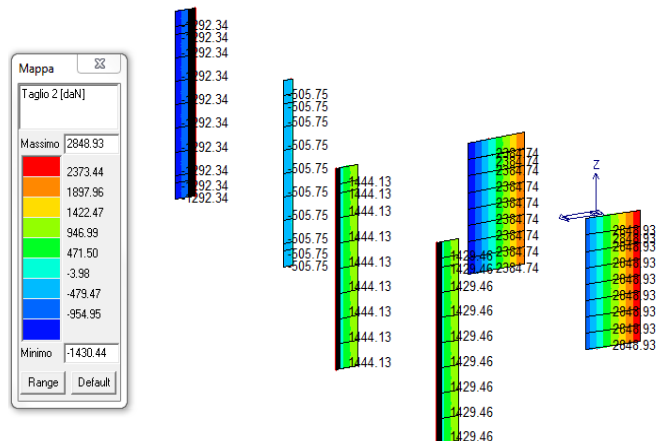
Si riportano i diagrammi d'involuppo per gli elementi pilastri significativi



Sforzo Normale



Momento flettente

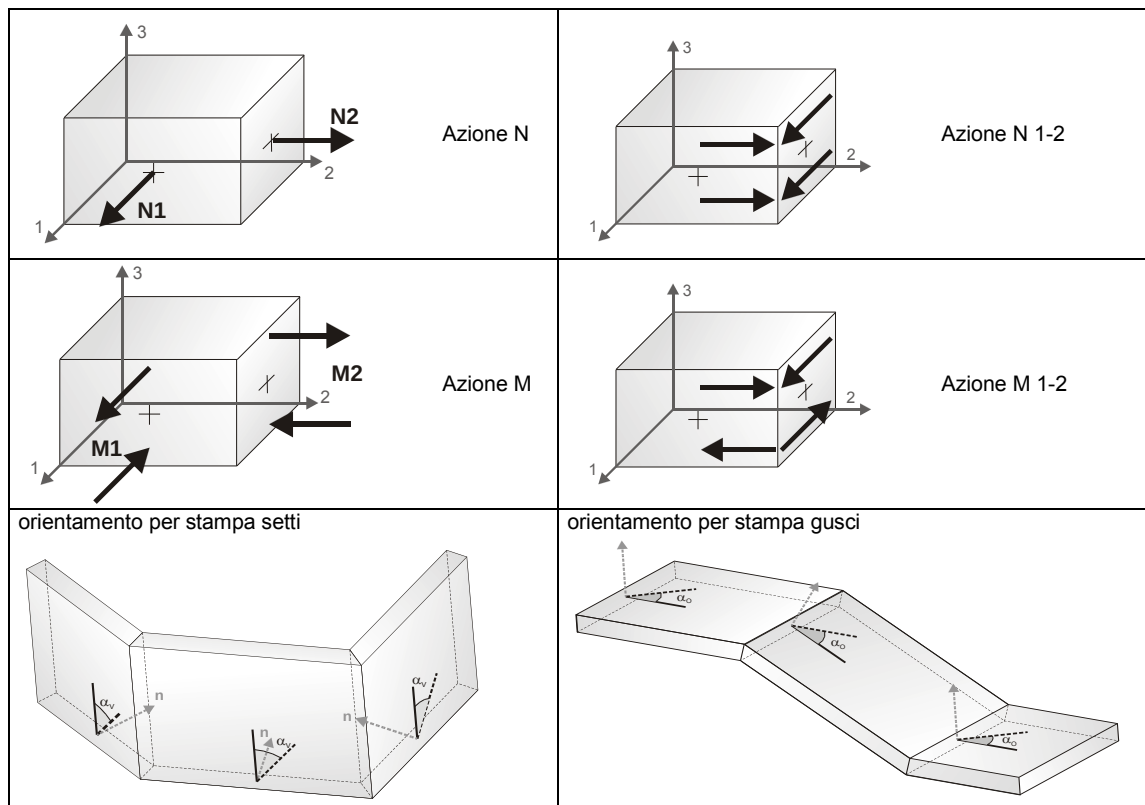


Taglio

# RISULTATI ELEMENTI TIPO SHELL

## LEGENDA RISULTATI ELEMENTI TIPO SHELL

Il controllo dei risultati delle analisi condotte, per quanto concerne gli elementi tipo shell, è possibile in relazione alle tabelle sottoriportate. Per ogni elemento, e per ogni combinazione (o caso di carico) vengono riportati i risultati più significativi.



In particolare vengono riportati in ogni nodo di un elemento per ogni combinazione:

| tensione di Von Mises |      | (valore riassuntivo del complessivo stato di sollecitazione)                                                                                                   |
|-----------------------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| N max                 |      | sforzo membranale principale massimo                                                                                                                           |
| N min                 |      | sforzo membranale principale minimo                                                                                                                            |
| M max                 |      | sforzo flessionale principale massimo                                                                                                                          |
| M min                 |      | sforzo flessionale principale minimo                                                                                                                           |
| N1                    | N2   | sforzi membranali e flessionali in direzione locale 1 e 2 dell'elemento (lo sforzo 2-1 è uguale allo sforzo 1-2 per la reciprocità delle tensioni tangenziali) |
| N1-2                  | M1   |                                                                                                                                                                |
| M2                    | M1-2 |                                                                                                                                                                |

I suddetti risultati possono a scelta del progettista essere preceduti o sostituiti da valori di sollecitazione non più riferiti al sistema locale dell'elemento ma al sistema globale.

In questo caso gli elementi vengono raggruppati in gruppi (M-S: macro gusci o macro setti, raggruppati per materiale, spessore, e posizione fisica) per la valutazione dei valori mediati ai nodi appartenenti agli elementi dei gruppi stessi.

I valori di sollecitazione sono, in questo caso, riferiti ad una terna specifica del gruppo ruotata di  $\alpha_0$  attorno all'asse Z per i gusci e ruotata di  $\alpha_v$  attorno alla normale (che per definizione è orizzontale) al piano del setto.

Per i setti, in particolare, se  $\alpha_v$  è zero, l'asse '1-1 rappresenta la verticale e l'asse '2-2 l'orizzontale contenuta nel setto.

Le azioni sui setti possono essere espresse anche con formato macro, cioè riferite all'intero macroelemento.

In particolare vengono riportati per ogni quota □ dei nodi e per ogni combinazione i seguenti valori:

|         |                                                                                    |
|---------|------------------------------------------------------------------------------------|
| N memb. | Azione membranale complessiva agente sulla parete in direzione □                   |
| V memb. | Azione complessiva di taglio agente nel piano del macroelemento                    |
| V orto  | Azione complessiva di taglio agente in direzione perpendicolare al macroelemento   |
| M memb. | Azione flessionale complessiva agente nel piano del macroelemento                  |
| M orto  | Azione flessionale complessiva agente in direzione perpendicolare al macroelemento |
| T       | Azione torsionale complessiva agente nel piano orizzontale                         |

| Elem. | Cmb | Nodo | Von Mises | N max  | N min    | N 1     | N 2      | N 1-2   | M max     | M min      | M 1        | M 2        | M 1-2      |
|-------|-----|------|-----------|--------|----------|---------|----------|---------|-----------|------------|------------|------------|------------|
|       |     |      | daN/cm2   | daN/cm | daN/cm   | daN/cm  | daN/cm   | daN/cm  | daN       | daN        | daN        | daN        | daN        |
| 1     | 1   | 130  | 0.52      | 38.04  | -23.95   | -23.65  | 37.74    | 4.32    | 203.31    | -514.18    | 156.33     | -467.19    | -177.50    |
|       |     | 113  | 0.66      | 35.94  | -42.78   | -26.86  | 20.02    | -31.62  | 792.33    | -800.72    | 747.73     | -756.12    | -262.80    |
|       |     | 138  | 0.72      | 34.09  | -36.55   | -29.66  | 27.20    | 20.96   | 704.03    | -654.65    | 572.73     | -523.35    | -401.44    |
|       |     | 131  | 0.50      | 36.04  | -31.87   | -30.25  | 34.43    | -10.36  | 174.26    | -641.52    | 34.76      | -502.02    | -307.15    |
| 1     | 2   | 130  | 0.95      | 31.92  | -66.65   | -65.66  | 30.93    | -9.83   | 969.57    | -694.88    | -642.86    | 917.54     | -289.64    |
|       |     | 113  | 0.94      | 48.27  | -92.69   | -57.65  | 13.23    | -60.92  | 492.53    | -50.41     | 7.14       | 434.98     | -167.14    |
|       |     | 138  | 0.43      | 15.84  | -49.71   | -48.88  | 15.01    | 7.34    | 642.08    | 19.50      | 212.27     | 449.30     | -287.85    |
|       |     | 131  | 0.76      | 57.89  | -33.15   | -27.36  | 52.09    | -22.23  | 980.67    | 109.37     | 135.36     | 954.69     | -148.21    |
| 1     | 3   | 130  | 0.41      | 29.47  | -16.96   | -16.63  | 29.13    | 3.95    | 177.90    | -427.43    | 149.66     | -399.19    | -127.66    |
|       |     | 113  | 0.51      | 26.76  | -31.09   | -19.62  | 15.29    | -23.06  | 632.39    | -648.45    | 600.79     | -616.86    | -198.67    |
|       |     | 138  | 0.56      | 26.83  | -27.85   | -22.07  | 21.05    | 16.82   | 547.57    | -526.86    | 452.17     | -431.45    | -305.62    |
|       |     | 131  | 0.39      | 26.62  | -24.43   | -23.35  | 25.54    | -7.35   | 123.61    | -534.08    | 22.68      | -433.14    | -237.05    |
| 1     | 4   | 130  | 0.88      | 23.59  | -59.90   | -58.64  | 22.32    | -10.20  | 1019.99   | -683.97    | -649.52    | 985.55     | -239.80    |
|       |     | 113  | 0.83      | 39.13  | -81.04   | -50.41  | 8.50     | -52.37  | 588.81    | -154.36    | -139.80    | 574.24     | -103.02    |
|       |     | 138  | 0.40      | 9.06   | -41.49   | -41.28  | 8.86     | 3.20    | 612.07    | 20.84      | 91.70      | 541.20     | -192.03    |
|       |     | 131  | 0.67      | 48.57  | -25.81   | -20.45  | 43.21    | -19.22  | 1030.29   | 116.55     | 123.28     | 1023.56    | -78.12     |
| 1     | 5   | 130  | 0.62      | 41.38  | -21.70   | -20.12  | 39.80    | 9.86    | 54.37     | -1000.51   | 49.74      | -995.88    | 69.78      |
|       |     | 113  | 0.74      | 36.47  | -28.40   | -18.05  | 26.12    | -23.76  | 531.06    | -1238.77   | 529.03     | -1236.75   | 59.84      |
|       |     | 138  | 0.74      | 37.76  | -33.20   | -24.83  | 29.39    | 22.88   | 428.28    | -1144.71   | 428.21     | -1144.64   | -10.62     |
|       |     | 131  | 0.68      | 46.84  | -16.66   | -16.65  | 46.84    | -0.52   | 206.68    | -1008.09   | 196.19     | -997.60    | 112.38     |
| 1     | 6   | 130  | 0.55      | 57.76  | -19.69   | -13.77  | 51.84    | 20.59   | 45.62     | -578.13    | -17.04     | -515.47    | 187.51     |
|       |     | 113  | 0.51      | 22.13  | -16.75   | -11.74  | 17.12    | -13.03  | 489.45    | -784.02    | 461.51     | -756.07    | 186.57     |
|       |     | 138  | 0.61      | 38.74  | -41.54   | -23.35  | 20.55    | 33.61   | 417.16    | -671.56    | 408.33     | -662.73    | 97.66      |
|       |     | 131  | 0.62      | 60.22  | -16.53   | -15.15  | 58.84    | 10.21   | 230.06    | -564.71    | 176.26     | -510.91    | 199.66     |
| 1     | 7   | 130  | 0.78      | 13.08  | -61.67   | -53.15  | 4.56     | -23.76  | 882.69    | -595.54    | -375.00    | 662.16     | -526.66    |
|       |     | 113  | 0.97      | 43.22  | -86.59   | -52.86  | 9.49     | -56.93  | 770.59    | -271.34    | 234.36     | 264.89     | -520.74    |
|       |     | 138  | 0.53      | 15.70  | -38.34   | -36.36  | 13.72    | -10.15  | 1013.86   | -277.92    | 277.80     | 458.14     | -639.56    |
|       |     | 131  | 0.76      | 29.54  | -48.29   | -28.76  | 10.01    | -33.75  | 1004.37   | -344.29    | -60.98     | 721.07     | -549.38    |
| 1     | 8   | 130  | 0.81      | 19.17  | -49.37   | -46.80  | 16.59    | -13.03  | 1241.88   | -541.10    | -441.78    | 1142.56    | -408.93    |
|       |     | 113  | 0.82      | 28.82  | -74.87   | -46.55  | 0.49     | -46.20  | 945.06    | -32.66     | 166.84     | 745.57     | -394.02    |
|       |     | 138  | 0.46      | 4.88   | -34.88   | -34.87  | 4.87     | 0.58    | 1230.32   | -32.36     | 257.92     | 940.05     | -531.29    |
|       |     | 131  | 0.77      | 31.09  | -36.34   | -27.25  | 22.01    | -23.02  | 1356.34   | -229.49    | -80.91     | 1207.76    | -462.11    |
| 1     | 9   | 130  | 0.62      | 41.39  | -21.71   | -20.16  | 39.84    | 9.78    | 54.33     | -998.76    | 49.59      | -994.03    | 70.44      |
|       |     | 113  | 0.74      | 36.49  | -28.50   | -18.08  | 26.08    | -23.84  | 530.97    | -1237.30   | 528.89     | -1235.22   | 60.62      |
|       |     | 138  | 0.74      | 37.66  | -33.17   | -24.85  | 29.35    | 22.80   | 428.42    | -1143.18   | 428.36     | -1143.12   | -9.82      |
|       |     | 131  | 0.68      | 46.88  | -16.68   | -16.67  | 46.88    | -0.60   | 206.98    | -1006.39   | 196.34     | -995.75    | 113.10     |
| 1     | 10  | 130  | 0.55      | 57.77  | -19.71   | -13.73  | 51.80    | 20.67   | 45.17     | -579.39    | -16.90     | -517.32    | 186.85     |
|       |     | 113  | 0.51      | 22.12  | -16.66   | -11.70  | 17.16    | -12.95  | 489.33    | -785.28    | 461.65     | -757.60    | 185.79     |
|       |     | 138  | 0.61      | 38.85  | -41.59   | -23.33  | 20.59    | 33.69   | 416.85    | -672.93    | 408.18     | -664.25    | 96.86      |
|       |     | 131  | 0.62      | 60.21  | -16.53   | -15.13  | 58.80    | 10.29   | 229.44    | -566.08    | 176.11     | -512.75    | 198.95     |
| 1     | 11  | 130  | 0.78      | 13.16  | -61.76   | -53.19  | 4.60     | -23.84  | 883.77    | -594.91    | -375.14    | 664.00     | -526.00    |
|       |     | 113  | 0.97      | 43.25  | -86.70   | -52.89  | 9.45     | -57.01  | 770.54    | -269.90    | 234.22     | 266.42     | -519.97    |
|       |     | 138  | 0.53      | 15.69  | -38.39   | -36.38  | 13.67    | -10.23  | 1014.00   | -276.39    | 277.95     | 459.66     | -638.77    |
|       |     | 131  | 0.76      | 29.64  | -48.37   | -28.78  | 10.05    | -33.83  | 1005.29   | -343.20    | -60.83     | 722.91     | -548.67    |
| 1     | 12  | 130  | 0.81      | 19.10  | -49.31   | -46.76  | 16.55    | -12.95  | 1240.45   | -541.37    | -441.64    | 1140.72    | -409.59    |
|       |     | 113  | 0.82      | 28.78  | -74.76   | -46.51  | 0.53     | -46.12  | 944.50    | -33.48     | 166.98     | 744.04     | -394.79    |
|       |     | 138  | 0.46      | 4.93   | -34.87   | -34.86  | 4.92     | 0.66    | 1229.79   | -33.49     | 257.77     | 938.53     | -532.09    |
|       |     | 131  | 0.76      | 31.01  | -36.27   | -27.23  | 21.97    | -22.94  | 1355.06   | -230.21    | -81.06     | 1205.91    | -462.82    |
| ...   |     |      |           |        |          |         |          |         |           |            |            |            |            |
| 1088  | 36  | 1219 | 5.88      | 16.87  | -76.97   | 16.10   | -76.21   | -8.43   | 17.39     | -99.78     | 6.68       | -89.07     | -33.77     |
| Elem. |     |      | Von Mises | N max  | N min    | N 1     | N 2      | N 1-2   | M max     | M min      | M 1        | M 2        | M 1-2      |
|       |     |      |           |        | -1295.62 | -869.57 | -1099.58 | -359.14 |           | -4.841e+04 | -4.445e+04 | -2.312e+04 | -1.384e+04 |
|       |     |      | 71.82     | 672.20 |          | 671.32  | 429.23   | 515.96  | 1.776e+04 |            | 1.570e+04  | 1.370e+04  | 1.358e+04  |

# VERIFICHE ELEMENTI TRAVE C.A.

## LEGENDA TABELLA VERIFICHE ELEMENTI TRAVE C.A.

In tabella vengono riportati per ogni elemento il numero dello stesso ed il codice di verifica.

Nel caso in cui si sia proceduto alla progettazione con le tensioni ammissibili vengono riportate le massime tensioni nell'elemento (massima compressione nel calcestruzzo, massima compressione media nel calcestruzzo, massima tensione nell'acciaio, massima tensione tangenziale) con l'indicazione delle combinazioni in cui si sono attinti i rispettivi valori.

Nel caso in cui si sia proceduto alla progettazione con il metodo degli stati limite vengono riportati il rapporto  $x/d$ , le verifiche per sollecitazioni proporzionali e la verifica per compressione media con l'indicazione delle combinazioni in cui si sono attinti i rispettivi valori.

Per gli elementi tipo pilastro sono riportati numero e diametro dei ferri di vertice, numero e diametro di ferri disposti lungo i lati L1 (paralleli alla base della sezione) e lungo i lati L2 (paralleli all'altezza della sezione).

Per gli elementi tipo trave sono riportati infine le quantità di armatura inferiore e superiore.

In particolare i simboli utilizzati con il metodo delle tensioni ammissibili assumono il seguente significato:

|                |                                                                                                                                                                  |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| M □ P □ □      | Numero della pilastrata e posizione in pianta                                                                                                                    |
| M □ T □ P P    | Numero della travata, quota media pilastrata iniziale e finale (nodo in assenza di pilastrata)                                                                   |
| Pilas. o Trave | numero identificativo dell'elemento                                                                                                                              |
| Note           | Viene riportato il codice relativo alla sezione(s) e relativo al materiale(m); nella terza riga viene riportato il valore delle snellezze in direzione 2-2 e 3-3 |
| Stato          | Codici di verifica relativi alle tensioni normali e alle tensioni tangenziali                                                                                    |
| Quota          | Ascissa del punto di verifica                                                                                                                                    |
| %Af            | Percentuale di area di armatura rispetto a quella di calcestruzzo                                                                                                |
| Armat. long.   | Numero e diametro dei ferri di armatura longitudinale: ferri di vertice + ferri di lato (vedi seguente figura)                                                   |
| Af inf.        | Area di armatura longitudinale posta all'intradosso della trave                                                                                                  |
| Af sup         | Area di armatura longitudinale posta all'estradosso della trave                                                                                                  |
| Sc max         | Massima tensione di compressione del calcestruzzo                                                                                                                |
| Sc med         | Massima tensione media di compressione del calcestruzzo                                                                                                          |
| Sf max         | Tensione massima nell'acciaio                                                                                                                                    |
| staffe         | Vengono riportati i dati del tratto di staffatura in cui cade la sezione di verifica; in particolare: numero dei bracci, diametro, passo, lunghezza tratto       |
| Tau max        | Tensione massima tangenziale nel cls                                                                                                                             |
| Rif. comb      | Combinazioni in cui si generano i seguenti valori di tensione: Sc max, Sc med, Sf max, Tau max                                                                   |
| AfV            | area dell'armatura atta ad assorbire le azioni di taglio                                                                                                         |
| AfT            | area dell'armatura atta ad assorbire le azioni di torsione                                                                                                       |
| Scorr. P       | Scorrimento dei piegati                                                                                                                                          |
| Af long.       | Area del ferro longitudinale aggiuntivo per assorbire la torsione                                                                                                |

Mentre i simboli utilizzati con il metodo degli stati limite assumono il seguente significato:

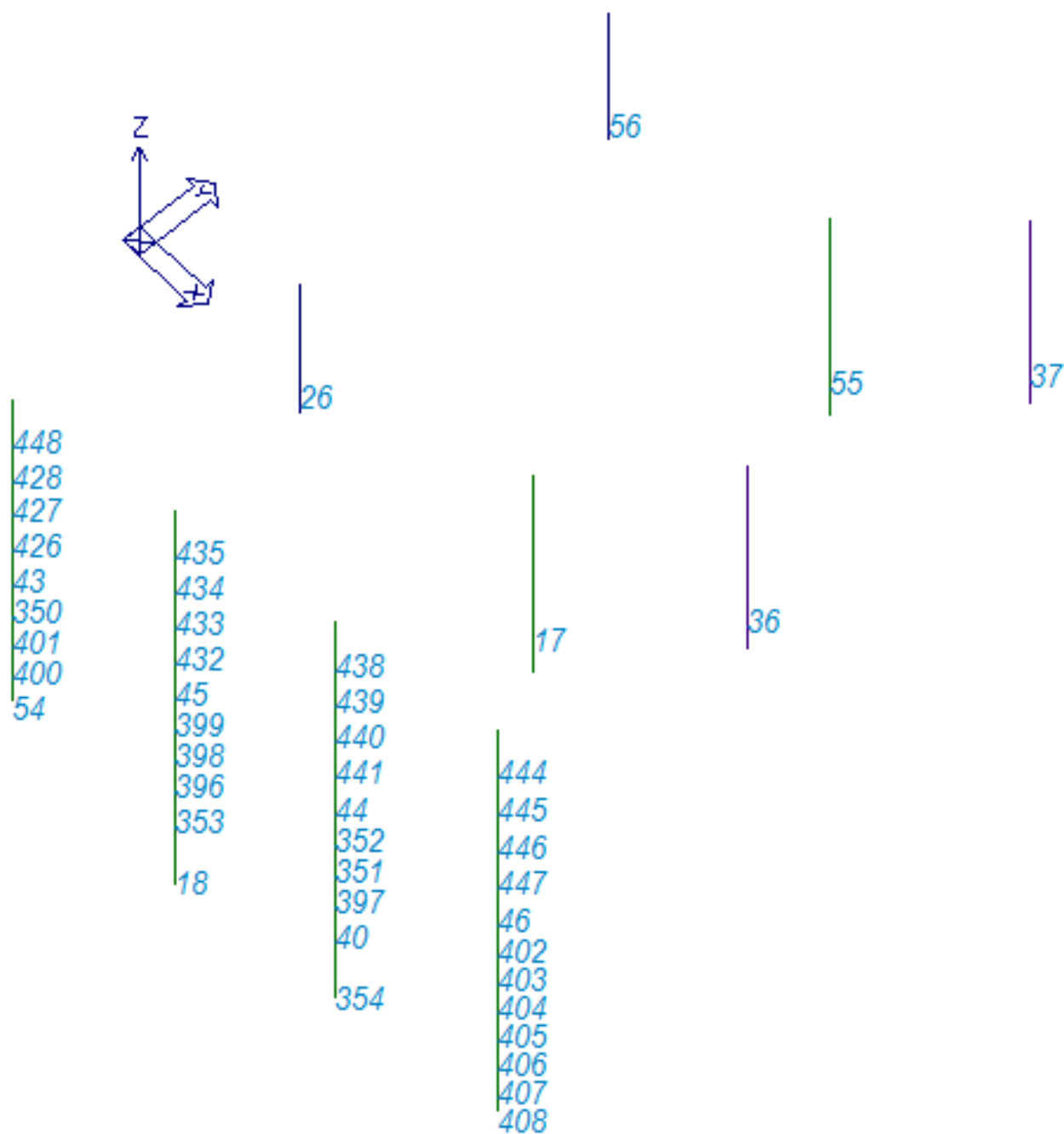
|                  |                                                                                                                                                                           |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| r. snell.        | Rapporto $\lambda$ su $\lambda^*$ :<br>valore superiore a 1 per elementi snelli, caso in cui viene effettuata la verifica con il metodo diretto dello stato di equilibrio |
| Verifica(verif.) | rapporto $S_d/S_u$ con sollecitazioni ultime proporzionali o a sforzo normale costante:<br>valore minore o uguale a 1 per verifica positiva                               |
| ver.sis          | rapporto $N_d/N_u$ con $N_u$ calcolato come al punto 7.4.4.2.2.1; valore minore o uguale a 1 per verifica positiva                                                        |
| ver.V/T          | rapporto $S_d/S_u$ con sollecitazioni taglianti e torcenti proporzionali<br>valore minore o uguale a 1 per verifica positiva                                              |
| $x/d$            | rapporto tra posizione dell'asse neutro e altezza utile alla rottura della sezione<br>(per sola flessione)                                                                |

Per gli elementi progettati secondo il criterio della gerarchia delle resistenze (pilastri e travi) si riporta una ulteriore tabella di seguito descritta:

|              |                                                                                                                                                                                                                                                                                   |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| M negativo i | Valore del momento resistente negativo (positivo) all'estremità iniziale i (finale f) della trave                                                                                                                                                                                 |
| V M-i M+f    | Taglio generato dai momenti resistenti negativo i e positivo f (positivo i e negativo f)                                                                                                                                                                                          |
| V totale     | Massimo valore assoluto ottenuto per combinazione del taglio isostatico e dei tagli concomitanti (p.to 7.4.4.1.1.)                                                                                                                                                                |
| Verif. V     | Rapporto tra il taglio massimo e $V_{r1}$ (p.to 7.4.4.1.2.2);                                                                                                                                                                                                                     |
| Sovr. 2-2 i  | Sovreresistenza del pilastro (come da formula 7.4.4). Rapporto tra i momenti resistenti delle travi e dei pilastri. Il valore del fattore rispettivamente per il momento 2-2 (3-3) alla base i ed alla sommità f del pilastro deve essere maggiore del $\gamma_{ma} R_d$ adottato |
| M 2-2 i      | Valore del momento resistente rispettivamente per 2-2 (3-3) alla base i ed alla sommità f del pilastro (massimo momento in presenza dello sforzo normale di calcolo)                                                                                                              |
| Luce per V   | Luce di calcolo per la definizione del taglio (generato dai momenti resistenti)                                                                                                                                                                                                   |
| V M2-2       | Valore del taglio generato dai momenti resistenti 2-2 (3-3)                                                                                                                                                                                                                       |

Per i nodi trave-pilastro viene riportata la seguente tabella relativa al calcolo delle armature di confinamento e alla verifica di resistenza del nodo (richiesta solo per strutture in classe di duttilità alta); le caselle vuote indicano parametri non riportati in quanto non necessari.

| Stato          | Esito della verifica (come da formula 7.4.8) per resistenza a compressione del nodo (solo CDA) |
|----------------|------------------------------------------------------------------------------------------------|
| I 7.4.29       | Passo delle staffe di confinamento come richiesto dalla formula 7.4.29                         |
| $\square 2(3)$ | Dimensione del nodo per il taglio in direzione 2 (3)                                           |
| Hc2(2)         | Distanza tra le giaciture di armatura del pilastro per il taglio in direzione 2 (3)            |
| V. 7.4.8       | Rapporto tra il taglio $V/bd$ e il taglio resistente come da formula 7.4.8 (solo CDA)          |
| I 7.4.10       | Passo delle staffe valutato in funzione della formula 7.4.10 (solo CDA)                        |



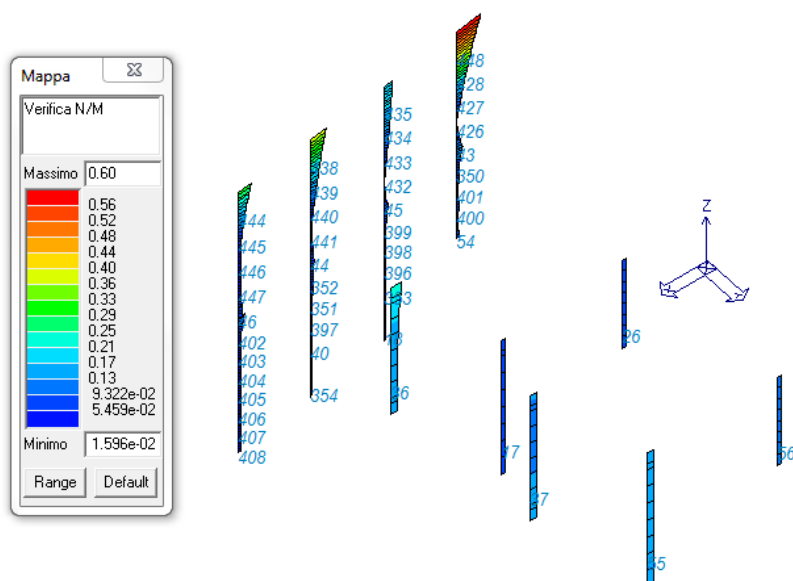
Identificazione elementi pilastri

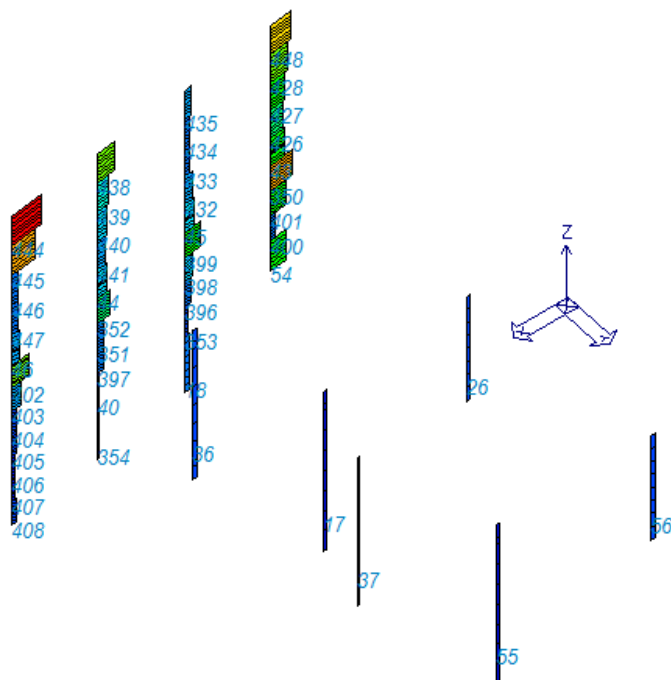
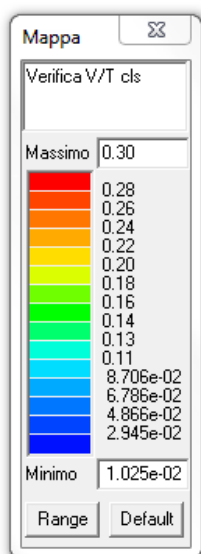
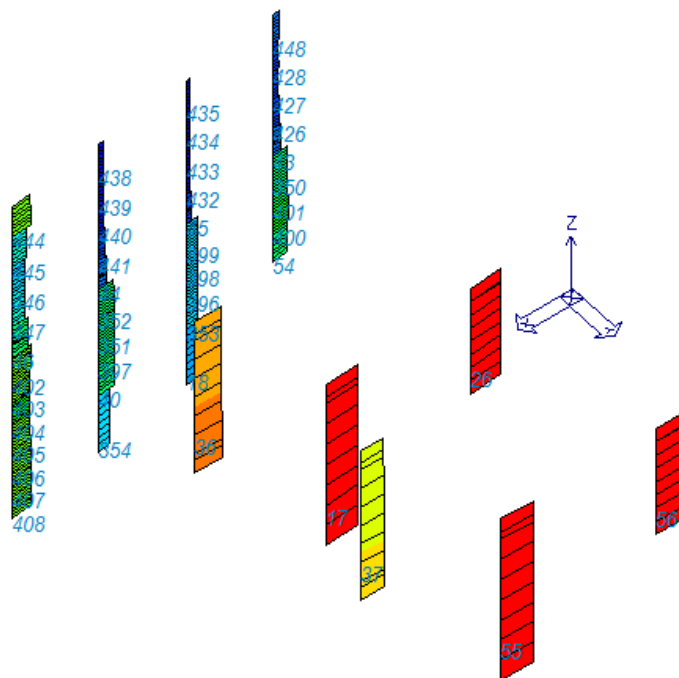
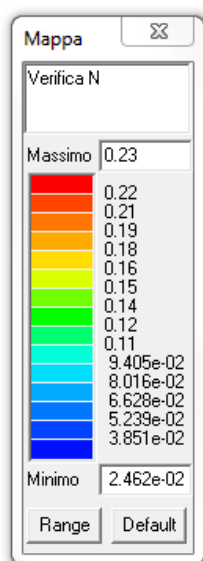
VERIFICHE PILASTRI

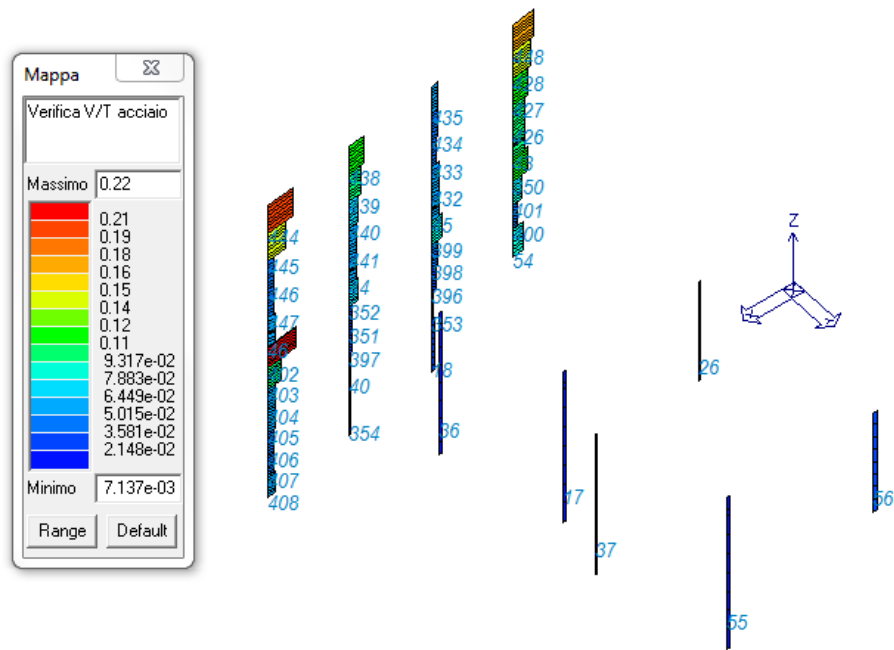
|        |                          |       |                  |              |              |               |              |              |                |           |           |             |  |
|--------|--------------------------|-------|------------------|--------------|--------------|---------------|--------------|--------------|----------------|-----------|-----------|-------------|--|
| q=1.5  |                          |       |                  |              |              | M_P= 1        | X=521.1      | Y=-1347.3    |                |           |           |             |  |
|        |                          |       |                  |              |              | M_P= 11       | X=406.4      | Y=-609.0     |                |           |           |             |  |
| Pilas. | Note                     | Stato | Quota            | %Af          | r. snell.    | Armat. long.  | verif.       | ver.sis      | Staffe         | v V/T cls | v V/T acc | Rif. cmb    |  |
| 54     | s=43,m=54<br>[b=1.0;1.0] | ok,ok | -100.0<br>0.0    | 2.96<br>2.96 | 0.07<br>0.07 | 16d16 4+4 d18 | 0.09<br>0.04 | 0.12<br>0.12 | 4+4d5/5 L=100  | 0.16      | 0.08      | 13,16,13,13 |  |
| 400    | s=43,m=54<br>[b=1.0;1.0] | ok,ok | 0.0<br>82.3      | 2.96<br>2.96 | 0.09<br>0.09 | 16d16 4+4 d18 | 0.06<br>0.05 | 0.13<br>0.13 | 4+4d5/5 L=82   | 0.05      | 0.04      | 13,16,2,2   |  |
| 401    | s=43,m=54<br>[b=1.0;1.0] | ok,ok | 82.3<br>164.7    | 2.96<br>2.96 | 0.09<br>0.09 | 16d16 4+4 d18 | 0.05<br>0.08 | 0.12<br>0.12 | 4+4d5/5 L=82   | 0.16      | 0.08      | 13,16,13,13 |  |
| 350    | s=43,m=54<br>[b=1.0;1.0] | ok,ok | 164.7<br>247.0   | 2.96<br>2.96 | 0.09<br>0.09 | 16d16 4+4 d18 | 0.08<br>0.16 | 0.12<br>0.12 | 4+4d5/5 L=82   | 0.23      | 0.12      | 2,16,13,13  |  |
| 43     | s=43,m=54<br>[b=1.0;1.0] | ok,ok | 247.0<br>340.2   | 2.96<br>2.96 | 0.05<br>0.05 | 16d16 4+4 d18 | 0.14<br>0.03 | 0.06<br>0.06 | 4+4d5/5 L=93   | 0.15      | 0.10      | 2,16,2,2    |  |
| 426    | s=43,m=54<br>[b=1.0;1.0] | ok,ok | 340.2<br>433.4   | 2.96<br>2.96 | 0.04<br>0.04 | 16d16 4+4 d18 | 0.02<br>0.11 | 0.05<br>0.05 | 4+4d5/5 L=93   | 0.14      | 0.10      | 2,16,2,2    |  |
| 427    | s=43,m=54<br>[b=1.0;1.0] | ok,ok | 433.4<br>526.6   | 2.96<br>2.96 | 0.06<br>0.06 | 16d16 4+4 d18 | 0.11<br>0.25 | 0.05<br>0.05 | 4+4d5/5 L=93   | 0.15      | 0.12      | 2,16,2,2    |  |
| 428    | s=43,m=54<br>[b=1.0;1.0] | ok,ok | 526.6<br>619.8   | 2.96<br>2.96 | 0.09<br>0.09 | 16d16 4+4 d18 | 0.25<br>0.41 | 0.05<br>0.05 | 4+4d5/5 L=93   | 0.17      | 0.14      | 2,16,2,2    |  |
| 448    | s=43,m=54<br>[b=1.0;1.0] | ok,ok | 619.8<br>713.0   | 2.96<br>2.96 | 0.08<br>0.08 | 16d16 4+4 d18 | 0.40<br>0.60 | 0.05<br>0.05 | 4+4d5/5 L=93   | 0.21      | 0.17      | 2,20,2,2    |  |
|        |                          |       |                  |              |              | M_P= 13       | X=701.7      | Y=-564.3     |                |           |           |             |  |
| Pilas. | Note                     | Stato | Quota            | %Af          | r. snell.    | Armat. long.  | verif.       | ver.sis      | Staffe         | v V/T cls | v V/T acc | Rif. cmb    |  |
| 18     | s=43,m=54<br>[b=1.0;1.0] | ok,ok | -285.0<br>-100.0 | 2.96<br>2.96 | 0.19<br>0.19 | 16d16 4+4 d18 | 0.03<br>0.04 | 0.08<br>0.07 | 4+4d5/5 L=185  | 0.06      | 0.03      | 2,16,2,2    |  |
| 353    | s=43,m=54<br>[b=1.0;1.0] | ok,ok | -100.0<br>0.0    | 2.96<br>2.96 | 0.11<br>0.11 | 16d16 4+4 d18 | 0.04<br>0.05 | 0.09<br>0.09 | 4+4d5/5 L=100  | 0.03      | 0.02      | 2,13,17,17  |  |
| 396    | s=43,m=54<br>[b=1.0;1.0] | ok,ok | 0.0<br>82.3      | 2.96<br>2.96 | 0.07<br>0.07 | 16d16 4+4 d18 | 0.05<br>0.04 | 0.09<br>0.09 | 4+4d5/5 L=82   | 0.07      | 0.03      | 13,13,2,2   |  |
| 398    | s=43,m=54<br>[b=1.0;1.0] | ok,ok | 82.3<br>164.7    | 2.96<br>2.96 | 0.08<br>0.08 | 16d16 4+4 d18 | 0.04<br>0.05 | 0.09<br>0.09 | 4+4d5/5 L=82   | 0.09      | 0.04      | 2,13,17,13  |  |
| 399    | s=43,m=54<br>[b=1.0;1.0] | ok,ok | 164.7<br>247.0   | 2.96<br>2.96 | 0.09<br>0.09 | 16d16 4+4 d18 | 0.05<br>0.11 | 0.09<br>0.09 | 4+4d5/5 L=82   | 0.16      | 0.08      | 2,13,13,13  |  |
| 45     | s=43,m=54<br>[b=1.0;1.0] | ok,ok | 247.0<br>341.6   | 2.96<br>2.96 | 0.04<br>0.04 | 16d16 4+4 d18 | 0.07<br>0.02 | 0.05<br>0.04 | 4+4d5/5 L=95   | 0.09      | 0.06      | 2,14,2,2    |  |
| 432    | s=43,m=54<br>[b=1.0;1.0] | ok,ok | 341.6<br>436.3   | 2.96<br>2.96 | 0.04<br>0.04 | 16d16 4+4 d18 | 0.02<br>0.07 | 0.03<br>0.03 | 4+4d5/5 L=95   | 0.08      | 0.06      | 2,6,2,2     |  |
| 433    | s=43,m=54<br>[b=1.0;1.0] | ok,ok | 436.3<br>530.9   | 2.96<br>2.96 | 0.05<br>0.05 | 16d16 4+4 d18 | 0.07<br>0.13 | 0.03<br>0.03 | 4+4d5/5 L=95   | 0.06      | 0.04      | 2,28,2,2    |  |
| 434    | s=43,m=54<br>[b=1.0;1.0] | ok,ok | 530.9<br>625.6   | 2.96<br>2.96 | 0.06<br>0.06 | 16d16 4+4 d18 | 0.13<br>0.17 | 0.03<br>0.02 | 4+4d5/5 L=95   | 0.05      | 0.05      | 2,16,2,2    |  |
| 435    | s=43,m=54<br>[b=1.0;1.0] | ok,ok | 625.6<br>720.2   | 2.96<br>2.96 | 0.07<br>0.07 | 16d16 4+4 d18 | 0.17<br>0.20 | 0.03<br>0.02 | 4+4d5/5 L=95   | 0.07      | 0.05      | 2,16,5,2    |  |
|        |                          |       |                  |              |              | M_P= 14       | X=998.8      | Y=-522.7     |                |           |           |             |  |
| Pilas. | Note                     | Stato | Quota            | %Af          | r. snell.    | Armat. long.  | verif.       | ver.sis      | Staffe         | v V/T cls | v V/T acc | Rif. cmb    |  |
| 354    | s=43,m=54<br>[b=1.0;1.0] | ok,ok | -285.0<br>-100.0 | 1.81<br>1.81 | 0.21<br>0.21 | 16d16 0+0 d16 | 0.04<br>0.04 | 0.09<br>0.09 | 4+4d8/30 L=185 | 0.01      | 0.01      | 2,13,2,23   |  |
| 40     | s=43,m=54<br>[b=1.0;1.0] | ok,ok | -100.0<br>0.0    | 2.96<br>2.96 | 0.13<br>0.13 | 16d16 4+4 d18 | 0.04<br>0.04 | 0.12<br>0.12 | 4+4d5/5 L=100  | 0.02      | 0.01      | 2,13,13,2   |  |
| 397    | s=43,m=54<br>[b=1.0;1.0] | ok,ok | 0.0<br>82.3      | 2.96<br>2.96 | 0.07<br>0.07 | 16d16 4+4 d18 | 0.04<br>0.04 | 0.12<br>0.12 | 4+4d5/5 L=82   | 0.06      | 0.03      | 2,13,13,13  |  |
| 351    | s=43,m=54<br>[b=1.0;1.0] | ok,ok | 82.3<br>164.7    | 2.96<br>2.96 | 0.09<br>0.09 | 16d16 4+4 d18 | 0.04<br>0.06 | 0.12<br>0.12 | 4+4d5/5 L=82   | 0.06      | 0.03      | 2,13,5,13   |  |
| 352    | s=43,m=54<br>[b=1.0;1.0] | ok,ok | 164.7<br>247.0   | 2.96<br>2.96 | 0.10<br>0.10 | 16d16 4+4 d18 | 0.06<br>0.09 | 0.12<br>0.12 | 4+4d5/5 L=82   | 0.13      | 0.07      | 2,13,5,13   |  |
| 44     | s=43,m=54<br>[b=1.0;1.0] | ok,ok | 247.0<br>343.1   | 2.96<br>2.96 | 0.06<br>0.06 | 16d16 4+4 d18 | 0.08<br>0.03 | 0.06<br>0.06 | 4+4d5/5 L=96   | 0.10      | 0.06      | 2,13,2,2    |  |
| 441    | s=43,m=54<br>[b=1.0;1.0] | ok,ok | 343.1<br>439.1   | 2.96<br>2.96 | 0.04<br>0.04 | 16d16 4+4 d18 | 0.03<br>0.06 | 0.05<br>0.04 | 4+4d5/5 L=96   | 0.08      | 0.06      | 2,13,2,2    |  |
| 440    | s=43,m=54<br>[b=1.0;1.0] | ok,ok | 439.1<br>535.2   | 2.96<br>2.96 | 0.05<br>0.05 | 16d16 4+4 d18 | 0.06<br>0.15 | 0.04<br>0.04 | 4+4d5/5 L=96   | 0.09      | 0.07      | 2,13,2,2    |  |
| 439    | s=43,m=54<br>[b=1.0;1.0] | ok,ok | 535.2<br>631.3   | 2.96<br>2.96 | 0.07<br>0.07 | 16d16 4+4 d18 | 0.15<br>0.25 | 0.03<br>0.03 | 4+4d5/5 L=96   | 0.12      | 0.09      | 2,13,2,2    |  |
| 438    | s=43,m=54<br>[b=1.0;1.0] | ok,ok | 631.3<br>727.3   | 2.96<br>2.96 | 0.07<br>0.07 | 16d16 4+4 d18 | 0.25<br>0.38 | 0.04<br>0.04 | 4+4d5/5 L=96   | 0.18      | 0.12      | 2,25,2,2    |  |
|        |                          |       |                  |              |              | M_P= 16       | X=1293.5     | Y=-476.8     |                |           |           |             |  |
| Pilas. | Note                     | Stato | Quota            | %Af          | r. snell.    | Armat. long.  | verif.       | ver.sis      | Staffe         | v V/T cls | v V/T acc | Rif. cmb    |  |
| 408    | s=43,m=54<br>[b=1.0;1.0] | ok,ok | -283.0<br>-207.3 | 1.81<br>1.81 | 0.07<br>0.07 | 16d16 0+0 d16 | 0.05<br>0.05 | 0.14<br>0.14 | 4+4d8/30 L=76  | 0.04      | 0.06      | 2,14,13,5   |  |
| 407    | s=43,m=54<br>[b=1.0;1.0] | ok,ok | -207.3<br>-131.6 | 1.81<br>1.81 | 0.08<br>0.08 | 16d16 0+0 d16 | 0.05<br>0.05 | 0.14<br>0.14 | 4+4d8/30 L=76  | 0.03      | 0.04      | 2,13,5,6    |  |
| 406    | s=43,m=54                | ok,ok | -131.6           | 1.81         | 0.08         | 16d16 0+0 d16 | 0.05         | 0.14         | 4+4d8/30 L=76  | 0.03      | 0.04      | 2,13,6,6    |  |

|        |             |       |        |      |                |                 |                |         |               |           |           |            |
|--------|-------------|-------|--------|------|----------------|-----------------|----------------|---------|---------------|-----------|-----------|------------|
|        | [b=1.0;1.0] |       | -55.9  | 1.81 | 0.08           | 16d16 0+0 d16   | 0.05           | 0.14    | 4+4d8/30 L=76 | 0.03      | 0.04      | 2,13,6,6   |
| 405    | s=43,m=54   | ok,ok | -55.9  | 1.81 | 0.07           | 16d16 0+0 d16   | 0.05           | 0.14    | 4+4d8/30 L=76 | 0.03      | 0.05      | 2,13,13,5  |
|        | [b=1.0;1.0] |       | 19.9   | 1.81 | 0.07           | 16d16 0+0 d16   | 0.05           | 0.14    | 4+4d8/30 L=76 | 0.03      | 0.05      | 2,13,13,5  |
| 404    | s=43,m=54   | ok,ok | 19.9   | 1.81 | 0.11           | 16d16 0+0 d16   | 0.05           | 0.14    | 4+4d8/30 L=76 | 0.04      | 0.05      | 2,13,14,17 |
|        | [b=1.0;1.0] |       | 95.6   | 1.81 | 0.11           | 16d16 0+0 d16   | 0.05           | 0.13    | 4+4d8/30 L=76 | 0.04      | 0.05      | 2,13,14,17 |
| 403    | s=43,m=54   | ok,ok | 95.6   | 1.81 | 0.08           | 16d16 0+0 d16   | 0.05           | 0.14    | 4+4d8/30 L=76 | 0.09      | 0.10      | 2,13,21,21 |
|        | [b=1.0;1.0] |       | 171.3  | 1.81 | 0.08           | 16d16 0+0 d16   | 0.05           | 0.14    | 4+4d8/30 L=76 | 0.09      | 0.10      | 2,13,21,21 |
| 402    | s=43,m=54   | ok,ok | 171.3  | 1.81 | 0.06           | 16d16 0+0 d16   | 0.06           | 0.14    | 4+4d8/30 L=76 | 0.17      | 0.22      | 2,13,13,2  |
|        | [b=1.0;1.0] |       | 247.0  | 1.81 | 0.06           | 16d16 0+0 d16   | 0.13           | 0.14    | 4+4d8/30 L=76 | 0.17      | 0.22      | 21,13,13,2 |
| 46     | s=43,m=54   | ok,ok | 247.0  | 2.96 | 0.09           | 16d16 4+4 d18   | 0.09           | 0.11    | 4+4d5/5 L=99  | 0.08      | 0.05      | 21,13,2,2  |
|        | [b=1.0;1.0] |       | 346.1  | 2.96 | 0.09           | 16d16 4+4 d18   | 0.04           | 0.11    | 4+4d5/5 L=99  | 0.08      | 0.05      | 21,13,2,2  |
| 447    | s=43,m=54   | ok,ok | 346.1  | 2.96 | 0.05           | 16d16 4+4 d18   | 0.04           | 0.10    | 4+4d5/5 L=99  | 0.06      | 0.04      | 21,13,2,2  |
|        | [b=1.0;1.0] |       | 445.3  | 2.96 | 0.05           | 16d16 4+4 d18   | 0.04           | 0.10    | 4+4d5/5 L=99  | 0.06      | 0.04      | 2,13,2,2   |
| 446    | s=43,m=54   | ok,ok | 445.3  | 2.96 | 0.08           | 16d16 4+4 d18   | 0.04           | 0.09    | 4+4d5/5 L=99  | 0.06      | 0.05      | 2,13,21,21 |
|        | [b=1.0;1.0] |       | 544.4  | 2.96 | 0.08           | 16d16 4+4 d18   | 0.06           | 0.09    | 4+4d5/5 L=99  | 0.06      | 0.05      | 2,13,21,21 |
| 445    | s=43,m=54   | ok,ok | 544.4  | 2.96 | 0.11           | 16d16 4+4 d18   | 0.06           | 0.11    | 4+4d5/5 L=99  | 0.24      | 0.14      | 2,13,2,2   |
|        | [b=1.0;1.0] |       | 643.6  | 2.96 | 0.11           | 16d16 4+4 d18   | 0.16           | 0.10    | 4+4d5/5 L=99  | 0.24      | 0.14      | 2,13,2,2   |
| 444    | s=43,m=54   | ok,ok | 643.6  | 2.96 | 0.16           | 16d16 4+4 d18   | 0.15           | 0.14    | 4+4d5/5 L=99  | 0.30      | 0.20      | 2,13,2,2   |
|        | [b=1.0;1.0] |       | 742.7  | 2.96 | 0.16           | 16d16 4+4 d18   | 0.30           | 0.14    | 4+4d5/5 L=99  | 0.30      | 0.20      | 2,13,2,2   |
|        |             |       |        |      | <b>M_P= 21</b> | <b>X=319.9</b>  | <b>Y=20.0</b>  |         |               |           |           |            |
| Pilas. | Note        | Stato | Quota  | %Af  | r. snell.      | Armat. long.    | verif.         | ver.sis | Staffe        | v V/T cls | v V/T acc | Rif. cmb   |
| 26     | s=44,m=54   | ok,ok | -100.0 | 2.75 | 0.68           | 16d16 4+6 d16   | 0.09           | 0.23    | 4+4d8/5 L=347 | 0.04      | 0.01      | 2,5,13,13  |
|        | [b=1.0;1.0] |       | 247.0  | 2.75 | 0.68           | 16d16 4+6 d16   | 0.09           | 0.22    | 4+4d8/5 L=347 | 0.04      | 0.01      | 2,5,13,13  |
|        |             |       |        |      | <b>M_P= 22</b> | <b>X=779.4</b>  | <b>Y=53.4</b>  |         |               |           |           |            |
| Pilas. | Note        | Stato | Quota  | %Af  | r. snell.      | Armat. long.    | verif.         | ver.sis | Staffe        | v V/T cls | v V/T acc | Rif. cmb   |
| 17     | s=43,m=54   | ok,ok | -285.0 | 2.96 | 0.97           | 16d16 4+4 d18   | 0.09           | 0.23    | 4+4d5/5 L=532 | 0.03      | 0.02      | 2,5,17,17  |
|        | [b=1.0;1.0] |       | 247.0  | 2.96 | 0.97           | 16d16 4+4 d18   | 0.09           | 0.23    | 4+4d5/5 L=532 | 0.03      | 0.02      | 2,5,17,17  |
|        |             |       |        |      | <b>M_P= 23</b> | <b>X=1202.2</b> | <b>Y=84.2</b>  |         |               |           |           |            |
| Pilas. | Note        | Stato | Quota  | %Af  | r. snell.      | Armat. long.    | verif.         | ver.sis | Staffe        | v V/T cls | v V/T acc | Rif. cmb   |
| 36     | s=46,m=54   | ok,ok | 244.5  | 0.96 | 0.58           | 0d0 4+2 d16     | 0.14           | 0.19    | 2+2d8/5 L=497 | 0.04      | 0.02      | 2,5,2,2    |
|        | [b=1.0;1.0] |       | 741.5  | 0.96 | 0.58           | 0d0 4+2 d16     | 0.23           | 0.19    | 2+2d8/5 L=497 | 0.04      | 0.02      | 2,5,2,2    |
|        |             |       |        |      | <b>M_P= 27</b> | <b>X=275.0</b>  | <b>Y=651.6</b> |         |               |           |           |            |
| Pilas. | Note        | Stato | Quota  | %Af  | r. snell.      | Armat. long.    | verif.         | ver.sis | Staffe        | v V/T cls | v V/T acc | Rif. cmb   |
| 56     | s=44,m=54   | ok,ok | -100.0 | 2.76 | 0.75           | 16d16 4+4 d18   | 0.09           | 0.23    | 4+4d5/5 L=347 | 0.04      | 0.04      | 2,5,18,18  |
|        | [b=1.0;1.0] |       | 247.0  | 2.76 | 0.75           | 16d16 4+4 d18   | 0.09           | 0.23    | 4+4d5/5 L=347 | 0.04      | 0.04      | 2,5,18,18  |
|        |             |       |        |      | <b>M_P= 28</b> | <b>X=742.5</b>  | <b>Y=656.1</b> |         |               |           |           |            |
| Pilas. | Note        | Stato | Quota  | %Af  | r. snell.      | Armat. long.    | verif.         | ver.sis | Staffe        | v V/T cls | v V/T acc | Rif. cmb   |
| 55     | s=43,m=54   | ok,ok | -285.0 | 2.96 | 1.07           | 16d16 4+4 d18   | 0.14           | 0.23    | 4+4d5/5 L=532 | 0.03      | 0.02      | 2,18,18,18 |
|        | [b=1.0;1.0] |       | 247.0  | 2.96 | 1.07           | 16d16 4+4 d18   | 0.13           | 0.22    | 4+4d5/5 L=532 | 0.03      | 0.02      | 2,18,18,18 |
|        |             |       |        |      | <b>M_P= 29</b> | <b>X=1166.5</b> | <b>Y=657.2</b> |         |               |           |           |            |
| Pilas. | Note        | Stato | Quota  | %Af  | r. snell.      | Armat. long.    | verif.         | ver.sis | Staffe        | v V/T cls | v V/T acc | Rif. cmb   |
| 37     | s=46,m=54   | ok,ok | 247.0  | 0.96 | 0.95           | 0d0 4+2 d16     | 0.13           | 0.17    | 2+2d8/5 L=493 | 0.02      | 7.14e-03  | 2,22,1,7   |
|        | [b=1.0;1.0] |       | 739.8  | 0.96 | 0.95           | 0d0 4+2 d16     | 0.13           | 0.16    | 2+2d8/5 L=493 | 0.02      | 7.14e-03  | 1,22,1,7   |
|        |             |       |        |      |                |                 |                |         |               |           |           |            |
| Pilas. |             |       |        | %Af  | r. snell.      |                 | verif.         | ver.sis |               | v V/T cls | v V/T acc |            |
|        |             |       |        | 2.96 | 1.07           |                 | 0.60           | 0.23    |               | 0.30      | 0.22      |            |
|        |             |       |        |      |                |                 |                |         |               |           |           |            |

Mappe cromatiche delle verifiche:

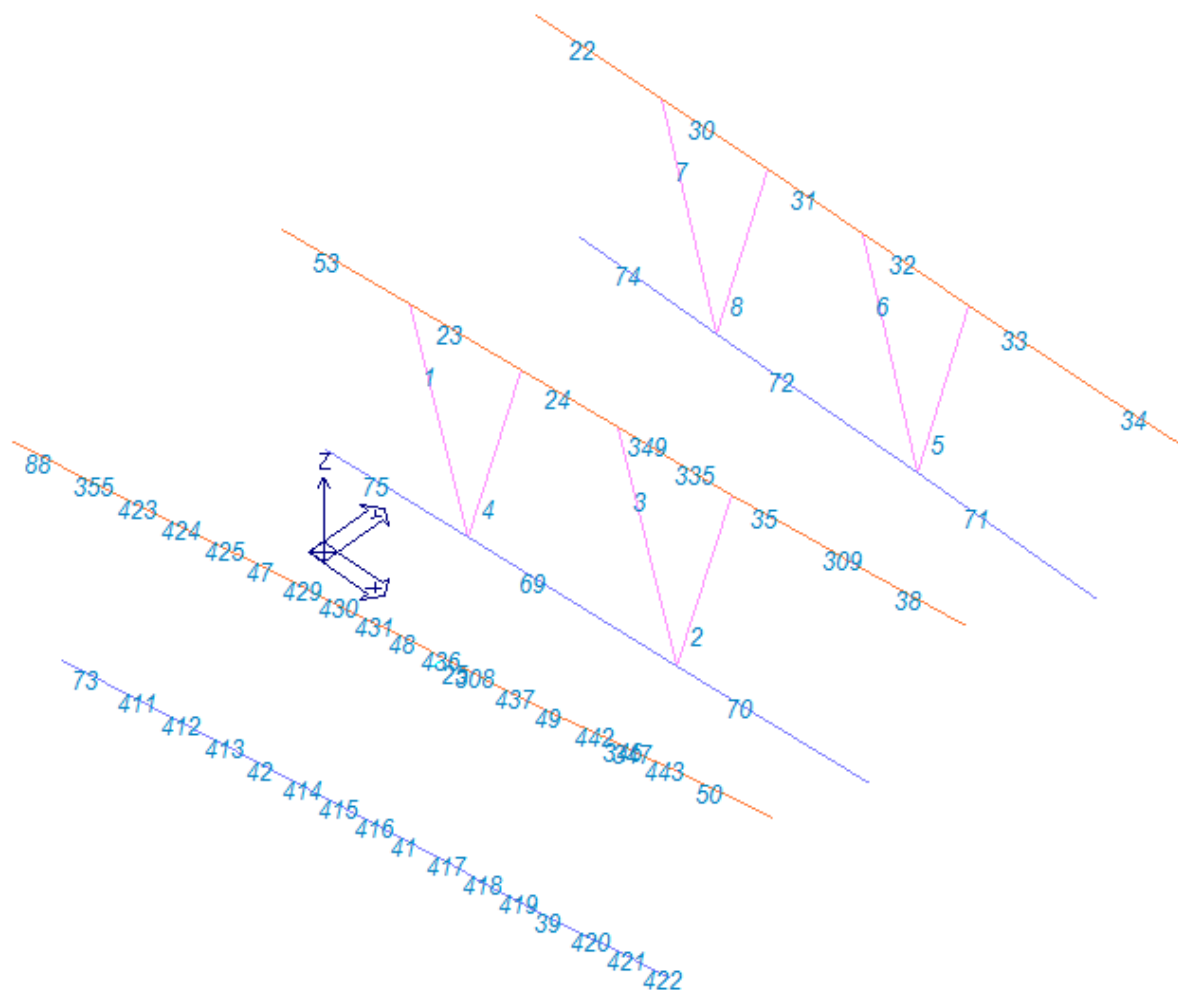






## VERIFICA NODI

| Pilas.I | Pilas.S | Nodo | SLV cod | ver. (+) | V + | V + af s  | N + | ver. (-) | V - | V - af s  | N - | Area G | Rif. cmb    |
|---------|---------|------|---------|----------|-----|-----------|-----|----------|-----|-----------|-----|--------|-------------|
| q=1.5   |         |      |         |          | daN | daN       | daN |          | daN | daN       | daN | cm2    |             |
| 17      |         | 23   | SLV:ok  | 0.17     | 0.0 | -5558.09  | 0.0 | 0.02     | 0.0 | -5558.09  | 0.0 | 1775.0 | 13(2),13(2) |
| 26      |         | 19   | SLV:ok  | 0.18     | 0.0 | 6310.38   | 0.0 | 0.02     | 0.0 | 6310.38   | 0.0 | 1900.0 | 20(2),20(2) |
| 36      |         | 47   | SLV:ok  | 0.04     | 0.0 | 1051.93   | 0.0 | 4.32e-03 | 0.0 | 1051.93   | 0.0 | 1256.6 | 26(3),26(3) |
| 37      |         | 45   | SLV:ok  | 0.24     | 0.0 | -5657.74  | 0.0 | 0.02     | 0.0 | -5657.74  | 0.0 | 1256.6 | 17(2),17(2) |
| 55      |         | 24   | SLV:ok  | 0.17     | 0.0 | -5587.68  | 0.0 | 0.02     | 0.0 | -5587.68  | 0.0 | 1775.0 | 14(2),14(2) |
| 56      |         | 18   | SLV:ok  | 0.12     | 0.0 | -4240.95  | 0.0 | 0.01     | 0.0 | -4240.95  | 0.0 | 1900.0 | 17(2),17(2) |
| 435     |         | 56   | SLV:ok  | 0.12     | 0.0 | -4045.48  | 0.0 | 0.01     | 0.0 | -4045.48  | 0.0 | 1775.0 | 13(2),13(2) |
| 438     |         | 55   | SLV:ok  | 0.15     | 0.0 | -5013.53  | 0.0 | 0.01     | 0.0 | -5013.53  | 0.0 | 1775.0 | 13(2),13(2) |
| 444     |         | 57   | SLV:NV  | 1.00     | 0.0 | 8.265e+04 | 0.0 | 0.24     | 0.0 | 8.265e+04 | 0.0 | 1775.0 | 16(2),16(2) |
| 448     |         | 54   | SLV:ok  | 0.11     | 0.0 | 3744.18   | 0.0 | 0.01     | 0.0 | 3744.18   | 0.0 | 1775.0 | 16(2),16(2) |
| Pilas.I |         |      |         | ver. (+) |     |           |     | ver. (-) |     |           |     |        |             |
|         |         |      |         | 0.04     |     |           |     | 4.32e-03 |     |           |     |        |             |
|         |         |      |         | 1.00     |     |           |     | 0.24     |     |           |     |        |             |



Indicazione elementi trave

| q=3   |           |            |      |         |         |          | M <sub>T</sub> = 1 | Z=477.9 | N=19         | N=37   |          |  |
|-------|-----------|------------|------|---------|---------|----------|--------------------|---------|--------------|--------|----------|--|
| Trave | Note      | Pos.<br>cm | %Af  | Af inf. | Af. sup | Af long. | x/d                | V N/M   | Staffe       | L=cm   | Rif. cmb |  |
| 1     | ok,ok     | 0.0        | 0.42 | 2.1     | 2.1     | 0.0      | 0.08               | 0.10    | 4d6/10 L=471 | 2,2,2  |          |  |
|       | s=54,m=55 | 479.8      | 0.42 | 2.1     | 2.1     | 0.0      | 0.08               | 0.12    | 4d6/10 L=471 | 2,2,2  |          |  |
|       |           |            |      |         |         |          | M <sub>T</sub> = 2 | Z=486.4 |              |        |          |  |
| Trave | Note      | Pos.       | %Af  | Af inf. | Af. sup | Af long. | x/d                | V N/M   | Staffe       |        | Rif. cmb |  |
| 2     | ok,ok     | 0.0        | 0.42 | 2.1     | 2.1     | 0.0      | 0.08               | 0.05    | 4d6/10 L=486 | 2,2,2  |          |  |
|       | s=54,m=55 | 493.7      | 0.42 | 2.1     | 2.1     | 0.0      | 0.08               | 0.04    | 4d6/10 L=486 | 4,1,1  |          |  |
|       |           |            |      |         |         |          | M <sub>T</sub> = 3 | Z=483.4 |              |        |          |  |
| Trave | Note      | Pos.       | %Af  | Af inf. | Af. sup | Af long. | x/d                | V N/M   | Staffe       |        | Rif. cmb |  |
| 3     | ok,ok     | 0.0        | 0.42 | 2.1     | 2.1     | 0.0      | 0.08               | 0.06    | 4d6/10 L=482 | 7,27,4 |          |  |
|       | s=54,m=55 | 490.9      | 0.42 | 2.1     | 2.1     | 0.0      | 0.08               | 0.07    | 4d6/10 L=482 | 1,2,2  |          |  |
|       |           |            |      |         |         |          | M <sub>T</sub> = 4 | Z=480.9 |              |        |          |  |
| Trave | Note      | Pos.       | %Af  | Af inf. | Af. sup | Af long. | x/d                | V N/M   | Staffe       |        | Rif. cmb |  |
| 4     | ok,ok     | 0.0        | 0.42 | 2.1     | 2.1     | 0.0      | 0.08               | 0.04    | 4d6/10 L=474 | 1,2,7  |          |  |
|       | s=54,m=55 | 481.9      | 0.42 | 2.1     | 2.1     | 0.0      | 0.08               | 0.06    | 4d6/10 L=474 | 1,2,1  |          |  |
|       |           |            |      |         |         |          | M <sub>T</sub> = 5 | Z=486.4 |              |        |          |  |
| Trave | Note      | Pos.       | %Af  | Af inf. | Af. sup | Af long. | x/d                | V N/M   | Staffe       |        | Rif. cmb |  |
| 5     | ok,ok     | 0.0        | 0.42 | 2.1     | 2.1     | 0.0      | 0.08               | 0.05    | 4d6/10 L=486 | 2,2,2  |          |  |
|       | s=54,m=55 | 493.6      | 0.42 | 2.1     | 2.1     | 0.0      | 0.08               | 0.05    | 4d6/10 L=486 | 4,1,1  |          |  |
|       |           |            |      |         |         |          | M <sub>T</sub> = 6 | Z=483.5 |              |        |          |  |
| Trave | Note      | Pos.       | %Af  | Af inf. | Af. sup | Af long. | x/d                | V N/M   | Staffe       |        | Rif. cmb |  |
| 6     | ok,ok     | 0.0        | 0.42 | 2.1     | 2.1     | 0.0      | 0.08               | 0.06    | 4d6/10 L=482 | 7,27,2 |          |  |
|       | s=54,m=55 | 490.5      | 0.42 | 2.1     | 2.1     | 0.0      | 0.08               | 0.09    | 4d6/10 L=482 | 1,2,2  |          |  |
|       |           |            |      |         |         |          | M <sub>T</sub> = 7 | Z=478.0 |              |        |          |  |
| Trave | Note      | Pos.       | %Af  | Af inf. | Af. sup | Af long. | x/d                | V N/M   | Staffe       |        | Rif. cmb |  |
| 7     | ok,ok     | 0.0        | 0.42 | 2.1     | 2.1     | 0.0      | 0.08               | 0.09    | 4d6/10 L=471 | 2,2,2  |          |  |

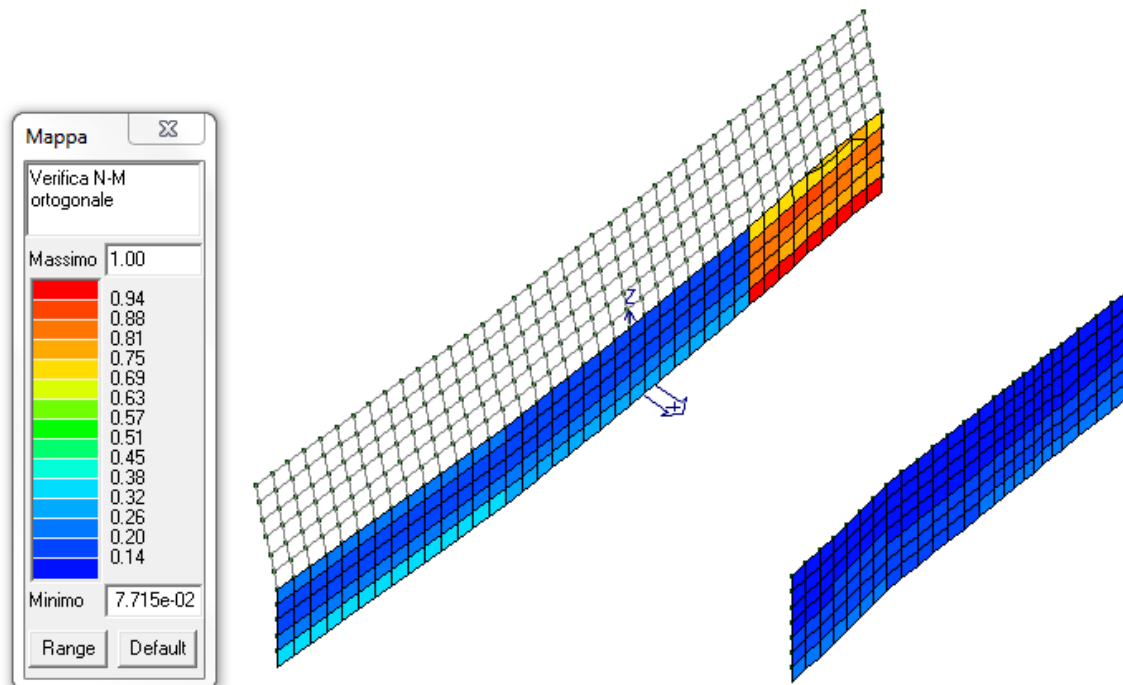
|       |           |       |      |         |         |          |                |                |              |          |  |
|-------|-----------|-------|------|---------|---------|----------|----------------|----------------|--------------|----------|--|
|       | s=54,m=55 | 479.9 | 0.42 | 2.1     | 2.1     | 0.0      | 0.08           | 0.11           | 4d6/10 L=471 | 2,2,2    |  |
|       |           |       |      |         |         |          | <b>M T= 8</b>  | <b>Z=480.9</b> |              |          |  |
| Trave | Note      | Pos.  | %Af  | Af inf. | Af. sup | Af long. | x/d            | V N/M          | Staffe       | Rif. cmb |  |
| 8     | ok,ok     | 0.0   | 0.42 | 2.1     | 2.1     | 0.0      | 0.08           | 0.04           | 4d6/10 L=474 | 1,15,7   |  |
|       | s=54,m=55 | 481.9 | 0.42 | 2.1     | 2.1     | 0.0      | 0.08           | 0.07           | 4d6/10 L=474 | 1,1,2    |  |
|       |           |       |      |         |         |          | <b>M T= 15</b> | <b>Z=722.5</b> |              |          |  |
| Trave | Note      | Pos.  | %Af  | Af inf. | Af. sup | Af long. | x/d            | V N/M          | Staffe       | Rif. cmb |  |
| 22    | ok        | 0.0   | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 1.01           | 4d8/10 L=289 | 2,2,2    |  |
|       | s=58,m=55 | 289.0 | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.29           | 4d8/10 L=289 | 2,2,2    |  |
| 30    | ok        | 0.0   | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.42           | 4d8/10 L=246 | 2,2,2    |  |
|       | s=58,m=55 | 246.0 | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.72           | 4d8/10 L=246 | 2,2,2    |  |
| 31    | ok        | 0.0   | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.58           | 4d8/10 L=222 | 2,2,2    |  |
|       | s=58,m=55 | 221.7 | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.33           | 4d8/10 L=222 | 2,2,2    |  |
| 32    | ok        | 0.0   | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.52           | 4d8/10 L=250 | 2,2,2    |  |
|       | s=58,m=55 | 250.0 | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.56           | 4d8/10 L=250 | 2,2,2    |  |
| 33    | ok        | 0.0   | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.31           | 4d8/10 L=279 | 2,2,2    |  |
|       | s=58,m=55 | 304.3 | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 1.05           | 4d8/10 L=279 | 2,2,2    |  |
| 34    | ok        | 0.0   | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.96           | 4d8/10 L=188 | 2,2,2    |  |
|       | s=58,m=55 | 213.0 | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.18           | 4d8/10 L=188 | 2,2,2    |  |
|       |           |       |      |         |         |          | <b>M T= 16</b> | <b>Z=724.4</b> |              |          |  |
| Trave | Note      | Pos.  | %Af  | Af inf. | Af. sup | Af long. | x/d            | V N/M          | Staffe       | Rif. cmb |  |
| 53    | ok        | 0.0   | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 1.01           | 4d8/10 L=279 | 2,2,2    |  |
|       | s=58,m=55 | 279.0 | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.18           | 4d8/10 L=279 | 2,2,2    |  |
| 23    | ok        | 0.0   | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.24           | 4d8/10 L=246 | 2,4,2    |  |
|       | s=58,m=55 | 246.0 | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.61           | 4d8/10 L=246 | 2,2,2    |  |
| 24    | ok        | 0.0   | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.48           | 4d8/10 L=213 | 2,2,2    |  |
|       | s=58,m=55 | 212.8 | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.27           | 4d8/10 L=213 | 2,4,2    |  |
| 349   | ok        | 0.0   | 0.16 | 2.3     | 2.3     | 0.0      | 0.02           | 0.37           | 4d8/30 L=85  | 2,2,2    |  |
|       | s=58,m=55 | 85.0  | 0.16 | 2.3     | 2.3     | 0.0      | 0.02           | 0.99           | 4d8/30 L=85  | 2,2,2    |  |
| 335   | ok        | 0.0   | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.27           | 4d8/10 L=167 | 2,2,2    |  |
|       | s=58,m=55 | 167.0 | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.50           | 4d8/10 L=167 | 2,2,2    |  |
| 35    | ok,ok     | 0.0   | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.15           | 4d8/10 L=165 | 2,4,2    |  |
|       | s=58,m=55 | 165.1 | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.14           | 4d8/10 L=165 | 2,2,2    |  |
| 309   | ok        | 0.0   | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.15           | 4d8/10 L=114 | 2,2,2    |  |
|       | s=58,m=55 | 139.3 | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 1.01           | 4d8/10 L=114 | 2,2,2    |  |
| 38    | ok        | 0.0   | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 1.00           | 4d8/10 L=187 | 2,2,2    |  |
|       | s=58,m=55 | 212.0 | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.27           | 4d8/10 L=187 | 2,2,1    |  |
|       |           |       |      |         |         |          | <b>M T= 20</b> | <b>Z=720.7</b> |              |          |  |
| Trave | Note      | Pos.  | %Af  | Af inf. | Af. sup | Af long. | x/d            | V N/M          | Staffe       | Rif. cmb |  |
| 88    | ok,ok     | 0.0   | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.17           | 4d8/10 L=105 | 4,2,4    |  |
|       | s=58,m=55 | 104.8 | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.11           | 4d8/10 L=105 | 1,2,13   |  |
| 355   | ok,ok     | 0.0   | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.01           | 4d8/10 L=91  | 1,2,2    |  |
|       | s=58,m=55 | 90.5  | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.02           | 4d8/10 L=91  | 2,2,2    |  |
| 423   | ok,ok     | 0.0   | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.02           | 4d8/10 L=90  | 13,2,2   |  |
|       | s=58,m=55 | 90.5  | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.02           | 4d8/10 L=90  | 2,2,2    |  |
| 424   | ok,ok     | 0.0   | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.02           | 4d8/10 L=90  | 2,2,2    |  |
|       | s=58,m=55 | 90.5  | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.01           | 4d8/10 L=90  | 2,2,2    |  |
| 425   | ok,ok     | 0.0   | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 5.31e-03       | 4d8/10 L=58  | 13,2,2   |  |
|       | s=58,m=55 | 90.5  | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.14           | 4d8/10 L=58  | 2,2,2    |  |
| 47    | ok,ok     | 0.0   | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.11           | 4d8/10 L=42  | 2,2,2    |  |
|       | s=58,m=55 | 74.7  | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 8.86e-03       | 4d8/10 L=42  | 13,2,2   |  |
| 429   | ok,ok     | 0.0   | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 2.31e-03       | 4d8/10 L=75  | 2,2,2    |  |
|       | s=58,m=55 | 74.7  | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.02           | 4d8/10 L=75  | 2,2,2    |  |
| 430   | ok,ok     | 0.0   | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.03           | 4d8/10 L=75  | 2,2,2    |  |
|       | s=58,m=55 | 74.7  | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.02           | 4d8/10 L=75  | 2,2,2    |  |
| 431   | ok,ok     | 0.0   | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.02           | 4d8/10 L=42  | 2,2,2    |  |
|       | s=58,m=55 | 74.7  | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 8.75e-03       | 4d8/10 L=42  | 13,2,2   |  |
| 48    | ok,ok     | 0.0   | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.02           | 4d8/10 L=33  | 13,2,2   |  |
|       | s=58,m=55 | 65.0  | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 7.19e-03       | 4d8/10 L=33  | 2,2,2    |  |
| 436   | ok,ok     | 0.0   | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 8.81e-03       | 4d8/10 L=65  | 2,2,2    |  |
|       | s=58,m=55 | 65.0  | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 7.22e-03       | 4d8/10 L=65  | 13,2,2   |  |
| 308   | ok,ok     | 0.0   | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 7.65e-03       | 4d8/10 L=85  | 13,2,2   |  |
|       | s=58,m=55 | 85.0  | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.02           | 4d8/10 L=85  | 2,2,2    |  |
| 437   | ok,ok     | 0.0   | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.02           | 4d8/10 L=53  | 2,2,2    |  |
|       | s=58,m=55 | 85.0  | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.02           | 4d8/10 L=53  | 2,2,2    |  |
| 49    | ok,ok     | 0.0   | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.08           | 4d8/10 L=47  | 2,2,2    |  |
|       | s=58,m=55 | 80.3  | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.01           | 4d8/10 L=47  | 2,2,2    |  |
| 442   | ok,ok     | 0.0   | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.02           | 4d8/10 L=80  | 2,2,2    |  |
|       | s=58,m=55 | 80.3  | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.04           | 4d8/10 L=80  | 2,2,2    |  |
| 347   | ok,ok     | 0.0   | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.01           | 4d8/10 L=69  | 1,2,2    |  |
|       | s=58,m=55 | 69.0  | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.26           | 4d8/10 L=69  | 2,2,2    |  |
| 443   | ok,ok     | 0.0   | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.25           | 4d8/10 L=36  | 2,2,2    |  |
|       | s=58,m=55 | 69.0  | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.24           | 4d8/10 L=36  | 2,2,2    |  |
| 50    | ok        | 0.0   | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 1.00           | 4d8/10 L=179 | 2,2,2    |  |
|       | s=58,m=55 | 212.0 | 1.44 | 20.1    | 20.1    | 0.0      | 0.09           | 0.39           | 4d8/10 L=179 | 2,1,14   |  |

|       |           |       |      |         |         |          |                |                |              |          |  |
|-------|-----------|-------|------|---------|---------|----------|----------------|----------------|--------------|----------|--|
|       |           |       |      |         |         |          | <b>M T= 26</b> | <b>Z=246.6</b> |              |          |  |
| Trave | Note      | Pos.  | %Af  | Af inf. | Af. sup | Af long. | x/d            | V N/M          | Staffe       | Rif. cmb |  |
| 75    | ok        | 0.0   | 1.04 | 2.3     | 15.4    | 0.0      | 0.08           | 0.20           | 4d8/30 L=77  | 2,2,2    |  |
|       | s=53,m=55 | 155.5 | 1.04 | 2.3     | 15.4    | 0.0      | 0.03           | 0.30           | 4d5/30 L=8   | 2,1,1    |  |
|       |           | 311.0 | 1.04 | 2.3     | 15.4    | 0.0      | 0.08           | 0.24           | 4d8/30 L=119 | 2,2,2    |  |
| 69    | ok        | 0.0   | 1.04 | 2.3     | 15.4    | 0.0      | 0.08           | 0.36           | 4d8/30 L=194 | 2,2,2    |  |
|       | s=53,m=55 | 230.3 | 1.04 | 2.3     | 15.4    | 0.0      | 0.03           | 1.04           | 4d5/30 L=8   | 2,4,1    |  |
|       |           | 460.7 | 1.04 | 2.3     | 15.4    | 0.0      | 0.08           | 0.33           | 4d8/30 L=194 | 2,2,2    |  |
| 70    | ok        | 0.0   | 1.04 | 2.3     | 15.4    | 0.0      | 0.08           | 0.27           | 4d8/30 L=175 | 2,2,2    |  |
|       | s=53,m=55 | 211.9 | 1.04 | 2.3     | 15.4    | 0.0      | 0.03           | 1.09           | 4d5/30 L=8   | 2,2,4    |  |
|       |           | 423.9 | 1.04 | 2.3     | 15.4    | 0.0      | 0.08           | 0.29           | 4d8/30 L=158 | 2,2,2    |  |
|       |           |       |      |         |         |          | <b>M T= 27</b> | <b>Z=247.0</b> |              |          |  |
| Trave | Note      | Pos.  | %Af  | Af inf. | Af. sup | Af long. | x/d            | V N/M          | Staffe       | Rif. cmb |  |
| 74    | ok        | 0.0   | 1.04 | 2.3     | 15.4    | 0.0      | 0.08           | 0.14           | 4d8/30 L=82  | 2,2,2    |  |
|       | s=53,m=55 | 160.5 | 1.04 | 2.3     | 15.4    | 0.0      | 0.03           | 0.17           | 4d5/30 L=8   | 2,1,1    |  |
|       |           | 321.0 | 1.04 | 2.3     | 15.4    | 0.0      | 0.08           | 0.22           | 4d8/30 L=124 | 2,2,2    |  |
| 72    | ok        | 0.0   | 1.04 | 2.3     | 15.4    | 0.0      | 0.08           | 0.30           | 4d8/30 L=197 | 2,2,2    |  |
|       | s=53,m=55 | 233.8 | 1.04 | 2.3     | 15.4    | 0.0      | 0.03           | 1.02           | 4d5/30 L=8   | 2,2,2    |  |
|       |           | 467.5 | 1.04 | 2.3     | 15.4    | 0.0      | 0.08           | 0.23           | 4d8/30 L=197 | 2,2,2    |  |
| 71    | ok        | 0.0   | 1.04 | 2.3     | 15.4    | 0.0      | 0.08           | 0.15           | 4d8/30 L=175 | 2,2,2    |  |
|       | s=53,m=55 | 212.0 | 1.04 | 2.3     | 15.4    | 0.0      | 0.03           | 0.83           | 4d5/30 L=8   | 2,4,4    |  |
|       |           | 424.0 | 1.04 | 2.3     | 15.4    | 0.0      | 0.08           | 0.28           | 4d8/30 L=183 | 2,2,2    |  |

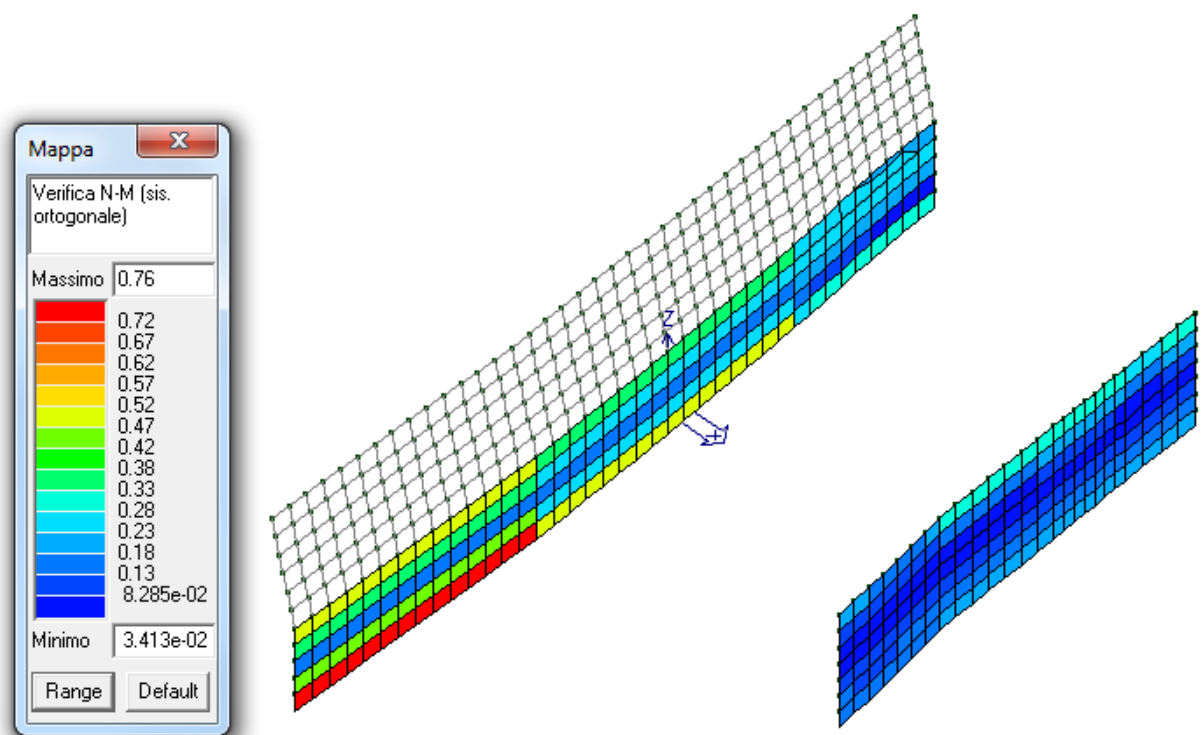
# VERIFICHE ELEMENTI PARETE IN MURATURA

## LE VERIFICHE VENGONO FORNITE CON MAPPE CROMATICHE

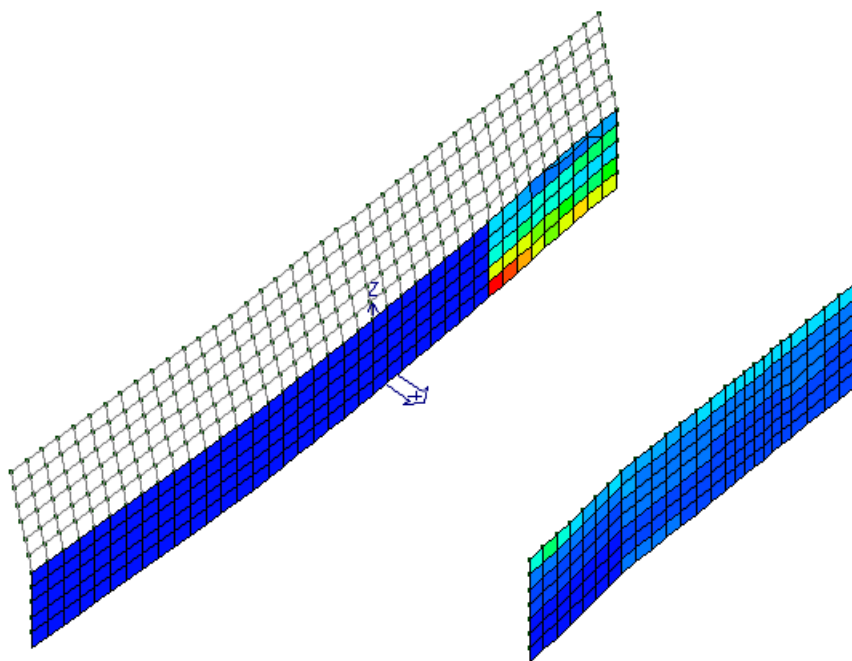
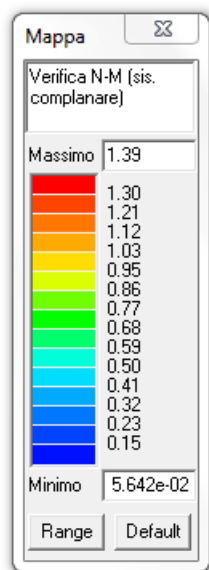
ESSE SONO TUTTE VERIFICATE



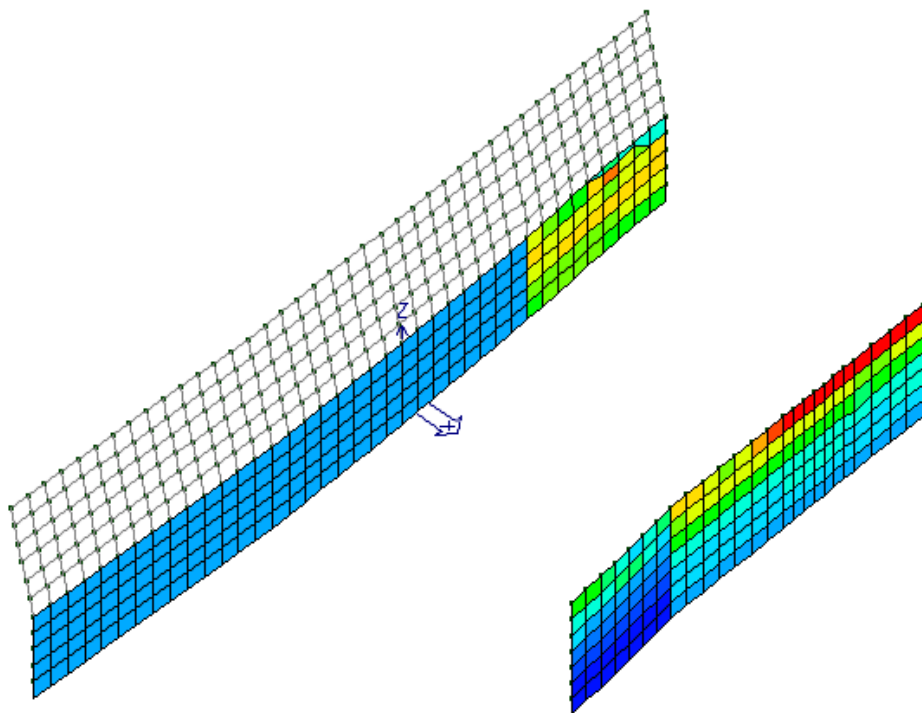
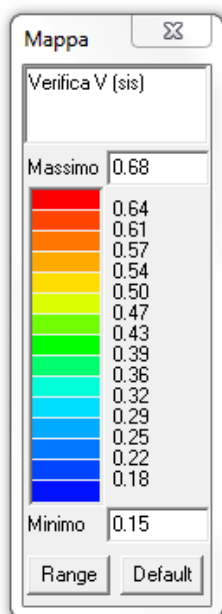
**Verifica N-Mo:** rapporto tra il carico normale agente e il carico limite della muratura



**Verifica N-Mo:** rapporto tra il momento agente perpendicolare al piano del muro e il momento corrispondente al collasso per azioni perpendicolari al piano, effettuato per le combinazioni in presenza di sisma



**Verifica N-Mp:** rapporto tra momento agente di calcolo con il momento ultimo resistente nel piano del muro



**Verifica V:** rapporto tra l'azione orizzontale di calcolo e il taglio limite, effettuato per tutte le combinazioni

## SCALA DI SICUREZZA

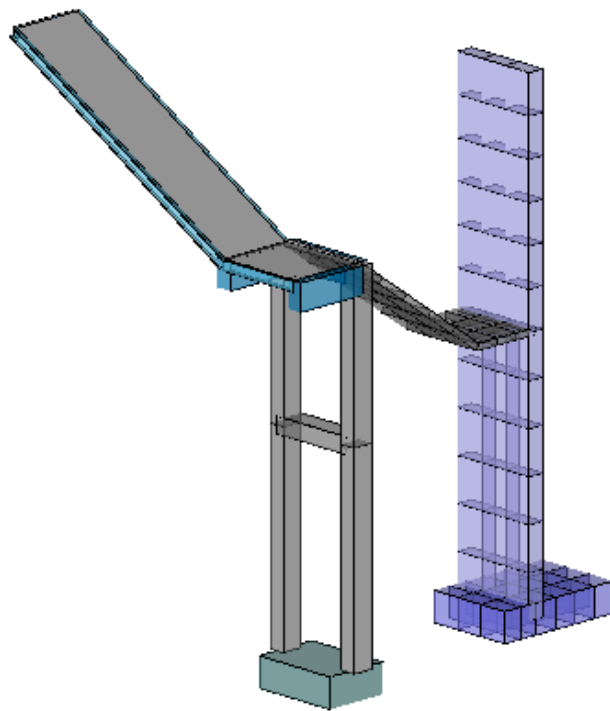
### Progetto

La scala di sicurezza che dal primo piano interrato condurrà al piano terra sarà costituita da una parte in cls interna alla struttura esistente e da una parte esterna in profilati di acciaio.

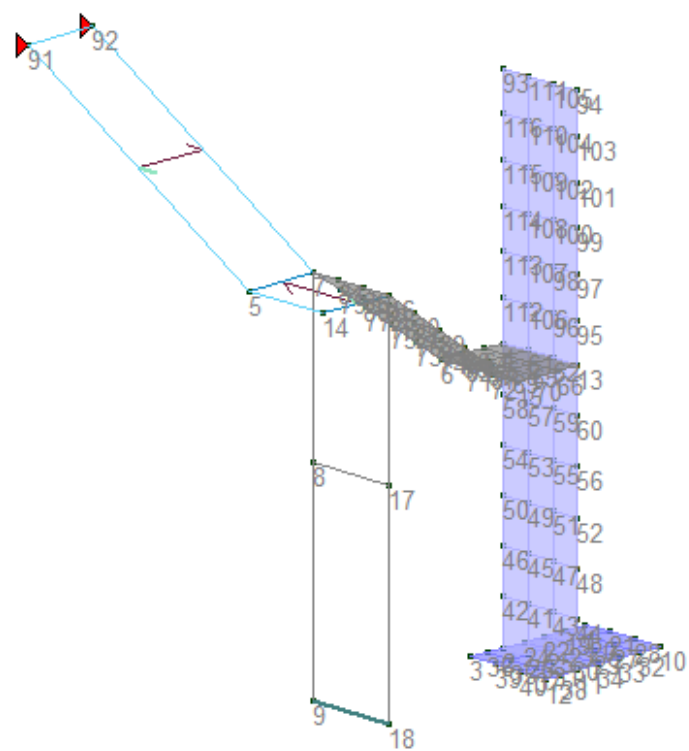
Per la parte in cls la rampa è una soletta rampante di 12cm sulla quale saranno riportati i gradini che hanno una pedata da 30cm e l'alzata di 18 cm; la soletta si incastra da una parte nella parete in c.a. del vano ascensore e dall'altra sulla trave superiore di un telaio costituito da due pilastri 30x40cm e due travi da 40x30cm e 30x50cm. Da detto telaio, in sommità, dipartono due travi a sbalzo 30x50cm su una delle quali poggiano i cosciali delle rampe in acciaio costituiti da due profili UPN 180; i gradini sono in grigliato. Lo smonto della rampa in acciaio avviene sul solaio del piano terra.

Si rimanda ai grafici architettonici e strutturali per una migliore esposizione e per la descrizione geometrica dettagliata.

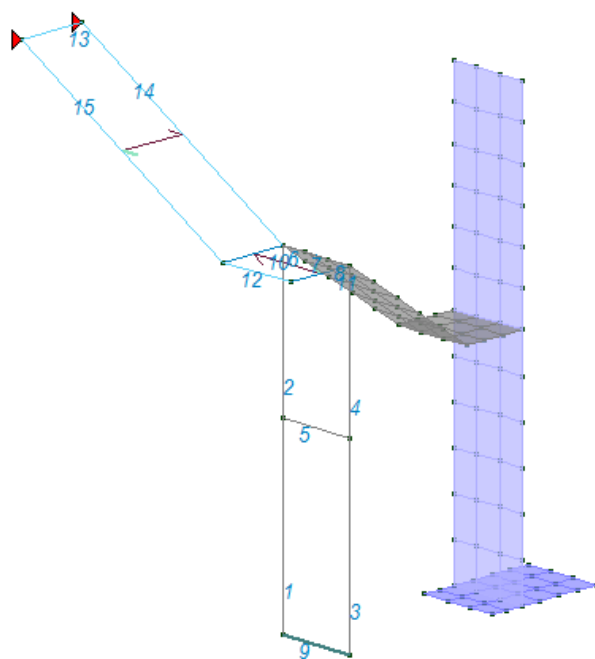
Si riporta di seguito il modello solido tridimensionale, nonché i modelli unifilari con indicazione dei nodi e degli elementi.



Modello solido



Indicazione dei nodi



Indicazione elementi

# CARATTERISTICHE MATERIALI UTILIZZATI

## LEGENDA TABELLA DATI MATERIALI

Il programma consente l'uso di materiali diversi. Sono previsti i seguenti tipi di materiale:

|   |                               |
|---|-------------------------------|
| 1 | materiale tipo cemento armato |
| 2 | materiale tipo acciaio        |

I materiali utilizzati nella modellazione sono individuati da una sigla identificativa ed un codice numerico (gli elementi strutturali richiamano quest'ultimo nella propria descrizione). Per ogni materiale vengono riportati in tabella i seguenti dati:

|                |                                         |
|----------------|-----------------------------------------|
| <i>Young</i>   | modulo di elasticità normale            |
| <i>Poisson</i> | coefficiente di contrazione trasversale |
| <i>G</i>       | modulo di elasticità tangenziale        |
| <i>Gamma</i>   | peso specifico                          |
| <i>Alfa</i>    | coefficiente di dilatazione termica     |

I dati soprariportati vengono utilizzati per la modellazione dello schema statico e per la determinazione dei carichi inerziali e termici. In relazione al tipo di materiale vengono riportati inoltre:

|   |                       |              |                                          |
|---|-----------------------|--------------|------------------------------------------|
| 1 | <b>cemento armato</b> | <b>Rck</b>   | resistenza caratteristica cubica         |
|   |                       | <b>Fctm</b>  | resistenza media a trazione semplice     |
| 2 | <b>acciaio</b>        | <b>Ft</b>    | tensione di rottura a trazione           |
|   |                       | <b>Fy</b>    | tensione di snervamento                  |
|   |                       | <b>Fd</b>    | resistenza di calcolo                    |
|   |                       | <b>Fdt</b>   | resistenza di calcolo per spess. t>40 mm |
|   |                       | <b>Sadm</b>  | tensione ammissibile                     |
|   |                       | <b>Sadmt</b> | tensione ammissibile per spess. t>40 mm  |

Vengono inoltre riportate le tabelle contenenti il riassunto delle informazioni assegnate nei criteri di progetto in uso.

| Id | Tipo / Note                | daN/ m2   | Young<br>daN/ m2 | Poisson | G<br>daN/ m2 | Gamma<br>daN/ m3 | Alfa     |
|----|----------------------------|-----------|------------------|---------|--------------|------------------|----------|
| 1  | Calcestruzzo Classe C25/30 |           | 3.145e+09        | 0.20    | 1.310e+09    | 2500.0           | 1.00e-05 |
|    | Rck                        | 3.000e+06 |                  |         |              |                  |          |
|    | fctm                       | 2.558e+05 |                  |         |              |                  |          |
| 10 | acciaio Fe360 - S235       |           | 2.100e+10        | 0.30    | 8.077e+09    | 7800.0           | 1.20e-05 |
|    | ft                         | 3.600e+07 |                  |         |              |                  |          |
|    | fy                         | 2.350e+07 |                  |         |              |                  |          |
|    | fd                         | 2.350e+07 |                  |         |              |                  |          |
|    | fdt                        | 2.100e+07 |                  |         |              |                  |          |
|    | sadm                       | 1.600e+07 |                  |         |              |                  |          |
|    | sadmt                      | 1.400e+07 |                  |         |              |                  |          |
| 54 | Grigliato                  |           | 2.100e+10        | 0.30    | 8.077e+09    | 1500.0           | 1.20e-05 |
|    | ft                         | 3.600e+07 |                  |         |              |                  |          |
|    | fy                         | 2.350e+07 |                  |         |              |                  |          |
|    | fd                         | 2.350e+07 |                  |         |              |                  |          |
|    | fdt                        | 2.100e+07 |                  |         |              |                  |          |
|    | sadm                       | 1.600e+07 |                  |         |              |                  |          |
|    | sadmt                      | 1.400e+07 |                  |         |              |                  |          |

| Aste acc.                 | 1/7/.. | 2/8/.. | 3/9/.. | 4/10/.. | 5/11/.. | 6/12/.. |
|---------------------------|--------|--------|--------|---------|---------|---------|
| <b>Generalità</b>         |        |        |        |         |         |         |
| eta assegnato             | 0.80   |        |        |         |         |         |
| Verifica come controvento | No     |        |        |         |         |         |
| Usa condizioni I e II     | Si     |        |        |         |         |         |
| Coefficiente gamma M0     | 1.05   |        |        |         |         |         |
| Coefficiente gamma M1     | 1.05   |        |        |         |         |         |
| Coefficiente gamma M2     | 1.25   |        |        |         |         |         |

| Pilastrini acc.              | 1/7/..    | 2/8/.. | 3/9/.. | 4/10/.. | 5/11/.. | 6/12/.. |
|------------------------------|-----------|--------|--------|---------|---------|---------|
| <b>Lunghezze libere</b>      |           |        |        |         |         |         |
| Metodo di calcolo 2-2        | Assegnato |        |        |         |         |         |
| 2-2 eta assegnato            | 2.00      |        |        |         |         |         |
| 2-2 eta * L assegnato [ cm ] | 0.0       |        |        |         |         |         |
| Metodo di calcolo 3-3        | Assegnato |        |        |         |         |         |
| 3-3 eta assegnato            | 2.00      |        |        |         |         |         |

| <b>Pilastrì acc.</b>          | <b>1/7/..</b> | <b>2/8/..</b> | <b>3/9/..</b> | <b>4/10/..</b> | <b>5/11/..</b> | <b>6/12/..</b> |
|-------------------------------|---------------|---------------|---------------|----------------|----------------|----------------|
| 3-3 □eta * L assegnato [ cm ] | 0.0           |               |               |                |                |                |
| 1-1 □eta assegnato            | 1.00          |               |               |                |                |                |
| 1-1 □eta * L assegnato [ cm ] | 0.0           |               |               |                |                |                |
| <b>Generalità</b>             |               |               |               |                |                |                |
| Coefficiente gamma M0         | 1.05          |               |               |                |                |                |
| Coefficiente gamma M1         | 1.05          |               |               |                |                |                |
| Coefficiente gamma M2         | 1.25          |               |               |                |                |                |
| Effetti del 2 ordine          | Si            |               |               |                |                |                |
| Momenti equivalenti           | Si            |               |               |                |                |                |
| Usa condizioni I e II         | Si            |               |               |                |                |                |

| <b>Travi acc.</b>             | <b>1/7/..</b> | <b>2/8/..</b> | <b>3/9/..</b> | <b>4/10/..</b> | <b>5/11/..</b> | <b>6/12/..</b> |
|-------------------------------|---------------|---------------|---------------|----------------|----------------|----------------|
| <b>Lunghezze libere</b>       |               |               |               |                |                |                |
| 3-3 □eta * L automatico       | Si            |               |               |                |                |                |
| 3-3 □eta assegnato            | 1.00          |               |               |                |                |                |
| 3-3 □eta assegnato [ cm ]     | 0.0           |               |               |                |                |                |
| 2-2 □eta * L automatico       | Si            |               |               |                |                |                |
| 2-2 □eta assegnato            | 1.00          |               |               |                |                |                |
| 2-2 □eta * L assegnato [ cm ] | 0.0           |               |               |                |                |                |
| 1-1 □eta * L automatico       | Si            |               |               |                |                |                |
| 1-1 □eta assegnato            | 1.00          |               |               |                |                |                |
| 1-1 □eta * L assegnato [ cm ] | 0.0           |               |               |                |                |                |
| <b>Generalità</b>             |               |               |               |                |                |                |
| Coefficiente gamma M0         | 1.05          |               |               |                |                |                |
| Coefficiente gamma M1         | 1.05          |               |               |                |                |                |
| Coefficiente gamma M2         | 1.25          |               |               |                |                |                |
| Luce di taglio per GR [ cm ]  | 1.00          |               |               |                |                |                |
| Usa condizioni I e II         | Si            |               |               |                |                |                |
| Momenti equivalenti           | Si            |               |               |                |                |                |

| <b>Pareti c.a.</b>                   | <b>1/7/..</b>               | <b>2/8/..</b> | <b>3/9/..</b> | <b>4/10/..</b> | <b>5/11/..</b> | <b>6/12/..</b> |
|--------------------------------------|-----------------------------|---------------|---------------|----------------|----------------|----------------|
| <b>Generalità</b>                    |                             |               |               |                |                |                |
| Progetto armatura                    | Composto con parete sismica |               |               |                |                |                |
| <b>Armatura</b>                      |                             |               |               |                |                |                |
| Inclinazione Av [ gradi ]            | 90.00                       |               |               |                |                |                |
| Angolo Av-Ao [ gradi ]               | 90.00                       |               |               |                |                |                |
| Minima tesa                          | 0.25                        |               |               |                |                |                |
| Massima tesa                         | 4.00                        |               |               |                |                |                |
| Maglia unica centrale                | No                          |               |               |                |                |                |
| Unico strato verticale               | No                          |               |               |                |                |                |
| Unico strato orizzontale             | No                          |               |               |                |                |                |
| Copriferro [ cm ]                    | 2.00                        |               |               |                |                |                |
| <b>Maglia V</b>                      |                             |               |               |                |                |                |
| diametro                             | 14                          |               |               |                |                |                |
| passo                                | 15                          |               |               |                |                |                |
| diametro aggiuntivi                  | 14                          |               |               |                |                |                |
| <b>Maglia O</b>                      |                             |               |               |                |                |                |
| diametro                             | 14                          |               |               |                |                |                |
| passo                                | 15                          |               |               |                |                |                |
| diametro aggiuntivi                  | 14                          |               |               |                |                |                |
| <b>Stati limite ultimi</b>           |                             |               |               |                |                |                |
| Tensione fy [daN/ m2 ]               | 4.500e+07                   |               |               |                |                |                |
| Tipo acciaio                         | tipo C                      |               |               |                |                |                |
| Coefficiente gamma s                 | 1.15                        |               |               |                |                |                |
| Coefficiente gamma c                 | 1.50                        |               |               |                |                |                |
| Fattore di confidenza FC             | 0.0                         |               |               |                |                |                |
| Verifiche con N costante             | Si                          |               |               |                |                |                |
| <b>Tensioni ammissibili</b>          |                             |               |               |                |                |                |
| Tensione amm. cls [daN/ m2 ]         | 975000.00                   |               |               |                |                |                |
| Tensione amm. acciaio [daN/ m2 ]     | 2.600e+07                   |               |               |                |                |                |
| Rapporto omogeneizzazione N          | 15.00                       |               |               |                |                |                |
| Massimo rapporto area compressa/tesa | 1.00                        |               |               |                |                |                |
| <b>Parete sismica</b>                |                             |               |               |                |                |                |
| Fattore amplificazione taglio V      | 1.50                        |               |               |                |                |                |
| Hcrit. par. 7.4.4.5.1 [ cm ]         | 0.0                         |               |               |                |                |                |
| Hcrit. par. 7.4.6.1.4 [ cm ]         | 0.0                         |               |               |                |                |                |
| Usa diagramma di fig. 7.4.2          | No                          |               |               |                |                |                |
| Vincolo lati                         | nessun lato                 |               |               |                |                |                |
| Verifica come fascia                 | No                          |               |               |                |                |                |
| Diametro di estremità                | 0                           |               |               |                |                |                |
| <b>Zona confinata</b>                |                             |               |               |                |                |                |

| <b>Pareti c.a.</b>           | <b>1/7/..</b> | <b>2/8/..</b> | <b>3/9/..</b> | <b>4/10/..</b> | <b>5/11/..</b> | <b>6/12/..</b> |
|------------------------------|---------------|---------------|---------------|----------------|----------------|----------------|
| Minima tesa                  | 1.00          |               |               |                |                |                |
| Massima tesa                 | 4.00          |               |               |                |                |                |
| Distanza barre [ cm ]        | 2.00          |               |               |                |                |                |
| Interferro                   | 2             |               |               |                |                |                |
| <b>Armatura inclinata</b>    |               |               |               |                |                |                |
| Area barre [ cm2 ]           | 0.0           |               |               |                |                |                |
| Angolo orizzontale [ gradi ] | 0.0           |               |               |                |                |                |
| Distanza di base [ cm ]      | 0.0           |               |               |                |                |                |
| <b>Resistenza al fuoco</b>   |               |               |               |                |                |                |
| 3- intradosso                | No            |               |               |                |                |                |
| 3+ estradosso                | No            |               |               |                |                |                |
| Tempo di esposizione R       | 15            |               |               |                |                |                |

| <b>Gusci c.a.</b>                    | <b>1/7/..</b> | <b>2/8/..</b> | <b>3/9/..</b> | <b>4/10/..</b> | <b>5/11/..</b> | <b>6/12/..</b> |
|--------------------------------------|---------------|---------------|---------------|----------------|----------------|----------------|
| <b>Armatura</b>                      |               |               |               |                |                |                |
| Inclinazione Ax [ gradi ]            | 0.0           |               |               |                |                |                |
| Angolo Ax-Ay [ gradi ]               | 90.00         |               |               |                |                |                |
| Minima tesa                          | 0.31          |               |               |                |                |                |
| Massima tesa                         | 0.78          |               |               |                |                |                |
| Maglia unica centrale                | No            |               |               |                |                |                |
| Copriferro [ cm ]                    | 2.00          |               |               |                |                |                |
| <b>Maglia x</b>                      |               |               |               |                |                |                |
| diametro                             | 14            |               |               |                |                |                |
| passo                                | 15            |               |               |                |                |                |
| diametro aggiuntivi                  | 14            |               |               |                |                |                |
| <b>Maglia y</b>                      |               |               |               |                |                |                |
| diametro                             | 14            |               |               |                |                |                |
| passo                                | 15            |               |               |                |                |                |
| diametro aggiuntivi                  | 14            |               |               |                |                |                |
| <b>Stati limite ultimi</b>           |               |               |               |                |                |                |
| Tensione fy [daN/ m2 ]               | 4.500e+07     |               |               |                |                |                |
| Tipo acciaio                         | tipo C        |               |               |                |                |                |
| Coefficiente gamma s                 | 1.15          |               |               |                |                |                |
| Coefficiente gamma c                 | 1.50          |               |               |                |                |                |
| Fattore di confidenza FC             | 0.0           |               |               |                |                |                |
| Verifiche con N costante             | Si            |               |               |                |                |                |
| Applica SLU da DIN                   | No            |               |               |                |                |                |
| <b>Tensioni ammissibili</b>          |               |               |               |                |                |                |
| Tensione amm. cls [daN/ m2 ]         | 975000.00     |               |               |                |                |                |
| Tensione amm. acciaio [daN/ m2 ]     | 2.600e+07     |               |               |                |                |                |
| Rapporto omogeneizzazione N          | 15.00         |               |               |                |                |                |
| Massimo rapporto area compressa/tesa | 1.00          |               |               |                |                |                |
| <b>Resistenza al fuoco</b>           |               |               |               |                |                |                |
| 3- intradosso                        | No            |               |               |                |                |                |
| 3+ estradosso                        | No            |               |               |                |                |                |
| Tempo di esposizione R               | 15            |               |               |                |                |                |

| <b>Travi c.a.</b>                  | <b>1/7/..</b> | <b>2/8/..</b> | <b>3/9/..</b> | <b>4/10/..</b> | <b>5/11/..</b> | <b>6/12/..</b> |
|------------------------------------|---------------|---------------|---------------|----------------|----------------|----------------|
| <b>Generalità</b>                  |               |               |               |                |                |                |
| Progetta a filo                    | No            |               |               |                |                |                |
| Af inf: da $q \cdot L \cdot L$ /   | 0.0           |               |               |                |                |                |
| <b>Armatura</b>                    |               |               |               |                |                |                |
| Minima tesa                        | 0.31          |               |               |                |                |                |
| Minima compressa                   | 0.31          |               |               |                |                |                |
| Massima tesa                       | 0.78          |               |               |                |                |                |
| Da sezione                         | No            |               |               |                |                |                |
| Usa armatura teorica               | Si            |               |               |                |                |                |
| <b>Stati limite ultimi</b>         |               |               |               |                |                |                |
| Tensione fy [daN/ m2 ]             | 4.500e+07     |               |               |                |                |                |
| Tensione fy staffe [daN/ m2 ]      | 4.500e+07     |               |               |                |                |                |
| Tipo acciaio                       | tipo C        |               |               |                |                |                |
| Coefficiente gamma s               | 1.15          |               |               |                |                |                |
| Coefficiente gamma c               | 1.50          |               |               |                |                |                |
| Fattore di confidenza FC           | 0.0           |               |               |                |                |                |
| Verifiche con N costante           | Si            |               |               |                |                |                |
| Fattore di ridistribuzione         | 0.0           |               |               |                |                |                |
| <b>Modello per il confinamento</b> |               |               |               |                |                |                |
| Relazione tensio-deformativa       | Mander        |               |               |                |                |                |
| Incrudimento acciaio               | 5.000e-03     |               |               |                |                |                |
| Fattore lambda                     | 1.00          |               |               |                |                |                |
| epsilon max,s                      | 4.000e-02     |               |               |                |                |                |

| Travi c.a.                           | 1/7/..    | 2/8/.. | 3/9/.. | 4/10/.. | 5/11/.. | 6/12/.. |
|--------------------------------------|-----------|--------|--------|---------|---------|---------|
| epsilon cu2                          | 4.500e-03 |        |        |         |         |         |
| epsilon c2                           | 0.0       |        |        |         |         |         |
| epsilon cy                           | 0.0       |        |        |         |         |         |
| <b>Tensioni ammissibili</b>          |           |        |        |         |         |         |
| Tensione amm. cls [daN/ m2 ]         | 975000.00 |        |        |         |         |         |
| Tensione amm. acciaio [daN/ m2 ]     | 2.600e+07 |        |        |         |         |         |
| Rapporto omogeneizzazione N          | 15.00     |        |        |         |         |         |
| Massimo rapporto area compressa/tesa | 1.00      |        |        |         |         |         |
| <b>Staffe</b>                        |           |        |        |         |         |         |
| Diametro staffe                      | 0.0       |        |        |         |         |         |
| Passo minimo [ cm ]                  | 4.00      |        |        |         |         |         |
| Passo massimo [ cm ]                 | 30.00     |        |        |         |         |         |
| Passo raffittito [ cm ]              | 15.00     |        |        |         |         |         |
| Lunghezza zona raffittita [ cm ]     | 50.00     |        |        |         |         |         |
| Ctg(Teta) Max                        | 2.50      |        |        |         |         |         |
| Percentuale sagomati                 | 0.0       |        |        |         |         |         |
| Luce di taglio per GR [ cm ]         | 1.00      |        |        |         |         |         |
| Adotta scorrimento medio             | No        |        |        |         |         |         |
| Torsione non essenziale inclusa      | Si        |        |        |         |         |         |

| Pilastrì c.a.                      | 1/7/..          | 2/8/.. | 3/9/.. | 4/10/.. | 5/11/.. | 6/12/.. |
|------------------------------------|-----------------|--------|--------|---------|---------|---------|
| <b>Generalità</b>                  |                 |        |        |         |         |         |
| Progetto armatura                  | Privilegia lati |        |        |         |         |         |
| Progetta a filo                    | No              |        |        |         |         |         |
| Effetti del 2 ordine               | Si              |        |        |         |         |         |
| eta per 2-2                        | 1.00            |        |        |         |         |         |
| eta per 3-3                        | 1.00            |        |        |         |         |         |
| <b>Armatura</b>                    |                 |        |        |         |         |         |
| Massima tesa                       | 4.00            |        |        |         |         |         |
| Minima tesa                        | 1.00            |        |        |         |         |         |
| <b>Stati limite ultimi</b>         |                 |        |        |         |         |         |
| Tensione fy [daN/ m2 ]             | 4.500e+07       |        |        |         |         |         |
| Tensione fy staffe [daN/ m2 ]      | 4.500e+07       |        |        |         |         |         |
| Tipo acciaio                       | tipo C          |        |        |         |         |         |
| Coefficiente gamma s               | 1.15            |        |        |         |         |         |
| Coefficiente gamma c               | 1.50            |        |        |         |         |         |
| Fattore di confidenza FC           | 0.0             |        |        |         |         |         |
| Verifiche con N costante           | Si              |        |        |         |         |         |
| <b>Modello per il confinamento</b> |                 |        |        |         |         |         |
| Relazione tensio-deformativa       | Mander          |        |        |         |         |         |
| Incrudimento acciaio               | 5.000e-03       |        |        |         |         |         |
| Fattore lambda                     | 1.00            |        |        |         |         |         |
| epsilon max,s                      | 4.000e-02       |        |        |         |         |         |
| epsilon cu2                        | 4.500e-03       |        |        |         |         |         |
| epsilon c2                         | 0.0             |        |        |         |         |         |
| epsilon cy                         | 0.0             |        |        |         |         |         |
| <b>Tensioni ammissibili</b>        |                 |        |        |         |         |         |
| Tensione amm. cls [daN/ m2 ]       | 975000.00       |        |        |         |         |         |
| Tensione amm. acciaio [daN/ m2 ]   | 2.600e+07       |        |        |         |         |         |
| Rapporto omogeneizzazione N        | 15.00           |        |        |         |         |         |
| <b>Staffe</b>                      |                 |        |        |         |         |         |
| Diametro staffe                    | 0.0             |        |        |         |         |         |
| Passo minimo [ cm ]                | 5.00            |        |        |         |         |         |
| Passo massimo [ cm ]               | 25.00           |        |        |         |         |         |
| Passo raffittito [ cm ]            | 15.00           |        |        |         |         |         |
| Lunghezza zona raffittita [ cm ]   | 45.00           |        |        |         |         |         |
| Ctg(Teta) Max                      | 2.50            |        |        |         |         |         |
| Luce di taglio per GR [ cm ]       | 1.00            |        |        |         |         |         |
| Massimizza gerarchia               | Si              |        |        |         |         |         |

# MODELLAZIONE DELLE SEZIONI

## LEGENDA TABELLA DATI SEZIONI

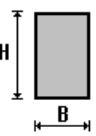
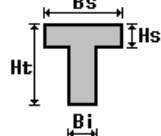
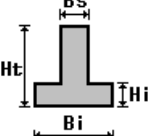
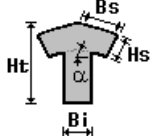
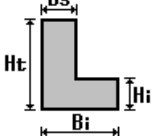
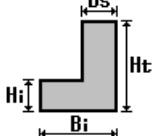
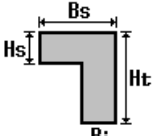
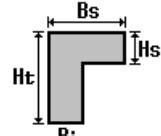
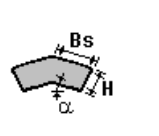
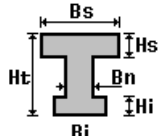
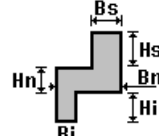
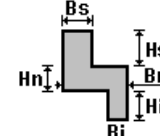
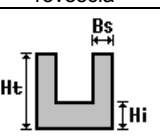
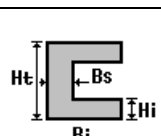
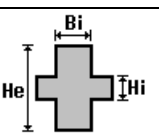
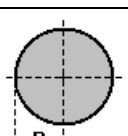
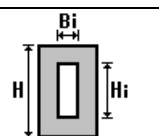
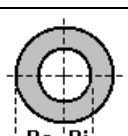
Il programma consente l'uso di sezioni diverse. Sono previsti i seguenti tipi di sezione:

- 1 sezione di tipo generico
- 2 profilati semplici
- 3 profilati accoppiati e speciali

Le sezioni utilizzate nella modellazione sono individuate da una sigla identificativa ed un codice numerico (gli elementi strutturali richiamano quest'ultimo nella propria descrizione). Per ogni sezione vengono riportati in tabella i seguenti dati:

|              |                                                                     |
|--------------|---------------------------------------------------------------------|
| <b>Area</b>  | area della sezione                                                  |
| <b>A V2</b>  | area della sezione/fattore di taglio (per il taglio in direzione 2) |
| <b>A V3</b>  | area della sezione/fattore di taglio (per il taglio in direzione 3) |
| <b>Jt</b>    | fattore torsionale di rigidezza                                     |
| <b>J2-2</b>  | momento d'inerzia della sezione riferito all'asse 2                 |
| <b>J3-3</b>  | momento d'inerzia della sezione riferito all'asse 3                 |
| <b>W2-2</b>  | modulo di resistenza della sezione riferito all'asse 2              |
| <b>W3-3</b>  | modulo di resistenza della sezione riferito all'asse 3              |
| <b>Wp2-2</b> | modulo di resistenza plastico della sezione riferito all'asse 2     |
| <b>Wp3-3</b> | modulo di resistenza plastico della sezione riferito all'asse 3     |

I dati sopra riportati vengono utilizzati per la determinazione dei carichi inerziali e per la definizione delle rigidezze degli elementi strutturali; qualora il valore di Area V2 (e/o Area V3) sia nullo la deformabilità per taglio V2 (e/o V3) è trascurata. La valutazione delle caratteristiche inerziali delle sezioni è condotta nel riferimento 2-3 dell'elemento.

|                                                                                                                |                                                                                                     |                                                                                                     |                                                                                                     |                                                                                                               |                                                                                                         |
|----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| <br>rettangolare             | <br>a T           | <br>a T rovescia  | <br>a T di colmo | <br>a L                   | <br>a L specchiata  |
| <br>a L specchiata rovescia | <br>a L rovescia | <br>a L di colmo | <br>a doppio T  | <br>a quattro specchiata | <br>a quattro      |
| <br>a U                     | <br>a C          | <br>a croce      | <br>circolare   | <br>rettangolare cava    | <br>circolare cava |

Per quanto concerne i profilati semplici ed accoppiati l'asse 2 del riferimento coincide con l'asse x riportato nei più diffusi profilati.

Per quanto concerne le sezioni di tipo generico (tipo 1.):

i valori dimensionali con prefisso B sono riferiti all'asse 2

i valori dimensionali con prefisso H sono riferiti all'asse 3

| Id | Tipo    | Area    | A V2    | A V3    | Jt        | J 2-2     | J 3-3     | W 2-2     | W 3-3     | Wp 2-2    | Wp 3-3    |
|----|---------|---------|---------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|    |         | cm2     | cm2     | cm2     | cm4       | cm4       | cm4       | cm3       | cm3       | cm3       | cm3       |
| 1  | 30x40   | 1200.00 | 1000.00 | 1000.00 | 1.946e+05 | 9.000e+04 | 1.600e+05 | 6000.00   | 8000.00   | 9000.00   | 1.200e+04 |
| 2  | 30x50   | 1500.00 | 1250.00 | 1250.00 | 2.799e+05 | 1.125e+05 | 3.125e+05 | 7500.00   | 1.250e+04 | 1.125e+04 | 1.875e+04 |
| 3  | 120x55  | 6600.00 | 5500.00 | 5500.00 | 4.733e+06 | 7.920e+06 | 1.664e+06 | 1.320e+05 | 6.050e+04 | 1.980e+05 | 9.075e+04 |
| 5  | UPN 180 | 28.00   | 0.0     | 0.0     | 9.55      | 114.00    | 1354.00   | 22.40     | 150.00    | 42.90     | 179.00    |

# MODELLAZIONE STRUTTURA: NODI

## LEGENDA TABELLA DATI NODI

Il programma utilizza per la modellazione nodi strutturali.

Ogni nodo è individuato dalle coordinate cartesiane nel sistema di riferimento globale (□ □ □).

Ad ogni nodo è eventualmente associato un codice di vincolamento rigido, un codice di fondazione speciale, ed un set di sei molle (tre per le traslazioni, tre per le rotazioni). Le tabelle sottoriportate riflettono le succitate possibilità. In particolare per ogni nodo viene indicato in tabella:

|             |                           |
|-------------|---------------------------|
| <b>Nodo</b> | numero del nodo.          |
| <b>X</b>    | valore della coordinata □ |
| <b>Y</b>    | valore della coordinata □ |
| <b>Z</b>    | valore della coordinata □ |

Per i nodi ai quali sia associato un codice di vincolamento rigido, un codice di fondazione speciale o un set di molle viene indicato in tabella:

|                |                                                                                                                                                                                                                                                                                 |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Nodo</b>    | numero del nodo.                                                                                                                                                                                                                                                                |
| <b>X</b>       | valore della coordinata □                                                                                                                                                                                                                                                       |
| <b>Y</b>       | valore della coordinata □                                                                                                                                                                                                                                                       |
| <b>Z</b>       | valore della coordinata □                                                                                                                                                                                                                                                       |
| <b>Note</b>    | eventuale codice di vincolo (es. v=110010 sei valori relativi ai sei gradi di libertà previsti per il nodo TxTyTzRxRyRz, il valore 1 indica che lo spostamento o rotazione relativo è impedito, il valore 0 indica che lo spostamento o rotazione relativo è libero).           |
| <b>Note</b>    | (FS = 1, 2,...) eventuale codice del tipo di fondazione speciale (1, 2,... fanno riferimento alle tipologie: plinto, palo, plinto su pali,...) che è collegato al nodo.<br>(ISO = "id SIGLA") indice e sigla identificativa dell' eventuale isolatore sismico assegnato al nodo |
| <b>Rig. TX</b> | valore della rigidezza dei vincoli elastici eventualmente applicati al nodo, nello specifico T□ (idem per T□, T□, R□, R□, R□).                                                                                                                                                  |

Per strutture sismicamente isolate viene inoltre inserita la tabella delle caratteristiche per gli isolatori utilizzati; le caratteristiche sono indicate in conformità al cap. 7.10 del D.M. 14/01/08

## TABELLA DATI NODI

| Nodo | X     | Y     | Z      | Nodo | X     | Y     | Z      | Nodo | X     | Y     | Z      |
|------|-------|-------|--------|------|-------|-------|--------|------|-------|-------|--------|
|      | cm    | cm    | cm     |      | cm    | cm    | cm     |      | cm    | cm    | cm     |
| 1    | 0.0   | 0.0   | -139.0 | 2    | 175.0 | 0.0   | -139.0 | 3    | 245.0 | 0.0   | -139.0 |
| 4    | 175.0 | 0.0   | 351.0  | 5    | 720.0 | 0.0   | 551.0  | 6    | 306.0 | 0.0   | 351.0  |
| 7    | 580.0 | 0.0   | 551.0  | 8    | 580.0 | 0.0   | 245.0  | 9    | 580.0 | 0.0   | -139.0 |
| 10   | 0.0   | 165.0 | -139.0 | 11   | 175.0 | 165.0 | -139.0 | 12   | 245.0 | 165.0 | -139.0 |
| 13   | 175.0 | 165.0 | 351.0  | 14   | 720.0 | 165.0 | 551.0  | 15   | 306.0 | 165.0 | 351.0  |
| 16   | 580.0 | 165.0 | 551.0  | 17   | 580.0 | 165.0 | 245.0  | 18   | 580.0 | 165.0 | -139.0 |
| 19   | 43.8  | 0.0   | -139.0 | 20   | 43.8  | 55.0  | -139.0 | 21   | 0.0   | 55.0  | -139.0 |
| 22   | 87.5  | 0.0   | -139.0 | 23   | 87.5  | 55.0  | -139.0 | 24   | 131.3 | 0.0   | -139.0 |
| 25   | 131.3 | 55.0  | -139.0 | 26   | 175.0 | 55.0  | -139.0 | 27   | 43.8  | 110.0 | -139.0 |
| 28   | 0.0   | 110.0 | -139.0 | 29   | 87.5  | 110.0 | -139.0 | 30   | 131.3 | 110.0 | -139.0 |
| 31   | 175.0 | 110.0 | -139.0 | 32   | 43.8  | 165.0 | -139.0 | 33   | 87.5  | 165.0 | -139.0 |
| 34   | 131.3 | 165.0 | -139.0 | 35   | 210.0 | 55.0  | -139.0 | 36   | 210.0 | 0.0   | -139.0 |
| 37   | 210.0 | 110.0 | -139.0 | 38   | 210.0 | 165.0 | -139.0 | 39   | 245.0 | 55.0  | -139.0 |
| 40   | 245.0 | 110.0 | -139.0 | 41   | 175.0 | 55.0  | -57.3  | 42   | 175.0 | 0.0   | -57.3  |
| 43   | 175.0 | 110.0 | -57.3  | 44   | 175.0 | 165.0 | -57.3  | 45   | 175.0 | 55.0  | 24.3   |
| 46   | 175.0 | 0.0   | 24.3   | 47   | 175.0 | 110.0 | 24.3   | 48   | 175.0 | 165.0 | 24.3   |
| 49   | 175.0 | 55.0  | 106.0  | 50   | 175.0 | 0.0   | 106.0  | 51   | 175.0 | 110.0 | 106.0  |
| 52   | 175.0 | 165.0 | 106.0  | 53   | 175.0 | 55.0  | 187.7  | 54   | 175.0 | 0.0   | 187.7  |
| 55   | 175.0 | 110.0 | 187.7  | 56   | 175.0 | 165.0 | 187.7  | 57   | 175.0 | 55.0  | 269.3  |
| 58   | 175.0 | 0.0   | 269.3  | 59   | 175.0 | 110.0 | 269.3  | 60   | 175.0 | 165.0 | 269.3  |
| 61   | 175.0 | 55.0  | 351.0  | 62   | 175.0 | 110.0 | 351.0  | 63   | 218.7 | 55.0  | 351.0  |
| 64   | 218.7 | 0.0   | 351.0  | 65   | 218.7 | 110.0 | 351.0  | 66   | 218.7 | 165.0 | 351.0  |
| 67   | 262.3 | 55.0  | 351.0  | 68   | 262.3 | 0.0   | 351.0  | 69   | 262.3 | 110.0 | 351.0  |
| 70   | 262.3 | 165.0 | 351.0  | 71   | 306.0 | 55.0  | 351.0  | 72   | 306.0 | 110.0 | 351.0  |
| 73   | 360.8 | 0.0   | 391.0  | 74   | 360.8 | 55.0  | 391.0  | 75   | 415.6 | 0.0   | 431.0  |
| 76   | 415.6 | 55.0  | 431.0  | 77   | 470.4 | 0.0   | 471.0  | 78   | 470.4 | 55.0  | 471.0  |
| 79   | 525.2 | 0.0   | 511.0  | 80   | 525.2 | 55.0  | 511.0  | 81   | 580.0 | 55.0  | 551.0  |
| 82   | 360.8 | 110.0 | 391.0  | 83   | 415.6 | 110.0 | 431.0  | 84   | 470.4 | 110.0 | 471.0  |
| 85   | 525.2 | 110.0 | 511.0  | 86   | 580.0 | 110.0 | 551.0  | 87   | 360.8 | 165.0 | 391.0  |
| 88   | 415.6 | 165.0 | 431.0  | 89   | 470.4 | 165.0 | 471.0  | 90   | 525.2 | 165.0 | 511.0  |
| 93   | 175.0 | 0.0   | 793.0  | 94   | 175.0 | 165.0 | 793.0  | 95   | 175.0 | 165.0 | 424.7  |
| 96   | 175.0 | 110.0 | 424.7  | 97   | 175.0 | 165.0 | 498.3  | 98   | 175.0 | 110.0 | 498.3  |
| 99   | 175.0 | 165.0 | 572.0  | 100  | 175.0 | 110.0 | 572.0  | 101  | 175.0 | 165.0 | 645.7  |
| 102  | 175.0 | 110.0 | 645.7  | 103  | 175.0 | 165.0 | 719.3  | 104  | 175.0 | 110.0 | 719.3  |
| 105  | 175.0 | 110.0 | 793.0  | 106  | 175.0 | 55.0  | 424.7  | 107  | 175.0 | 55.0  | 498.3  |

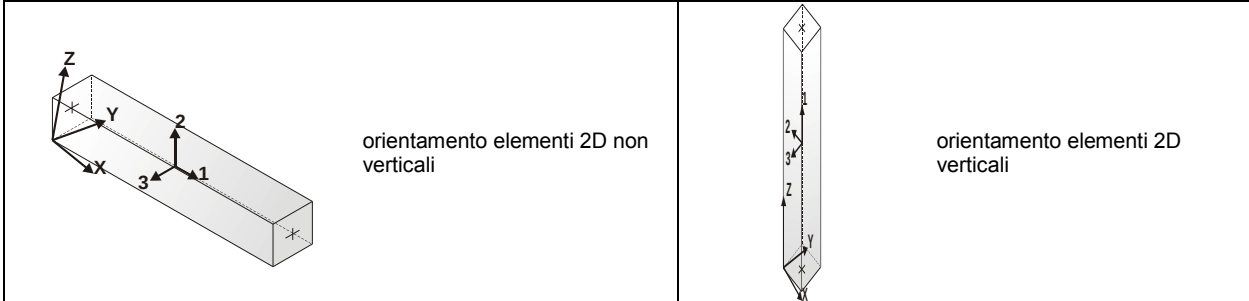
| Nodo | X     | Y    | Z     | Nodo | X     | Y    | Z     | Nodo | X     | Y    | Z     |
|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|
| 108  | 175.0 | 55.0 | 572.0 | 109  | 175.0 | 55.0 | 645.7 | 110  | 175.0 | 55.0 | 719.3 |
| 111  | 175.0 | 55.0 | 793.0 | 112  | 175.0 | 0.0  | 424.7 | 113  | 175.0 | 0.0  | 498.3 |
| 114  | 175.0 | 0.0  | 572.0 | 115  | 175.0 | 0.0  | 645.7 | 116  | 175.0 | 0.0  | 719.3 |

| Nodo | X     | Y      | Z     | Note     | Rig. TX | Rig. TY | Rig. TZ | Rig. RX    | Rig. RY    | Rig. RZ    |
|------|-------|--------|-------|----------|---------|---------|---------|------------|------------|------------|
|      | cm    | cm     | cm    |          | daN/cm  | daN/cm  | daN/cm  | daN cm/rad | daN cm/rad | daN cm/rad |
| 91   | 720.0 | -490.0 | 838.0 | v=001001 |         |         |         |            |            |            |
| 92   | 580.0 | -490.0 | 838.0 | v=001001 |         |         |         |            |            |            |

# MODELLAZIONE STRUTTURA: ELEMENTI TRAVE

## TABELLA DATI TRAVI

Il programma utilizza per la modellazione elementi a due nodi denominati in generale travi.  
Ogni elemento trave è individuato dal nodo iniziale e dal nodo finale.  
Ogni elemento è caratterizzato da un insieme di proprietà riportate in tabella che ne completano la modellazione.



In particolare per ogni elemento viene indicato in tabella:

|                       |                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Elem.</b>          | numero dell'elemento                                                                                                                                                                                                                                                                                                                                              |
| <b>Note</b>           | codice di comportamento: trave, trave di fondazione, pilastro, asta, asta tesa, asta compressa,                                                                                                                                                                                                                                                                   |
| <b>Nodo I (J)</b>     | numero del nodo iniziale (finale)                                                                                                                                                                                                                                                                                                                                 |
| <b>Mat.</b>           | codice del materiale assegnato all'elemento                                                                                                                                                                                                                                                                                                                       |
| <b>Sez.</b>           | codice della sezione assegnata all'elemento                                                                                                                                                                                                                                                                                                                       |
| <b>Rotaz.</b>         | valore della rotazione dell'elemento, attorno al proprio asse, nel caso in cui l'orientamento di default non sia adottabile; l'orientamento di default prevede per gli elementi non verticali l'asse 2 contenuto nel piano verticale e l'asse 3 orizzontale, per gli elementi verticali l'asse 2 diretto secondo X negativo e l'asse 3 diretto secondo Y negativo |
| <b>Svincolo I (J)</b> | codici di svincolo per le azioni interne; i primi sei codici si riferiscono al nodo iniziale, i restanti sei al nodo finale (il valore 1 indica che la relativa azione interna non è attiva)                                                                                                                                                                      |
| <b>Wink V</b>         | costante di sottofondo (coefficiente di Winkler) per la modellazione della trave su suolo elastico                                                                                                                                                                                                                                                                |
| <b>Wink O</b>         | costante di sottofondo (coefficiente di Winkler) per la modellazione del suolo elastico orizzontale                                                                                                                                                                                                                                                               |

| Elem. | Note     | Nodo I | Nodo J | Mat. | Sez. | Rotaz. | Svincolo I | Svincolo J | Wink V  | Wink O  |
|-------|----------|--------|--------|------|------|--------|------------|------------|---------|---------|
|       |          |        |        |      |      | gradi  |            |            | daN/cm3 | daN/cm3 |
| 1     | Pilas.   | 9      | 8      | 1    | 1    |        |            |            |         |         |
| 2     | Pilas.   | 8      | 7      | 1    | 1    |        |            |            |         |         |
| 3     | Pilas.   | 18     | 17     | 1    | 1    |        |            |            |         |         |
| 4     | Pilas.   | 17     | 16     | 1    | 1    |        |            |            |         |         |
| 5     | Trave    | 8      | 17     | 1    | 1    | 90.00  |            |            |         |         |
| 6     | Trave    | 7      | 81     | 1    | 2    | 90.00  |            |            |         |         |
| 7     | Trave    | 81     | 86     | 1    | 2    | 90.00  |            |            |         |         |
| 8     | Trave    | 86     | 16     | 1    | 2    | 90.00  |            |            |         |         |
| 9     | Trave f. | 9      | 18     | 1    | 3    |        |            |            | 8.00    | 1.00    |
| 10    | Trave    | 7      | 5      | 1    | 2    |        |            |            |         |         |
| 11    | Trave    | 16     | 14     | 1    | 2    |        |            |            |         |         |
| 12    | Trave    | 5      | 14     | 10   | 5    | 180.00 |            |            |         |         |
| 13    | Trave    | 92     | 91     | 10   | 5    | 180.00 |            |            |         |         |
| 14    | Trave    | 92     | 7      | 10   | 5    | 180.00 |            |            |         |         |
| 15    | Trave    | 91     | 5      | 10   | 5    |        |            |            |         |         |

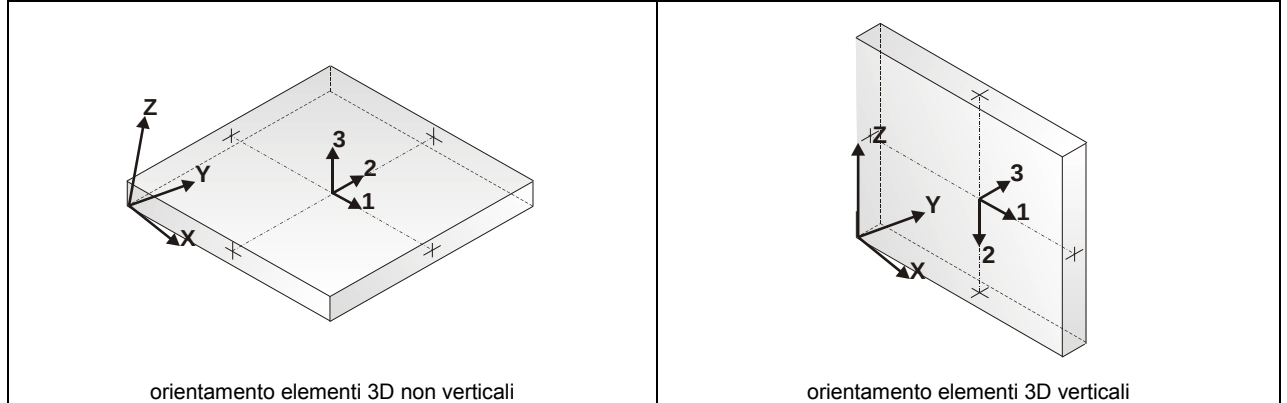
# MODELLAZIONE STRUTTURALE: ELEMENTI SHELL

## LEGENDA TABELLA DATI SHELL

Il programma utilizza per la modellazione elementi a tre o quattro nodi denominati in generale shell.

Ogni elemento shell è individuato dai nodi I, □, K, L (L=I per gli elementi a tre nodi).

Ogni elemento è caratterizzato da un insieme di proprietà riportate in tabella che ne completano la modellazione.



In particolare per ogni elemento viene indicato in tabella:

| Elem.            | numero dell'elemento                                                                                                                                                                                                                                                           |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Note             | codice di comportamento:<br><i>Guscio</i> (elemento guscio in elevazione non verticale)<br><i>Guscio fond.</i> (elemento guscio su suolo elastico)<br><i>Setto</i> (elemento guscio in elevazione verticale)<br><i>Membrana</i> (elemento guscio con comportamento membranale) |
| Nodo I (J, K, L) | numero del nodo I (□ K, L)                                                                                                                                                                                                                                                     |
| Mat.             | codice del materiale assegnato all'elemento                                                                                                                                                                                                                                    |
| Spessore         | spessore dell'elemento (costante)                                                                                                                                                                                                                                              |
| Wink V           | costante di sottofondo (coefficiente di Winkler) per la modellazione del suolo elastico verticale                                                                                                                                                                              |
| Wink O           | costante di sottofondo (coefficiente di Winkler) per la modellazione del suolo elastico orizzontale                                                                                                                                                                            |

| Elem. | Note         | Nodo I | Nodo J | Nodo K | Nodo L | Mat. | Spessore | Wink V  | Wink O  |
|-------|--------------|--------|--------|--------|--------|------|----------|---------|---------|
|       |              |        |        |        |        |      | cm       | daN/cm3 | daN/cm3 |
| 1     | Guscio fond. | 1      | 19     | 20     | 21     | 1    | 55.0     | 8.00    | 1.00    |
| 2     | Guscio fond. | 19     | 22     | 23     | 20     | 1    | 55.0     | 8.00    | 1.00    |
| 3     | Guscio fond. | 22     | 24     | 25     | 23     | 1    | 55.0     | 8.00    | 1.00    |
| 4     | Guscio fond. | 24     | 2      | 26     | 25     | 1    | 55.0     | 8.00    | 1.00    |
| 5     | Guscio fond. | 21     | 20     | 27     | 28     | 1    | 55.0     | 8.00    | 1.00    |
| 6     | Guscio fond. | 20     | 23     | 29     | 27     | 1    | 55.0     | 8.00    | 1.00    |
| 7     | Guscio fond. | 23     | 25     | 30     | 29     | 1    | 55.0     | 8.00    | 1.00    |
| 8     | Guscio fond. | 25     | 26     | 31     | 30     | 1    | 55.0     | 8.00    | 1.00    |
| 9     | Guscio fond. | 28     | 27     | 32     | 10     | 1    | 55.0     | 8.00    | 1.00    |
| 10    | Guscio fond. | 27     | 29     | 33     | 32     | 1    | 55.0     | 8.00    | 1.00    |
| 11    | Guscio fond. | 29     | 30     | 34     | 33     | 1    | 55.0     | 8.00    | 1.00    |
| 12    | Guscio fond. | 30     | 31     | 11     | 34     | 1    | 55.0     | 8.00    | 1.00    |
| 13    | Guscio fond. | 2      | 36     | 35     | 26     | 1    | 55.0     | 8.00    | 1.00    |
| 14    | Guscio fond. | 26     | 35     | 37     | 31     | 1    | 55.0     | 8.00    | 1.00    |
| 15    | Guscio fond. | 31     | 37     | 38     | 11     | 1    | 55.0     | 8.00    | 1.00    |
| 16    | Guscio fond. | 36     | 3      | 39     | 35     | 1    | 55.0     | 8.00    | 1.00    |
| 17    | Guscio fond. | 35     | 39     | 40     | 37     | 1    | 55.0     | 8.00    | 1.00    |
| 18    | Guscio fond. | 37     | 40     | 12     | 38     | 1    | 55.0     | 8.00    | 1.00    |
| 19    | Setto        | 2      | 26     | 41     | 42     | 1    | 30.0     |         |         |
| 20    | Setto        | 26     | 31     | 43     | 41     | 1    | 30.0     |         |         |
| 21    | Setto        | 31     | 11     | 44     | 43     | 1    | 30.0     |         |         |
| 22    | Setto        | 42     | 41     | 45     | 46     | 1    | 30.0     |         |         |
| 23    | Setto        | 41     | 43     | 47     | 45     | 1    | 30.0     |         |         |
| 24    | Setto        | 43     | 44     | 48     | 47     | 1    | 30.0     |         |         |
| 25    | Setto        | 46     | 45     | 49     | 50     | 1    | 30.0     |         |         |
| 26    | Setto        | 45     | 47     | 51     | 49     | 1    | 30.0     |         |         |
| 27    | Setto        | 47     | 48     | 52     | 51     | 1    | 30.0     |         |         |
| 28    | Setto        | 50     | 49     | 53     | 54     | 1    | 30.0     |         |         |

| Elem. | Note   | Nodo I | Nodo J | Nodo K | Nodo L | Mat. | Spessore | Wink V | Wink O |
|-------|--------|--------|--------|--------|--------|------|----------|--------|--------|
| 29    | Setto  | 49     | 51     | 55     | 53     | 1    | 30.0     |        |        |
| 30    | Setto  | 51     | 52     | 56     | 55     | 1    | 30.0     |        |        |
| 31    | Setto  | 54     | 53     | 57     | 58     | 1    | 30.0     |        |        |
| 32    | Setto  | 53     | 55     | 59     | 57     | 1    | 30.0     |        |        |
| 33    | Setto  | 55     | 56     | 60     | 59     | 1    | 30.0     |        |        |
| 34    | Setto  | 58     | 57     | 61     | 4      | 1    | 30.0     |        |        |
| 35    | Setto  | 57     | 59     | 62     | 61     | 1    | 30.0     |        |        |
| 36    | Setto  | 59     | 60     | 13     | 62     | 1    | 30.0     |        |        |
| 37    | Guscio | 4      | 64     | 63     | 61     | 1    | 12.0     |        |        |
| 38    | Guscio | 61     | 63     | 65     | 62     | 1    | 12.0     |        |        |
| 39    | Guscio | 62     | 65     | 66     | 13     | 1    | 12.0     |        |        |
| 40    | Guscio | 64     | 68     | 67     | 63     | 1    | 12.0     |        |        |
| 41    | Guscio | 63     | 67     | 69     | 65     | 1    | 12.0     |        |        |
| 42    | Guscio | 65     | 69     | 70     | 66     | 1    | 12.0     |        |        |
| 43    | Guscio | 68     | 6      | 71     | 67     | 1    | 12.0     |        |        |
| 44    | Guscio | 67     | 71     | 72     | 69     | 1    | 12.0     |        |        |
| 45    | Guscio | 69     | 72     | 15     | 70     | 1    | 12.0     |        |        |
| 46    | Guscio | 6      | 73     | 74     | 71     | 1    | 12.0     |        |        |
| 47    | Guscio | 73     | 75     | 76     | 74     | 1    | 12.0     |        |        |
| 48    | Guscio | 75     | 77     | 78     | 76     | 1    | 12.0     |        |        |
| 49    | Guscio | 77     | 79     | 80     | 78     | 1    | 12.0     |        |        |
| 50    | Guscio | 79     | 7      | 81     | 80     | 1    | 12.0     |        |        |
| 51    | Guscio | 71     | 74     | 82     | 72     | 1    | 12.0     |        |        |
| 52    | Guscio | 74     | 76     | 83     | 82     | 1    | 12.0     |        |        |
| 53    | Guscio | 76     | 78     | 84     | 83     | 1    | 12.0     |        |        |
| 54    | Guscio | 78     | 80     | 85     | 84     | 1    | 12.0     |        |        |
| 55    | Guscio | 80     | 81     | 86     | 85     | 1    | 12.0     |        |        |
| 56    | Guscio | 72     | 82     | 87     | 15     | 1    | 12.0     |        |        |
| 57    | Guscio | 82     | 83     | 88     | 87     | 1    | 12.0     |        |        |
| 58    | Guscio | 83     | 84     | 89     | 88     | 1    | 12.0     |        |        |
| 59    | Guscio | 84     | 85     | 90     | 89     | 1    | 12.0     |        |        |
| 60    | Guscio | 85     | 86     | 16     | 90     | 1    | 12.0     |        |        |
| 61    | Setto  | 62     | 13     | 95     | 96     | 1    | 30.0     |        |        |
| 62    | Setto  | 96     | 95     | 97     | 98     | 1    | 30.0     |        |        |
| 63    | Setto  | 98     | 97     | 99     | 100    | 1    | 30.0     |        |        |
| 64    | Setto  | 100    | 99     | 101    | 102    | 1    | 30.0     |        |        |
| 65    | Setto  | 102    | 101    | 103    | 104    | 1    | 30.0     |        |        |
| 66    | Setto  | 104    | 103    | 94     | 105    | 1    | 30.0     |        |        |
| 67    | Setto  | 61     | 62     | 96     | 106    | 1    | 30.0     |        |        |
| 68    | Setto  | 106    | 96     | 98     | 107    | 1    | 30.0     |        |        |
| 69    | Setto  | 107    | 98     | 100    | 108    | 1    | 30.0     |        |        |
| 70    | Setto  | 108    | 100    | 102    | 109    | 1    | 30.0     |        |        |
| 71    | Setto  | 109    | 102    | 104    | 110    | 1    | 30.0     |        |        |
| 72    | Setto  | 110    | 104    | 105    | 111    | 1    | 30.0     |        |        |
| 73    | Setto  | 4      | 61     | 106    | 112    | 1    | 30.0     |        |        |
| 74    | Setto  | 112    | 106    | 107    | 113    | 1    | 30.0     |        |        |
| 75    | Setto  | 113    | 107    | 108    | 114    | 1    | 30.0     |        |        |
| 76    | Setto  | 114    | 108    | 109    | 115    | 1    | 30.0     |        |        |
| 77    | Setto  | 115    | 109    | 110    | 116    | 1    | 30.0     |        |        |
| 78    | Setto  | 116    | 110    | 111    | 93     | 1    | 30.0     |        |        |

# MODELLAZIONE DELLE AZIONI

## LEGENDA TABELLA DATI AZIONI

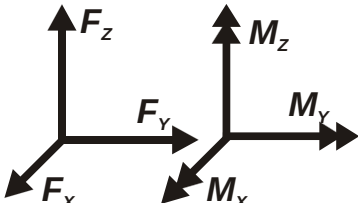
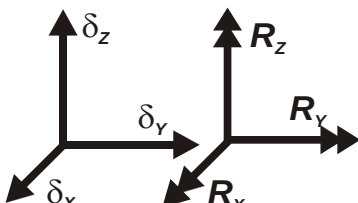
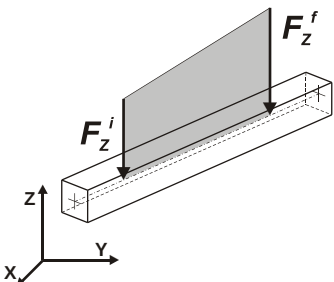
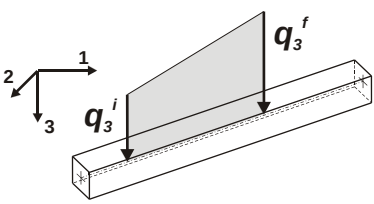
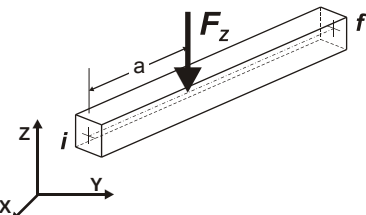
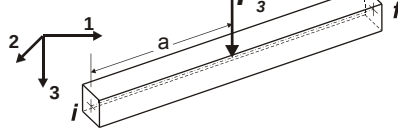
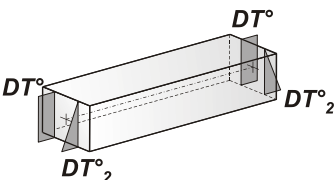
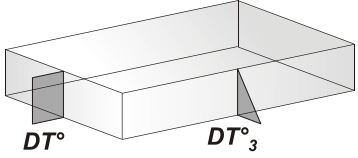
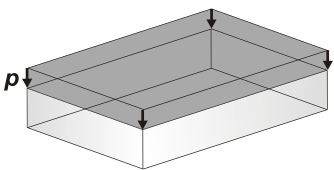
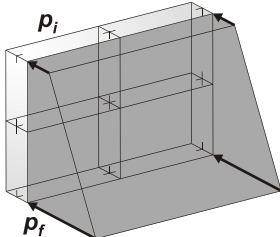
Il programma consente l'uso di diverse tipologie di carico (azioni). Le azioni utilizzate nella modellazione sono individuate da una sigla identificativa ed un codice numerico (gli elementi strutturali richiamano quest'ultimo nella propria descrizione). Per ogni azione applicata alla struttura viene di riportato il codice, il tipo e la sigla identificativa. Le tabelle successive dettagliano i valori caratteristici di ogni azione in relazione al tipo. Le tabelle riportano infatti i seguenti dati in relazione al tipo:

|           |                                                                                                                                                                                                                                                                                         |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1</b>  | <b>carico concentrato nodale</b><br><br>6 dati (forza $F_x$ , $F_y$ , $F_z$ , momento $M_x$ , $M_y$ , $M_z$ )                                                                                                                                                                           |
| <b>2</b>  | <b>spostamento nodale impresso</b><br><br>6 dati (spostamento $T_x, T_y, T_z$ , rotazione $R_x, R_y, R_z$ )                                                                                                                                                                             |
| <b>3</b>  | <b>carico distribuito globale su elemento tipo trave</b><br><br>7 dati ( $f_x, f_y, f_z, m_x, m_y, m_z$ , ascissa di inizio carico)<br><br>7 dati ( $f_x, f_y, f_z, m_x, m_y, m_z$ , ascissa di fine carico)                                                                            |
| <b>4</b>  | <b>carico distribuito locale su elemento tipo trave</b><br><br>7 dati ( $f_1, f_2, f_3, m_1, m_2, m_3$ , ascissa di inizio carico)<br><br>7 dati ( $f_1, f_2, f_3, m_1, m_2, m_3$ , ascissa di fine carico)                                                                             |
| <b>5</b>  | <b>carico concentrato globale su elemento tipo trave</b><br><br>7 dati ( $F_x, F_y, F_z, M_x, M_y, M_z$ , ascissa di carico)                                                                                                                                                            |
| <b>6</b>  | <b>carico concentrato locale su elemento tipo trave</b><br><br>7 dati ( $F_1, F_2, F_3, M_1, M_2, M_3$ , ascissa di carico)                                                                                                                                                             |
| <b>7</b>  | <b>variazione termica applicata ad elemento tipo trave</b><br><br>7 dati (variazioni termiche: uniforme, media e differenza in altezza e larghezza al nodo iniziale e finale)                                                                                                           |
| <b>8</b>  | <b>carico di pressione uniforme su elemento tipo piastra</b><br><br>1 dato (pressione)                                                                                                                                                                                                  |
| <b>9</b>  | <b>carico di pressione variabile su elemento tipo piastra</b><br><br>4 dati (pressione, quota, pressione, quota)                                                                                                                                                                        |
| <b>10</b> | <b>variazione termica applicata ad elemento tipo piastra</b><br><br>2 dati (variazioni termiche: media e differenza nello spessore)                                                                                                                                                     |
| <b>11</b> | <b>carico variabile generale su elementi tipo trave e piastra</b><br><br>1 dato descrizione della tipologia<br><br>4 dati per segmento (posizione, valore, posizione, valore)<br><br>la tipologia precisa l'ascissa di definizione, la direzione del carico, la modalità di carico e la |

larghezza d'influenza per gli elementi tipo trave

## 12 gruppo di carichi con impronta su piastra

9 dati (numero di ripetizioni in direzione X e Y, valore di ciascun carico, posizione centrale del primo, dimensioni dell'impronta, interasse tra i carichi)

|                                                                                                                      |                                                                                                                        |
|----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
|  <p>Carico concentrato nodale</p>   |  <p>Spostamento impresso</p>         |
|  <p>Carico distribuito globale</p>  |  <p>Carico distribuito locale</p>    |
|  <p>Carico concentrato globale</p> |  <p>Carico concentrato locale</p>  |
|  <p>Carico termico 2D</p>         |  <p>Carico termico 3D</p>          |
|  <p>Carico pressione uniforme</p> |  <p>Carico pressione variabile</p> |

### Tipo carico distribuito globale su trave

| Id | Tipo            | Pos. | fx     | fy     | fz      | mx  | my  | mz  |
|----|-----------------|------|--------|--------|---------|-----|-----|-----|
| 11 | Carico pannello | m    | daN/ m | daN/ m | daN/ m  | daN | daN | daN |
|    |                 | 0.0  | 0.0    | 0.0    | -250.00 | 0.0 | 0.0 | 0.0 |
|    |                 | 0.0  | 0.0    | 0.0    | -250.00 | 0.0 | 0.0 | 0.0 |

### Tipo carico di pressione uniforme su piastra

| Id | Tipo               | pressione |
|----|--------------------|-----------|
|    |                    | daN/ m2   |
| 9  | Carico accidentale | -500.00   |
| 10 | Carico fondo fossa | 1000.00   |

# SCHEMATIZZAZIONE DEI CASI DI CARICO

## LEGENDA TABELLA CASI DI CARICO

Il programma consente l'applicazione di diverse tipologie di casi di carico.

Sono previsti i seguenti 11 tipi di casi di carico:

|           | <b>Sigla</b> | <b>Tipo</b> | <b>Descrizione</b>                                                                                          |
|-----------|--------------|-------------|-------------------------------------------------------------------------------------------------------------|
| <b>1</b>  | <b>Ggk</b>   | <b>A</b>    | caso di carico comprensivo del peso proprio struttura                                                       |
| <b>2</b>  | <b>Gk</b>    | <b>NA</b>   | caso di carico con azioni permanenti                                                                        |
| <b>3</b>  | <b>Qk</b>    | <b>NA</b>   | caso di carico con azioni variabili                                                                         |
| <b>4</b>  | <b>Gsk</b>   | <b>A</b>    | caso di carico comprensivo dei carichi permanenti sui solai e sulle coperture                               |
| <b>5</b>  | <b>Qsk</b>   | <b>A</b>    | caso di carico comprensivo dei carichi variabili sui solai                                                  |
| <b>6</b>  | <b>Qnk</b>   | <b>A</b>    | caso di carico comprensivo dei carichi di neve sulle coperture                                              |
| <b>7</b>  | <b>Qtk</b>   | <b>SA</b>   | caso di carico comprensivo di una variazione termica agente sulla struttura                                 |
| <b>8</b>  | <b>Qvk</b>   | <b>NA</b>   | caso di carico comprensivo di azioni da vento sulla struttura                                               |
| <b>9</b>  | <b>Esk</b>   | <b>SA</b>   | caso di carico sismico con analisi statica equivalente                                                      |
| <b>10</b> | <b>Edk</b>   | <b>SA</b>   | caso di carico sismico con analisi dinamica                                                                 |
| <b>11</b> | <b>Etk</b>   | <b>NA</b>   | caso di carico comprensivo di azioni derivanti dall' incremento di spinta delle terre in condizione sismica |
| <b>12</b> | <b>Pk</b>    | <b>NA</b>   | caso di carico comprensivo di azioni derivanti da coazioni, cedimenti e precompressioni                     |

Sono di tipo automatico A (ossia non prevedono introduzione dati da parte dell'utente) i seguenti casi di carico: 1-Ggk; 4-Gsk; 5-Qsk; 6-Qnk.

Sono di tipo semi-automatico SA (ossia prevedono una minima introduzione dati da parte dell'utente) i seguenti casi di carico:

7-Qtk, in quanto richiede solo il valore della variazione termica;

9-Esk e 10-Edk, in quanto richiedono il valore dell'angolo di ingresso del sisma e l'individuazione dei casi di carico partecipanti alla definizione delle masse.

Sono di tipo non automatico NA ossia prevedono la diretta applicazione di carichi generici agli elementi strutturali (si veda il precedente punto Modellazione delle Azioni) i restanti casi di carico.

Nella tabella successiva vengono riportati i casi di carico agenti sulla struttura, con l'indicazione dei dati relativi al caso di carico stesso:

*Numero Tipo e Sigla identificativa, Valore di riferimento del caso di carico (se previsto).*

In successione, per i casi di carico non automatici, viene riportato l'elenco di nodi ed elementi direttamente caricati con la sigla identificativa del carico.

Per i casi di carico di tipo sismico (9-Esk e 10-Edk), viene riportata la tabella di definizione delle masse: per ogni caso di carico partecipante alla definizione delle masse viene indicata la relativa aliquota (partecipazione) considerata. Si precisa che per i caso di carico 5-Qsk e 6-Qnk la partecipazione è prevista localmente per ogni elemento solaio o copertura presente nel modello (si confronti il valore Sksol nel capitolo relativo agli elementi solaio) e pertanto la loro partecipazione è di norma pari a uno.

| <b>CDC</b> | <b>Tipo</b> | <b>Sigla Id</b>                                       | <b>Note</b>                                                            |
|------------|-------------|-------------------------------------------------------|------------------------------------------------------------------------|
| 1          | Ggk         | CDC=Ggk (peso proprio della struttura)                |                                                                        |
| 2          | Gsk         | CDC=G1sk (permanente solai-coperture)                 |                                                                        |
| 3          | Gsk         | CDC=G2sk (permanente solai-coperture n.c.d.)          |                                                                        |
| 4          | Gsk         | CDC=G2pk (permanente pannelli n.c.d.)                 |                                                                        |
| 5          | Qsk         | CDC=Qsk (variabile solai)                             |                                                                        |
| 6          | Edk         | CDC=Ed (dinamico SLU) alfa=0.0 (ecc. +)               | partecipazione:1.00 per 1 CDC=Ggk (peso proprio della struttura)       |
|            |             |                                                       | partecipazione:1.00 per 2 CDC=G1sk (permanente solai-coperture)        |
|            |             |                                                       | partecipazione:1.00 per 3 CDC=G2sk (permanente solai-coperture n.c.d.) |
|            |             |                                                       | partecipazione:1.00 per 4 CDC=G2pk (permanente pannelli n.c.d.)        |
|            |             |                                                       | partecipazione:1.00 per 5 CDC=Qsk (variabile solai)                    |
|            |             |                                                       | partecipazione:0.80 per 14 CDC=Qk (variabile generico)                 |
|            |             |                                                       | .....Carico accidentale                                                |
|            |             |                                                       | partecipazione:1.00 per 15 CDC=G1k (permanente generico)               |
|            |             |                                                       | .....Carico fondo fossa                                                |
|            |             |                                                       | partecipazione:1.00 per 16 CDC=G1k (permanente generico)               |
|            |             |                                                       | .....Carico pannelli                                                   |
| 7          | Edk         | CDC=Ed (dinamico SLU) alfa=0.0 (ecc. -)               | come precedente CDC sismico                                            |
| 8          | Edk         | CDC=Ed (dinamico SLU) alfa=90.00 (ecc. +)             | come precedente CDC sismico                                            |
| 9          | Edk         | CDC=Ed (dinamico SLU) alfa=90.00 (ecc. -)             | come precedente CDC sismico                                            |
| 10         | Edk         | CDC=Ed (dinamico SLD) alfa=0.0 (ecc. +)               | come precedente CDC sismico                                            |
| 11         | Edk         | CDC=Ed (dinamico SLD) alfa=0.0 (ecc. -)               | come precedente CDC sismico                                            |
| 12         | Edk         | CDC=Ed (dinamico SLD) alfa=90.00 (ecc. +)             | come precedente CDC sismico                                            |
| 13         | Edk         | CDC=Ed (dinamico SLD) alfa=90.00 (ecc. -)             | come precedente CDC sismico                                            |
| 14         | Qk          | CDC=Qk (variabile generico) .....Carico accidentale   | D3 :da 37 a 60 Azione : Carico accidentale                             |
|            |             |                                                       | Pannello:da 1 a 2 Azione : Carico accidentale                          |
| 15         | Gk          | CDC=G1k (permanente generico) .....Carico fondo fossa | D3 :da 1 a 12 Azione : Carico fondo fossa                              |
| 16         | Gk          | CDC=G1k (permanente generico) .....Carico pannelli    | D2 : 12 Azione : Carico pannello                                       |
|            |             |                                                       | D2 : 15 Azione : Carico pannello                                       |

# DEFINIZIONE DELLE COMBINAZIONI

## LEGENDA TABELLA COMBINAZIONI DI CARICO

Il programma combina i diversi tipi di casi di carico (CDC) secondo le regole previste dalla normativa vigente.

Le combinazioni previste sono destinate al controllo di sicurezza della struttura ed alla verifica degli spostamenti e delle sollecitazioni.

La prima tabella delle combinazioni riportata di seguito comprende le seguenti informazioni: *Numero*, *Tipo*, *Sigla identificativa*. Una seconda tabella riporta il *peso nella combinazione* assunto per ogni caso di carico.

Ai fini delle verifiche degli stati limite si definiscono le seguenti combinazioni delle azioni:

### Combinazione fondamentale SLU

$$\gamma G1 \cdot G1 + \gamma G2 \cdot G2 + \gamma P \cdot P + \gamma Q1 \cdot Qk1 + \gamma Q2 \cdot \psi 02 \cdot Qk2 + \gamma Q3 \cdot \psi 03 \cdot Qk3 + \dots$$

### Combinazione caratteristica (rara) SLE

$$G1 + G2 + P + Qk1 + \psi 02 \cdot Qk2 + \psi 03 \cdot Qk3 + \dots$$

### Combinazione frequente SLE

$$G1 + G2 + P + \psi 11 \cdot Qk1 + \psi 22 \cdot Qk2 + \psi 23 \cdot Qk3 + \dots$$

### Combinazione quasi permanente SLE

$$G1 + G2 + P + \psi 21 \cdot Qk1 + \psi 22 \cdot Qk2 + \psi 23 \cdot Qk3 + \dots$$

### Combinazione sismica, impiegata per gli stati limite ultimi e di esercizio connessi all'azione sismica E

$$E + G1 + G2 + P + \psi 21 \cdot Qk1 + \psi 22 \cdot Qk2 + \dots$$

### Combinazione eccezionale, impiegata per gli stati limite connessi alle azioni eccezionali

$$G1 + G2 + P + \psi 21 \cdot Qk1 + \psi 22 \cdot Qk2 + \dots$$

Dove:

NTC 2008 Tabella 2.5.I

| Destinazione d'uso/azione                                  | $\psi 0$ | $\psi 1$ | $\psi 2$ |
|------------------------------------------------------------|----------|----------|----------|
| Categoria A residenziali                                   | 0,70     | 0,50     | 0,30     |
| Categoria B uffici                                         | 0,70     | 0,50     | 0,30     |
| Categoria C ambienti suscettibili di affollamento          | 0,70     | 0,70     | 0,60     |
| Categoria D ambienti ad uso commerciale                    | 0,70     | 0,70     | 0,60     |
| Categoria E biblioteche, archivi, magazzini,...            | 1,00     | 0,90     | 0,80     |
| Categoria F Rimesse e parcheggi (autoveicoli $\leq 30kN$ ) | 0,70     | 0,70     | 0,60     |
| Categoria G Rimesse e parcheggi (autoveicoli $> 30kN$ )    | 0,70     | 0,50     | 0,30     |
| Categoria H Coperture                                      | 0,00     | 0,00     | 0,00     |
| Vento                                                      | 0,60     | 0,20     | 0,00     |
| Neve a quota $\leq 1000$ m                                 | 0,50     | 0,20     | 0,00     |
| Neve a quota $> 1000$ m                                    | 0,70     | 0,50     | 0,20     |
| Variazioni Termiche                                        | 0,60     | 0,50     | 0,00     |

Nelle verifiche possono essere adottati in alternativa due diversi approcci progettuali:

- per l'approccio 1 si considerano due diverse combinazioni di gruppi di coefficienti di sicurezza parziali per le azioni, per i materiali e per la resistenza globale (combinazione 1 con coefficienti A1 e combinazione 2 con coefficienti A2),
- per l'approccio 2 si definisce un'unica combinazione per le azioni, per la resistenza dei materiali e per la resistenza globale (con coefficienti A1).

NTC 2008 Tabella 2.6.I

|                                                                    |             | Coefficiente<br>$\gamma_f$ | <b>EQU</b> | <b>A1</b> | <b>A2</b> |
|--------------------------------------------------------------------|-------------|----------------------------|------------|-----------|-----------|
| Carichi permanenti                                                 | Favorevoli  | $\gamma_{G1}$              | 0,9        | 1,0       | 1,0       |
|                                                                    | Sfavorevoli |                            | 1,1        | 1,3       | 1,0       |
| Carichi permanenti non strutturali<br>(Non compiutamente definiti) | Favorevoli  | $\gamma_{G2}$              | 0,0        | 0,0       | 0,0       |
|                                                                    | Sfavorevoli |                            | 1,5        | 1,5       | 1,3       |
| Carichi variabili                                                  | Favorevoli  | $\gamma_{Qi}$              | 0,0        | 0,0       | 0,0       |
|                                                                    | Sfavorevoli |                            | 1,5        | 1,5       | 1,3       |

| <b>Cmb</b> | <b>Tipo</b> | <b>Sigla Id</b>             | <b>effetto P-delta</b> |
|------------|-------------|-----------------------------|------------------------|
| 1          | SLU         | Comb. SLU A1 1              |                        |
| 2          | SLU         | Comb. SLU A1 2              |                        |
| 3          | SLU         | Comb. SLU A1 3              |                        |
| 4          | SLU         | Comb. SLU A1 4              |                        |
| 5          | SLU         | Comb. SLU A1 5              |                        |
| 6          | SLU         | Comb. SLU A1 6              |                        |
| 7          | SLU         | Comb. SLU A1 7              |                        |
| 8          | SLU         | Comb. SLU A1 8              |                        |
| 9          | SLU         | Comb. SLU A1 9              |                        |
| 10         | SLU         | Comb. SLU A1 10             |                        |
| 11         | SLU         | Comb. SLU A1 11             |                        |
| 12         | SLU         | Comb. SLU A1 12             |                        |
| 13         | SLU         | Comb. SLU A1 13             |                        |
| 14         | SLU         | Comb. SLU A1 14             |                        |
| 15         | SLU         | Comb. SLU A1 (SLV sism.) 15 |                        |
| 16         | SLU         | Comb. SLU A1 (SLV sism.) 16 |                        |
| 17         | SLU         | Comb. SLU A1 (SLV sism.) 17 |                        |
| 18         | SLU         | Comb. SLU A1 (SLV sism.) 18 |                        |
| 19         | SLU         | Comb. SLU A1 (SLV sism.) 19 |                        |
| 20         | SLU         | Comb. SLU A1 (SLV sism.) 20 |                        |
| 21         | SLU         | Comb. SLU A1 (SLV sism.) 21 |                        |
| 22         | SLU         | Comb. SLU A1 (SLV sism.) 22 |                        |
| 23         | SLU         | Comb. SLU A1 (SLV sism.) 23 |                        |
| 24         | SLU         | Comb. SLU A1 (SLV sism.) 24 |                        |
| 25         | SLU         | Comb. SLU A1 (SLV sism.) 25 |                        |
| 26         | SLU         | Comb. SLU A1 (SLV sism.) 26 |                        |
| 27         | SLU         | Comb. SLU A1 (SLV sism.) 27 |                        |
| 28         | SLU         | Comb. SLU A1 (SLV sism.) 28 |                        |
| 29         | SLU         | Comb. SLU A1 (SLV sism.) 29 |                        |
| 30         | SLU         | Comb. SLU A1 (SLV sism.) 30 |                        |
| 31         | SLU         | Comb. SLU A1 (SLV sism.) 31 |                        |
| 32         | SLU         | Comb. SLU A1 (SLV sism.) 32 |                        |
| 33         | SLU         | Comb. SLU A1 (SLV sism.) 33 |                        |
| 34         | SLU         | Comb. SLU A1 (SLV sism.) 34 |                        |
| 35         | SLU         | Comb. SLU A1 (SLV sism.) 35 |                        |
| 36         | SLU         | Comb. SLU A1 (SLV sism.) 36 |                        |
| 37         | SLU         | Comb. SLU A1 (SLV sism.) 37 |                        |
| 38         | SLU         | Comb. SLU A1 (SLV sism.) 38 |                        |
| 39         | SLU         | Comb. SLU A1 (SLV sism.) 39 |                        |
| 40         | SLU         | Comb. SLU A1 (SLV sism.) 40 |                        |
| 41         | SLU         | Comb. SLU A1 (SLV sism.) 41 |                        |
| 42         | SLU         | Comb. SLU A1 (SLV sism.) 42 |                        |
| 43         | SLU         | Comb. SLU A1 (SLV sism.) 43 |                        |

| Cmb | Tipo     | Sigla Id                       | effetto P-delta |
|-----|----------|--------------------------------|-----------------|
| 44  | SLU      | Comb. SLU A1 (SLV sism.) 44    |                 |
| 45  | SLU      | Comb. SLU A1 (SLV sism.) 45    |                 |
| 46  | SLU      | Comb. SLU A1 (SLV sism.) 46    |                 |
| 47  | SLD(sis) | Comb. SLE (SLD Danno sism.) 47 |                 |
| 48  | SLD(sis) | Comb. SLE (SLD Danno sism.) 48 |                 |
| 49  | SLD(sis) | Comb. SLE (SLD Danno sism.) 49 |                 |
| 50  | SLD(sis) | Comb. SLE (SLD Danno sism.) 50 |                 |
| 51  | SLD(sis) | Comb. SLE (SLD Danno sism.) 51 |                 |
| 52  | SLD(sis) | Comb. SLE (SLD Danno sism.) 52 |                 |
| 53  | SLD(sis) | Comb. SLE (SLD Danno sism.) 53 |                 |
| 54  | SLD(sis) | Comb. SLE (SLD Danno sism.) 54 |                 |
| 55  | SLD(sis) | Comb. SLE (SLD Danno sism.) 55 |                 |
| 56  | SLD(sis) | Comb. SLE (SLD Danno sism.) 56 |                 |
| 57  | SLD(sis) | Comb. SLE (SLD Danno sism.) 57 |                 |
| 58  | SLD(sis) | Comb. SLE (SLD Danno sism.) 58 |                 |
| 59  | SLD(sis) | Comb. SLE (SLD Danno sism.) 59 |                 |
| 60  | SLD(sis) | Comb. SLE (SLD Danno sism.) 60 |                 |
| 61  | SLD(sis) | Comb. SLE (SLD Danno sism.) 61 |                 |
| 62  | SLD(sis) | Comb. SLE (SLD Danno sism.) 62 |                 |
| 63  | SLD(sis) | Comb. SLE (SLD Danno sism.) 63 |                 |
| 64  | SLD(sis) | Comb. SLE (SLD Danno sism.) 64 |                 |
| 65  | SLD(sis) | Comb. SLE (SLD Danno sism.) 65 |                 |
| 66  | SLD(sis) | Comb. SLE (SLD Danno sism.) 66 |                 |
| 67  | SLD(sis) | Comb. SLE (SLD Danno sism.) 67 |                 |
| 68  | SLD(sis) | Comb. SLE (SLD Danno sism.) 68 |                 |
| 69  | SLD(sis) | Comb. SLE (SLD Danno sism.) 69 |                 |
| 70  | SLD(sis) | Comb. SLE (SLD Danno sism.) 70 |                 |
| 71  | SLD(sis) | Comb. SLE (SLD Danno sism.) 71 |                 |
| 72  | SLD(sis) | Comb. SLE (SLD Danno sism.) 72 |                 |
| 73  | SLD(sis) | Comb. SLE (SLD Danno sism.) 73 |                 |
| 74  | SLD(sis) | Comb. SLE (SLD Danno sism.) 74 |                 |
| 75  | SLD(sis) | Comb. SLE (SLD Danno sism.) 75 |                 |
| 76  | SLD(sis) | Comb. SLE (SLD Danno sism.) 76 |                 |
| 77  | SLD(sis) | Comb. SLE (SLD Danno sism.) 77 |                 |
| 78  | SLD(sis) | Comb. SLE (SLD Danno sism.) 78 |                 |
| 79  | SLE(r)   | Comb. SLE(rara) 79             |                 |
| 80  | SLE(r)   | Comb. SLE(rara) 80             |                 |
| 81  | SLE(r)   | Comb. SLE(rara) 81             |                 |
| 82  | SLE(r)   | Comb. SLE(rara) 82             |                 |
| 83  | SLE(r)   | Comb. SLE(rara) 83             |                 |
| 84  | SLE(r)   | Comb. SLE(rara) 84             |                 |
| 85  | SLE(r)   | Comb. SLE(rara) 85             |                 |
| 86  | SLE(f)   | Comb. SLE(freq.) 86            |                 |
| 87  | SLE(f)   | Comb. SLE(freq.) 87            |                 |
| 88  | SLE(f)   | Comb. SLE(freq.) 88            |                 |
| 89  | SLE(f)   | Comb. SLE(freq.) 89            |                 |
| 90  | SLE(f)   | Comb. SLE(freq.) 90            |                 |
| 91  | SLE(f)   | Comb. SLE(freq.) 91            |                 |
| 92  | SLE(f)   | Comb. SLE(freq.) 92            |                 |
| 93  | SLE(p)   | Comb. SLE(perm.) 93            |                 |
| 94  | SLE(p)   | Comb. SLE(perm.) 94            |                 |
| 95  | SLE(p)   | Comb. SLE(perm.) 95            |                 |
| 96  | SLE(p)   | Comb. SLE(perm.) 96            |                 |

[illegible]

| Cmb | CDC<br>1/15... | CDC<br>2/16... | CDC<br>3/17... | CDC<br>4/18... | CDC<br>5/19... | CDC<br>6/20... | CDC<br>7/21... | CDC<br>8/22... | CDC<br>9/23... | CDC<br>10/24... | CDC<br>11/25... | CDC<br>12/26... | CDC<br>13/27... | CDC<br>14/28... |
|-----|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 8   | 1.00           | 1.00           | 0.0            | 0.0            | 1.50           | 0.0            | 0.0            | 0.0            | 0.0            | 0.0             | 0.0             | 0.0             | 0.0             | 1.05            |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 9   | 1.30           | 1.30           | 1.30           | 1.30           | 0.0            | 0.0            | 0.0            | 0.0            | 0.0            | 0.0             | 0.0             | 0.0             | 0.0             | 1.50            |
|     | 1.30           | 1.30           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 10  | 1.30           | 1.30           | 1.30           | 1.30           | 1.05           | 0.0            | 0.0            | 0.0            | 0.0            | 0.0             | 0.0             | 0.0             | 0.0             | 0.0             |
|     | 1.30           | 1.30           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 11  | 1.30           | 1.30           | 1.30           | 1.30           | 1.05           | 0.0            | 0.0            | 0.0            | 0.0            | 0.0             | 0.0             | 0.0             | 0.0             | 1.50            |
|     | 1.30           | 1.30           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 12  | 1.00           | 1.00           | 0.0            | 0.0            | 0.0            | 0.0            | 0.0            | 0.0            | 0.0            | 0.0             | 0.0             | 0.0             | 0.0             | 1.50            |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 13  | 1.00           | 1.00           | 0.0            | 0.0            | 1.05           | 0.0            | 0.0            | 0.0            | 0.0            | 0.0             | 0.0             | 0.0             | 0.0             | 0.0             |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 14  | 1.00           | 1.00           | 0.0            | 0.0            | 1.05           | 0.0            | 0.0            | 0.0            | 0.0            | 0.0             | 0.0             | 0.0             | 0.0             | 1.50            |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 15  | 1.00           | 1.00           | 1.00           | 1.00           | 0.30           | -1.00          | 0.0            | -0.30          | 0.0            | 0.0             | 0.0             | 0.0             | 0.0             | 0.80            |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 16  | 1.00           | 1.00           | 1.00           | 1.00           | 0.30           | -1.00          | 0.0            | 0.30           | 0.0            | 0.0             | 0.0             | 0.0             | 0.0             | 0.80            |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 17  | 1.00           | 1.00           | 1.00           | 1.00           | 0.30           | 1.00           | 0.0            | -0.30          | 0.0            | 0.0             | 0.0             | 0.0             | 0.0             | 0.80            |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 18  | 1.00           | 1.00           | 1.00           | 1.00           | 0.30           | 1.00           | 0.0            | 0.30           | 0.0            | 0.0             | 0.0             | 0.0             | 0.0             | 0.80            |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 19  | 1.00           | 1.00           | 1.00           | 1.00           | 0.30           | -1.00          | 0.0            | 0.0            | -0.30          | 0.0             | 0.0             | 0.0             | 0.0             | 0.80            |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 20  | 1.00           | 1.00           | 1.00           | 1.00           | 0.30           | -1.00          | 0.0            | 0.0            | 0.30           | 0.0             | 0.0             | 0.0             | 0.0             | 0.80            |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 21  | 1.00           | 1.00           | 1.00           | 1.00           | 0.30           | 1.00           | 0.0            | 0.0            | -0.30          | 0.0             | 0.0             | 0.0             | 0.0             | 0.80            |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 22  | 1.00           | 1.00           | 1.00           | 1.00           | 0.30           | 1.00           | 0.0            | 0.0            | 0.30           | 0.0             | 0.0             | 0.0             | 0.0             | 0.80            |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 23  | 1.00           | 1.00           | 1.00           | 1.00           | 0.30           | 0.0            | -1.00          | -0.30          | 0.0            | 0.0             | 0.0             | 0.0             | 0.0             | 0.80            |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 24  | 1.00           | 1.00           | 1.00           | 1.00           | 0.30           | 0.0            | -1.00          | 0.30           | 0.0            | 0.0             | 0.0             | 0.0             | 0.0             | 0.80            |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 25  | 1.00           | 1.00           | 1.00           | 1.00           | 0.30           | 0.0            | 1.00           | -0.30          | 0.0            | 0.0             | 0.0             | 0.0             | 0.0             | 0.80            |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 26  | 1.00           | 1.00           | 1.00           | 1.00           | 0.30           | 0.0            | 1.00           | 0.30           | 0.0            | 0.0             | 0.0             | 0.0             | 0.0             | 0.80            |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 27  | 1.00           | 1.00           | 1.00           | 1.00           | 0.30           | 0.0            | -1.00          | 0.0            | -0.30          | 0.0             | 0.0             | 0.0             | 0.0             | 0.80            |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 28  | 1.00           | 1.00           | 1.00           | 1.00           | 0.30           | 0.0            | -1.00          | 0.0            | 0.30           | 0.0             | 0.0             | 0.0             | 0.0             | 0.80            |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 29  | 1.00           | 1.00           | 1.00           | 1.00           | 0.30           | 0.0            | 1.00           | 0.0            | -0.30          | 0.0             | 0.0             | 0.0             | 0.0             | 0.80            |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 30  | 1.00           | 1.00           | 1.00           | 1.00           | 0.30           | 0.0            | 1.00           | 0.0            | 0.30           | 0.0             | 0.0             | 0.0             | 0.0             | 0.80            |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 31  | 1.00           | 1.00           | 1.00           | 1.00           | 0.30           | -0.30          | 0.0            | -1.00          | 0.0            | 0.0             | 0.0             | 0.0             | 0.0             | 0.80            |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 32  | 1.00           | 1.00           | 1.00           | 1.00           | 0.30           | -0.30          | 0.0            | 1.00           | 0.0            | 0.0             | 0.0             | 0.0             | 0.0             | 0.80            |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 33  | 1.00           | 1.00           | 1.00           | 1.00           | 0.30           | 0.30           | 0.0            | -1.00          | 0.0            | 0.0             | 0.0             | 0.0             | 0.0             | 0.80            |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 34  | 1.00           | 1.00           | 1.00           | 1.00           | 0.30           | 0.30           | 0.0            | 1.00           | 0.0            | 0.0             | 0.0             | 0.0             | 0.0             | 0.80            |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 35  | 1.00           | 1.00           | 1.00           | 1.00           | 0.30           | 0.0            | -0.30          | -1.00          | 0.0            | 0.0             | 0.0             | 0.0             | 0.0             | 0.80            |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 36  | 1.00           | 1.00           | 1.00           | 1.00           | 0.30           | 0.0            | -0.30          | 1.00           | 0.0            | 0.0             | 0.0             | 0.0             | 0.0             | 0.80            |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 37  | 1.00           | 1.00           | 1.00           | 1.00           | 0.30           | 0.0            | 0.30           | -1.00          | 0.0            | 0.0             | 0.0             | 0.0             | 0.0             | 0.80            |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 38  | 1.00           | 1.00           | 1.00           | 1.00           | 0.30           | 0.0            | 0.30           | 1.00           | 0.0            | 0.0             | 0.0             | 0.0             | 0.0             | 0.80            |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 39  | 1.00           | 1.00           | 1.00           | 1.00           | 0.30           | -0.30          | 0.0            | 0.0            | -1.00          | 0.0             | 0.0             | 0.0             | 0.0             | 0.80            |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 40  | 1.00           | 1.00           | 1.00           | 1.00           | 0.30           | -0.30          | 0.0            | 0.0            | 1.00           | 0.0             | 0.0             | 0.0             | 0.0             | 0.80            |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 41  | 1.00           | 1.00           | 1.00           | 1.00           | 0.30           | 0.30           | 0.0            | 0.0            | -1.00          | 0.0             | 0.0             | 0.0             | 0.0             | 0.80            |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 42  | 1.00           | 1.00           | 1.00           | 1.00           | 0.30           | 0.30           | 0.0            | 0.0            | 1.00           | 0.0             | 0.0             | 0.0             | 0.0             | 0.80            |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 43  | 1.00           | 1.00           | 1.00           | 1.00           | 0.30           | 0.0            | -0.30          | 0.0            | -1.00          | 0.0             | 0.0             | 0.0             | 0.0             | 0.80            |
|     | 1.00           | 1.00           |                |                |                |                |                |                |                |                 |                 |                 |                 |                 |
| 44  | 1.00           | 1.00           | 1.00           | 1.00           | 0.30           | 0.0            | -0.30          | 0.0            | 1.00           | 0.0             | 0.0             | 0.0             | 0.0             | 0.80            |

| Cdb | CDC 1/15... | CDC 2/16... | CDC 3/17... | CDC 4/18... | CDC 5/19... | CDC 6/20... | CDC 7/21... | CDC 8/22... | CDC 9/23... | CDC 10/24... | CDC 11/25... | CDC 12/26... | CDC 13/27... | CDC 14/28... |
|-----|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|--------------|--------------|
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 45  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.30        | 0.0         | -1.00       | 0.0          | 0.0          | 0.0          | 0.0          | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 46  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.30        | 0.0         | 1.00        | 0.0          | 0.0          | 0.0          | 0.0          | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 47  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.0         | 0.0         | 0.0         | -1.00        | 0.0          | -0.30        | 0.0          | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 48  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.0         | 0.0         | 0.0         | -1.00        | 0.0          | 0.30         | 0.0          | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 49  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.0         | 0.0         | 0.0         | 1.00         | 0.0          | -0.30        | 0.0          | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 50  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.0         | 0.0         | 0.0         | 1.00         | 0.0          | 0.30         | 0.0          | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 51  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.0         | 0.0         | 0.0         | -1.00        | 0.0          | 0.0          | -0.30        | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 52  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.0         | 0.0         | 0.0         | -1.00        | 0.0          | 0.0          | 0.30         | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 53  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.0         | 0.0         | 0.0         | 1.00         | 0.0          | 0.0          | -0.30        | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 54  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.0         | 0.0         | 0.0         | 1.00         | 0.0          | 0.0          | 0.30         | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 55  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0          | -1.00        | -0.30        | 0.0          | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 56  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0          | -1.00        | 0.30         | 0.0          | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 57  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0          | 1.00         | -0.30        | 0.0          | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 58  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0          | 1.00         | 0.30         | 0.0          | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 59  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0          | -1.00        | 0.0          | -0.30        | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 60  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0          | -1.00        | 0.0          | 0.30         | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 61  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0          | 1.00         | 0.0          | -0.30        | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 62  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0          | 1.00         | 0.0          | 0.30         | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 63  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.0         | 0.0         | 0.0         | -0.30        | 0.0          | -1.00        | 0.0          | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 64  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.0         | 0.0         | 0.0         | -0.30        | 0.0          | 1.00         | 0.0          | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 65  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.0         | 0.0         | 0.0         | 0.30         | 0.0          | -1.00        | 0.0          | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 66  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.0         | 0.0         | 0.0         | 0.30         | 0.0          | 1.00         | 0.0          | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 67  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0          | -0.30        | -1.00        | 0.0          | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 68  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0          | -0.30        | 1.00         | 0.0          | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 69  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0          | 0.30         | -1.00        | 0.0          | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 70  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0          | 0.30         | 1.00         | 0.0          | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 71  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.0         | 0.0         | 0.0         | -0.30        | 0.0          | 0.0          | -1.00        | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 72  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.0         | 0.0         | 0.0         | -0.30        | 0.0          | 0.0          | 1.00         | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 73  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.0         | 0.0         | 0.0         | 0.30         | 0.0          | 0.0          | -1.00        | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 74  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.0         | 0.0         | 0.0         | 0.30         | 0.0          | 0.0          | 1.00         | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 75  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0          | -0.30        | 0.0          | -1.00        | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 76  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0          | -0.30        | 0.0          | 1.00         | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 77  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0          | 0.30         | 0.0          | -1.00        | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 78  | 1.00        | 1.00        | 1.00        | 1.00        | 0.30        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0          | 0.30         | 0.0          | 1.00         | 0.80         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 79  | 1.00        | 1.00        | 1.00        | 1.00        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |
| 80  | 1.00        | 1.00        | 1.00        | 1.00        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0          | 0.0          | 0.0          | 0.0          | 0.70         |
|     | 1.00        | 1.00        |             |             |             |             |             |             |             |              |              |              |              |              |

[illegible]

# AZIONE SISMICA

## VALUTAZIONE DELL' AZIONE SISMICA

L'azione sismica sulle costruzioni è valutata a partire dalla "pericolosità sismica di base", in condizioni ideali di sito di riferimento rigido con superficie topografica orizzontale.

Allo stato attuale, la pericolosità sismica su reticolo di riferimento nell'intervallo di riferimento è fornita dai dati pubblicati sul sito <http://esse1.mi.ingv.it/>. Per punti non coincidenti con il reticolo di riferimento e periodi di ritorno non contemplati direttamente si opera come indicato nell' allegato alle NTC (rispettivamente media pesata e interpolazione).

L' azione sismica viene definita in relazione ad un periodo di riferimento  $V_r$  che si ricava, per ciascun tipo di costruzione, moltiplicandone la vita nominale per il coefficiente d'uso (vedi tabella Parametri della struttura). Fissato il periodo di riferimento  $V_r$  e la probabilità di superamento  $P_{ver}$  associata a ciascuno degli stati limite considerati, si ottiene il periodo di ritorno  $T_r$  e i relativi parametri di pericolosità sismica (vedi tabella successiva):

ag: accelerazione orizzontale massima del terreno;

Fo: valore massimo del fattore di amplificazione dello spettro in accelerazione orizzontale;

T\*c: periodo di inizio del tratto a velocità costante dello spettro in accelerazione orizzontale;

| Parametri della struttura |                   |            |                      |               |                       |
|---------------------------|-------------------|------------|----------------------|---------------|-----------------------|
| Classe d'uso              | Vita $V_n$ [anni] | Coeff. Uso | Periodo $V_r$ [anni] | Tipo di suolo | Categoria topografica |
| III                       | 50.0              | 1.5        | 75.0                 | C             | T2                    |

Individuati su reticolo di riferimento i parametri di pericolosità sismica si valutano i parametri spettrali riportati in tabella:

S è il coefficiente che tiene conto della categoria di sottosuolo e delle condizioni topografiche

mediante la relazione seguente  $S = S_s \cdot S_t$  (3.2.5)

Fo è il fattore che quantifica l'amplificazione spettrale massima, su sito di riferimento rigido orizzontale

Fv è il fattore che quantifica l'amplificazione spettrale massima verticale, in termini di accelerazione orizzontale massima del terreno ag su sito di riferimento rigido orizzontale

Tb è il periodo corrispondente all'inizio del tratto dello spettro ad accelerazione costante.

Tc è il periodo corrispondente all'inizio del tratto dello spettro a velocità costante.

Td è il periodo corrispondente all'inizio del tratto dello spettro a spostamento costante.

| Id nodo | Longitudine | Latitudine | Distanza |
|---------|-------------|------------|----------|
|         |             |            | Km       |
| Loc.    | 14.243      | 40.550     |          |
| 34532   | 14.214      | 40.533     | 3.085    |
| 34533   | 14.280      | 40.532     | 3.700    |
| 34311   | 14.280      | 40.582     | 4.720    |
| 34310   | 14.214      | 40.583     | 4.397    |

| SL  | P <sub>ver</sub> | T <sub>r</sub> | ag    | Fo    | T*c   |
|-----|------------------|----------------|-------|-------|-------|
|     |                  | Anni           | g     |       | sec   |
| SLO | 81.0             | 45.0           | 0.038 | 2.360 | 0.300 |
| SLD | 63.0             | 75.0           | 0.047 | 2.400 | 0.340 |
| SLV | 10.0             | 712.0          | 0.095 | 2.650 | 0.420 |
| SLC | 5.0              | 1462.0         | 0.114 | 2.730 | 0.440 |

| SL  | ag    | S     | Fo    | Fv    | Tb    | Tc    | Td    |
|-----|-------|-------|-------|-------|-------|-------|-------|
|     | g     |       |       |       | sec   | sec   | sec   |
| SLO | 0.038 | 1.800 | 2.360 | 0.619 | 0.156 | 0.469 | 1.751 |
| SLD | 0.047 | 1.800 | 2.400 | 0.701 | 0.170 | 0.510 | 1.787 |
| SLV | 0.095 | 1.800 | 2.650 | 1.105 | 0.196 | 0.587 | 1.982 |
| SLC | 0.114 | 1.800 | 2.730 | 1.243 | 0.202 | 0.606 | 2.055 |

# RISULTATI ANALISI SISMICHE

## LEGENDA TABELLA ANALISI SISMICHE

Il programma consente l'analisi di diverse configurazioni sismiche.

Sono previsti, infatti, i seguenti casi di carico:

- |                |                                                        |
|----------------|--------------------------------------------------------|
| <b>9. Esk</b>  | caso di carico sismico con analisi statica equivalente |
| <b>10. Edk</b> | caso di carico sismico con analisi dinamica            |

Ciascun caso di carico è caratterizzato da un angolo di ingresso e da una configurazione di masse determinante la forza sismica complessiva (si rimanda al capitolo relativo ai casi di carico per chiarimenti inerenti questo aspetto).

Nella colonna Note, in funzione della norma in uso sono riportati i parametri fondamentali che caratterizzano l'azione sismica: in particolare possono essere presenti i seguenti valori:

|                                   |                                                                                                                                           |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Angolo di ingresso</b>         | Angolo di ingresso dell'azione sismica orizzontale                                                                                        |
| <b>Fattore di importanza</b>      | Fattore di importanza dell'edificio, in base alla categoria di appartenenza                                                               |
| <b>Zona sismica</b>               | Zona sismica                                                                                                                              |
| <b>Accelerazione ag</b>           | Accelerazione orizzontale massima sul suolo                                                                                               |
| <b>Categoria suolo</b>            | Categoria di profilo stratigrafico del suolo di fondazione                                                                                |
| <b>Fattore di struttura q</b>     | Fattore dipendente dalla tipologia strutturale                                                                                            |
| <b>Fattore di sito S</b>          | Fattore dipendente dalla stratigrafia e dal profilo topografico                                                                           |
| <b>Classe di duttilità CD</b>     | Classe di duttilità della struttura – "A" duttilità alta, "B" duttilità bassa                                                             |
| <b>Fattore riduz. SLD</b>         | Fattore di riduzione dello spettro elastico per lo stato limite di danno                                                                  |
| <b>Periodo proprio T1</b>         | Periodo proprio di vibrazione della struttura                                                                                             |
| <b>Coefficiente Lambda</b>        | Coefficiente dipendente dal periodo proprio T1 e dal numero di piani della struttura                                                      |
| <b>Ordinata spettro Sd(T1)</b>    | Valore delle ordinate dello spettro di progetto per lo stato limite ultimo, componente orizzontale (verticale Svd)                        |
| <b>Ordinata spettro Se(T1)</b>    | Valore delle ordinate dello spettro elastico ridotta del fattore SLD per lo stato limite di danno, componente orizzontale (verticale Sve) |
| <b>Ordinata spettro S (Tb-Tc)</b> | Valore dell'ordinata dello spettro in uso nel tratto costante                                                                             |
| <b>numero di modi considerati</b> | Numero di modi di vibrare della struttura considerati nell'analisi dinamica                                                               |

Per ciascun caso di carico sismico viene riportato l'insieme di dati sotto riportati (le masse sono espresse in unità di forza):

- a) **analisi sismica statica equivalente:**
  - quota, posizione del centro di applicazione e azione orizzontale risultante, posizione del baricentro delle rigidezze, rapporto  $r/L_s$  (per strutture a nucleo), indici di regolarità  $e/r$  secondo EC8 4.2.3.2
  - azione sismica complessiva
- b) **analisi sismica dinamica con spettro di risposta:**
  - quota, posizione del centro di massa e massa risultante, posizione del baricentro delle rigidezze, rapporto  $r/L_s$  (per strutture a nucleo), indici di regolarità  $e/r$  secondo EC8 4.2.3.2
  - frequenza, periodo, accelerazione spettrale, massa eccitata nelle tre direzioni globali per tutti i modi
  - massa complessiva ed aliquota di massa complessiva eccitata.

Per ciascuna combinazione sismica definita SLD o SLO viene riportato il livello di deformazione  $\epsilon_{dT}$  (dr) degli elementi strutturali verticali. Per semplicità di consultazione il livello è espresso anche in unità  $1000 \cdot \epsilon_{dT}/h$  da confrontare direttamente con i valori forniti nella norma (es. 5 per edifici con tamponamenti collegati rigidamente alla struttura, 10.0 per edifici con tamponamenti collegati elasticamente, 3 per edifici in muratura ordinaria, 4 per edifici in muratura armata).

Qualora si applichi il D.M. 96 (vedi NOTA sul capitolo "normativa di riferimento") l'analisi sismica dinamica può essere comprensiva di sollecitazione verticale contemporanea a quella orizzontale, nel qual caso è effettuata una sovrapposizione degli effetti in ragione della radice dei quadrati degli effetti stessi. Per ciascuna combinazione sismica - analisi effettuate con il D.M. 96 (vedi NOTA sul capitolo "normativa di riferimento") - viene riportato il livello di deformazione  $\epsilon_{dT}$ ,  $\epsilon_{dP}$  e  $\epsilon_{dD}$  degli elementi strutturali verticali. Per semplicità di consultazione il livello è espresso in unità  $1000 \cdot \epsilon_{dT}/h$  da confrontare direttamente con il valore 2 o 4 per la verifica.

| CDC | Tipo | Sigla Id                                | Note                                      |
|-----|------|-----------------------------------------|-------------------------------------------|
| 6   | Edk  | CDC=Ed (dinamico SLU) alfa=0.0 (ecc. +) |                                           |
|     |      |                                         | categoria suolo: C                        |
|     |      |                                         | fattore di sito S = 1.800                 |
|     |      |                                         | ordinata spettro (tratto Tb-Tc) = 0.455 g |
|     |      |                                         | angolo di ingresso:0.0                    |
|     |      |                                         | eccentricità aggiuntiva: positiva         |
|     |      |                                         | periodo proprio T1: 0.565 sec.            |
|     |      |                                         | fattore di struttura q: 1.000             |
|     |      |                                         | fattore per spost. mu d: 1.000            |
|     |      |                                         | classe di duttilità CD: □                 |
|     |      |                                         | numero di modi considerati: 9             |
|     |      |                                         | combinaz. modale: CQC                     |

| Quota   | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|---------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| m       | daN           | m       | m       | m          | m          | m       | m       |            |             |             |
| 8.38    | 2385.49       | 6.71    | -4.90   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.93    | 455.81        | 1.75    | 0.83    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.19    | 911.62        | 1.75    | 0.83    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.46    | 911.63        | 1.75    | 0.83    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.72    | 911.63        | 1.75    | 0.83    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51    | 6568.74       | 6.44    | 0.53    | 0.0        | -0.08      | 5.80    | 0.83    | 1.321      | 0.583       | 0.359       |
| 5.11    | 335.84        | 5.25    | 0.83    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.98    | 911.63        | 1.75    | 0.83    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.71    | 335.84        | 4.70    | 0.83    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.31    | 335.84        | 4.16    | 0.83    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.25    | 911.62        | 1.75    | 0.83    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.91    | 335.84        | 3.61    | 0.83    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.51    | 1777.49       | 2.11    | 0.83    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.69    | 1010.62       | 1.75    | 0.83    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.45    | 2565.00       | 5.80    | 0.83    | 0.0        | -0.08      | 5.80    | 0.83    | 1.732      | 0.0         | 0.0         |
| 1.88    | 1010.63       | 1.75    | 0.83    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.06    | 1010.62       | 1.75    | 0.83    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.24    | 1010.62       | 1.75    | 0.83    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.57   | 1010.63       | 1.75    | 0.83    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| Risulta | 2.471e+04     |         |         |            |            |         |         |            |             |             |

| Modo           | Frequenza | Periodo | Acc. Spettrale | M efficace X x g | %        | M efficace Y x g | %        | M efficace Z x g | %        | Energia | Energia x v |
|----------------|-----------|---------|----------------|------------------|----------|------------------|----------|------------------|----------|---------|-------------|
|                | Hz        | sec     | g              | daN              |          | daN              |          | daN              |          |         |             |
| 1              | 0.564     | 1.773   | 0.151          | 2901.12          | 11.7     | 5.76             | 2.33e-02 | 0.07             | 2.90e-04 | 0.0     | 0.0         |
| 2              | 1.541     | 0.649   | 0.412          | 62.96            | 0.3      | 1.933e+04        | 78.2     | 2.17             | 8.77e-03 | 0.0     | 0.0         |
| 3              | 1.770     | 0.565   | 0.455          | 1.677e+04        | 67.9     | 94.13            | 0.4      | 36.20            | 0.1      | 0.0     | 0.0         |
| 4              | 3.115     | 0.321   | 0.455          | 0.28             | 1.11e-03 | 2500.20          | 10.1     | 0.32             | 1.28e-03 | 0.0     | 0.0         |
| 5              | 6.474     | 0.154   | 0.395          | 3013.39          | 12.2     | 0.22             | 8.85e-04 | 54.41            | 0.2      | 0.0     | 0.0         |
| 6              | 8.918     | 0.112   | 0.334          | 817.47           | 3.3      | 2.78             | 1.12e-02 | 1495.83          | 6.1      | 0.0     | 0.0         |
| 7              | 13.788    | 0.073   | 0.277          | 82.63            | 0.3      | 203.37           | 0.8      | 444.46           | 1.8      | 0.0     | 0.0         |
| 8              | 15.056    | 0.066   | 0.268          | 25.92            | 0.1      | 1048.45          | 4.2      | 421.08           | 1.7      | 0.0     | 0.0         |
| 9              | 16.045    | 0.062   | 0.262          | 8.45             | 3.42e-02 | 104.40           | 0.4      | 1265.31          | 5.1      | 0.0     | 0.0         |
| Risulta        |           |         |                | 2.369e+04        |          | 2.329e+04        |          | 3719.84          |          |         |             |
| In percentuale |           |         |                | 95.87            |          | 94.27            |          | 15.06            |          |         |             |

| CDC | Tipo | Sigla Id                                | Note                                      |
|-----|------|-----------------------------------------|-------------------------------------------|
| 7   | Edk  | CDC=Ed (dinamico SLU) alfa=0.0 (ecc. -) |                                           |
|     |      |                                         | categoria suolo: C                        |
|     |      |                                         | fattore di sito S = 1.800                 |
|     |      |                                         | ordinata spettro (tratto Tb-Tc) = 0.455 g |
|     |      |                                         | angolo di ingresso:0.0                    |
|     |      |                                         | eccentricità aggiuntiva: negativa         |
|     |      |                                         | periodo proprio T1: 0.565 sec.            |
|     |      |                                         | fattore di struttura q: 1.000             |

| CDC | Tipo | Sigla Id | Note                                             |
|-----|------|----------|--------------------------------------------------|
|     |      |          | fattore per spost. $\mu$ d: 1.000                |
|     |      |          | classe di duttilità CD: <input type="checkbox"/> |
|     |      |          | numero di modi considerati: 9                    |
|     |      |          | combinaz. modale: CQC                            |

| Quota   | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|---------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| m       | daN           | m       | m       | m          | m          | m       | m       |            |             |             |
| 8.38    | 2385.49       | 6.71    | -4.90   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.93    | 455.81        | 1.75    | 0.83    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.19    | 911.62        | 1.75    | 0.83    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.46    | 911.63        | 1.75    | 0.83    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.72    | 911.63        | 1.75    | 0.83    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51    | 6568.74       | 6.44    | 0.53    | 0.0        | 0.08       | 5.80    | 0.83    | 1.321      | 0.583       | 0.359       |
| 5.11    | 335.84        | 5.25    | 0.83    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.98    | 911.63        | 1.75    | 0.83    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.71    | 335.84        | 4.70    | 0.83    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.31    | 335.84        | 4.16    | 0.83    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.25    | 911.62        | 1.75    | 0.83    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.91    | 335.84        | 3.61    | 0.83    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.51    | 1777.49       | 2.11    | 0.83    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.69    | 1010.62       | 1.75    | 0.83    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.45    | 2565.00       | 5.80    | 0.83    | 0.0        | 0.08       | 5.80    | 0.83    | 1.732      | 0.0         | 0.0         |
| 1.88    | 1010.63       | 1.75    | 0.83    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.06    | 1010.62       | 1.75    | 0.83    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.24    | 1010.62       | 1.75    | 0.83    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.57   | 1010.63       | 1.75    | 0.83    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| Risulta | 2.471e+04     |         |         |            |            |         |         |            |             |             |

| Modo           | Frequenza | Periodo | Acc. Spettrale | M efficace X x g | %        | M efficace Y x g | %        | M efficace Z x g | %        | Energia | Energia x v |
|----------------|-----------|---------|----------------|------------------|----------|------------------|----------|------------------|----------|---------|-------------|
|                | Hz        | sec     | g              | daN              |          | daN              |          | daN              |          |         |             |
| 1              | 0.564     | 1.773   | 0.151          | 2884.43          | 11.7     | 5.71             | 2.31e-02 | 0.07             | 2.89e-04 | 0.0     | 0.0         |
| 2              | 1.541     | 0.649   | 0.412          | 4.86             | 1.97e-02 | 1.941e+04        | 78.6     | 3.26             | 1.32e-02 | 0.0     | 0.0         |
| 3              | 1.769     | 0.565   | 0.455          | 1.685e+04        | 68.2     | 2.98             | 1.21e-02 | 34.91            | 0.1      | 0.0     | 0.0         |
| 4              | 3.111     | 0.321   | 0.455          | 0.64             | 2.58e-03 | 2514.01          | 10.2     | 0.02             | 7.92e-05 | 0.0     | 0.0         |
| 5              | 6.477     | 0.154   | 0.395          | 3029.73          | 12.3     | 0.24             | 9.53e-04 | 52.88            | 0.2      | 0.0     | 0.0         |
| 6              | 8.941     | 0.112   | 0.333          | 798.57           | 3.2      | 2.53             | 1.02e-02 | 1507.45          | 6.1      | 0.0     | 0.0         |
| 7              | 14.169    | 0.071   | 0.274          | 106.17           | 0.4      | 5.76             | 2.33e-02 | 678.66           | 2.7      | 0.0     | 0.0         |
| 8              | 14.665    | 0.068   | 0.270          | 6.46             | 2.61e-02 | 1132.81          | 4.6      | 3.69             | 1.49e-02 | 0.0     | 0.0         |
| 9              | 15.988    | 0.063   | 0.262          | 9.17             | 3.71e-02 | 193.15           | 0.8      | 1044.79          | 4.2      | 0.0     | 0.0         |
| Risulta        |           |         |                | 2.369e+04        |          | 2.327e+04        |          | 3325.75          |          |         |             |
| In percentuale |           |         |                | 95.88            |          | 94.17            |          | 13.46            |          |         |             |

| CDC | Tipo | Sigla Id                                  | Note                                             |
|-----|------|-------------------------------------------|--------------------------------------------------|
| 8   | Edk  | CDC=Ed (dinamico SLU) alfa=90.00 (ecc. +) |                                                  |
|     |      |                                           | categoria suolo: C                               |
|     |      |                                           | fattore di sito S = 1.800                        |
|     |      |                                           | ordinata spettro (tratto Tb-Tc) = 0.455 g        |
|     |      |                                           | angolo di ingresso: 90.00                        |
|     |      |                                           | eccentricità aggiuntiva: positiva                |
|     |      |                                           | periodo proprio T1: 0.652 sec.                   |
|     |      |                                           | fattore di struttura q: 1.000                    |
|     |      |                                           | fattore per spost. $\mu$ d: 1.000                |
|     |      |                                           | classe di duttilità CD: <input type="checkbox"/> |
|     |      |                                           | numero di modi considerati: 9                    |
|     |      |                                           | combinaz. modale: CQC                            |

| Quota   | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|---------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| m       | daN           | m       | m       | m          | m          | m       | m       |            |             |             |
| 8.38    | 2385.49       | 6.71    | -4.90   | 0.07       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.93    | 455.81        | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.19    | 911.62        | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.46    | 911.63        | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.72    | 911.63        | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51    | 6568.74       | 6.44    | 0.53    | 0.07       | 0.0        | 5.80    | 0.83    | 1.321      | 0.583       | 0.359       |
| 5.11    | 335.84        | 5.25    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.98    | 911.63        | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.71    | 335.84        | 4.70    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.31    | 335.84        | 4.16    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.25    | 911.62        | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.91    | 335.84        | 3.61    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.51    | 1777.49       | 2.11    | 0.83    | 0.07       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.69    | 1010.62       | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.45    | 2565.00       | 5.80    | 0.83    | 0.0        | 0.0        | 5.80    | 0.83    | 1.732      | 0.0         | 0.0         |
| 1.88    | 1010.63       | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.06    | 1010.62       | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.24    | 1010.62       | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.57   | 1010.63       | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| Risulta | 2.471e+04     |         |         |            |            |         |         |            |             |             |

| Modo           | Frequenza | Periodo | Acc. Spettrale | M efficace X x g | %        | M efficace Y x g | %        | M efficace Z x g | %        | Energia | Energia x v |
|----------------|-----------|---------|----------------|------------------|----------|------------------|----------|------------------|----------|---------|-------------|
|                | Hz        | sec     | g              | daN              |          | daN              |          | daN              |          |         |             |
| 1              | 0.564     | 1.773   | 0.151          | 2892.72          | 11.7     | 6.00             | 2.43e-02 | 0.07             | 2.89e-04 | 0.0     | 0.0         |
| 2              | 1.533     | 0.652   | 0.410          | 8.45             | 3.42e-02 | 1.931e+04        | 78.1     | 2.63             | 1.07e-02 | 0.0     | 0.0         |
| 3              | 1.769     | 0.565   | 0.455          | 1.684e+04        | 68.1     | 16.56            | 6.70e-02 | 35.63            | 0.1      | 0.0     | 0.0         |
| 4              | 3.101     | 0.322   | 0.455          | 6.81e-03         | 2.75e-05 | 2602.39          | 10.5     | 0.09             | 3.63e-04 | 0.0     | 0.0         |
| 5              | 6.476     | 0.154   | 0.395          | 3014.61          | 12.2     | 0.22             | 9.01e-04 | 54.66            | 0.2      | 0.0     | 0.0         |
| 6              | 8.903     | 0.112   | 0.334          | 815.90           | 3.3      | 2.43             | 9.85e-03 | 1499.37          | 6.1      | 0.0     | 0.0         |
| 7              | 14.029    | 0.071   | 0.275          | 72.43            | 0.3      | 177.92           | 0.7      | 521.94           | 2.1      | 0.0     | 0.0         |
| 8              | 14.691    | 0.068   | 0.270          | 34.71            | 0.1      | 1002.31          | 4.1      | 270.95           | 1.1      | 0.0     | 0.0         |
| 9              | 16.037    | 0.062   | 0.262          | 8.63             | 3.49e-02 | 126.34           | 0.5      | 1136.68          | 4.6      | 0.0     | 0.0         |
| Risulta        |           |         |                | 2.368e+04        |          | 2.324e+04        |          | 3522.02          |          |         |             |
| In percentuale |           |         |                | 95.86            |          | 94.07            |          | 14.26            |          |         |             |

| CDC | Tipo | Sigla Id                                  | Note                                      |
|-----|------|-------------------------------------------|-------------------------------------------|
| 9   | Edk  | CDC=Ed (dinamico SLU) alfa=90.00 (ecc. -) |                                           |
|     |      |                                           | categoria suolo: C                        |
|     |      |                                           | fattore di sito S = 1.800                 |
|     |      |                                           | ordinata spettro (tratto Tb-Tc) = 0.455 g |
|     |      |                                           | angolo di ingresso:90.00                  |
|     |      |                                           | eccentricità aggiuntiva: negativa         |
|     |      |                                           | periodo proprio T1: 0.646 sec.            |
|     |      |                                           | fattore di struttura q: 1.000             |
|     |      |                                           | fattore per spost. mu d: 1.000            |
|     |      |                                           | classe di duttilità CD: □                 |
|     |      |                                           | numero di modi considerati: 9             |
|     |      |                                           | combinaz. modale: CQC                     |

| Quota | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| m     | daN           | m       | m       | m          | m          | m       | m       |            |             |             |
| 8.38  | 2385.49       | 6.71    | -4.90   | -0.07      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.93  | 455.81        | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.19  | 911.62        | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.46  | 911.63        | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.72  | 911.63        | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 6568.74       | 6.44    | 0.53    | -0.07      | 0.0        | 5.80    | 0.83    | 1.321      | 0.583       | 0.359       |
| 5.11  | 335.84        | 5.25    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota   | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|---------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| 4.98    | 911.63        | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.71    | 335.84        | 4.70    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.31    | 335.84        | 4.16    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.25    | 911.62        | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.91    | 335.84        | 3.61    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.51    | 1777.49       | 2.11    | 0.83    | -0.07      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.69    | 1010.62       | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.45    | 2565.00       | 5.80    | 0.83    | 0.0        | 0.0        | 5.80    | 0.83    | 1.732      | 0.0         | 0.0         |
| 1.88    | 1010.63       | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.06    | 1010.62       | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.24    | 1010.62       | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.57   | 1010.63       | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| Risulta | 2.471e+04     |         |         |            |            |         |         |            |             |             |

| Modo           | Frequenza | Periodo | Acc. Spettrale | M efficace X x g | %        | M efficace Y x g | %        | M efficace Z x g | %        | Energia | Energia x v |
|----------------|-----------|---------|----------------|------------------|----------|------------------|----------|------------------|----------|---------|-------------|
|                | Hz        | sec     | g              | daN              |          | daN              |          | daN              |          |         |             |
| 1              | 0.564     | 1.773   | 0.151          | 2892.78          | 11.7     | 5.48             | 2.22e-02 | 0.07             | 2.90e-04 | 0.0     | 0.0         |
| 2              | 1.549     | 0.646   | 0.414          | 8.08             | 3.27e-02 | 1.949e+04        | 78.9     | 2.75             | 1.11e-02 | 0.0     | 0.0         |
| 3              | 1.769     | 0.565   | 0.455          | 1.684e+04        | 68.2     | 15.41            | 6.24e-02 | 35.59            | 0.1      | 0.0     | 0.0         |
| 4              | 3.123     | 0.320   | 0.455          | 0.04             | 1.44e-04 | 2420.01          | 9.8      | 0.16             | 6.63e-04 | 0.0     | 0.0         |
| 5              | 6.478     | 0.154   | 0.395          | 3027.97          | 12.3     | 0.23             | 9.33e-04 | 52.79            | 0.2      | 0.0     | 0.0         |
| 6              | 8.962     | 0.112   | 0.333          | 802.99           | 3.3      | 2.91             | 1.18e-02 | 1508.30          | 6.1      | 0.0     | 0.0         |
| 7              | 14.065    | 0.071   | 0.274          | 85.51            | 0.3      | 86.63            | 0.4      | 589.39           | 2.4      | 0.0     | 0.0         |
| 8              | 14.911    | 0.067   | 0.269          | 22.95            | 9.29e-02 | 1079.30          | 4.4      | 217.87           | 0.9      | 0.0     | 0.0         |
| 9              | 15.986    | 0.063   | 0.262          | 7.71             | 3.12e-02 | 203.60           | 0.8      | 961.68           | 3.9      | 0.0     | 0.0         |
| Risulta        |           |         |                | 2.369e+04        |          | 2.331e+04        |          | 3368.61          |          |         |             |
| In percentuale |           |         |                | 95.87            |          | 94.33            |          | 13.63            |          |         |             |

| CDC | Tipo | Sigla Id                                | Note                                      |
|-----|------|-----------------------------------------|-------------------------------------------|
| 10  | Edk  | CDC=Ed (dinamico SLD) alfa=0.0 (ecc. +) |                                           |
|     |      |                                         | categoria suolo: C                        |
|     |      |                                         | fattore di sito S = 1.800                 |
|     |      |                                         | ordinata spettro (tratto Tb-Tc) = 0.202 g |
|     |      |                                         | angolo di ingresso:0.0                    |
|     |      |                                         | eccentricità aggiuntiva: positiva         |
|     |      |                                         | periodo proprio T1: 0.565 sec.            |
|     |      |                                         | numero di modi considerati: 9             |
|     |      |                                         | combinaz. modale: CQC                     |

| Quota | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|-------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| m     | daN           | m       | m       | m          | m          | m       | m       |            |             |             |
| 8.38  | 2385.49       | 6.71    | -4.90   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.93  | 455.81        | 1.75    | 0.83    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.19  | 911.62        | 1.75    | 0.83    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.46  | 911.63        | 1.75    | 0.83    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.72  | 911.63        | 1.75    | 0.83    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51  | 6568.74       | 6.44    | 0.53    | 0.0        | -0.08      | 5.80    | 0.83    | 1.321      | 0.583       | 0.359       |
| 5.11  | 335.84        | 5.25    | 0.83    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.98  | 911.63        | 1.75    | 0.83    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.71  | 335.84        | 4.70    | 0.83    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.31  | 335.84        | 4.16    | 0.83    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.25  | 911.62        | 1.75    | 0.83    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.91  | 335.84        | 3.61    | 0.83    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.51  | 1777.49       | 2.11    | 0.83    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.69  | 1010.62       | 1.75    | 0.83    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.45  | 2565.00       | 5.80    | 0.83    | 0.0        | -0.08      | 5.80    | 0.83    | 1.732      | 0.0         | 0.0         |
| 1.88  | 1010.63       | 1.75    | 0.83    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.06  | 1010.62       | 1.75    | 0.83    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.24  | 1010.62       | 1.75    | 0.83    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |

| Quota   | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|---------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| -0.57   | 1010.63       | 1.75    | 0.83    | 0.0        | -0.08      | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| Risulta | 2.471e+04     |         |         |            |            |         |         |            |             |             |

| Modo           | Frequenza | Periodo | Acc. Spettrale | M efficace X x g | %        | M efficace Y x g | %        | M efficace Z x g | %        | Energia | Energia x v |
|----------------|-----------|---------|----------------|------------------|----------|------------------|----------|------------------|----------|---------|-------------|
|                | Hz        | sec     | g              | daN              |          | daN              |          | daN              |          |         |             |
| 1              | 0.564     | 1.773   | 0.058          | 2901.12          | 11.7     | 5.76             | 2.33e-02 | 0.07             | 2.90e-04 | 0.0     | 0.0         |
| 2              | 1.541     | 0.649   | 0.159          | 62.96            | 0.3      | 1.933e+04        | 78.2     | 2.17             | 8.77e-03 | 0.0     | 0.0         |
| 3              | 1.770     | 0.565   | 0.182          | 1.677e+04        | 67.9     | 94.13            | 0.4      | 36.20            | 0.1      | 0.0     | 0.0         |
| 4              | 3.115     | 0.321   | 0.202          | 0.28             | 1.11e-03 | 2500.20          | 10.1     | 0.32             | 1.28e-03 | 0.0     | 0.0         |
| 5              | 6.474     | 0.154   | 0.191          | 3013.39          | 12.2     | 0.22             | 8.85e-04 | 54.41            | 0.2      | 0.0     | 0.0         |
| 6              | 8.918     | 0.112   | 0.162          | 817.47           | 3.3      | 2.78             | 1.12e-02 | 1495.83          | 6.1      | 0.0     | 0.0         |
| 7              | 13.788    | 0.073   | 0.135          | 82.63            | 0.3      | 203.37           | 0.8      | 444.46           | 1.8      | 0.0     | 0.0         |
| 8              | 15.056    | 0.066   | 0.130          | 25.92            | 0.1      | 1048.45          | 4.2      | 421.08           | 1.7      | 0.0     | 0.0         |
| 9              | 16.045    | 0.062   | 0.127          | 8.45             | 3.42e-02 | 104.40           | 0.4      | 1265.31          | 5.1      | 0.0     | 0.0         |
| Risulta        |           |         |                | 2.369e+04        |          | 2.329e+04        |          | 3719.84          |          |         |             |
| In percentuale |           |         |                | 95.87            |          | 94.27            |          | 15.06            |          |         |             |

| CDC | Tipo | Sigla Id                                | Note                                      |
|-----|------|-----------------------------------------|-------------------------------------------|
| 11  | Edk  | CDC=Ed (dinamico SLD) alfa=0.0 (ecc. -) |                                           |
|     |      |                                         | categoria suolo: C                        |
|     |      |                                         | fattore di sito S = 1.800                 |
|     |      |                                         | ordinata spettro (tratto Tb-Tc) = 0.202 g |
|     |      |                                         | angolo di ingresso:0.0                    |
|     |      |                                         | eccentricità aggiuntiva: negativa         |
|     |      |                                         | periodo proprio T1: 0.565 sec.            |
|     |      |                                         | numero di modi considerati: 9             |
|     |      |                                         | combinaz. modale: CQC                     |

| Quota   | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|---------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| m       | daN           | m       | m       | m          | m          | m       | m       |            |             |             |
| 8.38    | 2385.49       | 6.71    | -4.90   | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.93    | 455.81        | 1.75    | 0.83    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.19    | 911.62        | 1.75    | 0.83    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.46    | 911.63        | 1.75    | 0.83    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.72    | 911.63        | 1.75    | 0.83    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51    | 6568.74       | 6.44    | 0.53    | 0.0        | 0.08       | 5.80    | 0.83    | 1.321      | 0.583       | 0.359       |
| 5.11    | 335.84        | 5.25    | 0.83    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.98    | 911.63        | 1.75    | 0.83    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.71    | 335.84        | 4.70    | 0.83    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.31    | 335.84        | 4.16    | 0.83    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.25    | 911.62        | 1.75    | 0.83    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.91    | 335.84        | 3.61    | 0.83    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.51    | 1777.49       | 2.11    | 0.83    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.69    | 1010.62       | 1.75    | 0.83    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.45    | 2565.00       | 5.80    | 0.83    | 0.0        | 0.08       | 5.80    | 0.83    | 1.732      | 0.0         | 0.0         |
| 1.88    | 1010.63       | 1.75    | 0.83    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.06    | 1010.62       | 1.75    | 0.83    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.24    | 1010.62       | 1.75    | 0.83    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.57   | 1010.63       | 1.75    | 0.83    | 0.0        | 0.08       | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| Risulta | 2.471e+04     |         |         |            |            |         |         |            |             |             |

| Modo | Frequenza | Periodo | Acc. Spettrale | M efficace X x g | %    | M efficace Y x g | %        | M efficace Z x g | %        | Energia | Energia x v |
|------|-----------|---------|----------------|------------------|------|------------------|----------|------------------|----------|---------|-------------|
|      | Hz        | sec     | g              | daN              |      | daN              |          | daN              |          |         |             |
| 1    | 0.564     | 1.773   | 0.058          | 2884.43          | 11.7 | 5.71             | 2.31e-02 | 0.07             | 2.89e-04 | 0.0     | 0.0         |

| Modo           | Frequenza | Periodo | Acc. Spettrale | M efficace X x g | %        | M efficace Y x g | %        | M efficace Z x g | %        | Energia | Energia x v |
|----------------|-----------|---------|----------------|------------------|----------|------------------|----------|------------------|----------|---------|-------------|
| 2              | 1.541     | 0.649   | 0.159          | 4.86             | 1.97e-02 | 1.941e+04        | 78.6     | 3.26             | 1.32e-02 | 0.0     | 0.0         |
| 3              | 1.769     | 0.565   | 0.182          | 1.685e+04        | 68.2     | 2.98             | 1.21e-02 | 34.91            | 0.1      | 0.0     | 0.0         |
| 4              | 3.111     | 0.321   | 0.202          | 0.64             | 2.58e-03 | 2514.01          | 10.2     | 0.02             | 7.92e-05 | 0.0     | 0.0         |
| 5              | 6.477     | 0.154   | 0.191          | 3029.73          | 12.3     | 0.24             | 9.53e-04 | 52.88            | 0.2      | 0.0     | 0.0         |
| 6              | 8.941     | 0.112   | 0.162          | 798.57           | 3.2      | 2.53             | 1.02e-02 | 1507.45          | 6.1      | 0.0     | 0.0         |
| 7              | 14.169    | 0.071   | 0.133          | 106.17           | 0.4      | 5.76             | 2.33e-02 | 678.66           | 2.7      | 0.0     | 0.0         |
| 8              | 14.665    | 0.068   | 0.132          | 6.46             | 2.61e-02 | 1132.81          | 4.6      | 3.69             | 1.49e-02 | 0.0     | 0.0         |
| 9              | 15.988    | 0.063   | 0.128          | 9.17             | 3.71e-02 | 193.15           | 0.8      | 1044.79          | 4.2      | 0.0     | 0.0         |
| Risulta        |           |         |                | 2.369e+04        |          | 2.327e+04        |          | 3325.75          |          |         |             |
| In percentuale |           |         |                | 95.88            |          | 94.17            |          | 13.46            |          |         |             |

| CDC | Tipo | Sigla Id                                  | Note                                      |
|-----|------|-------------------------------------------|-------------------------------------------|
| 12  | Edk  | CDC=Ed (dinamico SLD) alfa=90.00 (ecc. +) |                                           |
|     |      |                                           | categoria suolo: C                        |
|     |      |                                           | fattore di sito S = 1.800                 |
|     |      |                                           | ordinata spettro (tratto Tb-Tc) = 0.202 g |
|     |      |                                           | angolo di ingresso:90.00                  |
|     |      |                                           | eccentricità aggiuntiva: positiva         |
|     |      |                                           | periodo proprio T1: 0.652 sec.            |
|     |      |                                           | numero di modi considerati: 9             |
|     |      |                                           | combinaz. modale: CQC                     |

| Quota   | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|---------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| m       | daN           | m       | m       | m          | m          | m       | m       |            |             |             |
| 8.38    | 2385.49       | 6.71    | -4.90   | 0.07       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.93    | 455.81        | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.19    | 911.62        | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.46    | 911.63        | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.72    | 911.63        | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51    | 6568.74       | 6.44    | 0.53    | 0.07       | 0.0        | 5.80    | 0.83    | 1.321      | 0.583       | 0.359       |
| 5.11    | 335.84        | 5.25    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.98    | 911.63        | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.71    | 335.84        | 4.70    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.31    | 335.84        | 4.16    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.25    | 911.62        | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.91    | 335.84        | 3.61    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.51    | 1777.49       | 2.11    | 0.83    | 0.07       | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.69    | 1010.62       | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.45    | 2565.00       | 5.80    | 0.83    | 0.0        | 0.0        | 5.80    | 0.83    | 1.732      | 0.0         | 0.0         |
| 1.88    | 1010.63       | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.06    | 1010.62       | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.24    | 1010.62       | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.57   | 1010.63       | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| Risulta | 2.471e+04     |         |         |            |            |         |         |            |             |             |

| Modo    | Frequenza | Periodo | Acc. Spettrale | M efficace X x g | %        | M efficace Y x g | %        | M efficace Z x g | %        | Energia | Energia x v |
|---------|-----------|---------|----------------|------------------|----------|------------------|----------|------------------|----------|---------|-------------|
|         | Hz        | sec     | g              | daN              |          | daN              |          | daN              |          |         |             |
| 1       | 0.564     | 1.773   | 0.058          | 2892.72          | 11.7     | 6.00             | 2.43e-02 | 0.07             | 2.89e-04 | 0.0     | 0.0         |
| 2       | 1.533     | 0.652   | 0.158          | 8.45             | 3.42e-02 | 1.931e+04        | 78.1     | 2.63             | 1.07e-02 | 0.0     | 0.0         |
| 3       | 1.769     | 0.565   | 0.182          | 1.684e+04        | 68.1     | 16.56            | 6.70e-02 | 35.63            | 0.1      | 0.0     | 0.0         |
| 4       | 3.101     | 0.322   | 0.202          | 6.81e-03         | 2.75e-05 | 2602.39          | 10.5     | 0.09             | 3.63e-04 | 0.0     | 0.0         |
| 5       | 6.476     | 0.154   | 0.191          | 3014.61          | 12.2     | 0.22             | 9.01e-04 | 54.66            | 0.2      | 0.0     | 0.0         |
| 6       | 8.903     | 0.112   | 0.162          | 815.90           | 3.3      | 2.43             | 9.85e-03 | 1499.37          | 6.1      | 0.0     | 0.0         |
| 7       | 14.029    | 0.071   | 0.134          | 72.43            | 0.3      | 177.92           | 0.7      | 521.94           | 2.1      | 0.0     | 0.0         |
| 8       | 14.691    | 0.068   | 0.131          | 34.71            | 0.1      | 1002.31          | 4.1      | 270.95           | 1.1      | 0.0     | 0.0         |
| 9       | 16.037    | 0.062   | 0.127          | 8.63             | 3.49e-02 | 126.34           | 0.5      | 1136.68          | 4.6      | 0.0     | 0.0         |
| Risulta |           |         |                | 2.368e+04        |          | 2.324e+04        |          | 3522.02          |          |         |             |
| In      |           |         |                | 95.86            |          | 94.07            |          | 14.26            |          |         |             |

| Modo        | Frequenza | Periodo | Acc. Spettrale | M efficace X x g | % | M efficace Y x g | % | M efficace Z x g | % | Energia | Energia x v |
|-------------|-----------|---------|----------------|------------------|---|------------------|---|------------------|---|---------|-------------|
| percentuale |           |         |                |                  |   |                  |   |                  |   |         |             |

| CDC | Tipo | Sigla Id                                  | Note                                      |
|-----|------|-------------------------------------------|-------------------------------------------|
| 13  | Edk  | CDC=Ed (dinamico SLD) alfa=90.00 (ecc. -) |                                           |
|     |      |                                           | categoria suolo: C                        |
|     |      |                                           | fattore di sito S = 1.800                 |
|     |      |                                           | ordinata spettro (tratto Tb-Tc) = 0.202 g |
|     |      |                                           | angolo di ingresso:90.00                  |
|     |      |                                           | eccentricità aggiuntiva: negativa         |
|     |      |                                           | periodo proprio T1: 0.646 sec.            |
|     |      |                                           | numero di modi considerati: 9             |
|     |      |                                           | combinaz. modale: CQC                     |

| Quota   | M Sismica x g | Pos. GX | Pos. GY | E agg. X-X | E agg. Y-Y | Pos. KX | Pos. KY | rapp. r/Ls | rapp. ex/rx | rapp. ey/ry |
|---------|---------------|---------|---------|------------|------------|---------|---------|------------|-------------|-------------|
| m       | daN           | m       | m       | m          | m          | m       | m       |            |             |             |
| 8.38    | 2385.49       | 6.71    | -4.90   | -0.07      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.93    | 455.81        | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 7.19    | 911.62        | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 6.46    | 911.63        | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.72    | 911.63        | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 5.51    | 6568.74       | 6.44    | 0.53    | -0.07      | 0.0        | 5.80    | 0.83    | 1.321      | 0.583       | 0.359       |
| 5.11    | 335.84        | 5.25    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.98    | 911.63        | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.71    | 335.84        | 4.70    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.31    | 335.84        | 4.16    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 4.25    | 911.62        | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.91    | 335.84        | 3.61    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 3.51    | 1777.49       | 2.11    | 0.83    | -0.07      | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.69    | 1010.62       | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 2.45    | 2565.00       | 5.80    | 0.83    | 0.0        | 0.0        | 5.80    | 0.83    | 1.732      | 0.0         | 0.0         |
| 1.88    | 1010.63       | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 1.06    | 1010.62       | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| 0.24    | 1010.62       | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| -0.57   | 1010.63       | 1.75    | 0.83    | 0.0        | 0.0        | 0.0     | 0.0     | 0.0        | 0.0         | 0.0         |
| Risulta | 2.471e+04     |         |         |            |            |         |         |            |             |             |

| Modo           | Frequenza | Periodo | Acc. Spettrale | M efficace X x g | %        | M efficace Y x g | %        | M efficace Z x g | %        | Energia | Energia x v |
|----------------|-----------|---------|----------------|------------------|----------|------------------|----------|------------------|----------|---------|-------------|
|                | Hz        | sec     | g              | daN              |          | daN              |          | daN              |          |         |             |
| 1              | 0.564     | 1.773   | 0.058          | 2892.78          | 11.7     | 5.48             | 2.22e-02 | 0.07             | 2.90e-04 | 0.0     | 0.0         |
| 2              | 1.549     | 0.646   | 0.160          | 8.08             | 3.27e-02 | 1.949e+04        | 78.9     | 2.75             | 1.11e-02 | 0.0     | 0.0         |
| 3              | 1.769     | 0.565   | 0.182          | 1.684e+04        | 68.2     | 15.41            | 6.24e-02 | 35.59            | 0.1      | 0.0     | 0.0         |
| 4              | 3.123     | 0.320   | 0.202          | 0.04             | 1.44e-04 | 2420.01          | 9.8      | 0.16             | 6.63e-04 | 0.0     | 0.0         |
| 5              | 6.478     | 0.154   | 0.191          | 3027.97          | 12.3     | 0.23             | 9.33e-04 | 52.79            | 0.2      | 0.0     | 0.0         |
| 6              | 8.962     | 0.112   | 0.162          | 802.99           | 3.3      | 2.91             | 1.18e-02 | 1508.30          | 6.1      | 0.0     | 0.0         |
| 7              | 14.065    | 0.071   | 0.134          | 85.51            | 0.3      | 86.63            | 0.4      | 589.39           | 2.4      | 0.0     | 0.0         |
| 8              | 14.911    | 0.067   | 0.131          | 22.95            | 9.29e-02 | 1079.30          | 4.4      | 217.87           | 0.9      | 0.0     | 0.0         |
| 9              | 15.986    | 0.063   | 0.128          | 7.71             | 3.12e-02 | 203.60           | 0.8      | 961.68           | 3.9      | 0.0     | 0.0         |
| Risulta        |           |         |                | 2.369e+04        |          | 2.331e+04        |          | 3368.61          |          |         |             |
| In percentuale |           |         |                | 95.87            |          | 94.33            |          | 13.63            |          |         |             |

| Cmb | Pilas. | 1000 etaT/h | etaT | inter. h | Pilas. | 1000 etaT/h | etaT | inter. h | Pilas. | 1000 etaT/h | etaT | inter. h |
|-----|--------|-------------|------|----------|--------|-------------|------|----------|--------|-------------|------|----------|
|     |        |             | cm   | cm       |        |             | cm   | cm       |        |             | cm   | cm       |
| 47  | 1      | 2.65        | 1.02 | 384.0    | 2      | 3.00        | 0.92 | 306.0    | 3      | 2.82        | 1.08 | 384.0    |
|     | 4      | 3.12        | 0.96 | 306.0    |        |             |      |          |        |             |      |          |

| Cmb | Pilas. | 1000 etaT/h | etaT | inter. h | Pilas. | 1000 etaT/h | etaT | inter. h | Pilas. | 1000 etaT/h | etaT | inter. h |
|-----|--------|-------------|------|----------|--------|-------------|------|----------|--------|-------------|------|----------|
| 48  | 1      | 3.73        | 1.43 | 384.0    | 2      | 4.00        | 1.22 | 306.0    | 3      | 4.00        | 1.54 | 384.0    |
|     | 4      | 4.19        | 1.28 | 306.0    |        |             |      |          |        |             |      |          |
| 49  | 1      | 2.07        | 0.80 | 384.0    | 2      | 2.00        | 0.61 | 306.0    | 3      | 2.00        | 0.77 | 384.0    |
|     | 4      | 1.98        | 0.61 | 306.0    |        |             |      |          |        |             |      |          |
| 50  | 1      | 3.66        | 1.40 | 384.0    | 2      | 3.55        | 1.09 | 306.0    | 3      | 3.56        | 1.37 | 384.0    |
|     | 4      | 3.53        | 1.08 | 306.0    |        |             |      |          |        |             |      |          |
| 51  | 1      | 2.64        | 1.01 | 384.0    | 2      | 3.00        | 0.92 | 306.0    | 3      | 2.82        | 1.08 | 384.0    |
|     | 4      | 3.12        | 0.95 | 306.0    |        |             |      |          |        |             |      |          |
| 52  | 1      | 3.73        | 1.43 | 384.0    | 2      | 4.00        | 1.22 | 306.0    | 3      | 4.01        | 1.54 | 384.0    |
|     | 4      | 4.20        | 1.28 | 306.0    |        |             |      |          |        |             |      |          |
| 53  | 1      | 2.07        | 0.79 | 384.0    | 2      | 1.99        | 0.61 | 306.0    | 3      | 2.00        | 0.77 | 384.0    |
|     | 4      | 1.98        | 0.60 | 306.0    |        |             |      |          |        |             |      |          |
| 54  | 1      | 3.66        | 1.40 | 384.0    | 2      | 3.55        | 1.09 | 306.0    | 3      | 3.57        | 1.37 | 384.0    |
|     | 4      | 3.53        | 1.08 | 306.0    |        |             |      |          |        |             |      |          |
| 55  | 1      | 2.71        | 1.04 | 384.0    | 2      | 3.07        | 0.94 | 306.0    | 3      | 2.89        | 1.11 | 384.0    |
|     | 4      | 3.18        | 0.97 | 306.0    |        |             |      |          |        |             |      |          |
| 56  | 1      | 3.82        | 1.47 | 384.0    | 2      | 4.09        | 1.25 | 306.0    | 3      | 4.10        | 1.57 | 384.0    |
|     | 4      | 4.28        | 1.31 | 306.0    |        |             |      |          |        |             |      |          |
| 57  | 1      | 1.97        | 0.76 | 384.0    | 2      | 1.89        | 0.58 | 306.0    | 3      | 1.90        | 0.73 | 384.0    |
|     | 4      | 1.88        | 0.57 | 306.0    |        |             |      |          |        |             |      |          |
| 58  | 1      | 3.55        | 1.36 | 384.0    | 2      | 3.45        | 1.06 | 306.0    | 3      | 3.45        | 1.33 | 384.0    |
|     | 4      | 3.43        | 1.05 | 306.0    |        |             |      |          |        |             |      |          |
| 59  | 1      | 2.71        | 1.04 | 384.0    | 2      | 3.06        | 0.94 | 306.0    | 3      | 2.89        | 1.11 | 384.0    |
|     | 4      | 3.18        | 0.97 | 306.0    |        |             |      |          |        |             |      |          |
| 60  | 1      | 3.82        | 1.47 | 384.0    | 2      | 4.09        | 1.25 | 306.0    | 3      | 4.10        | 1.57 | 384.0    |
|     | 4      | 4.28        | 1.31 | 306.0    |        |             |      |          |        |             |      |          |
| 61  | 1      | 1.97        | 0.76 | 384.0    | 2      | 1.89        | 0.58 | 306.0    | 3      | 1.89        | 0.73 | 384.0    |
|     | 4      | 1.87        | 0.57 | 306.0    |        |             |      |          |        |             |      |          |
| 62  | 1      | 3.55        | 1.36 | 384.0    | 2      | 3.45        | 1.06 | 306.0    | 3      | 3.46        | 1.33 | 384.0    |
|     | 4      | 3.43        | 1.05 | 306.0    |        |             |      |          |        |             |      |          |
| 63  | 1      | 1.25        | 0.48 | 384.0    | 2      | 1.67        | 0.51 | 306.0    | 3      | 1.27        | 0.49 | 384.0    |
|     | 4      | 1.61        | 0.49 | 306.0    |        |             |      |          |        |             |      |          |
| 64  | 1      | 5.22        | 2.00 | 384.0    | 2      | 5.29        | 1.62 | 306.0    | 3      | 5.42        | 2.08 | 384.0    |
|     | 4      | 5.44        | 1.66 | 306.0    |        |             |      |          |        |             |      |          |
| 65  | 1      | 0.30        | 0.12 | 384.0    | 2      | 0.83        | 0.25 | 306.0    | 3      | 0.39        | 0.15 | 384.0    |
|     | 4      | 0.76        | 0.23 | 306.0    |        |             |      |          |        |             |      |          |
| 66  | 1      | 5.32        | 2.04 | 384.0    | 2      | 5.24        | 1.60 | 306.0    | 3      | 5.36        | 2.06 | 384.0    |
|     | 4      | 5.32        | 1.63 | 306.0    |        |             |      |          |        |             |      |          |
| 67  | 1      | 1.24        | 0.48 | 384.0    | 2      | 1.67        | 0.51 | 306.0    | 3      | 1.27        | 0.49 | 384.0    |
|     | 4      | 1.61        | 0.49 | 306.0    |        |             |      |          |        |             |      |          |
| 68  | 1      | 5.25        | 2.02 | 384.0    | 2      | 5.32        | 1.63 | 306.0    | 3      | 5.46        | 2.09 | 384.0    |
|     | 4      | 5.47        | 1.67 | 306.0    |        |             |      |          |        |             |      |          |
| 69  | 1      | 0.32        | 0.12 | 384.0    | 2      | 0.82        | 0.25 | 306.0    | 3      | 0.40        | 0.15 | 384.0    |
|     | 4      | 0.76        | 0.23 | 306.0    |        |             |      |          |        |             |      |          |
| 70  | 1      | 5.29        | 2.03 | 384.0    | 2      | 5.21        | 1.59 | 306.0    | 3      | 5.33        | 2.05 | 384.0    |
|     | 4      | 5.29        | 1.62 | 306.0    |        |             |      |          |        |             |      |          |
| 71  | 1      | 1.25        | 0.48 | 384.0    | 2      | 1.66        | 0.51 | 306.0    | 3      | 1.27        | 0.49 | 384.0    |
|     | 4      | 1.60        | 0.49 | 306.0    |        |             |      |          |        |             |      |          |
| 72  | 1      | 5.23        | 2.01 | 384.0    | 2      | 5.30        | 1.62 | 306.0    | 3      | 5.43        | 2.09 | 384.0    |
|     | 4      | 5.44        | 1.67 | 306.0    |        |             |      |          |        |             |      |          |
| 73  | 1      | 0.30        | 0.11 | 384.0    | 2      | 0.82        | 0.25 | 306.0    | 3      | 0.39        | 0.15 | 384.0    |
|     | 4      | 0.76        | 0.23 | 306.0    |        |             |      |          |        |             |      |          |
| 74  | 1      | 5.33        | 2.05 | 384.0    | 2      | 5.25        | 1.61 | 306.0    | 3      | 5.37        | 2.06 | 384.0    |
|     | 4      | 5.33        | 1.63 | 306.0    |        |             |      |          |        |             |      |          |
| 75  | 1      | 1.24        | 0.48 | 384.0    | 2      | 1.66        | 0.51 | 306.0    | 3      | 1.27        | 0.49 | 384.0    |
|     | 4      | 1.60        | 0.49 | 306.0    |        |             |      |          |        |             |      |          |
| 76  | 1      | 5.26        | 2.02 | 384.0    | 2      | 5.33        | 1.63 | 306.0    | 3      | 5.46        | 2.10 | 384.0    |
|     | 4      | 5.48        | 1.68 | 306.0    |        |             |      |          |        |             |      |          |
| 77  | 1      | 0.31        | 0.12 | 384.0    | 2      | 0.81        | 0.25 | 306.0    | 3      | 0.40        | 0.15 | 384.0    |
|     | 4      | 0.76        | 0.23 | 306.0    |        |             |      |          |        |             |      |          |
| 78  | 1      | 5.30        | 2.03 | 384.0    | 2      | 5.22        | 1.60 | 306.0    | 3      | 5.34        | 2.05 | 384.0    |
|     | 4      | 5.29        | 1.62 | 306.0    |        |             |      |          |        |             |      |          |
|     |        |             |      |          |        |             |      |          |        |             |      |          |
| Cmb |        | 1000 etaT/h |      |          |        |             |      |          |        |             |      |          |
|     |        | 5.48        |      |          |        |             |      |          |        |             |      |          |

# RISULTATI NODALI

## LEGENDA RISULTATI NODALI

Il controllo dei risultati delle analisi condotte, per quanto concerne i nodi strutturali, è possibile in relazione alle tabelle sottoriportate.

Una prima tabella riporta infatti per ogni nodo e per ogni combinazione (o caso di carico) gli spostamenti nodali.

Una seconda tabella riporta per ogni nodo a cui sia associato un vincolo rigido e/o elastico o una fondazione speciale e per ogni combinazione (o caso di carico) i valori delle azioni esercitate dalla struttura sui vincoli (reazioni vincolari cambiate di segno).

Una terza tabella, infine riassume per ogni nodo le sei combinazioni in cui si attingono i valori minimi e massimi della reazione Fz, della reazione Mx e della reazione My.

| Nodo | Cmb | Traslazione X | Traslazione Y | Traslazione Z | Rotazione X | Rotazione Y | Rotazione Z |
|------|-----|---------------|---------------|---------------|-------------|-------------|-------------|
|      |     | cm            | cm            | cm            |             |             |             |
| 1    | 1   | -9.14e-03     | 0.02          | -0.03         | 1.12e-04    | 4.90e-04    | 0.0         |
| 1    | 2   | -0.10         | 0.18          | -0.06         | 1.00e-03    | 9.04e-04    | 0.0         |
| 1    | 3   | -9.14e-03     | 0.02          | -0.03         | 1.12e-04    | 4.90e-04    | 0.0         |
| 1    | 4   | -0.10         | 0.18          | -0.06         | 1.00e-03    | 9.04e-04    | 0.0         |
| 1    | 5   | -5.82e-03     | 0.01          | -0.02         | 7.26e-05    | 3.73e-04    | 0.0         |
| 1    | 6   | -0.10         | 0.17          | -0.05         | 9.62e-04    | 7.87e-04    | 0.0         |
| 1    | 7   | -5.82e-03     | 0.01          | -0.02         | 7.26e-05    | 3.73e-04    | 0.0         |
| 1    | 8   | -0.10         | 0.17          | -0.05         | 9.62e-04    | 7.87e-04    | 0.0         |
| 1    | 9   | -0.14         | 0.25          | -0.07         | 1.38e-03    | 1.08e-03    | 0.0         |
| 1    | 10  | -9.14e-03     | 0.02          | -0.03         | 1.12e-04    | 4.90e-04    | 0.0         |
| 1    | 11  | -0.14         | 0.25          | -0.07         | 1.38e-03    | 1.08e-03    | 0.0         |
| 1    | 12  | -0.14         | 0.24          | -0.06         | 1.34e-03    | 9.65e-04    | 0.0         |
| 1    | 13  | -5.82e-03     | 0.01          | -0.02         | 7.26e-05    | 3.73e-04    | 0.0         |
| 1    | 14  | -0.14         | 0.24          | -0.06         | 1.34e-03    | 9.65e-04    | 0.0         |
| 1    | 15  | 0.16          | 0.02          | 0.22          | 8.71e-05    | 2.17e-03    | 0.0         |
| 1    | 16  | -8.94e-03     | 0.21          | 0.06          | 1.93e-03    | 2.20e-03    | 0.0         |
| 1    | 17  | -0.15         | 0.07          | -0.15         | -4.05e-04   | -8.15e-04   | 0.0         |
| 1    | 18  | -0.31         | 0.26          | -0.30         | 1.44e-03    | -7.88e-04   | 0.0         |
| 1    | 19  | 0.15          | 0.02          | 0.22          | 6.42e-05    | 2.17e-03    | 0.0         |
| 1    | 20  | -7.99e-03     | 0.20          | 0.06          | 1.96e-03    | 2.20e-03    | 0.0         |
| 1    | 21  | -0.15         | 0.07          | -0.15         | -4.28e-04   | -8.15e-04   | 0.0         |
| 1    | 22  | -0.31         | 0.25          | -0.31         | 1.46e-03    | -7.88e-04   | 0.0         |
| 1    | 23  | 0.15          | 0.02          | 0.24          | -7.38e-05   | 2.18e-03    | 0.0         |
| 1    | 24  | -0.01         | 0.21          | 0.09          | 1.77e-03    | 2.20e-03    | 0.0         |
| 1    | 25  | -0.14         | 0.07          | -0.17         | -2.45e-04   | -8.18e-04   | 0.0         |
| 1    | 26  | -0.31         | 0.25          | -0.33         | 1.60e-03    | -7.91e-04   | 0.0         |
| 1    | 27  | 0.15          | 0.02          | 0.24          | -9.67e-05   | 2.18e-03    | 0.0         |
| 1    | 28  | -0.01         | 0.21          | 0.08          | 1.79e-03    | 2.20e-03    | 0.0         |
| 1    | 29  | -0.14         | 0.07          | -0.17         | -2.67e-04   | -8.18e-04   | 0.0         |
| 1    | 30  | -0.30         | 0.25          | -0.33         | 1.62e-03    | -7.91e-04   | 0.0         |
| 1    | 31  | 0.24          | -0.18         | 0.27          | -2.24e-03   | 1.09e-03    | 0.0         |
| 1    | 32  | -0.31         | 0.44          | -0.24         | 3.91e-03    | 1.19e-03    | 0.0         |
| 1    | 33  | 0.15          | -0.17         | 0.16          | -2.39e-03   | 1.98e-04    | 0.0         |
| 1    | 34  | -0.40         | 0.46          | -0.35         | 3.77e-03    | 2.90e-04    | 0.0         |
| 1    | 35  | 0.24          | -0.18         | 0.27          | -2.29e-03   | 1.10e-03    | 0.0         |
| 1    | 36  | -0.31         | 0.44          | -0.24         | 3.87e-03    | 1.19e-03    | 0.0         |
| 1    | 37  | 0.15          | -0.17         | 0.15          | -2.34e-03   | 1.97e-04    | 0.0         |
| 1    | 38  | -0.39         | 0.46          | -0.36         | 3.81e-03    | 2.90e-04    | 0.0         |
| 1    | 39  | 0.24          | -0.17         | 0.27          | -2.32e-03   | 1.10e-03    | 0.0         |
| 1    | 40  | -0.30         | 0.43          | -0.25         | 3.99e-03    | 1.19e-03    | 0.0         |
| 1    | 41  | 0.15          | -0.16         | 0.16          | -2.46e-03   | 1.99e-04    | 0.0         |
| 1    | 42  | -0.39         | 0.45          | -0.36         | 3.84e-03    | 2.89e-04    | 0.0         |
| 1    | 43  | 0.24          | -0.17         | 0.28          | -2.36e-03   | 1.10e-03    | 0.0         |
| 1    | 44  | -0.30         | 0.43          | -0.24         | 3.94e-03    | 1.19e-03    | 0.0         |
| 1    | 45  | 0.15          | -0.16         | 0.16          | -2.41e-03   | 1.98e-04    | 0.0         |
| 1    | 46  | -0.39         | 0.45          | -0.37         | 3.89e-03    | 2.88e-04    | 0.0         |
| 1    | 47  | 0.02          | 0.09          | 0.06          | 5.01e-04    | 1.29e-03    | 0.0         |
| 1    | 48  | -0.05         | 0.16          | 5.75e-04      | 1.22e-03    | 1.30e-03    | 0.0         |
| 1    | 49  | -0.11         | 0.11          | -0.09         | 3.05e-04    | 8.71e-05    | 0.0         |
| 1    | 50  | -0.17         | 0.18          | -0.15         | 1.03e-03    | 9.83e-05    | 0.0         |
| 1    | 51  | 0.02          | 0.09          | 0.06          | 4.93e-04    | 1.29e-03    | 0.0         |
| 1    | 52  | -0.05         | 0.16          | -5.24e-05     | 1.23e-03    | 1.30e-03    | 0.0         |
| 1    | 53  | -0.11         | 0.11          | -0.09         | 2.97e-04    | 8.72e-05    | 0.0         |
| 1    | 54  | -0.17         | 0.18          | -0.15         | 1.03e-03    | 9.81e-05    | 0.0         |
| 1    | 55  | 0.01          | 0.09          | 0.07          | 4.37e-04    | 1.29e-03    | 0.0         |

| Nodo | Cmb | Traslazione X | Traslazione Y | Traslazione Z | Rotazione X | Rotazione Y | Rotazione Z |
|------|-----|---------------|---------------|---------------|-------------|-------------|-------------|
| 1    | 56  | -0.05         | 0.17          | 8.89e-03      | 1.16e-03    | 1.30e-03    | 0.0         |
| 1    | 57  | -0.10         | 0.11          | -0.10         | 3.69e-04    | 8.62e-05    | 0.0         |
| 1    | 58  | -0.17         | 0.18          | -0.16         | 1.09e-03    | 9.74e-05    | 0.0         |
| 1    | 59  | 0.01          | 0.09          | 0.07          | 4.29e-04    | 1.29e-03    | 0.0         |
| 1    | 60  | -0.05         | 0.16          | 8.26e-03      | 1.17e-03    | 1.30e-03    | 0.0         |
| 1    | 61  | -0.10         | 0.11          | -0.10         | 3.61e-04    | 8.64e-05    | 0.0         |
| 1    | 62  | -0.17         | 0.18          | -0.16         | 1.10e-03    | 9.72e-05    | 0.0         |
| 1    | 63  | 0.05          | 0.01          | 0.08          | -4.10e-04   | 8.54e-04    | 0.0         |
| 1    | 64  | -0.17         | 0.26          | -0.12         | 2.00e-03    | 8.91e-04    | 0.0         |
| 1    | 65  | 0.01          | 0.02          | 0.03          | -4.68e-04   | 4.94e-04    | 0.0         |
| 1    | 66  | -0.20         | 0.26          | -0.17         | 1.94e-03    | 5.31e-04    | 0.0         |
| 1    | 67  | 0.05          | 0.01          | 0.08          | -4.29e-04   | 8.54e-04    | 0.0         |
| 1    | 68  | -0.17         | 0.26          | -0.12         | 1.98e-03    | 8.91e-04    | 0.0         |
| 1    | 69  | 0.01          | 0.02          | 0.03          | -4.49e-04   | 4.94e-04    | 0.0         |
| 1    | 70  | -0.20         | 0.26          | -0.17         | 1.96e-03    | 5.31e-04    | 0.0         |
| 1    | 71  | 0.05          | 0.02          | 0.08          | -4.37e-04   | 8.54e-04    | 0.0         |
| 1    | 72  | -0.16         | 0.25          | -0.12         | 2.02e-03    | 8.91e-04    | 0.0         |
| 1    | 73  | 9.99e-03      | 0.02          | 0.04          | -4.96e-04   | 4.94e-04    | 0.0         |
| 1    | 74  | -0.20         | 0.26          | -0.17         | 1.96e-03    | 5.31e-04    | 0.0         |
| 1    | 75  | 0.05          | 0.02          | 0.08          | -4.56e-04   | 8.54e-04    | 0.0         |
| 1    | 76  | -0.16         | 0.25          | -0.12         | 2.00e-03    | 8.91e-04    | 0.0         |
| 1    | 77  | 0.01          | 0.02          | 0.03          | -4.76e-04   | 4.94e-04    | 0.0         |
| 1    | 78  | -0.20         | 0.26          | -0.17         | 1.98e-03    | 5.30e-04    | 0.0         |
| 1    | 79  | -7.03e-03     | 0.01          | -0.03         | 8.63e-05    | 3.77e-04    | 0.0         |
| 1    | 80  | -0.07         | 0.12          | -0.04         | 6.79e-04    | 6.53e-04    | 0.0         |
| 1    | 81  | -7.03e-03     | 0.01          | -0.03         | 8.63e-05    | 3.77e-04    | 0.0         |
| 1    | 82  | -0.07         | 0.12          | -0.04         | 6.79e-04    | 6.53e-04    | 0.0         |
| 1    | 83  | -0.09         | 0.17          | -0.05         | 9.33e-04    | 7.71e-04    | 0.0         |
| 1    | 84  | -7.03e-03     | 0.01          | -0.03         | 8.63e-05    | 3.77e-04    | 0.0         |
| 1    | 85  | -0.09         | 0.17          | -0.05         | 9.33e-04    | 7.71e-04    | 0.0         |
| 1    | 86  | -7.03e-03     | 0.01          | -0.03         | 8.63e-05    | 3.77e-04    | 0.0         |
| 1    | 87  | -0.06         | 0.11          | -0.04         | 5.94e-04    | 6.14e-04    | 0.0         |
| 1    | 88  | -7.03e-03     | 0.01          | -0.03         | 8.63e-05    | 3.77e-04    | 0.0         |
| 1    | 89  | -0.06         | 0.11          | -0.04         | 5.94e-04    | 6.14e-04    | 0.0         |
| 1    | 90  | -0.07         | 0.12          | -0.04         | 6.79e-04    | 6.53e-04    | 0.0         |
| 1    | 91  | -7.03e-03     | 0.01          | -0.03         | 8.63e-05    | 3.77e-04    | 0.0         |
| 1    | 92  | -0.07         | 0.12          | -0.04         | 6.79e-04    | 6.53e-04    | 0.0         |
| 1    | 93  | -7.03e-03     | 0.01          | -0.03         | 8.63e-05    | 3.77e-04    | 0.0         |
| 1    | 94  | -0.06         | 0.11          | -0.04         | 5.94e-04    | 6.14e-04    | 0.0         |
| 1    | 95  | -7.03e-03     | 0.01          | -0.03         | 8.63e-05    | 3.77e-04    | 0.0         |
| 1    | 96  | -0.06         | 0.11          | -0.04         | 5.94e-04    | 6.14e-04    | 0.0         |
| 2    | 1   | -9.20e-03     | -0.01         | -0.12         | 1.18e-04    | 4.81e-04    | -1.87e-04   |
| 2    | 2   | -0.10         | -0.13         | -0.22         | 1.04e-03    | 9.29e-04    | -1.79e-03   |
| 2    | 3   | -9.20e-03     | -0.01         | -0.12         | 1.18e-04    | 4.81e-04    | -1.87e-04   |
| 2    | 4   | -0.10         | -0.13         | -0.22         | 1.04e-03    | 9.29e-04    | -1.79e-03   |
| 2    | 5   | -5.86e-03     | -8.72e-03     | -0.09         | 7.67e-05    | 3.66e-04    | -1.22e-04   |
| 2    | 6   | -0.10         | -0.12         | -0.19         | 9.96e-04    | 8.14e-04    | -1.72e-03   |
| 2    | 7   | -5.86e-03     | -8.72e-03     | -0.09         | 7.67e-05    | 3.66e-04    | -1.22e-04   |
| 2    | 8   | -0.10         | -0.12         | -0.19         | 9.96e-04    | 8.14e-04    | -1.72e-03   |
| 2    | 9   | -0.14         | -0.17         | -0.26         | 1.43e-03    | 1.12e-03    | -2.47e-03   |
| 2    | 10  | -9.20e-03     | -0.01         | -0.12         | 1.18e-04    | 4.81e-04    | -1.87e-04   |
| 2    | 11  | -0.14         | -0.17         | -0.26         | 1.43e-03    | 1.12e-03    | -2.47e-03   |
| 2    | 12  | -0.14         | -0.17         | -0.23         | 1.39e-03    | 1.01e-03    | -2.41e-03   |
| 2    | 13  | -5.86e-03     | -8.72e-03     | -0.09         | 7.67e-05    | 3.66e-04    | -1.22e-04   |
| 2    | 14  | -0.14         | -0.17         | -0.23         | 1.39e-03    | 1.01e-03    | -2.41e-03   |
| 2    | 15  | 0.16          | 4.23e-03      | -0.18         | 8.40e-05    | 2.41e-03    | -1.30e-04   |
| 2    | 16  | -9.72e-03     | -0.16         | -0.34         | 2.00e-03    | 2.45e-03    | -2.11e-03   |
| 2    | 17  | -0.15         | -0.03         | 9.16e-05      | -4.22e-04   | -1.03e-03   | -6.19e-04   |
| 2    | 18  | -0.31         | -0.20         | -0.16         | 1.50e-03    | -9.91e-04   | -2.60e-03   |
| 2    | 19  | 0.15          | 5.06e-03      | -0.18         | 6.01e-05    | 2.42e-03    | -1.40e-04   |
| 2    | 20  | -8.76e-03     | -0.16         | -0.34         | 2.03e-03    | 2.45e-03    | -2.10e-03   |
| 2    | 21  | -0.15         | -0.03         | 2.10e-03      | -4.46e-04   | -1.03e-03   | -6.29e-04   |
| 2    | 22  | -0.31         | -0.20         | -0.16         | 1.52e-03    | -9.92e-04   | -2.59e-03   |
| 2    | 23  | 0.15          | -7.85e-03     | -0.16         | -7.58e-05   | 2.42e-03    | -1.54e-04   |
| 2    | 24  | -0.01         | -0.17         | -0.31         | 1.84e-03    | 2.45e-03    | -2.13e-03   |
| 2    | 25  | -0.14         | -0.02         | -0.02         | -2.62e-04   | -1.03e-03   | -5.95e-04   |
| 2    | 26  | -0.31         | -0.18         | -0.18         | 1.66e-03    | -9.94e-04   | -2.57e-03   |
| 2    | 27  | 0.15          | -7.02e-03     | -0.15         | -9.97e-05   | 2.42e-03    | -1.65e-04   |
| 2    | 28  | -0.01         | -0.17         | -0.32         | 1.87e-03    | 2.45e-03    | -2.12e-03   |
| 2    | 29  | -0.14         | -0.02         | -0.02         | -2.86e-04   | -1.03e-03   | -6.05e-04   |
| 2    | 30  | -0.30         | -0.19         | -0.18         | 1.68e-03    | -9.95e-04   | -2.56e-03   |
| 2    | 31  | 0.24          | 0.18          | 0.07          | -2.33e-03   | 1.17e-03    | 2.01e-03    |
| 2    | 32  | -0.31         | -0.37         | -0.46         | 4.07e-03    | 1.29e-03    | -4.59e-03   |
| 2    | 33  | 0.15          | 0.17          | 0.12          | -2.49e-03   | 1.37e-04    | 1.86e-03    |

| Nodo | Cmb | Traslazione X | Traslazione Y | Traslazione Z | Rotazione X | Rotazione Y | Rotazione Z |
|------|-----|---------------|---------------|---------------|-------------|-------------|-------------|
| 2    | 34  | -0.40         | -0.38         | -0.41         | 3.92e-03    | 2.54e-04    | -4.74e-03   |
| 2    | 35  | 0.24          | 0.18          | 0.08          | -2.38e-03   | 1.17e-03    | 2.00e-03    |
| 2    | 36  | -0.31         | -0.37         | -0.45         | 4.02e-03    | 1.29e-03    | -4.60e-03   |
| 2    | 37  | 0.15          | 0.18          | 0.12          | -2.44e-03   | 1.36e-04    | 1.87e-03    |
| 2    | 38  | -0.40         | -0.37         | -0.41         | 3.96e-03    | 2.53e-04    | -4.73e-03   |
| 2    | 39  | 0.24          | 0.19          | 0.08          | -2.41e-03   | 1.17e-03    | 1.97e-03    |
| 2    | 40  | -0.30         | -0.37         | -0.47         | 4.15e-03    | 1.28e-03    | -4.55e-03   |
| 2    | 41  | 0.15          | 0.18          | 0.13          | -2.57e-03   | 1.41e-04    | 1.83e-03    |
| 2    | 42  | -0.39         | -0.38         | -0.41         | 4.00e-03    | 2.50e-04    | -4.70e-03   |
| 2    | 43  | 0.24          | 0.18          | 0.08          | -2.46e-03   | 1.17e-03    | 1.97e-03    |
| 2    | 44  | -0.31         | -0.37         | -0.46         | 4.10e-03    | 1.28e-03    | -4.56e-03   |
| 2    | 45  | 0.15          | 0.18          | 0.12          | -2.52e-03   | 1.40e-04    | 1.83e-03    |
| 2    | 46  | -0.39         | -0.38         | -0.42         | 4.04e-03    | 2.49e-04    | -4.69e-03   |
| 2    | 47  | 0.02          | -0.06         | -0.17         | 5.16e-04    | 1.40e-03    | -8.83e-04   |
| 2    | 48  | -0.05         | -0.12         | -0.23         | 1.27e-03    | 1.41e-03    | -1.65e-03   |
| 2    | 49  | -0.11         | -0.07         | -0.10         | 3.15e-04    | 1.39e-05    | -1.08e-03   |
| 2    | 50  | -0.17         | -0.14         | -0.16         | 1.07e-03    | 2.79e-05    | -1.84e-03   |
| 2    | 51  | 0.01          | -0.06         | -0.17         | 5.08e-04    | 1.40e-03    | -8.87e-04   |
| 2    | 52  | -0.05         | -0.12         | -0.24         | 1.28e-03    | 1.41e-03    | -1.65e-03   |
| 2    | 53  | -0.11         | -0.07         | -0.10         | 3.07e-04    | 1.44e-05    | -1.08e-03   |
| 2    | 54  | -0.17         | -0.14         | -0.16         | 1.07e-03    | 2.75e-05    | -1.84e-03   |
| 2    | 55  | 0.01          | -0.06         | -0.16         | 4.53e-04    | 1.40e-03    | -8.92e-04   |
| 2    | 56  | -0.05         | -0.13         | -0.23         | 1.20e-03    | 1.41e-03    | -1.66e-03   |
| 2    | 57  | -0.10         | -0.07         | -0.11         | 3.78e-04    | 1.32e-05    | -1.07e-03   |
| 2    | 58  | -0.17         | -0.13         | -0.17         | 1.13e-03    | 2.72e-05    | -1.84e-03   |
| 2    | 59  | 0.01          | -0.06         | -0.16         | 4.44e-04    | 1.40e-03    | -8.96e-04   |
| 2    | 60  | -0.05         | -0.13         | -0.23         | 1.21e-03    | 1.41e-03    | -1.66e-03   |
| 2    | 61  | -0.10         | -0.07         | -0.11         | 3.70e-04    | 1.36e-05    | -1.07e-03   |
| 2    | 62  | -0.17         | -0.13         | -0.17         | 1.14e-03    | 2.67e-05    | -1.83e-03   |
| 2    | 63  | 0.05          | 0.01          | -0.08         | -4.30e-04   | 8.95e-04    | -5.30e-05   |
| 2    | 64  | -0.17         | -0.20         | -0.28         | 2.07e-03    | 9.42e-04    | -2.62e-03   |
| 2    | 65  | 0.01          | 8.22e-03      | -0.05         | -4.91e-04   | 4.81e-04    | -1.11e-04   |
| 2    | 66  | -0.20         | -0.20         | -0.26         | 2.01e-03    | 5.28e-04    | -2.67e-03   |
| 2    | 67  | 0.05          | 0.01          | -0.07         | -4.49e-04   | 8.96e-04    | -5.57e-05   |
| 2    | 68  | -0.17         | -0.20         | -0.28         | 2.05e-03    | 9.42e-04    | -2.62e-03   |
| 2    | 69  | 0.01          | 9.65e-03      | -0.06         | -4.72e-04   | 4.81e-04    | -1.08e-04   |
| 2    | 70  | -0.20         | -0.20         | -0.26         | 2.03e-03    | 5.28e-04    | -2.67e-03   |
| 2    | 71  | 0.05          | 0.01          | -0.07         | -4.59e-04   | 8.97e-04    | -6.71e-05   |
| 2    | 72  | -0.16         | -0.20         | -0.28         | 2.10e-03    | 9.41e-04    | -2.60e-03   |
| 2    | 73  | 9.87e-03      | 9.24e-03      | -0.05         | -5.19e-04   | 4.83e-04    | -1.25e-04   |
| 2    | 74  | -0.20         | -0.21         | -0.26         | 2.04e-03    | 5.26e-04    | -2.66e-03   |
| 2    | 75  | 0.05          | 0.01          | -0.07         | -4.78e-04   | 8.97e-04    | -6.98e-05   |
| 2    | 76  | -0.17         | -0.20         | -0.28         | 2.08e-03    | 9.41e-04    | -2.61e-03   |
| 2    | 77  | 0.01          | 0.01          | -0.05         | -5.00e-04   | 4.82e-04    | -1.22e-04   |
| 2    | 78  | -0.20         | -0.20         | -0.27         | 2.06e-03    | 5.26e-04    | -2.66e-03   |
| 2    | 79  | -7.08e-03     | -0.01         | -0.09         | 9.09e-05    | 3.70e-04    | -1.43e-04   |
| 2    | 80  | -0.07         | -0.09         | -0.16         | 7.04e-04    | 6.69e-04    | -1.21e-03   |
| 2    | 81  | -7.08e-03     | -0.01         | -0.09         | 9.09e-05    | 3.70e-04    | -1.43e-04   |
| 2    | 82  | -0.07         | -0.09         | -0.16         | 7.04e-04    | 6.69e-04    | -1.21e-03   |
| 2    | 83  | -0.09         | -0.12         | -0.19         | 9.66e-04    | 7.97e-04    | -1.67e-03   |
| 2    | 84  | -7.08e-03     | -0.01         | -0.09         | 9.09e-05    | 3.70e-04    | -1.43e-04   |
| 2    | 85  | -0.09         | -0.12         | -0.19         | 9.66e-04    | 7.97e-04    | -1.67e-03   |
| 2    | 86  | -7.08e-03     | -0.01         | -0.09         | 9.09e-05    | 3.70e-04    | -1.43e-04   |
| 2    | 87  | -0.06         | -0.07         | -0.15         | 6.16e-04    | 6.26e-04    | -1.06e-03   |
| 2    | 88  | -7.08e-03     | -0.01         | -0.09         | 9.09e-05    | 3.70e-04    | -1.43e-04   |
| 2    | 89  | -0.06         | -0.07         | -0.15         | 6.16e-04    | 6.26e-04    | -1.06e-03   |
| 2    | 90  | -0.07         | -0.09         | -0.16         | 7.04e-04    | 6.69e-04    | -1.21e-03   |
| 2    | 91  | -7.08e-03     | -0.01         | -0.09         | 9.09e-05    | 3.70e-04    | -1.43e-04   |
| 2    | 92  | -0.07         | -0.09         | -0.16         | 7.04e-04    | 6.69e-04    | -1.21e-03   |
| 2    | 93  | -7.08e-03     | -0.01         | -0.09         | 9.09e-05    | 3.70e-04    | -1.43e-04   |
| 2    | 94  | -0.06         | -0.07         | -0.15         | 6.16e-04    | 6.26e-04    | -1.06e-03   |
| 2    | 95  | -7.08e-03     | -0.01         | -0.09         | 9.09e-05    | 3.70e-04    | -1.43e-04   |
| 2    | 96  | -0.06         | -0.07         | -0.15         | 6.16e-04    | 6.26e-04    | -1.06e-03   |
| 3    | 1   | -9.17e-03     | -0.03         | -0.15         | 1.14e-04    | 4.68e-04    | 0.0         |
| 3    | 2   | -0.10         | -0.25         | -0.28         | 1.03e-03    | 9.11e-04    | 0.0         |
| 3    | 3   | -9.17e-03     | -0.03         | -0.15         | 1.14e-04    | 4.68e-04    | 0.0         |
| 3    | 4   | -0.10         | -0.25         | -0.28         | 1.03e-03    | 9.11e-04    | 0.0         |
| 3    | 5   | -5.84e-03     | -0.02         | -0.11         | 7.38e-05    | 3.56e-04    | 0.0         |
| 3    | 6   | -0.10         | -0.24         | -0.25         | 9.91e-04    | 7.99e-04    | 0.0         |
| 3    | 7   | -5.84e-03     | -0.02         | -0.11         | 7.38e-05    | 3.56e-04    | 0.0         |
| 3    | 8   | -0.10         | -0.24         | -0.25         | 9.91e-04    | 7.99e-04    | 0.0         |
| 3    | 9   | -0.14         | -0.34         | -0.34         | 1.42e-03    | 1.10e-03    | 0.0         |
| 3    | 10  | -9.17e-03     | -0.03         | -0.15         | 1.14e-04    | 4.68e-04    | 0.0         |
| 3    | 11  | -0.14         | -0.34         | -0.34         | 1.42e-03    | 1.10e-03    | 0.0         |

| Nodo | Cmb | Traslazione X | Traslazione Y | Traslazione Z | Rotazione X | Rotazione Y | Rotazione Z |
|------|-----|---------------|---------------|---------------|-------------|-------------|-------------|
| 3    | 12  | -0.14         | -0.34         | -0.30         | 1.38e-03    | 9.89e-04    | 0.0         |
| 3    | 13  | -5.84e-03     | -0.02         | -0.11         | 7.38e-05    | 3.56e-04    | 0.0         |
| 3    | 14  | -0.14         | -0.34         | -0.30         | 1.38e-03    | 9.89e-04    | 0.0         |
| 3    | 15  | 0.16          | -7.05e-03     | -0.35         | 8.85e-05    | 2.42e-03    | 0.0         |
| 3    | 16  | -9.37e-03     | -0.31         | -0.50         | 2.01e-03    | 2.39e-03    | 0.0         |
| 3    | 17  | -0.15         | -0.07         | 0.07          | -4.32e-04   | -9.90e-04   | 0.0         |
| 3    | 18  | -0.31         | -0.37         | -0.09         | 1.48e-03    | -1.03e-03   | 0.0         |
| 3    | 19  | 0.15          | -6.90e-03     | -0.34         | 6.45e-05    | 2.42e-03    | 0.0         |
| 3    | 20  | -8.42e-03     | -0.31         | -0.50         | 2.03e-03    | 2.39e-03    | 0.0         |
| 3    | 21  | -0.15         | -0.07         | 0.07          | -4.56e-04   | -9.92e-04   | 0.0         |
| 3    | 22  | -0.31         | -0.37         | -0.09         | 1.51e-03    | -1.03e-03   | 0.0         |
| 3    | 23  | 0.15          | -0.02         | -0.32         | -8.55e-05   | 2.43e-03    | 0.0         |
| 3    | 24  | -0.01         | -0.33         | -0.48         | 1.83e-03    | 2.39e-03    | 0.0         |
| 3    | 25  | -0.14         | -0.05         | 0.05          | -2.58e-04   | -9.97e-04   | 0.0         |
| 3    | 26  | -0.31         | -0.36         | -0.11         | 1.66e-03    | -1.04e-03   | 0.0         |
| 3    | 27  | 0.15          | -0.02         | -0.32         | -1.09e-04   | 2.43e-03    | 0.0         |
| 3    | 28  | -0.01         | -0.33         | -0.48         | 1.86e-03    | 2.39e-03    | 0.0         |
| 3    | 29  | -0.14         | -0.05         | 0.05          | -2.82e-04   | -9.98e-04   | 0.0         |
| 3    | 30  | -0.30         | -0.36         | -0.11         | 1.68e-03    | -1.03e-03   | 0.0         |
| 3    | 31  | 0.24          | 0.32          | -0.02         | -2.33e-03   | 1.28e-03    | 0.0         |
| 3    | 32  | -0.31         | -0.68         | -0.54         | 4.06e-03    | 1.14e-03    | 0.0         |
| 3    | 33  | 0.15          | 0.30          | 0.11          | -2.49e-03   | 2.50e-04    | 0.0         |
| 3    | 34  | -0.40         | -0.70         | -0.41         | 3.90e-03    | 1.20e-04    | 0.0         |
| 3    | 35  | 0.24          | 0.32          | -0.01         | -2.38e-03   | 1.28e-03    | 0.0         |
| 3    | 36  | -0.31         | -0.69         | -0.53         | 4.01e-03    | 1.15e-03    | 0.0         |
| 3    | 37  | 0.15          | 0.31          | 0.10          | -2.43e-03   | 2.49e-04    | 0.0         |
| 3    | 38  | -0.40         | -0.70         | -0.42         | 3.96e-03    | 1.18e-04    | 0.0         |
| 3    | 39  | 0.24          | 0.32          | -0.01         | -2.41e-03   | 1.27e-03    | 0.0         |
| 3    | 40  | -0.30         | -0.68         | -0.55         | 4.14e-03    | 1.15e-03    | 0.0         |
| 3    | 41  | 0.15          | 0.31          | 0.11          | -2.57e-03   | 2.47e-04    | 0.0         |
| 3    | 42  | -0.39         | -0.70         | -0.42         | 3.98e-03    | 1.24e-04    | 0.0         |
| 3    | 43  | 0.24          | 0.32          | -4.89e-03     | -2.46e-03   | 1.27e-03    | 0.0         |
| 3    | 44  | -0.30         | -0.69         | -0.54         | 4.09e-03    | 1.15e-03    | 0.0         |
| 3    | 45  | 0.15          | 0.31          | 0.11          | -2.51e-03   | 2.45e-04    | 0.0         |
| 3    | 46  | -0.39         | -0.70         | -0.43         | 4.04e-03    | 1.22e-04    | 0.0         |
| 3    | 47  | 0.02          | -0.12         | -0.27         | 5.15e-04    | 1.39e-03    | 0.0         |
| 3    | 48  | -0.05         | -0.24         | -0.33         | 1.26e-03    | 1.38e-03    | 0.0         |
| 3    | 49  | -0.11         | -0.14         | -0.10         | 3.08e-04    | 1.98e-05    | 0.0         |
| 3    | 50  | -0.17         | -0.26         | -0.16         | 1.06e-03    | 4.44e-06    | 0.0         |
| 3    | 51  | 0.01          | -0.12         | -0.27         | 5.07e-04    | 1.39e-03    | 0.0         |
| 3    | 52  | -0.05         | -0.24         | -0.33         | 1.27e-03    | 1.38e-03    | 0.0         |
| 3    | 53  | -0.11         | -0.14         | -0.10         | 3.00e-04    | 1.93e-05    | 0.0         |
| 3    | 54  | -0.17         | -0.26         | -0.16         | 1.07e-03    | 4.89e-06    | 0.0         |
| 3    | 55  | 0.01          | -0.13         | -0.26         | 4.46e-04    | 1.39e-03    | 0.0         |
| 3    | 56  | -0.05         | -0.24         | -0.32         | 1.20e-03    | 1.38e-03    | 0.0         |
| 3    | 57  | -0.10         | -0.14         | -0.11         | 3.77e-04    | 1.76e-05    | 0.0         |
| 3    | 58  | -0.17         | -0.25         | -0.17         | 1.13e-03    | 2.22e-06    | 0.0         |
| 3    | 59  | 0.01          | -0.13         | -0.26         | 4.38e-04    | 1.39e-03    | 0.0         |
| 3    | 60  | -0.05         | -0.24         | -0.32         | 1.20e-03    | 1.38e-03    | 0.0         |
| 3    | 61  | -0.10         | -0.14         | -0.11         | 3.69e-04    | 1.71e-05    | 0.0         |
| 3    | 62  | -0.17         | -0.25         | -0.17         | 1.14e-03    | 2.68e-06    | 0.0         |
| 3    | 63  | 0.05          | 8.81e-03      | -0.14         | -4.32e-04   | 9.29e-04    | 0.0         |
| 3    | 64  | -0.17         | -0.38         | -0.34         | 2.07e-03    | 8.78e-04    | 0.0         |
| 3    | 65  | 0.01          | 1.38e-03      | -0.09         | -4.94e-04   | 5.18e-04    | 0.0         |
| 3    | 66  | -0.20         | -0.39         | -0.29         | 2.00e-03    | 4.66e-04    | 0.0         |
| 3    | 67  | 0.05          | 6.98e-03      | -0.14         | -4.53e-04   | 9.30e-04    | 0.0         |
| 3    | 68  | -0.17         | -0.38         | -0.34         | 2.05e-03    | 8.78e-04    | 0.0         |
| 3    | 69  | 0.01          | 3.21e-03      | -0.09         | -4.73e-04   | 5.17e-04    | 0.0         |
| 3    | 70  | -0.20         | -0.39         | -0.30         | 2.03e-03    | 4.66e-04    | 0.0         |
| 3    | 71  | 0.05          | 8.92e-03      | -0.14         | -4.60e-04   | 9.27e-04    | 0.0         |
| 3    | 72  | -0.16         | -0.38         | -0.35         | 2.10e-03    | 8.79e-04    | 0.0         |
| 3    | 73  | 9.94e-03      | 1.49e-03      | -0.09         | -5.22e-04   | 5.16e-04    | 0.0         |
| 3    | 74  | -0.20         | -0.39         | -0.30         | 2.03e-03    | 4.68e-04    | 0.0         |
| 3    | 75  | 0.05          | 7.09e-03      | -0.13         | -4.81e-04   | 9.28e-04    | 0.0         |
| 3    | 76  | -0.16         | -0.38         | -0.34         | 2.07e-03    | 8.80e-04    | 0.0         |
| 3    | 77  | 0.01          | 3.31e-03      | -0.09         | -5.02e-04   | 5.15e-04    | 0.0         |
| 3    | 78  | -0.20         | -0.39         | -0.30         | 2.05e-03    | 4.67e-04    | 0.0         |
| 3    | 79  | -7.05e-03     | -0.02         | -0.12         | 8.80e-05    | 3.60e-04    | 0.0         |
| 3    | 80  | -0.07         | -0.17         | -0.20         | 6.99e-04    | 6.55e-04    | 0.0         |
| 3    | 81  | -7.05e-03     | -0.02         | -0.12         | 8.80e-05    | 3.60e-04    | 0.0         |
| 3    | 82  | -0.07         | -0.17         | -0.20         | 6.99e-04    | 6.55e-04    | 0.0         |
| 3    | 83  | -0.09         | -0.23         | -0.24         | 9.61e-04    | 7.82e-04    | 0.0         |
| 3    | 84  | -7.05e-03     | -0.02         | -0.12         | 8.80e-05    | 3.60e-04    | 0.0         |
| 3    | 85  | -0.09         | -0.23         | -0.24         | 9.61e-04    | 7.82e-04    | 0.0         |

| Nodo | Cmb | Traslazione X | Traslazione Y | Traslazione Z | Rotazione X | Rotazione Y | Rotazione Z |
|------|-----|---------------|---------------|---------------|-------------|-------------|-------------|
| 3    | 86  | -7.05e-03     | -0.02         | -0.12         | 8.80e-05    | 3.60e-04    | 0.0         |
| 3    | 87  | -0.06         | -0.15         | -0.19         | 6.12e-04    | 6.13e-04    | 0.0         |
| 3    | 88  | -7.05e-03     | -0.02         | -0.12         | 8.80e-05    | 3.60e-04    | 0.0         |
| 3    | 89  | -0.06         | -0.15         | -0.19         | 6.12e-04    | 6.13e-04    | 0.0         |
| 3    | 90  | -0.07         | -0.17         | -0.20         | 6.99e-04    | 6.55e-04    | 0.0         |
| 3    | 91  | -7.05e-03     | -0.02         | -0.12         | 8.80e-05    | 3.60e-04    | 0.0         |
| 3    | 92  | -0.07         | -0.17         | -0.20         | 6.99e-04    | 6.55e-04    | 0.0         |
| 3    | 93  | -7.05e-03     | -0.02         | -0.12         | 8.80e-05    | 3.60e-04    | 0.0         |
| 3    | 94  | -0.06         | -0.15         | -0.19         | 6.12e-04    | 6.13e-04    | 0.0         |
| 3    | 95  | -7.05e-03     | -0.02         | -0.12         | 8.80e-05    | 3.60e-04    | 0.0         |
| 3    | 96  | -0.06         | -0.15         | -0.19         | 6.12e-04    | 6.13e-04    | 0.0         |
| 4    | 1   | 0.31          | -0.07         | -0.12         | 1.25e-04    | 7.68e-04    | -3.07e-04   |
| 4    | 2   | 0.80          | -0.66         | -0.23         | 1.11e-03    | 2.51e-03    | -2.99e-03   |
| 4    | 3   | 0.31          | -0.07         | -0.12         | 1.25e-04    | 7.68e-04    | -3.07e-04   |
| 4    | 4   | 0.80          | -0.66         | -0.23         | 1.11e-03    | 2.51e-03    | -2.99e-03   |
| 4    | 5   | 0.23          | -0.05         | -0.09         | 8.06e-05    | 5.78e-04    | -2.00e-04   |
| 4    | 6   | 0.72          | -0.64         | -0.20         | 1.06e-03    | 2.32e-03    | -2.88e-03   |
| 4    | 7   | 0.23          | -0.05         | -0.09         | 8.06e-05    | 5.78e-04    | -2.00e-04   |
| 4    | 8   | 0.72          | -0.64         | -0.20         | 1.06e-03    | 2.32e-03    | -2.88e-03   |
| 4    | 9   | 1.01          | -0.91         | -0.28         | 1.53e-03    | 3.26e-03    | -4.14e-03   |
| 4    | 10  | 0.31          | -0.07         | -0.12         | 1.25e-04    | 7.68e-04    | -3.07e-04   |
| ...  |     |               |               |               |             |             |             |
| 116  | 96  | 1.11          | -0.64         | -0.16         | 0.0         | 1.61e-03    | -1.78e-03   |
| Nodo |     | Traslazione X | Traslazione Y | Traslazione Z | Rotazione X | Rotazione Y | Rotazione Z |
|      |     | -12.96        | -8.11         | -1.14         | -0.02       | -7.13e-03   | -7.81e-03   |
|      |     | 13.38         | 3.85          | 0.62          | 9.18e-03    | 0.01        | 3.44e-03    |

| Nodo | Cmb | Azione X | Azione Y | Azione Z | Azione RX | Azione RY | Azione RZ  |
|------|-----|----------|----------|----------|-----------|-----------|------------|
|      |     | daN      | daN      | daN      | daN cm    | daN cm    | daN cm     |
| 91   | 1   | 0.0      | 0.0      | -920.77  | 0.0       | 0.0       | 3658.82    |
| 91   | 2   | 0.0      | 0.0      | -1780.41 | 0.0       | 0.0       | -1.681e+04 |
| 91   | 3   | 0.0      | 0.0      | -920.77  | 0.0       | 0.0       | 3658.82    |
| 91   | 4   | 0.0      | 0.0      | -1780.41 | 0.0       | 0.0       | -1.681e+04 |
| 91   | 5   | 0.0      | 0.0      | -648.02  | 0.0       | 0.0       | 2721.85    |
| 91   | 6   | 0.0      | 0.0      | -1507.66 | 0.0       | 0.0       | -1.775e+04 |
| 91   | 7   | 0.0      | 0.0      | -648.02  | 0.0       | 0.0       | 2721.85    |
| 91   | 8   | 0.0      | 0.0      | -1507.66 | 0.0       | 0.0       | -1.775e+04 |
| 91   | 9   | 0.0      | 0.0      | -2148.82 | 0.0       | 0.0       | -2.558e+04 |
| 91   | 10  | 0.0      | 0.0      | -920.77  | 0.0       | 0.0       | 3658.82    |
| 91   | 11  | 0.0      | 0.0      | -2148.82 | 0.0       | 0.0       | -2.558e+04 |
| 91   | 12  | 0.0      | 0.0      | -1876.07 | 0.0       | 0.0       | -2.652e+04 |
| 91   | 13  | 0.0      | 0.0      | -648.02  | 0.0       | 0.0       | 2721.85    |
| 91   | 14  | 0.0      | 0.0      | -1876.07 | 0.0       | 0.0       | -2.652e+04 |
| 91   | 15  | 0.0      | 0.0      | -1738.83 | 0.0       | 0.0       | 5.626e+04  |
| 91   | 16  | 0.0      | 0.0      | -1945.91 | 0.0       | 0.0       | 2.707e+04  |
| 91   | 17  | 0.0      | 0.0      | -780.58  | 0.0       | 0.0       | -5.263e+04 |
| 91   | 18  | 0.0      | 0.0      | -987.67  | 0.0       | 0.0       | -8.182e+04 |
| 91   | 19  | 0.0      | 0.0      | -1754.20 | 0.0       | 0.0       | 5.571e+04  |
| 91   | 20  | 0.0      | 0.0      | -1930.54 | 0.0       | 0.0       | 2.761e+04  |
| 91   | 21  | 0.0      | 0.0      | -795.95  | 0.0       | 0.0       | -5.317e+04 |
| 91   | 22  | 0.0      | 0.0      | -972.30  | 0.0       | 0.0       | -8.127e+04 |
| 91   | 23  | 0.0      | 0.0      | -1734.98 | 0.0       | 0.0       | 5.600e+04  |
| 91   | 24  | 0.0      | 0.0      | -1942.06 | 0.0       | 0.0       | 2.680e+04  |
| 91   | 25  | 0.0      | 0.0      | -784.43  | 0.0       | 0.0       | -5.237e+04 |
| 91   | 26  | 0.0      | 0.0      | -991.51  | 0.0       | 0.0       | -8.156e+04 |
| 91   | 27  | 0.0      | 0.0      | -1750.35 | 0.0       | 0.0       | 5.545e+04  |
| 91   | 28  | 0.0      | 0.0      | -1926.70 | 0.0       | 0.0       | 2.735e+04  |
| 91   | 29  | 0.0      | 0.0      | -799.80  | 0.0       | 0.0       | -5.291e+04 |
| 91   | 30  | 0.0      | 0.0      | -976.15  | 0.0       | 0.0       | -8.101e+04 |
| 91   | 31  | 0.0      | 0.0      | -1161.84 | 0.0       | 0.0       | 5.220e+04  |
| 91   | 32  | 0.0      | 0.0      | -1852.13 | 0.0       | 0.0       | -4.510e+04 |
| 91   | 33  | 0.0      | 0.0      | -874.37  | 0.0       | 0.0       | 1.954e+04  |
| 91   | 34  | 0.0      | 0.0      | -1564.65 | 0.0       | 0.0       | -7.776e+04 |
| 91   | 35  | 0.0      | 0.0      | -1160.69 | 0.0       | 0.0       | 5.212e+04  |
| 91   | 36  | 0.0      | 0.0      | -1850.97 | 0.0       | 0.0       | -4.518e+04 |
| 91   | 37  | 0.0      | 0.0      | -875.52  | 0.0       | 0.0       | 1.962e+04  |
| 91   | 38  | 0.0      | 0.0      | -1565.81 | 0.0       | 0.0       | -7.768e+04 |
| 91   | 39  | 0.0      | 0.0      | -1213.07 | 0.0       | 0.0       | 5.039e+04  |
| 91   | 40  | 0.0      | 0.0      | -1800.90 | 0.0       | 0.0       | -4.329e+04 |
| 91   | 41  | 0.0      | 0.0      | -925.60  | 0.0       | 0.0       | 1.773e+04  |

| Nodo | Cmb | Azione X | Azione Y | Azione Z | Azione RX | Azione RY | Azione RZ  |
|------|-----|----------|----------|----------|-----------|-----------|------------|
| 91   | 42  | 0.0      | 0.0      | -1513.42 | 0.0       | 0.0       | -7.595e+04 |
| 91   | 43  | 0.0      | 0.0      | -1211.92 | 0.0       | 0.0       | 5.031e+04  |
| 91   | 44  | 0.0      | 0.0      | -1799.74 | 0.0       | 0.0       | -4.337e+04 |
| 91   | 45  | 0.0      | 0.0      | -926.75  | 0.0       | 0.0       | 1.780e+04  |
| 91   | 46  | 0.0      | 0.0      | -1514.58 | 0.0       | 0.0       | -7.587e+04 |
| 91   | 47  | 0.0      | 0.0      | -1508.78 | 0.0       | 0.0       | 1.393e+04  |
| 91   | 48  | 0.0      | 0.0      | -1589.17 | 0.0       | 0.0       | 2552.09    |
| 91   | 49  | 0.0      | 0.0      | -1137.33 | 0.0       | 0.0       | -2.811e+04 |
| 91   | 50  | 0.0      | 0.0      | -1217.72 | 0.0       | 0.0       | -3.949e+04 |
| 91   | 51  | 0.0      | 0.0      | -1514.71 | 0.0       | 0.0       | 1.372e+04  |
| 91   | 52  | 0.0      | 0.0      | -1583.23 | 0.0       | 0.0       | 2766.64    |
| 91   | 53  | 0.0      | 0.0      | -1143.26 | 0.0       | 0.0       | -2.833e+04 |
| 91   | 54  | 0.0      | 0.0      | -1211.78 | 0.0       | 0.0       | -3.928e+04 |
| 91   | 55  | 0.0      | 0.0      | -1507.19 | 0.0       | 0.0       | 1.383e+04  |
| 91   | 56  | 0.0      | 0.0      | -1587.59 | 0.0       | 0.0       | 2451.40    |
| 91   | 57  | 0.0      | 0.0      | -1138.91 | 0.0       | 0.0       | -2.801e+04 |
| 91   | 58  | 0.0      | 0.0      | -1219.30 | 0.0       | 0.0       | -3.939e+04 |
| 91   | 59  | 0.0      | 0.0      | -1513.13 | 0.0       | 0.0       | 1.362e+04  |
| 91   | 60  | 0.0      | 0.0      | -1581.65 | 0.0       | 0.0       | 2665.95    |
| 91   | 61  | 0.0      | 0.0      | -1144.85 | 0.0       | 0.0       | -2.823e+04 |
| 91   | 62  | 0.0      | 0.0      | -1213.36 | 0.0       | 0.0       | -3.918e+04 |
| 91   | 63  | 0.0      | 0.0      | -1284.98 | 0.0       | 0.0       | 1.249e+04  |
| 91   | 64  | 0.0      | 0.0      | -1552.95 | 0.0       | 0.0       | -2.544e+04 |
| 91   | 65  | 0.0      | 0.0      | -1173.54 | 0.0       | 0.0       | -119.42    |
| 91   | 66  | 0.0      | 0.0      | -1441.52 | 0.0       | 0.0       | -3.805e+04 |
| 91   | 67  | 0.0      | 0.0      | -1284.50 | 0.0       | 0.0       | 1.246e+04  |
| 91   | 68  | 0.0      | 0.0      | -1552.48 | 0.0       | 0.0       | -2.547e+04 |
| 91   | 69  | 0.0      | 0.0      | -1174.02 | 0.0       | 0.0       | -89.21     |
| 91   | 70  | 0.0      | 0.0      | -1441.99 | 0.0       | 0.0       | -3.802e+04 |
| 91   | 71  | 0.0      | 0.0      | -1304.77 | 0.0       | 0.0       | 1.178e+04  |
| 91   | 72  | 0.0      | 0.0      | -1533.16 | 0.0       | 0.0       | -2.473e+04 |
| 91   | 73  | 0.0      | 0.0      | -1193.33 | 0.0       | 0.0       | -834.57    |
| 91   | 74  | 0.0      | 0.0      | -1421.73 | 0.0       | 0.0       | -3.734e+04 |
| 91   | 75  | 0.0      | 0.0      | -1304.29 | 0.0       | 0.0       | 1.175e+04  |
| 91   | 76  | 0.0      | 0.0      | -1532.69 | 0.0       | 0.0       | -2.476e+04 |
| 91   | 77  | 0.0      | 0.0      | -1193.81 | 0.0       | 0.0       | -804.37    |
| 91   | 78  | 0.0      | 0.0      | -1422.20 | 0.0       | 0.0       | -3.731e+04 |
| 91   | 79  | 0.0      | 0.0      | -708.29  | 0.0       | 0.0       | 2814.48    |
| 91   | 80  | 0.0      | 0.0      | -1281.38 | 0.0       | 0.0       | -1.083e+04 |
| 91   | 81  | 0.0      | 0.0      | -708.29  | 0.0       | 0.0       | 2814.48    |
| 91   | 82  | 0.0      | 0.0      | -1281.38 | 0.0       | 0.0       | -1.083e+04 |
| 91   | 83  | 0.0      | 0.0      | -1526.99 | 0.0       | 0.0       | -1.668e+04 |
| 91   | 84  | 0.0      | 0.0      | -708.29  | 0.0       | 0.0       | 2814.48    |
| 91   | 85  | 0.0      | 0.0      | -1526.99 | 0.0       | 0.0       | -1.668e+04 |
| 91   | 86  | 0.0      | 0.0      | -708.29  | 0.0       | 0.0       | 2814.48    |
| 91   | 87  | 0.0      | 0.0      | -1199.51 | 0.0       | 0.0       | -8881.62   |
| 91   | 88  | 0.0      | 0.0      | -708.29  | 0.0       | 0.0       | 2814.48    |
| 91   | 89  | 0.0      | 0.0      | -1199.51 | 0.0       | 0.0       | -8881.62   |
| 91   | 90  | 0.0      | 0.0      | -1281.38 | 0.0       | 0.0       | -1.083e+04 |
| 91   | 91  | 0.0      | 0.0      | -708.29  | 0.0       | 0.0       | 2814.48    |
| 91   | 92  | 0.0      | 0.0      | -1281.38 | 0.0       | 0.0       | -1.083e+04 |
| 91   | 93  | 0.0      | 0.0      | -708.29  | 0.0       | 0.0       | 2814.48    |
| 91   | 94  | 0.0      | 0.0      | -1199.51 | 0.0       | 0.0       | -8881.62   |
| 91   | 95  | 0.0      | 0.0      | -708.29  | 0.0       | 0.0       | 2814.48    |
| 91   | 96  | 0.0      | 0.0      | -1199.51 | 0.0       | 0.0       | -8881.62   |
| 92   | 1   | 0.0      | 0.0      | -144.03  | 0.0       | 0.0       | 3729.11    |
| 92   | 2   | 0.0      | 0.0      | -1325.32 | 0.0       | 0.0       | -1.674e+04 |
| 92   | 3   | 0.0      | 0.0      | -144.03  | 0.0       | 0.0       | 3729.11    |
| 92   | 4   | 0.0      | 0.0      | -1325.32 | 0.0       | 0.0       | -1.674e+04 |
| 92   | 5   | 0.0      | 0.0      | -53.49   | 0.0       | 0.0       | 2771.83    |
| 92   | 6   | 0.0      | 0.0      | -1234.78 | 0.0       | 0.0       | -1.770e+04 |
| 92   | 7   | 0.0      | 0.0      | -53.49   | 0.0       | 0.0       | 2771.83    |
| 92   | 8   | 0.0      | 0.0      | -1234.78 | 0.0       | 0.0       | -1.770e+04 |
| 92   | 9   | 0.0      | 0.0      | -1831.59 | 0.0       | 0.0       | -2.551e+04 |
| 92   | 10  | 0.0      | 0.0      | -144.03  | 0.0       | 0.0       | 3729.11    |
| 92   | 11  | 0.0      | 0.0      | -1831.59 | 0.0       | 0.0       | -2.551e+04 |
| 92   | 12  | 0.0      | 0.0      | -1741.05 | 0.0       | 0.0       | -2.647e+04 |
| 92   | 13  | 0.0      | 0.0      | -53.49   | 0.0       | 0.0       | 2771.83    |
| 92   | 14  | 0.0      | 0.0      | -1741.05 | 0.0       | 0.0       | -2.647e+04 |
| 92   | 15  | 0.0      | 0.0      | -285.28  | 0.0       | 0.0       | 5.645e+04  |
| 92   | 16  | 0.0      | 0.0      | -770.34  | 0.0       | 0.0       | 2.718e+04  |
| 92   | 17  | 0.0      | 0.0      | -1251.31 | 0.0       | 0.0       | -5.263e+04 |
| 92   | 18  | 0.0      | 0.0      | -1736.37 | 0.0       | 0.0       | -8.191e+04 |
| 92   | 19  | 0.0      | 0.0      | -267.68  | 0.0       | 0.0       | 5.590e+04  |

| Nodo | Cmb | Azione X | Azione Y | Azione Z | Azione RX | Azione RY | Azione RZ  |
|------|-----|----------|----------|----------|-----------|-----------|------------|
| 92   | 20  | 0.0      | 0.0      | -787.94  | 0.0       | 0.0       | 2.773e+04  |
| 92   | 21  | 0.0      | 0.0      | -1233.71 | 0.0       | 0.0       | -5.319e+04 |
| 92   | 22  | 0.0      | 0.0      | -1753.96 | 0.0       | 0.0       | -8.135e+04 |
| 92   | 23  | 0.0      | 0.0      | -288.50  | 0.0       | 0.0       | 5.619e+04  |
| 92   | 24  | 0.0      | 0.0      | -773.56  | 0.0       | 0.0       | 2.691e+04  |
| 92   | 25  | 0.0      | 0.0      | -1248.08 | 0.0       | 0.0       | -5.237e+04 |
| 92   | 26  | 0.0      | 0.0      | -1733.15 | 0.0       | 0.0       | -8.165e+04 |
| 92   | 27  | 0.0      | 0.0      | -270.91  | 0.0       | 0.0       | 5.564e+04  |
| 92   | 28  | 0.0      | 0.0      | -791.16  | 0.0       | 0.0       | 2.747e+04  |
| 92   | 29  | 0.0      | 0.0      | -1230.49 | 0.0       | 0.0       | -5.292e+04 |
| 92   | 30  | 0.0      | 0.0      | -1750.74 | 0.0       | 0.0       | -8.109e+04 |
| 92   | 31  | 0.0      | 0.0      | -57.48   | 0.0       | 0.0       | 5.243e+04  |
| 92   | 32  | 0.0      | 0.0      | -1674.36 | 0.0       | 0.0       | -4.516e+04 |
| 92   | 33  | 0.0      | 0.0      | -347.29  | 0.0       | 0.0       | 1.970e+04  |
| 92   | 34  | 0.0      | 0.0      | -1964.17 | 0.0       | 0.0       | -7.788e+04 |
| 92   | 35  | 0.0      | 0.0      | -58.44   | 0.0       | 0.0       | 5.235e+04  |
| 92   | 36  | 0.0      | 0.0      | -1675.33 | 0.0       | 0.0       | -4.524e+04 |
| 92   | 37  | 0.0      | 0.0      | -346.32  | 0.0       | 0.0       | 1.978e+04  |
| 92   | 38  | 0.0      | 0.0      | -1963.20 | 0.0       | 0.0       | -7.780e+04 |
| 92   | 39  | 0.0      | 0.0      | 1.17     | 0.0       | 0.0       | 5.058e+04  |
| 92   | 40  | 0.0      | 0.0      | -1733.01 | 0.0       | 0.0       | -4.331e+04 |
| 92   | 41  | 0.0      | 0.0      | -288.64  | 0.0       | 0.0       | 1.785e+04  |
| 92   | 42  | 0.0      | 0.0      | -2022.82 | 0.0       | 0.0       | -7.603e+04 |
| 92   | 43  | 0.0      | 0.0      | 0.20     | 0.0       | 0.0       | 5.050e+04  |
| 92   | 44  | 0.0      | 0.0      | -1733.97 | 0.0       | 0.0       | -4.339e+04 |
| 92   | 45  | 0.0      | 0.0      | -287.67  | 0.0       | 0.0       | 1.793e+04  |
| 92   | 46  | 0.0      | 0.0      | -2021.85 | 0.0       | 0.0       | -7.596e+04 |
| 92   | 47  | 0.0      | 0.0      | -730.38  | 0.0       | 0.0       | 1.404e+04  |
| 92   | 48  | 0.0      | 0.0      | -918.35  | 0.0       | 0.0       | 2626.60    |
| 92   | 49  | 0.0      | 0.0      | -1103.30 | 0.0       | 0.0       | -2.808e+04 |
| 92   | 50  | 0.0      | 0.0      | -1291.26 | 0.0       | 0.0       | -3.950e+04 |
| 92   | 51  | 0.0      | 0.0      | -723.62  | 0.0       | 0.0       | 1.382e+04  |
| 92   | 52  | 0.0      | 0.0      | -925.11  | 0.0       | 0.0       | 2845.36    |
| 92   | 53  | 0.0      | 0.0      | -1096.54 | 0.0       | 0.0       | -2.830e+04 |
| 92   | 54  | 0.0      | 0.0      | -1298.02 | 0.0       | 0.0       | -3.928e+04 |
| 92   | 55  | 0.0      | 0.0      | -731.60  | 0.0       | 0.0       | 1.394e+04  |
| 92   | 56  | 0.0      | 0.0      | -919.57  | 0.0       | 0.0       | 2525.99    |
| 92   | 57  | 0.0      | 0.0      | -1102.08 | 0.0       | 0.0       | -2.798e+04 |
| 92   | 58  | 0.0      | 0.0      | -1290.05 | 0.0       | 0.0       | -3.940e+04 |
| 92   | 59  | 0.0      | 0.0      | -724.84  | 0.0       | 0.0       | 1.372e+04  |
| 92   | 60  | 0.0      | 0.0      | -926.33  | 0.0       | 0.0       | 2744.75    |
| 92   | 61  | 0.0      | 0.0      | -1095.32 | 0.0       | 0.0       | -2.820e+04 |
| 92   | 62  | 0.0      | 0.0      | -1296.81 | 0.0       | 0.0       | -3.918e+04 |
| 92   | 63  | 0.0      | 0.0      | -641.61  | 0.0       | 0.0       | 1.261e+04  |
| 92   | 64  | 0.0      | 0.0      | -1268.16 | 0.0       | 0.0       | -2.543e+04 |
| 92   | 65  | 0.0      | 0.0      | -753.49  | 0.0       | 0.0       | -23.56     |
| 92   | 66  | 0.0      | 0.0      | -1380.04 | 0.0       | 0.0       | -3.807e+04 |
| 92   | 67  | 0.0      | 0.0      | -641.98  | 0.0       | 0.0       | 1.258e+04  |
| 92   | 68  | 0.0      | 0.0      | -1268.53 | 0.0       | 0.0       | -2.546e+04 |
| 92   | 69  | 0.0      | 0.0      | -753.12  | 0.0       | 0.0       | 6.62       |
| 92   | 70  | 0.0      | 0.0      | -1379.67 | 0.0       | 0.0       | -3.804e+04 |
| 92   | 71  | 0.0      | 0.0      | -619.08  | 0.0       | 0.0       | 1.188e+04  |
| 92   | 72  | 0.0      | 0.0      | -1290.69 | 0.0       | 0.0       | -2.470e+04 |
| 92   | 73  | 0.0      | 0.0      | -730.95  | 0.0       | 0.0       | -752.76    |
| 92   | 74  | 0.0      | 0.0      | -1402.57 | 0.0       | 0.0       | -3.734e+04 |
| 92   | 75  | 0.0      | 0.0      | -619.44  | 0.0       | 0.0       | 1.185e+04  |
| 92   | 76  | 0.0      | 0.0      | -1291.06 | 0.0       | 0.0       | -2.473e+04 |
| 92   | 77  | 0.0      | 0.0      | -730.59  | 0.0       | 0.0       | -722.57    |
| 92   | 78  | 0.0      | 0.0      | -1402.20 | 0.0       | 0.0       | -3.731e+04 |
| 92   | 79  | 0.0      | 0.0      | -110.79  | 0.0       | 0.0       | 2868.55    |
| 92   | 80  | 0.0      | 0.0      | -898.32  | 0.0       | 0.0       | -1.078e+04 |
| 92   | 81  | 0.0      | 0.0      | -110.79  | 0.0       | 0.0       | 2868.55    |
| 92   | 82  | 0.0      | 0.0      | -898.32  | 0.0       | 0.0       | -1.078e+04 |
| 92   | 83  | 0.0      | 0.0      | -1235.83 | 0.0       | 0.0       | -1.663e+04 |
| 92   | 84  | 0.0      | 0.0      | -110.79  | 0.0       | 0.0       | 2868.55    |
| 92   | 85  | 0.0      | 0.0      | -1235.83 | 0.0       | 0.0       | -1.663e+04 |
| 92   | 86  | 0.0      | 0.0      | -110.79  | 0.0       | 0.0       | 2868.55    |
| 92   | 87  | 0.0      | 0.0      | -785.82  | 0.0       | 0.0       | -8828.72   |
| 92   | 88  | 0.0      | 0.0      | -110.79  | 0.0       | 0.0       | 2868.55    |
| 92   | 89  | 0.0      | 0.0      | -785.82  | 0.0       | 0.0       | -8828.72   |
| 92   | 90  | 0.0      | 0.0      | -898.32  | 0.0       | 0.0       | -1.078e+04 |
| 92   | 91  | 0.0      | 0.0      | -110.79  | 0.0       | 0.0       | 2868.55    |
| 92   | 92  | 0.0      | 0.0      | -898.32  | 0.0       | 0.0       | -1.078e+04 |
| 92   | 93  | 0.0      | 0.0      | -110.79  | 0.0       | 0.0       | 2868.55    |

| Nodo | Cmb | Azione X | Azione Y | Azione Z | Azione RX | Azione RY | Azione RZ  |
|------|-----|----------|----------|----------|-----------|-----------|------------|
| 92   | 94  | 0.0      | 0.0      | -785.82  | 0.0       | 0.0       | -8828.72   |
| 92   | 95  | 0.0      | 0.0      | -110.79  | 0.0       | 0.0       | 2868.55    |
| 92   | 96  | 0.0      | 0.0      | -785.82  | 0.0       | 0.0       | -8828.72   |
|      |     |          |          |          |           |           |            |
| Nodo |     | Azione X | Azione Y | Azione Z | Azione RX | Azione RY | Azione RZ  |
|      |     | 0.0      | 0.0      | -2148.82 | 0.0       | 0.0       | -8.191e+04 |
|      |     | 0.0      | 0.0      | 1.17     | 0.0       | 0.0       | 5.645e+04  |

| Nodo | Cmb | Azione X | Azione Y | Azione Z | Azione RX | Azione RY | Azione RZ  |
|------|-----|----------|----------|----------|-----------|-----------|------------|
|      |     | daN      | daN      | daN      | daN cm    | daN cm    | daN cm     |
| 91   | 9   | 0.0      | 0.0      | -2148.82 | 0.0       | 0.0       | -2.558e+04 |
|      | 5   | 0.0      | 0.0      | -648.02  | 0.0       | 0.0       | 2721.85    |
|      | 1   | 0.0      | 0.0      | -920.77  | 0.0       | 0.0       | 3658.82    |
|      | 1   | 0.0      | 0.0      | -920.77  | 0.0       | 0.0       | 3658.82    |
|      | 1   | 0.0      | 0.0      | -920.77  | 0.0       | 0.0       | 3658.82    |
|      | 1   | 0.0      | 0.0      | -920.77  | 0.0       | 0.0       | 3658.82    |
| 92   | 42  | 0.0      | 0.0      | -2022.82 | 0.0       | 0.0       | -7.603e+04 |
|      | 39  | 0.0      | 0.0      | 1.17     | 0.0       | 0.0       | 5.058e+04  |
|      | 1   | 0.0      | 0.0      | -144.03  | 0.0       | 0.0       | 3729.11    |
|      | 1   | 0.0      | 0.0      | -144.03  | 0.0       | 0.0       | 3729.11    |
|      | 1   | 0.0      | 0.0      | -144.03  | 0.0       | 0.0       | 3729.11    |
|      | 1   | 0.0      | 0.0      | -144.03  | 0.0       | 0.0       | 3729.11    |

# RISULTATI OPERE DI FONDAZIONE

## LEGENDA RISULTATI OPERE DI FONDAZIONE

Il controllo dei risultati delle analisi condotte, per quanto concerne le opere di fondazione, è possibile in relazione alle tabelle sotto riportate.

La prima tabella è riferita alle fondazioni tipo palo e plinto su pali.

Per questo tipo di fondazione vengono riportate le sei componenti di sollecitazione (esprese nel riferimento globale della struttura) per ogni palo componente l'opera.

In particolare viene riportato:

|              |                                                                                                                                                                                                                                                                                                                                                                     |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Nodo</b>  | numero del nodo a cui è applicato il plinto                                                                                                                                                                                                                                                                                                                         |
| <b>Tipo</b>  | codice corrispondente al nome assegnato al tipo di plinto di fondazione:<br>3) palo singolo (PALO)<br>4) plinto su palo<br>5) plinto su due pali (PL.2P)<br>6) plinto su tre pali (PL.3P)<br>7) plinto su quattro pali (PL.4P)<br>8) plinto rettangolare su cinque pali (PL.5P.R)<br>9) plinto pentagonale su cinque pali (PL.5P)<br>10) plinto su sei pali (PL.6P) |
| <b>Palo</b>  | numero del palo                                                                                                                                                                                                                                                                                                                                                     |
| <b>Comb.</b> | combinazione di carico in cui si verificano le sei componenti di sollecitazione.                                                                                                                                                                                                                                                                                    |
| <b>Quota</b> | quota assoluta della sezione del palo per cui si riportano le sei componenti di sollecitazione.                                                                                                                                                                                                                                                                     |

L'azione Fz ( corrispondente allo sforzo normale nel palo) è costante poiché il peso del palo stesso non è considerato nella modellazione.

La seconda tabella è riferita alle fondazioni tipo plinto su suolo elastico.

Per questo tipo di fondazione vengono riportate le pressioni nei quattro vertici dell'impronta sul terreno.

In particolare viene riportato:

|                  |        |                                                                |
|------------------|--------|----------------------------------------------------------------|
| Nodo             |        | numero del nodo a cui è applicato il plinto                    |
| Tipo             |        | Codice identificativo del nome assegnato al plinto             |
| area             |        | area dell'impronta del plinto                                  |
| Wink O           | Wink V | coefficienti di Winkler (orizzontale e verticale) adottati     |
| Comb             |        | Combinazione di carico in cui si verificano i valori riportati |
| Pt (P1 P2 P3 P4) |        | valori di pressione nei vertici                                |

La terza tabella è riferita alle fondazioni tipo platea su suolo elastico.

Per questo tipo di fondazione vengono riportate le pressioni in ogni vertice (nodo) degli elementi costituenti la platea.

La quarta tabella è riferita alle fondazioni tipo trave su suolo elastico.

Per questo tipo di fondazione vengono riportate le pressioni alle estremità dell'elemento e la massima (in valore assoluto) pressione lungo lo sviluppo dell'elemento.

Vengono inoltre riportati, con funzione statistica, i valori massimo e minimo delle pressioni che compaiono nella tabella.

| Nodo (G) | Pt 1/12 | Pt 2/13 | Pt 3... | Pt 4...  |         |          |         |           |         |         |         |
|----------|---------|---------|---------|----------|---------|----------|---------|-----------|---------|---------|---------|
|          | daN/cm2 | daN/cm2 | daN/cm2 | daN/cm2  | daN/cm2 | daN/cm2  | daN/cm2 | daN/cm2   | daN/cm2 | daN/cm2 | daN/cm2 |
| 1        | -0.26   | -0.46   | -0.26   | -0.46    | -0.20   | -0.39    | -0.20   | -0.39     | -0.54   | -0.26   | -0.54   |
|          | -0.47   | -0.20   | -0.47   | 1.74     | 0.52    | -1.21    | -2.44   | 1.76      | 0.50    | -1.20   | -2.45   |
|          | 1.91    | 0.68    | -1.38   | -2.60    | 1.92    | 0.67     | -1.36   | -2.62     | 2.14    | -1.95   | 1.25    |
|          | -2.84   | 2.19    | -1.90   | 1.20     | -2.89   | 2.19     | -2.00   | 1.30      | -2.88   | 2.24    | -1.95   |
|          | 1.25    | -2.93   | 0.48    | 4.60e-03 | -0.70   | -1.18    | 0.49    | -4.19e-04 | -0.70   | -1.19   | 0.55    |
|          | 0.07    | -0.77   | -1.25   | 0.56     | 0.07    | -0.76    | -1.25   | 0.63      | -0.97   | 0.27    | -1.33   |
|          | 0.65    | -0.95   | 0.25    | -1.35    | 0.65    | -0.99    | 0.29    | -1.34     | 0.66    | -0.97   | 0.27    |
|          | -1.36   | -0.20   | -0.33   | -0.20    | -0.33   | -0.39    | -0.20   | -0.39     | -0.20   | -0.31   | -0.20   |
|          | -0.31   | -0.33   | -0.20   | -0.33    | -0.20   | -0.31    | -0.20   | -0.31     |         |         |         |
| 2        | -0.95   | -1.75   | -0.95   | -1.75    | -0.72   | -1.52    | -0.72   | -1.52     | -2.10   | -0.95   | -2.10   |
|          | -1.87   | -0.72   | -1.87   | -1.42    | -2.69   | 7.33e-04 | -1.27   | -1.41     | -2.70   | 0.02    | -1.28   |
|          | -1.24   | -2.51   | -0.18   | -1.44    | -1.23   | -2.53    | -0.16   | -1.46     | 0.55    | -3.67   | 0.98    |
|          | -3.24   | 0.61    | -3.61   | 0.93     | -3.29   | 0.61     | -3.72   | 1.03      | -3.29   | 0.66    | -3.67   |
|          | 0.98    | -3.35   | -1.38   | -1.88    | -0.81   | -1.31    | -1.38   | -1.88     | -0.80   | -1.31   | -1.31   |
|          | -1.81   | -0.88   | -1.38   | -1.30    | -1.81   | -0.88    | -1.38   | -0.60     | -2.25   | -0.43   | -2.08   |
|          | -0.58   | -2.23   | -0.45   | -2.10    | -0.58   | -2.27    | -0.41   | -2.10     | -0.56   | -2.25   | -0.43   |
|          | -2.12   | -0.73   | -1.27   | -0.73    | -1.27   | -1.50    | -0.73   | -1.50     | -0.73   | -1.19   | -0.73   |
|          | -1.19   | -1.27   | -0.73   | -1.27    | -0.73   | -1.19    | -0.73   | -1.19     |         |         |         |
| 3        | -1.21   | -2.26   | -1.21   | -2.26    | -0.92   | -1.97    | -0.92   | -1.97     | -2.71   | -1.21   | -2.71   |
|          | -2.42   | -0.92   | -2.42   | -2.77    | -4.02   | 0.56     | -0.70   | -2.75     | -4.03   | 0.57    | -0.71   |
|          | -2.60   | -3.85   | 0.39    | -0.86    | -2.58   | -3.87    | 0.40    | -0.88     | -0.14   | -4.31   | 0.85    |
|          | -3.32   | -0.09   | -4.26   | 0.80     | -3.37   | -0.09    | -4.37   | 0.91      | -3.37   | -0.04   | -4.32   |
|          | 0.86    | -3.42   | -2.15   | -2.64    | -0.82   | -1.31    | -2.15   | -2.65     | -0.81   | -1.31   | -2.09   |
|          | -2.57   | -0.89   | -1.38   | -2.08    | -2.58   | -0.88    | -1.38   | -1.12     | -2.75   | -0.72   | -2.35   |
|          | -1.10   | -2.73   | -0.74   | -2.37    | -1.10   | -2.77    | -0.70   | -2.37     | -1.08   | -2.75   | -0.72   |
|          | -2.39   | -0.93   | -1.63   | -0.93    | -1.63   | -1.93    | -0.93   | -1.93     | -0.93   | -1.53   | -0.93   |
|          | -1.53   | -1.63   | -0.93   | -1.63    | -0.93   | -1.53    | -0.93   | -1.53     |         |         |         |
| 10       | -0.11   | 0.86    | -0.11   | 0.86     | -0.10   | 0.87     | -0.10   | 0.87      | 1.28    | -0.11   | 1.28    |
|          | 1.29    | -0.10   | 1.29    | 1.78     | 2.98    | -1.68    | -0.47   | 1.77      | 3.00    | -1.69   | -0.46   |

| Nodo (G) | Pt 1/12 | Pt 2/13 | Pt 3... | Pt 4... |       |       |       |       |       |       |       |
|----------|---------|---------|---------|---------|-------|-------|-------|-------|-------|-------|-------|
|          | 1.63    | 2.83    | -1.52   | -0.32   | 1.61  | 2.84  | -1.53 | -0.30 | -0.83 | 3.17  | -1.86 |
|          | 2.14    | -0.87   | 3.13    | -1.82   | 2.18  | -0.88 | 3.23  | -1.92 | 2.19  | -0.93 | 3.18  |
|          | -1.87   | 2.24    | 1.11    | 1.58    | -0.27 | 0.19  | 1.11  | 1.59  | -0.28 | 0.20  | 1.05  |
|          | 1.52    | -0.21   | 0.26    | 1.04    | 1.53  | -0.22 | 0.27  | 0.08  | 1.65  | -0.34 | 1.23  |
|          | 0.06    | 1.63    | -0.32   | 1.25    | 0.06  | 1.66  | -0.36 | 1.25  | 0.04  | 1.65  | -0.34 |
|          | 1.27    | -0.09   | 0.56    | -0.09   | 0.56  | 0.84  | -0.09 | 0.84  | -0.09 | 0.47  | -0.09 |
|          | 0.47    | 0.56    | -0.09   | 0.56    | -0.09 | 0.47  | -0.09 | 0.47  |       |       |       |
| 11       | -0.80   | -0.38   | -0.80   | -0.38   | -0.62 | -0.20 | -0.62 | -0.20 | -0.20 | -0.80 | -0.20 |
|          | -0.02   | -0.62   | -0.02   | -1.38   | -0.11 | -0.48 | 0.79  | -1.40 | -0.09 | -0.50 | 0.81  |
|          | -1.54   | -0.27   | -0.32   | 0.95    | -1.56 | -0.25 | -0.34 | 0.97  | -2.55 | 1.70  | -2.28 |
|          | 1.97    | -2.60   | 1.65    | -2.24   | 2.01  | -2.61 | 1.75  | -2.34 | 2.02  | -2.65 | 1.70  |
|          | -2.29   | 2.07    | -0.72   | -0.22   | -0.36 | 0.14  | -0.73 | -0.22 | -0.37 | 0.14  | -0.79 |
|          | -0.29   | -0.30   | 0.20    | -0.79   | -0.28 | -0.30 | 0.21  | -1.18 | 0.48  | -1.07 | 0.59  |
|          | -1.20   | 0.46    | -1.05   | 0.61    | -1.20 | 0.50  | -1.09 | 0.61  | -1.22 | 0.48  | -1.07 |
|          | 0.63    | -0.61   | -0.33   | -0.61   | -0.33 | -0.21 | -0.61 | -0.21 | -0.61 | -0.37 | -0.61 |
|          | -0.37   | -0.33   | -0.61   | -0.33   | -0.61 | -0.37 | -0.61 | -0.37 |       |       |       |
| 12       | -1.06   | -0.90   | -1.06   | -0.90   | -0.82 | -0.66 | -0.82 | -0.66 | -0.83 | -1.06 | -0.83 |
|          | -0.59   | -0.82   | -0.59   | -2.73   | -1.45 | 0.07  | 1.34  | -2.74 | -1.44 | 0.05  | 1.36  |
|          | -2.90   | -1.62   | 0.24    | 1.51    | -2.91 | -1.61 | 0.22  | 1.53  | -3.24 | 1.01  | -2.40 |
|          | 1.85    | -3.29   | 0.96    | -2.35   | 1.90  | -3.29 | 1.06  | -2.45 | 1.90  | -3.34 | 1.01  |
|          | -2.40   | 1.95    | -1.50   | -1.00   | -0.38 | 0.12  | -1.51 | -1.00 | -0.39 | 0.12  | -1.57 |
|          | -1.07   | -0.31   | 0.19    | -1.58   | -1.07 | -0.32 | 0.19  | -1.69 | -0.03 | -1.36 | 0.31  |
|          | -1.71   | -0.05   | -1.33   | 0.33    | -1.71 | -0.01 | -1.37 | 0.32  | -1.73 | -0.03 | -1.35 |
|          | 0.35    | -0.81   | -0.71   | -0.81   | -0.71 | -0.66 | -0.81 | -0.66 | -0.81 | -0.72 | -0.81 |
|          | -0.72   | -0.71   | -0.81   | -0.71   | -0.81 | -0.72 | -0.81 | -0.72 |       |       |       |
| 19       | -0.43   | -0.77   | -0.43   | -0.77   | -0.33 | -0.67 | -0.33 | -0.67 | -0.92 | -0.43 | -0.92 |
|          | -0.81   | -0.33   | -0.81   | 0.98    | -0.25 | -0.93 | -2.16 | 1.00  | -0.26 | -0.92 | -2.18 |
|          | 1.14    | -0.09   | -1.10   | -2.33   | 1.16  | -0.10 | -1.08 | -2.34 | 1.75  | -2.35 | 1.17  |
|          | -2.93   | 1.80    | -2.31   | 1.12    | -2.98 | 1.80  | -2.40 | 1.22  | -2.98 | 1.84  | -2.35 |
|          | 1.17    | -3.03   | 0.03    | -0.45   | -0.73 | -1.22 | 0.04  | -0.45 | -0.73 | -1.22 | 0.10  |
|          | -0.38   | -0.80   | -1.28   | 0.10    | -0.39 | -0.79 | -1.29 | 0.33  | -1.28 | 0.10  | -1.51 |
|          | 0.35    | -1.26   | 0.08    | -1.53   | 0.34  | -1.29 | 0.11  | -1.52 | 0.36  | -1.27 | 0.09  |
|          | -1.54   | -0.33   | -0.56   | -0.33   | -0.56 | -0.66 | -0.33 | -0.66 | -0.33 | -0.53 | -0.33 |
|          | -0.53   | -0.56   | -0.33   | -0.56   | -0.33 | -0.53 | -0.33 | -0.53 |       |       |       |
| 20       | -0.38   | -0.33   | -0.38   | -0.33   | -0.29 | -0.24 | -0.29 | -0.24 | -0.31 | -0.38 | -0.31 |
|          | -0.22   | -0.29   | -0.22   | 0.99    | 0.57  | -1.08 | -1.50 | 0.99  | 0.57  | -1.08 | -1.50 |
|          | 1.05    | 0.63    | -1.14   | -1.55   | 1.05  | 0.62  | -1.13 | -1.56 | 0.75  | -0.64 | 0.13  |
|          | -1.26   | 0.77    | -0.62   | 0.11    | -1.28 | 0.76  | -0.65 | 0.14  | -1.27 | 0.78  | -0.64 |
|          | 0.13    | -1.29   | 0.24    | 0.08    | -0.59 | -0.75 | 0.24  | 0.08  | -0.59 | -0.75 | 0.27  |
|          | 0.10    | -0.61   | -0.77   | 0.27    | 0.10  | -0.61 | -0.78 | 0.14  | -0.40 | -0.11 | -0.65 |
|          | 0.15    | -0.39   | -0.11   | -0.66   | 0.15  | -0.41 | -0.10 | -0.66 | 0.15  | -0.40 | -0.11 |
|          | -0.66   | -0.29   | -0.26   | -0.29   | -0.26 | -0.24 | -0.29 | -0.24 | -0.29 | -0.26 | -0.29 |
|          | -0.26   | -0.26   | -0.29   | -0.26   | -0.29 | -0.26 | -0.29 | -0.26 |       |       |       |
| 21       | -0.21   | -0.02   | -0.21   | -0.02   | -0.16 | 0.03  | -0.16 | 0.03  | 0.07  | -0.21 | 0.07  |
|          | 0.11    | -0.16   | 0.11    | 1.75    | 1.33  | -1.36 | -1.78 | 1.75  | 1.33  | -1.36 | -1.78 |
|          | 1.81    | 1.39    | -1.42   | -1.84   | 1.81  | 1.39  | -1.42 | -1.84 | 1.15  | -0.24 | 0.22  |
|          | -1.18   | 1.17    | -0.23   | 0.20    | -1.19 | 1.16  | -0.26 | 0.23  | -1.19 | 1.18  | -0.24 |
|          | 0.21    | -1.21   | 0.69    | 0.53    | -0.56 | -0.72 | 0.69  | 0.53  | -0.56 | -0.72 | 0.72  |
|          | 0.55    | -0.58   | -0.74   | 0.72    | 0.55  | -0.58 | -0.75 | 0.45  | -0.10 | 0.07  | -0.47 |
|          | 0.45    | -0.09   | 0.06    | -0.48   | 0.45  | -0.10 | 0.08  | -0.48 | 0.46  | -0.10 | 0.07  |
|          | -0.49   | -0.16   | -0.03   | -0.16   | -0.03 | 0.02  | -0.16 | 0.02  | -0.16 | -0.05 | -0.16 |
|          | -0.05   | -0.03   | -0.16   | -0.03   | -0.16 | -0.05 | -0.16 | -0.05 |       |       |       |
| 22       | -0.60   | -1.09   | -0.60   | -1.09   | -0.46 | -0.94 | -0.46 | -0.94 | -1.30 | -0.60 | -1.30 |
|          | -1.15   | -0.46   | -1.15   | 0.22    | -1.02 | -0.66 | -1.89 | 0.24  | -1.03 | -0.64 | -1.91 |
|          | 0.38    | -0.86   | -0.81   | -2.05   | 0.39  | -0.88 | -0.79 | -2.06 | 1.36  | -2.77 | 1.10  |
|          | -3.03   | 1.41    | -2.72   | 1.05    | -3.08 | 1.41  | -2.82 | 1.15  | -3.08 | 1.46  | -2.77 |
|          | 1.10    | -3.13   | -0.42   | -0.90   | -0.77 | -1.25 | -0.41 | -0.91 | -0.76 | -1.26 | -0.35 |
|          | -0.84   | -0.83   | -1.32   | -0.35   | -0.84 | -0.83 | -1.32 | 0.02  | -1.59 | -0.08 | -1.70 |
|          | 0.04    | -1.57   | -0.10   | -1.71   | 0.04  | -1.61 | -0.06 | -1.71 | 0.06  | -1.59 | -0.08 |
|          | -1.73   | -0.46   | -0.79   | -0.46   | -0.79 | -0.93 | -0.46 | -0.93 | -0.46 | -0.74 | -0.46 |
|          | -0.74   | -0.79   | -0.46   | -0.79   | -0.46 | -0.74 | -0.46 | -0.74 |       |       |       |
| 23       | -0.55   | -0.65   | -0.55   | -0.65   | -0.43 | -0.52 | -0.43 | -0.52 | -0.69 | -0.55 | -0.69 |
|          | -0.56   | -0.43   | -0.56   | 0.22    | -0.20 | -0.80 | -1.21 | 0.22  | -0.20 | -0.79 | -1.22 |
|          | 0.28    | -0.14   | -0.85   | -1.27   | 0.28  | -0.15 | -0.85 | -1.27 | 0.35  | -1.04 | 0.05  |
|          | -1.34   | 0.37    | -1.02   | 0.03    | -1.36 | 0.37  | -1.05 | 0.06  | -1.36 | 0.38  | -1.04 |
|          | 0.04    | -1.37   | -0.21   | -0.37   | -0.62 | -0.78 | -0.21 | -0.38 | -0.62 | -0.78 | -0.19 |
|          | -0.35   | -0.64   | -0.80   | -0.19   | -0.35 | -0.64 | -0.81 | -0.16 | -0.71 | -0.29 | -0.83 |
|          | -0.16   | -0.70   | -0.29   | -0.84   | -0.16 | -0.71 | -0.28 | -0.83 | -0.15 | -0.71 | -0.29 |
|          | -0.84   | -0.43   | -0.49   | -0.43   | -0.49 | -0.51 | -0.43 | -0.51 | -0.43 | -0.48 | -0.43 |
|          | -0.48   | -0.49   | -0.43   | -0.49   | -0.43 | -0.48 | -0.43 | -0.48 |       |       |       |
| 24       | -0.78   | -1.42   | -0.78   | -1.42   | -0.59 | -1.23 | -0.59 | -1.23 | -1.69 | -0.78 | -1.69 |
|          | -1.51   | -0.59   | -1.51   | -0.63   | -1.88 | -0.29 | -1.55 | -0.61 | -1.89 | -0.28 | -1.56 |
|          | -0.52   | -1.78   | -0.40   | -1.65   | -0.51 | -1.79 | -0.38 | -1.67 | 0.95  | -3.22 | 1.05  |
|          | -3.13   | 0.98    | -3.19   | 1.02    | -3.16 | 1.00  | -3.28 | 1.10  | -3.18 | 1.03  | -3.25 |

| Nodo (G) | Pt 1/12   | Pt 2/13 | Pt 3...  | Pt 4... |       |           |          |           |       |           |       |
|----------|-----------|---------|----------|---------|-------|-----------|----------|-----------|-------|-----------|-------|
|          | 1.07      | -3.21   | -0.91    | -1.40   | -0.78 | -1.27     | -0.90    | -1.40     | -0.77 | -1.27     | -0.87 |
|          | -1.36     | -0.82   | -1.31    | -0.86   | -1.36 | -0.81     | -1.31    | -0.29     | -1.92 | -0.25     | -1.88 |
|          | -0.28     | -1.91   | -0.26    | -1.90   | -0.27 | -1.94     | -0.23    | -1.90     | -0.26 | -1.93     | -0.24 |
|          | -1.91     | -0.60   | -1.03    | -0.60   | -1.03 | -1.21     | -0.60    | -1.21     | -0.60 | -0.96     | -0.60 |
|          | -0.96     | -1.03   | -0.60    | -1.03   | -0.60 | -0.96     | -0.60    | -0.96     |       |           |       |
| 25       | -0.73     | -0.97   | -0.73    | -0.97   | -0.56 | -0.80     | -0.56    | -0.80     | -1.07 | -0.73     | -1.07 |
|          | -0.90     | -0.56   | -0.90    | -0.48   | -0.90 | -0.59     | -1.01    | -0.47     | -0.90 | -0.58     | -1.01 |
|          | -0.51     | -0.93   | -0.56    | -0.98   | -0.50 | -0.93     | -0.55    | -0.98     | -0.03 | -1.42     | -0.06 |
|          | -1.46     | -0.04   | -1.43    | -0.05   | -1.45 | -0.01     | -1.44    | -0.05     | -1.47 | -0.02     | -1.45 |
|          | -0.04     | -1.46   | -0.64    | -0.80   | -0.68 | -0.85     | -0.64    | -0.80     | -0.68 | -0.85     | -0.65 |
|          | -0.81     | -0.67   | -0.84    | -0.65   | -0.81 | -0.67     | -0.84    | -0.46     | -1.01 | -0.48     | -1.02 |
|          | -0.47     | -1.01   | -0.47    | -1.02   | -0.46 | -1.01     | -0.47    | -1.03     | -0.46 | -1.02     | -0.47 |
|          | -1.02     | -0.56   | -0.72    | -0.56   | -0.72 | -0.79     | -0.56    | -0.79     | -0.56 | -0.70     | -0.56 |
|          | -0.70     | -0.72   | -0.56    | -0.72   | -0.56 | -0.70     | -0.56    | -0.70     |       |           |       |
| 26       | -0.90     | -1.30   | -0.90    | -1.30   | -0.69 | -1.08     | -0.69    | -1.08     | -1.47 | -0.90     | -1.47 |
|          | -1.25     | -0.69   | -1.25    | -1.40   | -1.82 | -0.17     | -0.59    | -1.40     | -1.83 | -0.16     | -0.59 |
|          | -1.35     | -1.76   | -0.22    | -0.64   | -1.34 | -1.77     | -0.22    | -0.65     | -0.48 | -1.88     | -0.11 |
|          | -1.51     | -0.46   | -1.86    | -0.13   | -1.52 | -0.46     | -1.90    | -0.09     | -1.53 | -0.44     | -1.88 |
|          | -0.11     | -1.54   | -1.16    | -1.32   | -0.66 | -0.83     | -1.16    | -1.33     | -0.66 | -0.83     | -1.14 |
|          | -1.30     | -0.69   | -0.85    | -1.13   | -1.30 | -0.69     | -0.85    | -0.79     | -1.34 | -0.65     | -1.19 |
|          | -0.79     | -1.33   | -0.65    | -1.20   | -0.79 | -1.35     | -0.64    | -1.20     | -0.78 | -1.34     | -0.65 |
|          | -1.21     | -0.69   | -0.96    | -0.69   | -0.96 | -1.07     | -0.69    | -1.07     | -0.69 | -0.92     | -0.69 |
|          | -0.92     | -0.96   | -0.69    | -0.96   | -0.69 | -0.92     | -0.69    | -0.92     |       |           |       |
| 27       | -0.33     | 0.11    | -0.33    | 0.11    | -0.26 | 0.18      | -0.26    | 0.18      | 0.30  | -0.33     | 0.30  |
|          | 0.37      | -0.26   | 0.37     | 1.00    | 1.40  | -1.24     | -0.84    | 1.00      | 1.41  | -1.24     | -0.83 |
|          | 0.95      | 1.35    | -1.18    | -0.79   | 0.95  | 1.35      | -1.19    | -0.78     | -0.25 | 1.08      | -0.92 |
|          | 0.41      | -0.26   | 1.07     | -0.90   | 0.43  | -0.26     | 1.10     | -0.94     | 0.43  | -0.28     | 1.09  |
|          | -0.92     | 0.44    | 0.45     | 0.61    | -0.44 | -0.29     | 0.45     | 0.61      | -0.45 | -0.29     | 0.43  |
|          | 0.59      | -0.42   | -0.27    | 0.43    | 0.59  | -0.43     | -0.27    | -0.04     | 0.48  | -0.31     | 0.21  |
|          | -0.05     | 0.47    | -0.31    | 0.21    | -0.05 | 0.48      | -0.32    | 0.21      | -0.06 | 0.48      | -0.31 |
|          | 0.22      | -0.26   | 0.04     | -0.26   | 0.04  | 0.17      | -0.26    | 0.17      | -0.26 | -2.30e-03 | -0.26 |
|          | -2.30e-03 | 0.04    | -0.26    | 0.04    | -0.26 | -2.30e-03 | -0.26    | -2.30e-03 |       |           |       |
| 28       | -0.16     | 0.42    | -0.16    | 0.42    | -0.13 | 0.45      | -0.13    | 0.45      | 0.67  | -0.16     | 0.67  |
|          | 0.70      | -0.13   | 0.70     | 1.76    | 2.16  | -1.52     | -1.12    | 1.76      | 2.16  | -1.52     | -1.12 |
|          | 1.72      | 2.11    | -1.47    | -1.08   | 1.71  | 2.11      | -1.47    | -1.07     | 0.16  | 1.46      | -0.82 |
|          | 0.48      | 0.14    | 1.45     | -0.81   | 0.49  | 0.14      | 1.48     | -0.84     | 0.50  | 0.13      | 1.47  |
|          | -0.83     | 0.51    | 0.90     | 1.05    | -0.42 | -0.26     | 0.90     | 1.06      | -0.42 | -0.26     | 0.88  |
|          | 1.03      | -0.40   | -0.24    | 0.88    | 1.04  | -0.40     | -0.24    | 0.26      | 0.77  | -0.13     | 0.38  |
|          | 0.26      | 0.77    | -0.13    | 0.38    | 0.25  | 0.78      | -0.14    | 0.38      | 0.25  | 0.77      | -0.13 |
|          | 0.39      | -0.13   | 0.26     | -0.13   | 0.26  | 0.43      | -0.13    | 0.43      | -0.13 | 0.21      | -0.13 |
|          | 0.21      | 0.26    | -0.13    | 0.26    | -0.13 | 0.21      | -0.13    | 0.21      |       |           |       |
| 29       | -0.50     | -0.20   | -0.50    | -0.20   | -0.39 | -0.09     | -0.39    | -0.09     | -0.07 | -0.50     | -0.07 |
|          | 0.04      | -0.39   | 0.04     | 0.23    | 0.64  | -0.95     | -0.54    | 0.23      | 0.65  | -0.96     | -0.54 |
|          | 0.18      | 0.59    | -0.90    | -0.49   | 0.17  | 0.59      | -0.90    | -0.49     | -0.66 | 0.70      | -1.01 |
|          | 0.34      | -0.67   | 0.68     | -1.00   | 0.36  | -0.67     | 0.72     | -1.03     | 0.36  | -0.69     | 0.70  |
|          | -1.01     | 0.38    | 3.11e-03 | 0.16    | -0.47 | -0.31     | 1.18e-03 | 0.16      | -0.48 | -0.31     | -0.02 |
|          | 0.14      | -0.45   | -0.29    | -0.02   | 0.14  | -0.45     | -0.29    | -0.35     | 0.18  | -0.49     | 0.04  |
|          | -0.36     | 0.17    | -0.49    | 0.04    | -0.36 | 0.19      | -0.50    | 0.04      | -0.36 | 0.18      | -0.49 |
|          | 0.05      | -0.39   | -0.18    | -0.39   | -0.18 | -0.10     | -0.39    | -0.10     | -0.39 | -0.21     | -0.39 |
|          | -0.21     | -0.18   | -0.39    | -0.18   | -0.39 | -0.21     | -0.39    | -0.21     |       |           |       |
| 30       | -0.68     | -0.51   | -0.68    | -0.51   | -0.52 | -0.36     | -0.52    | -0.36     | -0.44 | -0.68     | -0.44 |
|          | -0.29     | -0.52   | -0.29    | -0.54   | -0.13 | -0.67     | -0.25    | -0.55     | -0.12 | -0.67     | -0.24 |
|          | -0.58     | -0.16   | -0.63    | -0.21   | -0.59 | -0.16     | -0.63    | -0.21     | -1.07 | 0.32      | -1.11 |
|          | 0.28      | -1.09   | 0.31     | -1.10   | 0.29  | -1.09     | 0.34     | -1.13     | 0.30  | -1.10     | 0.32  |
|          | -1.12     | 0.31    | -0.45    | -0.29   | -0.50 | -0.34     | -0.45    | -0.29     | -0.51 | -0.34     | -0.47 |
|          | -0.30     | -0.49   | -0.32    | -0.47   | -0.30 | -0.49     | -0.32    | -0.66     | -0.12 | -0.68     | -0.13 |
|          | -0.67     | -0.12   | -0.67    | -0.13   | -0.67 | -0.11     | -0.68    | -0.13     | -0.67 | -0.12     | -0.68 |
|          | -0.12     | -0.52   | -0.41    | -0.52   | -0.41 | -0.37     | -0.52    | -0.37     | -0.52 | -0.43     | -0.52 |
|          | -0.43     | -0.41   | -0.52    | -0.41   | -0.52 | -0.43     | -0.52    | -0.43     |       |           |       |
| 31       | -0.85     | -0.84   | -0.85    | -0.84   | -0.65 | -0.64     | -0.65    | -0.64     | -0.83 | -0.85     | -0.83 |
|          | -0.64     | -0.65   | -0.64    | -1.39   | -0.96 | -0.33     | 0.10     | -1.39     | -0.95 | -0.33     | 0.10  |
|          | -1.44     | -1.02   | -0.27    | 0.16    | -1.45 | -1.01     | -0.28    | 0.16      | -1.52 | -0.09     | -1.20 |
|          | 0.23      | -1.53   | -0.11    | -1.18   | 0.25  | -1.53     | -0.07    | -1.22     | 0.24  | -1.55     | -0.09 |
|          | -1.20     | 0.26    | -0.94    | -0.77   | -0.52 | -0.35     | -0.94    | -0.77     | -0.52 | -0.35     | -0.96 |
|          | -0.80     | -0.49   | -0.32    | -0.96   | -0.79 | -0.49     | -0.32    | -0.99     | -0.43 | -0.86     | -0.30 |
|          | -0.99     | -0.44   | -0.85    | -0.29   | -0.99 | -0.42     | -0.86    | -0.30     | -1.00 | -0.43     | -0.86 |
|          | -0.29     | -0.65   | -0.64    | -0.65   | -0.64 | -0.64     | -0.65    | -0.64     | -0.65 | -0.65     | -0.65 |
|          | -0.65     | -0.64   | -0.65    | -0.64   | -0.65 | -0.65     | -0.65    | -0.65     |       |           |       |
| 32       | -0.28     | 0.55    | -0.28    | 0.55    | -0.23 | 0.61      | -0.23    | 0.61      | 0.91  | -0.28     | 0.91  |
|          | 0.97      | -0.23   | 0.97     | 1.02    | 2.24  | -1.40     | -0.18    | 1.01      | 2.25  | -1.41     | -0.17 |
|          | 0.86      | 2.07    | -1.23    | -0.02   | 0.85  | 2.09      | -1.25    | -5.98e-03 | -1.24 | 2.80      | -1.96 |
|          | 2.08      | -1.29   | 2.75     | -1.92   | 2.13  | -1.29     | 2.86     | -2.02     | 2.13  | -1.34     | 2.81  |
|          | -1.97     | 2.18    | 0.67     | 1.14    | -0.30 | 0.17      | 0.66     | 1.15      | -0.31 | 0.18      | 0.60  |
|          | 1.08      | -0.24   | 0.24     | 0.60    | 1.08  | -0.24     | 0.24     | -0.22     | 1.36  | -0.52     | 1.06  |

| Nodo (G) | Pt 1/12 | Pt 2/13 | Pt 3...  | Pt 4... |       |       |          |       |       |       |       |
|----------|---------|---------|----------|---------|-------|-------|----------|-------|-------|-------|-------|
|          | -0.24   | 1.34    | -0.50    | 1.08    | -0.24 | 1.37  | -0.54    | 1.08  | -0.26 | 1.35  | -0.52 |
|          | 1.10    | -0.22   | 0.34     | -0.22   | 0.34  | 0.58  | -0.22    | 0.58  | -0.22 | 0.26  | -0.22 |
|          | 0.26    | 0.34    | -0.22    | 0.34    | -0.22 | 0.26  | -0.22    | 0.26  |       |       |       |
| 33       | -0.45   | 0.25    | -0.45    | 0.25    | -0.36 | 0.34  | -0.36    | 0.34  | 0.55  | -0.45 | 0.55  |
|          | 0.64    | -0.36   | 0.64     | 0.26    | 1.49  | -1.12 | 0.11     | 0.25  | 1.51  | -1.14 | 0.13  |
|          | 0.09    | 1.32    | -0.95    | 0.28    | 0.08  | 1.34  | -0.97    | 0.30  | -1.66 | 2.44  | -2.07 |
|          | 2.03    | -1.71   | 2.39     | -2.02   | 2.08  | -1.71 | 2.49     | -2.12 | 2.08  | -1.76 | 2.44  |
|          | -2.07   | 2.13    | 0.22     | 0.70    | -0.33 | 0.15  | 0.22     | 0.71  | -0.34 | 0.15  | 0.15  |
|          | 0.63    | -0.26   | 0.22     | 0.15    | 0.64  | -0.27 | 0.22     | -0.53 | 1.07  | -0.70 | 0.90  |
|          | -0.55   | 1.05    | -0.68    | 0.92    | -0.55 | 1.09  | -0.72    | 0.92  | -0.57 | 1.07  | -0.70 |
|          | 0.94    | -0.35   | 0.12     | -0.35   | 0.12  | 0.32  | -0.35    | 0.32  | -0.35 | 0.05  | -0.35 |
|          | 0.05    | 0.12    | -0.35    | 0.12    | -0.35 | 0.05  | -0.35    | 0.05  |       |       |       |
| 34       | -0.63   | -0.06   | -0.63    | -0.06   | -0.49 | 0.07  | -0.49    | 0.07  | 0.18  | -0.63 | 0.18  |
|          | 0.32    | -0.49   | 0.32     | -0.50   | 0.75  | -0.86 | 0.40     | -0.51 | 0.77  | -0.87 | 0.41  |
|          | -0.62   | 0.63    | -0.73    | 0.52    | -0.64 | 0.64  | -0.74    | 0.54  | -2.08 | 2.09  | -2.19 |
|          | 1.98    | -2.12   | 2.05     | -2.15   | 2.02  | -2.14 | 2.14     | -2.24 | 2.03  | -2.17 | 2.10  |
|          | -2.21   | 2.07    | -0.22    | 0.27    | -0.37 | 0.12  | -0.23    | 0.27  | -0.37 | 0.13  | -0.27 |
|          | 0.22    | -0.32   | 0.17     | -0.28   | 0.22  | -0.32 | 0.18     | -0.85 | 0.79  | -0.89 | 0.74  |
|          | -0.86   | 0.77    | -0.87    | 0.76    | -0.86 | 0.81  | -0.91    | 0.76  | -0.88 | 0.79  | -0.89 |
|          | 0.78    | -0.48   | -0.10    | -0.48   | -0.10 | 0.06  | -0.48    | 0.06  | -0.48 | -0.16 | -0.48 |
|          | -0.16   | -0.10   | -0.48    | -0.10   | -0.48 | -0.16 | -0.48    | -0.16 |       |       |       |
| 35       | -1.03   | -1.55   | -1.03    | -1.55   | -0.79 | -1.31 | -0.79    | -1.31 | -1.78 | -1.03 | -1.78 |
|          | -1.53   | -0.79   | -1.53    | -2.08   | -2.49 | 0.11  | -0.30    | -2.07 | -2.50 | 0.12  | -0.31 |
|          | -2.02   | -2.44   | 0.06     | -0.36   | -2.02 | -2.44 | 0.06     | -0.36 | -0.83 | -2.21 | -0.17 |
|          | -1.55   | -0.81   | -2.19    | -0.19   | -1.57 | -0.81 | -2.23    | -0.15 | -1.57 | -0.79 | -2.21 |
|          | -0.17   | -1.59   | -1.55    | -1.71   | -0.67 | -0.83 | -1.55    | -1.71 | -0.67 | -0.83 | -1.53 |
|          | -1.69   | -0.69   | -0.85    | -1.52   | -1.69 | -0.69 | -0.86    | -1.05 | -1.59 | -0.79 | -1.33 |
|          | -1.04   | -1.59   | -0.79    | -1.33   | -1.04 | -1.60 | -0.78    | -1.34 | -1.04 | -1.59 | -0.79 |
|          | -1.34   | -0.79   | -1.14    | -0.79   | -1.14 | -1.29 | -0.79    | -1.29 | -0.79 | -1.09 | -0.79 |
|          | -1.09   | -1.14   | -0.79    | -1.14   | -0.79 | -1.09 | -0.79    | -1.09 |       |       |       |
| 36       | -1.08   | -2.01   | -1.08    | -2.01   | -0.82 | -1.75 | -0.82    | -1.75 | -2.40 | -1.08 | -2.40 |
|          | -2.14   | -0.82   | -2.14    | -2.09   | -3.35 | 0.28  | -0.98    | -2.08 | -3.37 | 0.29  | -1.00 |
|          | -1.92   | -3.18   | 0.11     | -1.15   | -1.91 | -3.20 | 0.12     | -1.17 | 0.20  | -3.99 | 0.92  |
|          | -3.28   | 0.26    | -3.94    | 0.86    | -3.33 | 0.26  | -4.04    | 0.97  | -3.33 | 0.31  | -3.99 |
|          | 0.92    | -3.38   | -1.77    | -2.26   | -0.81 | -1.31 | -1.76    | -2.26 | -0.81 | -1.31 | -1.70 |
|          | -2.19   | -0.88   | -1.38    | -1.69   | -2.20 | -0.88 | -1.38    | -0.86 | -2.50 | -0.57 | -2.21 |
|          | -0.84   | -2.48   | -0.59    | -2.24   | -0.84 | -2.52 | -0.55    | -2.23 | -0.82 | -2.50 | -0.58 |
|          | -2.25   | -0.83   | -1.45    | -0.83   | -1.45 | -1.71 | -0.83    | -1.71 | -0.83 | -1.36 | -0.83 |
|          | -1.36   | -1.45   | -0.83    | -1.45   | -0.83 | -1.36 | -0.83    | -1.36 |       |       |       |
| 37       | -0.98   | -1.10   | -0.98    | -1.10   | -0.75 | -0.87 | -0.75    | -0.87 | -1.15 | -0.98 | -1.15 |
|          | -0.92   | -0.75   | -0.92    | -2.06   | -1.63 | -0.05 | 0.38     | -2.07 | -1.63 | -0.06 | 0.38  |
|          | -2.12   | -1.69   | 9.00e-03 | 0.44    | -2.13 | -1.69 | 4.23e-03 | 0.44  | -1.86 | -0.43 | -1.26 |
|          | 0.18    | -1.88   | -0.44    | -1.24   | 0.20  | -1.88 | -0.41    | -1.27 | 0.19  | -1.90 | -0.43 |
|          | -1.26   | 0.21    | -1.33    | -1.16   | -0.52 | -0.35 | -1.33    | -1.16 | -0.52 | -0.35 | -1.35 |
|          | -1.19   | -0.50   | -0.33    | -1.36   | -1.18 | -0.50 | -0.33    | -1.24 | -0.68 | -1.00 | -0.44 |
|          | -1.25   | -0.69   | -0.99    | -0.43   | -1.25 | -0.68 | -1.01    | -0.43 | -1.26 | -0.68 | -1.00 |
|          | -0.43   | -0.75   | -0.83    | -0.75   | -0.83 | -0.86 | -0.75    | -0.86 | -0.75 | -0.82 | -0.75 |
|          | -0.82   | -0.83   | -0.75    | -0.83   | -0.75 | -0.82 | -0.75    | -0.82 |       |       |       |
| 38       | -0.93   | -0.64   | -0.93    | -0.64   | -0.72 | -0.43 | -0.72    | -0.43 | -0.52 | -0.93 | -0.52 |
|          | -0.31   | -0.72   | -0.31    | -2.05   | -0.78 | -0.21 | 1.07     | -2.07 | -0.76 | -0.22 | 1.08  |
|          | -2.22   | -0.95   | -0.04    | 1.23    | -2.24 | -0.93 | -0.06    | 1.25  | -2.89 | 1.35  | -2.34 |
|          | 1.91    | -2.94   | 1.30     | -2.29   | 1.96  | -2.95 | 1.40     | -2.39 | 1.96  | -3.00 | 1.35  |
|          | -2.34   | 2.01    | -1.11    | -0.61   | -0.37 | 0.12  | -1.12    | -0.61 | -0.38 | 0.13  | -1.18 |
|          | -0.68   | -0.31   | 0.19     | -1.19   | -0.68 | -0.31 | 0.20     | -1.44 | 0.23  | -1.21 | 0.45  |
|          | -1.46   | 0.21    | -1.19    | 0.47    | -1.45 | 0.24  | -1.23    | 0.47  | -1.47 | 0.22  | -1.21 |
|          | 0.49    | -0.71   | -0.52    | -0.71   | -0.52 | -0.44 | -0.71    | -0.44 | -0.71 | -0.55 | -0.71 |
|          | -0.55   | -0.52   | -0.71    | -0.52   | -0.71 | -0.55 | -0.71    | -0.55 |       |       |       |
| 39       | -1.16   | -1.81   | -1.16    | -1.81   | -0.89 | -1.53 | -0.89    | -1.53 | -2.08 | -1.16 | -2.08 |
|          | -1.81   | -0.89   | -1.81    | -2.75   | -3.16 | 0.39  | -0.02    | -2.75 | -3.17 | 0.40  | -0.02 |
|          | -2.70   | -3.11   | 0.34     | -0.07   | -2.69 | -3.12 | 0.34     | -0.08 | -1.17 | -2.54 | -0.23 |
|          | -1.60   | -1.16   | -2.52    | -0.25   | -1.61 | -1.15 | -2.56    | -0.21 | -1.62 | -1.14 | -2.54 |
|          | -0.23   | -1.63   | -1.94    | -2.10   | -0.67 | -0.83 | -1.93    | -2.10 | -0.67 | -0.84 | -1.91 |
|          | -2.08   | -0.70   | -0.86    | -1.91   | -2.08 | -0.69 | -0.86    | -1.31 | -1.84 | -0.93 | -1.46 |
|          | -1.30   | -1.84   | -0.94    | -1.47   | -1.30 | -1.85 | -0.92    | -1.47 | -1.29 | -1.84 | -0.93 |
|          | -1.48   | -0.89   | -1.32    | -0.89   | -1.32 | -1.51 | -0.89    | -1.51 | -0.89 | -1.26 | -0.89 |
|          | -1.26   | -1.32   | -0.89    | -1.32   | -0.89 | -1.26 | -0.89    | -1.26 |       |       |       |
| 40       | -1.11   | -1.35   | -1.11    | -1.35   | -0.85 | -1.10 | -0.85    | -1.10 | -1.46 | -1.11 | -1.46 |
|          | -1.20   | -0.85   | -1.20    | -2.74   | -2.31 | 0.23  | 0.66     | -2.74 | -2.30 | 0.22  | 0.66  |
|          | -2.80   | -2.37   | 0.29     | 0.72    | -2.81 | -2.36 | 0.28     | 0.73  | -2.21 | -0.76 | -1.32 |
|          | 0.13    | -2.23   | -0.78    | -1.30   | 0.15  | -2.22 | -0.75    | -1.33 | 0.14  | -2.24 | -0.77 |
|          | -1.31   | 0.16    | -1.72    | -1.55   | -0.53 | -0.36 | -1.72    | -1.55 | -0.53 | -0.36 | -1.74 |
|          | -1.57   | -0.50   | -0.33    | -1.75   | -1.57 | -0.51 | -0.33    | -1.50 | -0.94 | -1.14 | -0.58 |
|          | -1.51   | -0.94   | -1.14    | -0.57   | -1.51 | -0.93 | -1.15    | -0.57 | -1.51 | -0.94 | -1.14 |
|          | -0.57   | -0.85   | -1.02    | -0.85   | -1.02 | -1.09 | -0.85    | -1.09 | -0.85 | -0.99 | -0.85 |

|          |         |         |         |         |       |       |       |       |  |  |
|----------|---------|---------|---------|---------|-------|-------|-------|-------|--|--|
| Nodo (G) | Pt 1/12 | Pt 2/13 | Pt 3... | Pt 4... |       |       |       |       |  |  |
|          | -0.99   | -1.02   | -0.85   | -1.02   | -0.85 | -0.99 | -0.85 | -0.99 |  |  |
|          |         |         |         |         |       |       |       |       |  |  |
| Nodo (G) | Pt 1/12 | Pt 2/13 | Pt 3... | Pt 4... |       |       |       |       |  |  |
|          | -4.37   |         |         |         |       |       |       |       |  |  |
|          | 3.23    |         |         |         |       |       |       |       |  |  |

[illegible]

# RISULTATI ELEMENTI TIPO TRAVE

## LEGENDA RISULTATI ELEMENTI TIPO TRAVE

Il controllo dei risultati delle analisi condotte, per quanto concerne gli elementi tipo trave, è possibile in relazione alle tabelle sotto riportate.

Gli elementi vengono suddivisi in relazione alle proprietà in elementi:

- tipo **pilastro**
- tipo **trave in elevazione**
- tipo **trave in fondazione**

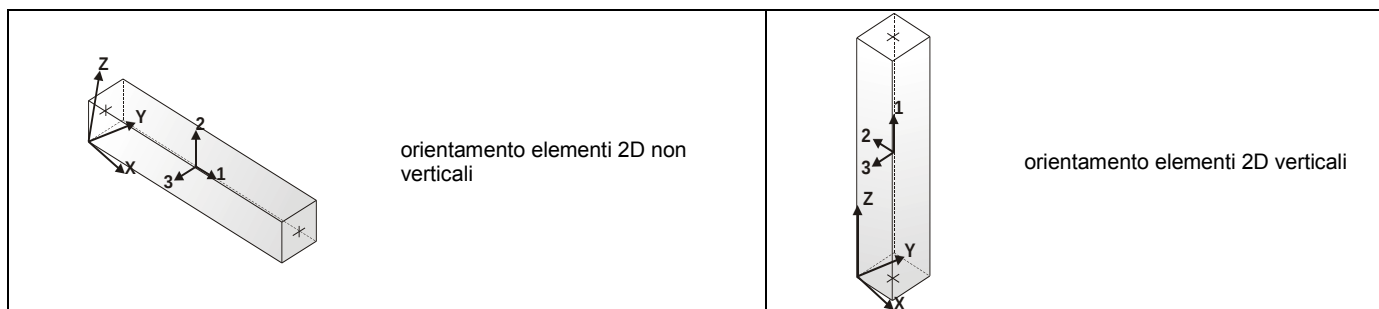
Per ogni elemento e per ogni combinazione (o caso di carico) vengono riportati i risultati più significativi.

Per gli elementi tipo *pilastro* sono riportati in tabella i seguenti valori:

|                     |                                                                          |
|---------------------|--------------------------------------------------------------------------|
| <b>Pilas.</b>       | numero dell'elemento pilastro                                            |
| <b>Cmb</b>          | combinazione in cui si verificano i valori riportati                     |
| <b>M3 mx/mn</b>     | momento flettente in campata M3 max (prima riga) / min (seconda riga)    |
| <b>M2 mx/mn</b>     | momento flettente in campata M2 max (prima riga) / min (seconda riga)    |
| <b>D2/D3</b>        | freccia massima in direzione 2 (prima riga) / direzione 3 (seconda riga) |
| <b>Q2/Q3</b>        | carico totale in direzione 2 (prima riga) / direzione 3 (seconda riga)   |
| <b>Pos.</b>         | ascissa del punto iniziale e finale dell'elemento                        |
| <b>N, V2, ecc..</b> | sei componenti di sollecitazione al piede ed in sommità dell'elemento    |

Per gli elementi tipo *trave in elevazione* sono riportati, oltre al numero dell'elemento, i medesimi risultati visti per i pilastri.

Per gli elementi tipo *trave in fondazione* (trave f.) sono riportati, oltre al numero dell'elemento, i medesimi risultati visti per i pilastri e la massima pressione sul terreno.



| Pilas. | Cmb | M3 mx/mn   | M2 mx/mn   | D 2 / D 3 | Q 2 / Q 3 | Pos.  | N          | V 2     | V 3     | T          | M 2        | M 3        |
|--------|-----|------------|------------|-----------|-----------|-------|------------|---------|---------|------------|------------|------------|
|        |     | daN cm     | daN cm     | cm        | daN       | cm    | daN        | daN     | daN     | daN cm     | daN cm     | daN cm     |
| 1      | 1   | -4301.17   | 1.475e+04  | -0.08     | 0.0       | 0.0   | -7344.46   | -156.18 | 95.90   | -6736.56   | -2.208e+04 | -4301.17   |
|        |     | -6.427e+04 | -2.208e+04 | 0.14      | 0.0       | 384.0 | -5846.86   | -156.18 | 95.90   | -6736.56   | 1.475e+04  | -6.427e+04 |
| 1      | 2   | 1.667e+04  | 7.452e+04  | -0.32     | 0.0       | 0.0   | -1.463e+04 | -337.10 | -342.08 | -5.920e+04 | 7.452e+04  | 1.667e+04  |
|        |     | -1.128e+05 | -5.684e+04 | 1.28      | 0.0       | 384.0 | -1.313e+04 | -337.10 | -342.08 | -5.920e+04 | -5.684e+04 | -1.128e+05 |
| 1      | 3   | -4301.17   | 1.475e+04  | -0.08     | 0.0       | 0.0   | -7344.46   | -156.18 | 95.90   | -6736.56   | -2.208e+04 | -4301.17   |
|        |     | -6.427e+04 | -2.208e+04 | 0.14      | 0.0       | 384.0 | -5846.86   | -156.18 | 95.90   | -6736.56   | 1.475e+04  | -6.427e+04 |
| 1      | 4   | 1.667e+04  | 7.452e+04  | -0.32     | 0.0       | 0.0   | -1.463e+04 | -337.10 | -342.08 | -5.920e+04 | 7.452e+04  | 1.667e+04  |
|        |     | -1.128e+05 | -5.684e+04 | 1.28      | 0.0       | 384.0 | -1.313e+04 | -337.10 | -342.08 | -5.920e+04 | -5.684e+04 | -1.128e+05 |
| 1      | 5   | -4356.16   | 9747.77    | -0.06     | 0.0       | 0.0   | -5371.87   | -104.88 | 64.39   | -4508.97   | -1.498e+04 | -4356.16   |
|        |     | -4.463e+04 | -1.498e+04 | 0.09      | 0.0       | 384.0 | -4219.87   | -104.88 | 64.39   | -4508.97   | 9747.77    | -4.463e+04 |
| 1      | 6   | 1.661e+04  | 8.162e+04  | -0.30     | 0.0       | 0.0   | -1.266e+04 | -285.80 | -373.60 | -5.698e+04 | 8.162e+04  | 1.661e+04  |
|        |     | -9.314e+04 | -6.184e+04 | 1.23      | 0.0       | 384.0 | -1.151e+04 | -285.80 | -373.60 | -5.698e+04 | -6.184e+04 | -9.314e+04 |
| 1      | 7   | -4356.16   | 9747.77    | -0.06     | 0.0       | 0.0   | -5371.87   | -104.88 | 64.39   | -4508.97   | -1.498e+04 | -4356.16   |
|        |     | -4.463e+04 | -1.498e+04 | 0.09      | 0.0       | 384.0 | -4219.87   | -104.88 | 64.39   | -4508.97   | 9747.77    | -4.463e+04 |
| 1      | 8   | 1.661e+04  | 8.162e+04  | -0.30     | 0.0       | 0.0   | -1.266e+04 | -285.80 | -373.60 | -5.698e+04 | 8.162e+04  | 1.661e+04  |
|        |     | -9.314e+04 | -6.184e+04 | 1.23      | 0.0       | 384.0 | -1.151e+04 | -285.80 | -373.60 | -5.698e+04 | -6.184e+04 | -9.314e+04 |
| 1      | 9   | 2.565e+04  | 1.159e+05  | -0.42     | 0.0       | 0.0   | -1.775e+04 | -414.63 | -529.79 | -8.169e+04 | 1.159e+05  | 2.565e+04  |
|        |     | -1.336e+05 | -8.752e+04 | 1.77      | 0.0       | 384.0 | -1.625e+04 | -414.63 | -529.79 | -8.169e+04 | -8.752e+04 | -1.336e+05 |
| 1      | 10  | -4301.17   | 1.475e+04  | -0.08     | 0.0       | 0.0   | -7344.46   | -156.18 | 95.90   | -6736.56   | -2.208e+04 | -4301.17   |
|        |     | -6.427e+04 | -2.208e+04 | 0.14      | 0.0       | 384.0 | -5846.86   | -156.18 | 95.90   | -6736.56   | 1.475e+04  | -6.427e+04 |
| 1      | 11  | 2.565e+04  | 1.159e+05  | -0.42     | 0.0       | 0.0   | -1.775e+04 | -414.63 | -529.79 | -8.169e+04 | 1.159e+05  | 2.565e+04  |
|        |     | -1.336e+05 | -8.752e+04 | 1.77      | 0.0       | 384.0 | -1.625e+04 | -414.63 | -529.79 | -8.169e+04 | -8.752e+04 | -1.336e+05 |
| 1      | 12  | 2.560e+04  | 1.230e+05  | -0.40     | 0.0       | 0.0   | -1.578e+04 | -363.34 | -561.30 | -7.946e+04 | 1.230e+05  | 2.560e+04  |
|        |     | -1.139e+05 | -9.252e+04 | 1.73      | 0.0       | 384.0 | -1.463e+04 | -363.34 | -561.30 | -7.946e+04 | -9.252e+04 | -1.139e+05 |
| 1      | 13  | -4356.16   | 9747.77    | -0.06     | 0.0       | 0.0   | -5371.87   | -104.88 | 64.39   | -4508.97   | -1.498e+04 | -4356.16   |
|        |     | -4.463e+04 | -1.498e+04 | 0.09      | 0.0       | 384.0 | -4219.87   | -104.88 | 64.39   | -4508.97   | 9747.77    | -4.463e+04 |
| 1      | 14  | 2.560e+04  | 1.230e+05  | -0.40     | 0.0       | 0.0   | -1.578e+04 | -363.34 | -561.30 | -7.946e+04 | 1.230e+05  | 2.560e+04  |

| Pilas. | Cmb | M3 mx/mn   | M2 mx/mn   | D 2 / D 3 | Q 2 / Q 3 | Pos.  | N          | V 2      | V 3      | T          | M 2        | M 3        |
|--------|-----|------------|------------|-----------|-----------|-------|------------|----------|----------|------------|------------|------------|
|        |     | -1.139e+05 | -9.252e+04 | 1.73      | 0.0       | 384.0 | -1.463e+04 | -363.34  | -561.30  | -7.946e+04 | -9.252e+04 | -1.139e+05 |
| 1      | 15  | -265.82    | 7.053e+04  | -1.69     | 0.0       | 0.0   | -1.134e+04 | 756.62   | 417.51   | -5176.75   | -8.980e+04 | -2.999e+05 |
|        |     | -2.999e+05 | -8.980e+04 | -0.02     | 0.0       | 384.0 | -1.019e+04 | 756.62   | 417.51   | -5176.75   | 7.053e+04  | -265.82    |
| 1      | 16  | -3.699e+04 | 1.450e+05  | -1.60     | 0.0       | 0.0   | -1.551e+04 | 413.44   | -669.13  | -6.848e+04 | 1.450e+05  | -2.047e+05 |
|        |     | -2.047e+05 | -1.120e+05 | 1.61      | 0.0       | 384.0 | -1.435e+04 | 413.44   | -669.13  | -6.848e+04 | -1.120e+05 | -3.699e+04 |
| 1      | 17  | 2.300e+05  | 2.557e+04  | 1.11      | 0.0       | 0.0   | -6895.15   | -929.40  | 149.26   | -2.183e+04 | -3.174e+04 | 2.300e+05  |
|        |     | -1.358e+05 | -3.174e+04 | 0.35      | 0.0       | 384.0 | -5743.15   | -929.40  | 149.26   | -2.183e+04 | 2.557e+04  | -1.358e+05 |
| 1      | 18  | 3.252e+05  | 2.030e+05  | 1.20      | 0.0       | 0.0   | -1.106e+04 | -1272.58 | -937.37  | -8.514e+04 | 2.030e+05  | 3.252e+05  |
|        |     | -1.725e+05 | -1.569e+05 | 1.97      | 0.0       | 384.0 | -9907.44   | -1272.58 | -937.37  | -8.514e+04 | -1.569e+05 | -1.725e+05 |
| 1      | 19  | -313.47    | 6.999e+04  | -1.69     | 0.0       | 0.0   | -1.131e+04 | 753.40   | 414.33   | -5942.20   | -8.913e+04 | -2.987e+05 |
|        |     | -2.987e+05 | -8.913e+04 | -0.02     | 0.0       | 384.0 | -1.016e+04 | 753.40   | 414.33   | -5942.20   | 6.999e+04  | -313.47    |
| 1      | 20  | -3.694e+04 | 1.443e+05  | -1.60     | 0.0       | 0.0   | -1.554e+04 | 416.66   | -665.96  | -6.772e+04 | 1.443e+05  | -2.059e+05 |
|        |     | -2.059e+05 | -1.114e+05 | 1.61      | 0.0       | 384.0 | -1.439e+04 | 416.66   | -665.96  | -6.772e+04 | -1.114e+05 | -3.694e+04 |
| 1      | 21  | 2.312e+05  | 2.503e+04  | 1.11      | 0.0       | 0.0   | -6863.54   | -932.62  | 146.09   | -2.260e+04 | -3.106e+04 | 2.312e+05  |
|        |     | -1.359e+05 | -3.106e+04 | 0.35      | 0.0       | 384.0 | -5711.54   | -932.62  | 146.09   | -2.260e+04 | 2.503e+04  | -1.359e+05 |
| 1      | 22  | 3.240e+05  | 2.024e+05  | 1.20      | 0.0       | 0.0   | -1.109e+04 | -1269.36 | -934.20  | -8.437e+04 | 2.024e+05  | 3.240e+05  |
|        |     | -1.725e+05 | -1.564e+05 | 1.98      | 0.0       | 384.0 | -9939.04   | -1269.36 | -934.20  | -8.437e+04 | -1.564e+05 | -1.725e+05 |
| 1      | 23  | -4281.57   | 6.263e+04  | -1.69     | 0.0       | 0.0   | -1.107e+04 | 739.69   | 369.75   | -6695.46   | -7.936e+04 | -2.973e+05 |
|        |     | -2.973e+05 | -7.936e+04 | 0.09      | 0.0       | 384.0 | -9919.45   | 739.69   | 369.75   | -6695.46   | 6.263e+04  | -4281.57   |
| 1      | 24  | -4.101e+04 | 1.554e+05  | -1.60     | 0.0       | 0.0   | -1.524e+04 | 396.52   | -716.88  | -7.000e+04 | 1.554e+05  | -2.021e+05 |
|        |     | -2.021e+05 | -1.199e+05 | 1.71      | 0.0       | 384.0 | -1.408e+04 | 396.52   | -716.88  | -7.000e+04 | -1.199e+05 | -4.101e+04 |
| 1      | 25  | 2.275e+05  | 3.347e+04  | 1.11      | 0.0       | 0.0   | -7165.10   | -912.48  | 197.02   | -2.031e+04 | -4.218e+04 | 2.275e+05  |
|        |     | -1.318e+05 | -4.218e+04 | 0.25      | 0.0       | 384.0 | -6013.10   | -912.48  | 197.02   | -2.031e+04 | 3.347e+04  | -1.318e+05 |
| 1      | 26  | 3.226e+05  | 1.926e+05  | 1.20      | 0.0       | 0.0   | -1.133e+04 | -1255.65 | -889.62  | -8.362e+04 | 1.926e+05  | 3.226e+05  |
|        |     | -1.685e+05 | -1.490e+05 | 1.87      | 0.0       | 384.0 | -1.018e+04 | -1255.65 | -889.62  | -8.362e+04 | -1.490e+05 | -1.685e+05 |
| 1      | 27  | -4329.22   | 6.209e+04  | -1.69     | 0.0       | 0.0   | -1.104e+04 | 736.47   | 366.58   | -7460.90   | -7.869e+04 | -2.961e+05 |
|        |     | -2.961e+05 | -7.869e+04 | 0.09      | 0.0       | 384.0 | -9887.84   | 736.47   | 366.58   | -7460.90   | 6.209e+04  | -4329.22   |
| 1      | 28  | -4.096e+04 | 1.547e+05  | -1.61     | 0.0       | 0.0   | -1.527e+04 | 399.73   | -713.71  | -6.924e+04 | 1.547e+05  | -2.033e+05 |
|        |     | -2.033e+05 | -1.193e+05 | 1.71      | 0.0       | 384.0 | -1.412e+04 | 399.73   | -713.71  | -6.924e+04 | -1.193e+05 | -4.096e+04 |
| 1      | 29  | 2.287e+05  | 3.293e+04  | 1.12      | 0.0       | 0.0   | -7133.49   | -915.69  | 193.84   | -2.108e+04 | -4.150e+04 | 2.287e+05  |
|        |     | -1.318e+05 | -4.150e+04 | 0.24      | 0.0       | 384.0 | -5981.49   | -915.69  | 193.84   | -2.108e+04 | 3.293e+04  | -1.318e+05 |
| 1      | 30  | 3.214e+05  | 1.919e+05  | 1.20      | 0.0       | 0.0   | -1.136e+04 | -1252.43 | -886.44  | -8.285e+04 | 1.919e+05  | 3.214e+05  |
|        |     | -1.685e+05 | -1.485e+05 | 1.87      | 0.0       | 384.0 | -1.021e+04 | -1252.43 | -886.44  | -8.285e+04 | -1.485e+05 | -1.685e+05 |
| 1      | 31  | -4859.49   | 2.677e+05  | -0.81     | 0.0       | 0.0   | -4926.87   | 566.88   | 1591.36  | 6.285e+04  | -3.434e+05 | -2.254e+05 |
|        |     | -2.254e+05 | -3.434e+05 | -1.78     | 0.0       | 384.0 | -3774.87   | 566.88   | 1591.36  | 6.285e+04  | -2.677e+05 | -4859.49   |
| 1      | 32  | 9.177e+04  | 4.392e+05  | -0.52     | 0.0       | 0.0   | -1.881e+04 | -577.04  | -2030.75 | -1.482e+05 | 4.392e+05  | 9.177e+04  |
|        |     | -1.273e+05 | -3.406e+05 | 3.63      | 0.0       | 384.0 | -1.766e+04 | -577.04  | -2030.75 | -1.482e+05 | -3.406e+05 | -1.273e+05 |
| 1      | 33  | -4.552e+04 | 2.542e+05  | 0.04      | 0.0       | 0.0   | -3592.99   | 61.08    | 1510.89  | 5.786e+04  | -3.260e+05 | -6.644e+04 |
|        |     | -6.644e+04 | -3.260e+05 | -1.67     | 0.0       | 384.0 | -2440.99   | 61.08    | 1510.89  | 5.786e+04  | -2.542e+05 | -6.644e+04 |
| 1      | 34  | 2.507e+05  | 4.566e+05  | 0.32      | 0.0       | 0.0   | -1.747e+04 | -1082.84 | -2111.23 | -1.532e+05 | 4.566e+05  | 2.507e+05  |
|        |     | -1.679e+05 | -3.541e+05 | 3.74      | 0.0       | 384.0 | -1.632e+04 | -1082.84 | -2111.23 | -1.532e+05 | -3.541e+05 | -1.679e+05 |
| 1      | 35  | -6064.21   | 2.653e+05  | -0.82     | 0.0       | 0.0   | -4845.88   | 561.81   | 1577.03  | 6.240e+04  | -3.403e+05 | -2.246e+05 |
|        |     | -2.246e+05 | -3.403e+05 | -1.75     | 0.0       | 384.0 | -3693.88   | 561.81   | 1577.03  | 6.240e+04  | -2.653e+05 | -6064.21   |
| 1      | 36  | 9.254e+04  | 4.423e+05  | -0.52     | 0.0       | 0.0   | -1.873e+04 | -582.11  | -2045.08 | -1.486e+05 | 4.423e+05  | 9.254e+04  |
|        |     | -1.285e+05 | -3.430e+05 | 3.66      | 0.0       | 384.0 | -1.757e+04 | -582.11  | -2045.08 | -1.486e+05 | -3.430e+05 | -1.285e+05 |
| 1      | 37  | -4.432e+04 | 2.566e+05  | 0.04      | 0.0       | 0.0   | -3673.98   | 66.16    | 1525.21  | 5.831e+04  | -3.291e+05 | -6.721e+04 |
|        |     | -6.721e+04 | -3.291e+05 | -1.70     | 0.0       | 384.0 | -2521.98   | 66.16    | 1525.21  | 5.831e+04  | -2.566e+05 | -6.721e+04 |
| 1      | 38  | 2.500e+05  | 4.535e+05  | 0.33      | 0.0       | 0.0   | -1.755e+04 | -1077.76 | -2096.90 | -1.527e+05 | 4.535e+05  | 2.500e+05  |
|        |     | -1.667e+05 | -3.517e+05 | 3.70      | 0.0       | 384.0 | -1.640e+04 | -1077.76 | -2096.90 | -1.527e+05 | -3.517e+05 | -1.667e+05 |
| 1      | 39  | -5018.32   | 2.659e+05  | -0.81     | 0.0       | 0.0   | -4821.51   | 556.16   | 1580.78  | 6.030e+04  | -3.411e+05 | -2.214e+05 |
|        |     | -2.214e+05 | -3.411e+05 | -1.79     | 0.0       | 384.0 | -3669.51   | 556.16   | 1580.78  | 6.030e+04  | -2.659e+05 | -5018.32   |
| 1      | 40  | 8.779e+04  | 4.369e+05  | -0.52     | 0.0       | 0.0   | -1.891e+04 | -566.31  | -2020.18 | -1.456e+05 | 4.369e+05  | 8.779e+04  |
|        |     | -1.271e+05 | -3.388e+05 | 3.64      | 0.0       | 384.0 | -1.776e+04 | -566.31  | -2020.18 | -1.456e+05 | -3.388e+05 | -1.271e+05 |
| 1      | 41  | -4.568e+04 | 2.524e+05  | 0.04      | 0.0       | 0.0   | -3487.64   | 50.35    | 1500.31  | 5.530e+04  | -3.237e+05 | -6.246e+04 |
|        |     | -6.246e+04 | -3.237e+05 | -1.68     | 0.0       | 384.0 | -2335.64   | 50.35    | 1500.31  | 5.530e+04  | -2.524e+05 | -6.246e+04 |
| 1      | 42  | 2.468e+05  | 4.544e+05  | 0.32      | 0.0       | 0.0   | -1.758e+04 | -1072.12 | -2100.65 | -1.506e+05 | 4.544e+05  | 2.468e+05  |
|        |     | -1.678e+05 | -3.523e+05 | 3.75      | 0.0       | 384.0 | -1.643e+04 | -1072.12 | -2100.65 | -1.506e+05 | -3.523e+05 | -1.678e+05 |
| 1      | 43  | -6223.05   | 2.635e+05  | -0.81     | 0.0       | 0.0   | -4740.53   | 551.08   | 1566.46  | 5.984e+04  | -3.380e+05 | -2.207e+05 |
|        |     | -2.207e+05 | -3.380e+05 | -1.76     | 0.0       | 384.0 | -3588.53   | 551.08   | 1566.46  | 5.984e+04  | -2.635e+05 | -6223.05   |
| 1      | 44  | 8.856e+04  | 4.401e+05  | -0.52     | 0.0       | 0.0   | -1.883e+04 | -571.39  | -2034.50 | -1.461e+05 | 4.401e+05  | 8.856e+04  |
|        |     | -1.283e+05 | -3.412e+05 | 3.67      | 0.0       | 384.0 | -1.768e+04 | -571.39  | -2034.50 | -1.461e+05 | -3.412e+05 | -1.283e+05 |
| 1      | 45  | -4.448e+04 | 2.548e+05  | 0.04      | 0.0       | 0.0   | -3568.62   | 55.43    | 1514.64  | 5.576e+04  | -3.268e+05 | -6.323e+04 |
|        |     | -6.323e+04 | -3.268e+05 | -1.71     | 0.0       | 384.0 | -2416.62   | 55.43    | 1514.64  | 5.576e+04  | -2.548e+05 | -6.323e+04 |
| 1      | 46  | 2.460e+05  | 4.512e+05  | 0.32      | 0.0       | 0.0   | -1.766e+04 | -1067.04 | -2086.32 | -1.502e+05 | 4.512e+05  | 2.460e+05  |
|        |     | -1.666e+05 | -3.499e+05 | 3.71      | 0.0       | 384.0 | -1.651e+04 | -1067.04 | -2086.32 | -1.502e+05 | -3.499e+05 | -1.666e+05 |
| 1      | 47  | -5.029e+04 | 858.95     | -0.82     | 0.0       | 0.0   | -1.130e+04 | 148.50   | 2.51     | -2.959e+04 | -109.70    | -1.122e+05 |
|        |     | -1.122e+05 | -109.70    | 0.59      | 0.0       | 384.0 | -1.015e+04 | 148.50   | 2.51     | -2.959e+04 | 858.95     | -5.029e+04 |
| 1      | 48  | -6.467e+04 | 9.057e+04  | -0.79     | 0.0       | 0.0   | -1.291e+04 | 14.64    | -417.20  | -5.428e+04 | 9.057e+04  | -7.509e+04 |
|        |     | -7.509e+04 | -6.964e+04 | 1.22      | 0.0       | 384.0 | -1.176e+04 | 14.64    | -417.20  | -5.428e+04 | -6.964e+04 | -7.509e+04 |
| 1      | 49  | 1.004e+05  | 2.267e+04  | 0.30      | 0.0       | 0.0   | -9487.52   | -530.60  | -102.66  | -3.604e+04 | 2.267e+04  | 1.004e+05  |
|        |     | -1.081e+05 | -1.676e+04 | 0.74      | 0.0       | 384.0 | -8335.52   | -530.60  | -102.66  | -3.604e+04 | -1.676e+04 | -1.081e+05 |
| 1      | 50  | 1.375e+05  | 1.133e+05  | 0.33      | 0.0       | 0.0   | -1.110e+04 | -664.46  | -522.38  | -6.072e+04 | 1.133e+05  | 1.375e+05  |
|        |     | -1.225e+05 | -8.725e+04 | 1.36      | 0.0       | 384.0 | -9943.98   | -664.46  | -522.38  | -6.072e+04 | -8.725e+04 | -1.225e+05 |
| 1      | 51  | -5.032e+04 | 636.34     | -0.82     | 0.0       | 0.0   | -1.129e+04 | 147.20   | 1.21     | -2.990e+04 | 169.58     | -1.117e+05 |

| Pilas. | Cmb | M3 mx/mn   | M2 mx/mn   | D 2 / D 3 | Q 2 / Q 3 | Pos.  | N          | V 2     | V 3     | T          | M 2        | M 3        |
|--------|-----|------------|------------|-----------|-----------|-------|------------|---------|---------|------------|------------|------------|
|        |     | -1.117e+05 | 169.58     | 0.59      | 0.0       | 384.0 | -1.014e+04 | 147.20  | 1.21    | -2.990e+04 | 636.34     | -5.032e+04 |
| 1      | 52  | -6.465e+04 | 9.029e+04  | -0.79     | 0.0       | 0.0   | -1.293e+04 | 15.94   | -415.90 | -5.397e+04 | 9.029e+04  | -7.556e+04 |
|        |     | -7.556e+04 | -6.941e+04 | 1.22      | 0.0       | 384.0 | -1.177e+04 | 15.94   | -415.90 | -5.397e+04 | -6.941e+04 | -6.465e+04 |
| 1      | 53  | 1.009e+05  | 2.295e+04  | 0.30      | 0.0       | 0.0   | -9475.65   | -531.90 | -103.97 | -3.634e+04 | 2.295e+04  | 1.009e+05  |
|        |     | -1.082e+05 | -1.698e+04 | 0.74      | 0.0       | 384.0 | -8323.65   | -531.90 | -103.97 | -3.634e+04 | -1.698e+04 | -1.082e+05 |
| 1      | 54  | 1.370e+05  | 1.131e+05  | 0.33      | 0.0       | 0.0   | -1.111e+04 | -663.16 | -521.07 | -6.042e+04 | 1.131e+05  | 1.370e+05  |
|        |     | -1.225e+05 | -8.703e+04 | 1.36      | 0.0       | 384.0 | -9955.85   | -663.16 | -521.07 | -6.042e+04 | -8.703e+04 | -1.225e+05 |
| 1      | 55  | -5.197e+04 | 3982.09    | -0.83     | 0.0       | 0.0   | -1.120e+04 | 141.58  | -16.19  | -3.017e+04 | 3982.09    | -1.111e+05 |
|        |     | -1.111e+05 | -2227.79   | 0.64      | 0.0       | 384.0 | -1.004e+04 | 141.58  | -16.19  | -3.017e+04 | -2227.79   | -5.197e+04 |
| 1      | 56  | -6.635e+04 | 9.466e+04  | -0.79     | 0.0       | 0.0   | -1.280e+04 | 7.73    | -435.90 | -5.486e+04 | 9.466e+04  | -7.406e+04 |
|        |     | -7.406e+04 | -7.272e+04 | 1.26      | 0.0       | 384.0 | -1.165e+04 | 7.73    | -435.90 | -5.486e+04 | -7.272e+04 | -6.635e+04 |
| 1      | 57  | 9.939e+04  | 1.857e+04  | 0.30      | 0.0       | 0.0   | -9597.16   | -523.69 | -83.96  | -3.546e+04 | 1.857e+04  | 9.939e+04  |
|        |     | -1.064e+05 | -1.367e+04 | 0.70      | 0.0       | 384.0 | -8445.16   | -523.69 | -83.96  | -3.546e+04 | -1.367e+04 | -1.064e+05 |
| 1      | 58  | 1.365e+05  | 1.093e+05  | 0.34      | 0.0       | 0.0   | -1.121e+04 | -657.54 | -503.68 | -6.014e+04 | 1.093e+05  | 1.365e+05  |
|        |     | -1.208e+05 | -8.417e+04 | 1.32      | 0.0       | 384.0 | -1.005e+04 | -657.54 | -503.68 | -6.014e+04 | -8.417e+04 | -1.208e+05 |
| 1      | 59  | -5.199e+04 | 4261.37    | -0.82     | 0.0       | 0.0   | -1.118e+04 | 140.29  | -17.49  | -3.048e+04 | 4261.37    | -1.107e+05 |
|        |     | -1.107e+05 | -2450.40   | 0.63      | 0.0       | 384.0 | -1.003e+04 | 140.29  | -17.49  | -3.048e+04 | -2450.40   | -5.199e+04 |
| 1      | 60  | -6.632e+04 | 9.438e+04  | -0.79     | 0.0       | 0.0   | -1.282e+04 | 9.02    | -434.60 | -5.455e+04 | 9.438e+04  | -7.453e+04 |
|        |     | -7.453e+04 | -7.250e+04 | 1.26      | 0.0       | 384.0 | -1.166e+04 | 9.02    | -434.60 | -5.455e+04 | -7.250e+04 | -6.632e+04 |
| 1      | 61  | 9.987e+04  | 1.885e+04  | 0.30      | 0.0       | 0.0   | -9585.29   | -524.98 | -85.27  | -3.576e+04 | 1.885e+04  | 9.987e+04  |
|        |     | -1.065e+05 | -1.389e+04 | 0.69      | 0.0       | 384.0 | -8433.29   | -524.98 | -85.27  | -3.576e+04 | -1.389e+04 | -1.065e+05 |
| 1      | 62  | 1.360e+05  | 1.090e+05  | 0.33      | 0.0       | 0.0   | -1.122e+04 | -656.25 | -502.37 | -5.984e+04 | 1.090e+05  | 1.360e+05  |
|        |     | -1.208e+05 | -8.394e+04 | 1.32      | 0.0       | 384.0 | -1.007e+04 | -656.25 | -502.37 | -5.984e+04 | -8.394e+04 | -1.208e+05 |
| 1      | 63  | -5.375e+04 | 7.694e+04  | -0.47     | 0.0       | 0.0   | -8792.26   | 66.97   | 455.37  | -3048.27   | -9.793e+04 | -8.101e+04 |
|        |     | -8.101e+04 | -9.793e+04 | -0.09     | 0.0       | 384.0 | -7640.26   | 66.97   | 455.37  | -3048.27   | 7.694e+04  | -5.375e+04 |
| 1      | 64  | 4.257e+04  | 2.043e+05  | -0.36     | 0.0       | 0.0   | -1.415e+04 | -379.20 | -943.69 | -8.533e+04 | 2.043e+05  | 4.257e+04  |
|        |     | -1.017e+05 | -1.580e+05 | 2.00      | 0.0       | 384.0 | -1.300e+04 | -379.20 | -943.69 | -8.533e+04 | -1.580e+05 | -1.017e+05 |
| 1      | 65  | -1.724e+04 | 7.165e+04  | -0.13     | 0.0       | 0.0   | -8247.06   | -136.76 | 423.82  | -4981.84   | -9.110e+04 | -1.724e+04 |
|        |     | -7.110e+04 | -9.110e+04 | -0.04     | 0.0       | 384.0 | -7095.06   | -136.76 | 423.82  | -4981.84   | 7.165e+04  | -7.110e+04 |
| 1      | 66  | 1.063e+05  | 2.112e+05  | -0.02     | 0.0       | 0.0   | -1.361e+04 | -582.93 | -975.24 | -8.727e+04 | 2.112e+05  | 1.063e+05  |
|        |     | -1.190e+05 | -1.633e+05 | 2.04      | 0.0       | 384.0 | -1.246e+04 | -582.93 | -975.24 | -8.727e+04 | -1.633e+05 | -1.190e+05 |
| 1      | 67  | -5.426e+04 | 7.601e+04  | -0.47     | 0.0       | 0.0   | -8759.37   | 64.90   | 449.76  | -3222.40   | -9.670e+04 | -8.070e+04 |
|        |     | -8.070e+04 | -9.670e+04 | -0.07     | 0.0       | 384.0 | -7607.37   | 64.90   | 449.76  | -3222.40   | 7.601e+04  | -5.426e+04 |
| 1      | 68  | 4.288e+04  | 2.056e+05  | -0.36     | 0.0       | 0.0   | -1.412e+04 | -381.28 | -949.29 | -8.551e+04 | 2.056e+05  | 4.288e+04  |
|        |     | -1.022e+05 | -1.590e+05 | 2.01      | 0.0       | 384.0 | -1.297e+04 | -381.28 | -949.29 | -8.551e+04 | -1.590e+05 | -1.022e+05 |
| 1      | 69  | -1.754e+04 | 7.258e+04  | -0.13     | 0.0       | 0.0   | -8279.95   | -134.68 | 429.43  | -4807.71   | -9.232e+04 | -1.754e+04 |
|        |     | -7.060e+04 | -9.232e+04 | -0.06     | 0.0       | 384.0 | -7127.95   | -134.68 | 429.43  | -4807.71   | 7.258e+04  | -7.060e+04 |
| 1      | 70  | 1.060e+05  | 2.099e+05  | -0.02     | 0.0       | 0.0   | -1.364e+04 | -580.86 | -969.63 | -8.709e+04 | 2.099e+05  | 1.060e+05  |
|        |     | -1.185e+05 | -1.624e+05 | 2.03      | 0.0       | 384.0 | -1.249e+04 | -580.86 | -969.63 | -8.709e+04 | -1.624e+05 | -1.185e+05 |
| 1      | 71  | -5.384e+04 | 7.620e+04  | -0.47     | 0.0       | 0.0   | -8752.69   | 62.66   | 451.01  | -4065.62   | -9.700e+04 | -7.942e+04 |
|        |     | -7.942e+04 | -9.700e+04 | -0.09     | 0.0       | 384.0 | -7600.69   | 62.66   | 451.01  | -4065.62   | 7.620e+04  | -5.384e+04 |
| 1      | 72  | 4.098e+04  | 2.034e+05  | -0.36     | 0.0       | 0.0   | -1.419e+04 | -374.89 | -939.33 | -8.431e+04 | 2.034e+05  | 4.098e+04  |
|        |     | -1.016e+05 | -1.573e+05 | 2.00      | 0.0       | 384.0 | -1.304e+04 | -374.89 | -939.33 | -8.431e+04 | -1.573e+05 | -1.016e+05 |
| 1      | 73  | -1.565e+04 | 7.091e+04  | -0.13     | 0.0       | 0.0   | -8207.49   | -141.07 | 419.46  | -5999.19   | -9.017e+04 | -1.565e+04 |
|        |     | -7.119e+04 | -9.017e+04 | -0.05     | 0.0       | 384.0 | -7055.49   | -141.07 | 419.46  | -5999.19   | 7.091e+04  | -7.119e+04 |
| 1      | 74  | 1.048e+05  | 2.102e+05  | -0.02     | 0.0       | 0.0   | -1.365e+04 | -578.61 | -970.88 | -8.625e+04 | 2.102e+05  | 1.048e+05  |
|        |     | -1.190e+05 | -1.626e+05 | 2.05      | 0.0       | 384.0 | -1.250e+04 | -578.61 | -970.88 | -8.625e+04 | -1.626e+05 | -1.190e+05 |
| 1      | 75  | -5.434e+04 | 7.527e+04  | -0.47     | 0.0       | 0.0   | -8719.80   | 60.58   | 445.40  | -4239.76   | -9.577e+04 | -7.911e+04 |
|        |     | -7.911e+04 | -9.577e+04 | -0.08     | 0.0       | 384.0 | -7567.80   | 60.58   | 445.40  | -4239.76   | 7.527e+04  | -5.434e+04 |
| 1      | 76  | 4.129e+04  | 2.046e+05  | -0.36     | 0.0       | 0.0   | -1.416e+04 | -376.96 | -944.94 | -8.449e+04 | 2.046e+05  | 4.129e+04  |
|        |     | -1.021e+05 | -1.582e+05 | 2.02      | 0.0       | 384.0 | -1.301e+04 | -376.96 | -944.94 | -8.449e+04 | -1.582e+05 | -1.021e+05 |
| 1      | 77  | -1.596e+04 | 7.184e+04  | -0.13     | 0.0       | 0.0   | -8240.38   | -139.00 | 425.07  | -5825.06   | -9.139e+04 | -1.596e+04 |
|        |     | -7.069e+04 | -9.139e+04 | -0.06     | 0.0       | 384.0 | -7088.38   | -139.00 | 425.07  | -5825.06   | 7.184e+04  | -7.069e+04 |
| 1      | 78  | 1.044e+05  | 2.090e+05  | -0.02     | 0.0       | 0.0   | -1.368e+04 | -576.54 | -965.27 | -8.607e+04 | 2.090e+05  | 1.044e+05  |
|        |     | -1.185e+05 | -1.617e+05 | 2.03      | 0.0       | 384.0 | -1.253e+04 | -576.54 | -965.27 | -8.607e+04 | -1.617e+05 | -1.185e+05 |
| 1      | 79  | -3308.60   | 1.134e+04  | -0.06     | 0.0       | 0.0   | -5649.59   | -120.14 | 73.77   | -5181.97   | -1.698e+04 | -3308.60   |
|        |     | -4.944e+04 | -1.698e+04 | 0.11      | 0.0       | 384.0 | -4497.59   | -120.14 | 73.77   | -5181.97   | 1.134e+04  | -4.944e+04 |
| 1      | 80  | 1.067e+04  | 4.742e+04  | -0.22     | 0.0       | 0.0   | -1.051e+04 | -240.75 | -218.22 | -4.016e+04 | 4.742e+04  | 1.067e+04  |
|        |     | -8.178e+04 | -3.638e+04 | 0.87      | 0.0       | 384.0 | -9354.56   | -240.75 | -218.22 | -4.016e+04 | -3.638e+04 | -8.178e+04 |
| 1      | 81  | -3308.60   | 1.134e+04  | -0.06     | 0.0       | 0.0   | -5649.59   | -120.14 | 73.77   | -5181.97   | -1.698e+04 | -3308.60   |
|        |     | -4.944e+04 | -1.698e+04 | 0.11      | 0.0       | 384.0 | -4497.59   | -120.14 | 73.77   | -5181.97   | 1.134e+04  | -4.944e+04 |
| 1      | 82  | 1.067e+04  | 4.742e+04  | -0.22     | 0.0       | 0.0   | -1.051e+04 | -240.75 | -218.22 | -4.016e+04 | 4.742e+04  | 1.067e+04  |
|        |     | -8.178e+04 | -3.638e+04 | 0.87      | 0.0       | 384.0 | -9354.56   | -240.75 | -218.22 | -4.016e+04 | -3.638e+04 | -8.178e+04 |
| 1      | 83  | 1.666e+04  | 7.502e+04  | -0.29     | 0.0       | 0.0   | -1.259e+04 | -292.44 | -343.36 | -5.515e+04 | 7.502e+04  | 1.666e+04  |
|        |     | -9.564e+04 | -5.683e+04 | 1.20      | 0.0       | 384.0 | -1.144e+04 | -292.44 | -343.36 | -5.515e+04 | -5.683e+04 | -9.564e+04 |
| 1      | 84  | -3308.60   | 1.134e+04  | -0.06     | 0.0       | 0.0   | -5649.59   | -120.14 | 73.77   | -5181.97   | -1.698e+04 | -3308.60   |
|        |     | -4.944e+04 | -1.698e+04 | 0.11      | 0.0       | 384.0 | -4497.59   | -120.14 | 73.77   | -5181.97   | 1.134e+04  | -4.944e+04 |
| 1      | 85  | 1.666e+04  | 7.502e+04  | -0.29     | 0.0       | 0.0   | -1.259e+04 | -292.44 | -343.36 | -5.515e+04 | 7.502e+04  | 1.666e+04  |
|        |     | -9.564e+04 | -5.683e+04 | 1.20      | 0.0       | 384.0 | -1.144e+04 | -292.44 | -343.36 | -5.515e+04 | -5.683e+04 | -9.564e+04 |
| 1      | 86  | -3308.60   | 1.134e+04  | -0.06     | 0.0       | 0.0   | -5649.59   | -120.14 | 73.77   | -5181.97   | -1.698e+04 | -3308.60   |
|        |     | -4.944e+04 | -1.698e+04 | 0.11      | 0.0       | 384.0 | -4497.59   | -120.14 | 73.77   | -5181.97   | 1.134e+04  | -4.944e+04 |
| 1      | 87  | 8672.39    | 3.822e+04  | -0.20     | 0.0       | 0.0   | -9812.71   | -223.52 | -176.51 | -3.516e+04 | 3.822e+04  | 8672.39    |
|        |     | -7.716e+04 | -2.956e+04 | 0.76      | 0.0       | 384.0 | -8660.71   | -223.52 | -176.51 | -3.516e+04 | -2.956e+04 | -7.716e+04 |
| 1      | 88  | -3308.60   | 1.134e+04  | -0.06     | 0.0       | 0.0   | -5649.59   | -120.14 | 73.77   | -5181.97   | -1.698e+04 | -3308.60   |

| Pilas. | Cmb | M3 mx/mn   | M2 mx/mn   | D 2 / D 3 | Q 2 / Q 3 | Pos.  | N          | V 2      | V 3     | T          | M 2        | M 3        |
|--------|-----|------------|------------|-----------|-----------|-------|------------|----------|---------|------------|------------|------------|
|        |     | -4.944e+04 | -1.698e+04 | 0.11      | 0.0       | 384.0 | -4497.59   | -120.14  | 73.77   | -5181.97   | 1.134e+04  | -4.944e+04 |
| 1      | 89  | 8672.39    | 3.822e+04  | -0.20     | 0.0       | 0.0   | -9812.71   | -223.52  | -176.51 | -3.516e+04 | 3.822e+04  | 8672.39    |
|        |     | -7.716e+04 | -2.956e+04 | 0.76      | 0.0       | 384.0 | -8660.71   | -223.52  | -176.51 | -3.516e+04 | -2.956e+04 | -7.716e+04 |
| 1      | 90  | 1.067e+04  | 4.742e+04  | -0.22     | 0.0       | 0.0   | -1.051e+04 | -240.75  | -218.22 | -4.016e+04 | 4.742e+04  | 1.067e+04  |
|        |     | -8.178e+04 | -3.638e+04 | 0.87      | 0.0       | 384.0 | -9354.56   | -240.75  | -218.22 | -4.016e+04 | -3.638e+04 | -8.178e+04 |
| 1      | 91  | -3308.60   | 1.134e+04  | -0.06     | 0.0       | 0.0   | -5649.59   | -120.14  | 73.77   | -5181.97   | -1.698e+04 | -3308.60   |
|        |     | -4.944e+04 | -1.698e+04 | 0.11      | 0.0       | 384.0 | -4497.59   | -120.14  | 73.77   | -5181.97   | 1.134e+04  | -4.944e+04 |
| 1      | 92  | 1.067e+04  | 4.742e+04  | -0.22     | 0.0       | 0.0   | -1.051e+04 | -240.75  | -218.22 | -4.016e+04 | 4.742e+04  | 1.067e+04  |
|        |     | -8.178e+04 | -3.638e+04 | 0.87      | 0.0       | 384.0 | -9354.56   | -240.75  | -218.22 | -4.016e+04 | -3.638e+04 | -8.178e+04 |
| 1      | 93  | -3308.60   | 1.134e+04  | -0.06     | 0.0       | 0.0   | -5649.59   | -120.14  | 73.77   | -5181.97   | -1.698e+04 | -3308.60   |
|        |     | -4.944e+04 | -1.698e+04 | 0.11      | 0.0       | 384.0 | -4497.59   | -120.14  | 73.77   | -5181.97   | 1.134e+04  | -4.944e+04 |
| 1      | 94  | 8672.39    | 3.822e+04  | -0.20     | 0.0       | 0.0   | -9812.71   | -223.52  | -176.51 | -3.516e+04 | 3.822e+04  | 8672.39    |
|        |     | -7.716e+04 | -2.956e+04 | 0.76      | 0.0       | 384.0 | -8660.71   | -223.52  | -176.51 | -3.516e+04 | -2.956e+04 | -7.716e+04 |
| 1      | 95  | -3308.60   | 1.134e+04  | -0.06     | 0.0       | 0.0   | -5649.59   | -120.14  | 73.77   | -5181.97   | -1.698e+04 | -3308.60   |
|        |     | -4.944e+04 | -1.698e+04 | 0.11      | 0.0       | 384.0 | -4497.59   | -120.14  | 73.77   | -5181.97   | 1.134e+04  | -4.944e+04 |
| 1      | 96  | 8672.39    | 3.822e+04  | -0.20     | 0.0       | 0.0   | -9812.71   | -223.52  | -176.51 | -3.516e+04 | 3.822e+04  | 8672.39    |
|        |     | -7.716e+04 | -2.956e+04 | 0.76      | 0.0       | 384.0 | -8660.71   | -223.52  | -176.51 | -3.516e+04 | -2.956e+04 | -7.716e+04 |
| 2      | 1   | -5.658e+04 | 1.561e+04  | -0.19     | 0.0       | 0.0   | -5788.16   | -262.45  | 60.71   | 2320.64    | -2969.33   | -5.658e+04 |
|        |     | -1.369e+05 | -2969.33   | 0.12      | 0.0       | 306.0 | -4594.76   | -262.45  | 60.71   | 2320.64    | 1.561e+04  | -1.369e+05 |
| 2      | 2   | -4.770e+04 | 5.849e+04  | -0.43     | 0.0       | 0.0   | -1.143e+04 | -517.90  | -341.43 | -4.331e+04 | 5.849e+04  | -4.770e+04 |
|        |     | -2.062e+05 | -4.599e+04 | 1.03      | 0.0       | 306.0 | -1.024e+04 | -517.90  | -341.43 | -4.331e+04 | -4.599e+04 | -2.062e+05 |
| 2      | 3   | -5.658e+04 | 1.561e+04  | -0.19     | 0.0       | 0.0   | -5788.16   | -262.45  | 60.71   | 2320.64    | -2969.33   | -5.658e+04 |
|        |     | -1.369e+05 | -2969.33   | 0.12      | 0.0       | 306.0 | -4594.76   | -262.45  | 60.71   | 2320.64    | 1.561e+04  | -1.369e+05 |
| 2      | 4   | -4.770e+04 | 5.849e+04  | -0.43     | 0.0       | 0.0   | -1.143e+04 | -517.90  | -341.43 | -4.331e+04 | 5.849e+04  | -4.770e+04 |
|        |     | -2.062e+05 | -4.599e+04 | 1.03      | 0.0       | 306.0 | -1.024e+04 | -517.90  | -341.43 | -4.331e+04 | -4.599e+04 | -2.062e+05 |
| 2      | 5   | -3.949e+04 | 8156.28    | -0.14     | 0.0       | 0.0   | -4142.74   | -179.33  | 29.62   | 1726.45    | -906.47    | -3.949e+04 |
|        |     | -9.437e+04 | -906.47    | 0.08      | 0.0       | 306.0 | -3224.74   | -179.33  | 29.62   | 1726.45    | 8156.28    | -9.437e+04 |
| 2      | 6   | -3.061e+04 | 6.055e+04  | -0.38     | 0.0       | 0.0   | -9785.17   | -434.78  | -372.52 | -4.391e+04 | 6.055e+04  | -3.061e+04 |
|        |     | -1.637e+05 | -5.344e+04 | 0.99      | 0.0       | 306.0 | -8867.17   | -434.78  | -372.52 | -4.391e+04 | -5.344e+04 | -1.637e+05 |
| 2      | 7   | -3.949e+04 | 8156.28    | -0.14     | 0.0       | 0.0   | -4142.74   | -179.33  | 29.62   | 1726.45    | -906.47    | -3.949e+04 |
|        |     | -9.437e+04 | -906.47    | 0.08      | 0.0       | 306.0 | -3224.74   | -179.33  | 29.62   | 1726.45    | 8156.28    | -9.437e+04 |
| 2      | 8   | -3.061e+04 | 6.055e+04  | -0.38     | 0.0       | 0.0   | -9785.17   | -434.78  | -372.52 | -4.391e+04 | 6.055e+04  | -3.061e+04 |
|        |     | -1.637e+05 | -5.344e+04 | 0.99      | 0.0       | 306.0 | -8867.17   | -434.78  | -372.52 | -4.391e+04 | -5.344e+04 | -1.637e+05 |
| 2      | 9   | -4.389e+04 | 8.483e+04  | -0.53     | 0.0       | 0.0   | -1.385e+04 | -627.38  | -513.77 | -6.287e+04 | 8.483e+04  | -4.389e+04 |
|        |     | -2.359e+05 | -7.239e+04 | 1.43      | 0.0       | 306.0 | -1.266e+04 | -627.38  | -513.77 | -6.287e+04 | -7.239e+04 | -2.359e+05 |
| 2      | 10  | -5.658e+04 | 1.561e+04  | -0.19     | 0.0       | 0.0   | -5788.16   | -262.45  | 60.71   | 2320.64    | -2969.33   | -5.658e+04 |
|        |     | -1.369e+05 | -2969.33   | 0.12      | 0.0       | 306.0 | -4594.76   | -262.45  | 60.71   | 2320.64    | 1.561e+04  | -1.369e+05 |
| 2      | 11  | -4.389e+04 | 8.483e+04  | -0.53     | 0.0       | 0.0   | -1.385e+04 | -627.38  | -513.77 | -6.287e+04 | 8.483e+04  | -4.389e+04 |
|        |     | -2.359e+05 | -7.239e+04 | 1.43      | 0.0       | 306.0 | -1.266e+04 | -627.38  | -513.77 | -6.287e+04 | -7.239e+04 | -2.359e+05 |
| 2      | 12  | -2.680e+04 | 8.689e+04  | -0.48     | 0.0       | 0.0   | -1.220e+04 | -544.26  | -544.86 | -6.347e+04 | 8.689e+04  | -2.680e+04 |
|        |     | -1.933e+05 | -7.984e+04 | 1.38      | 0.0       | 306.0 | -1.129e+04 | -544.26  | -544.86 | -6.347e+04 | -7.984e+04 | -1.933e+05 |
| 2      | 13  | -3.949e+04 | 8156.28    | -0.14     | 0.0       | 0.0   | -4142.74   | -179.33  | 29.62   | 1726.45    | -906.47    | -3.949e+04 |
|        |     | -9.437e+04 | -906.47    | 0.08      | 0.0       | 306.0 | -3224.74   | -179.33  | 29.62   | 1726.45    | 8156.28    | -9.437e+04 |
| 2      | 14  | -2.680e+04 | 8.689e+04  | -0.48     | 0.0       | 0.0   | -1.220e+04 | -544.26  | -544.86 | -6.347e+04 | 8.689e+04  | -2.680e+04 |
|        |     | -1.933e+05 | -7.984e+04 | 1.38      | 0.0       | 306.0 | -1.129e+04 | -544.26  | -544.86 | -6.347e+04 | -7.984e+04 | -1.933e+05 |
| 2      | 15  | 1.132e+05  | 8.393e+04  | -1.44     | 0.0       | 0.0   | -1.054e+04 | 349.39   | 370.39  | 1.086e+04  | -2.981e+04 | 1.736e+04  |
|        |     | 1.736e+04  | -2.981e+04 | 0.03      | 0.0       | 306.0 | -9623.76   | 349.39   | 370.39  | 1.086e+04  | 8.393e+04  | 1.132e+05  |
| 2      | 16  | 5.038e+04  | 8.329e+04  | -1.36     | 0.0       | 0.0   | -1.113e+04 | 42.09    | -554.73 | -5.407e+04 | 8.329e+04  | 4.879e+04  |
|        |     | 4.879e+04  | -8.607e+04 | 1.27      | 0.0       | 306.0 | -1.021e+04 | 42.09    | -554.73 | -5.407e+04 | -8.607e+04 | 5.038e+04  |
| 2      | 17  | -1.223e+05 | 1.622e+04  | 0.70      | 0.0       | 0.0   | -6372.93   | -835.11  | 35.35   | -1.190e+04 | 5789.56    | -1.223e+05 |
|        |     | -3.666e+05 | 5789.56    | 0.31      | 0.0       | 306.0 | -5454.93   | -835.11  | 35.35   | -1.190e+04 | 1.622e+04  | -3.666e+05 |
| 2      | 18  | -9.087e+04 | 1.189e+05  | 0.78      | 0.0       | 0.0   | -6961.09   | -1142.41 | -889.78 | -7.683e+04 | 1.189e+05  | -9.087e+04 |
|        |     | -4.294e+05 | -1.538e+05 | 1.54      | 0.0       | 306.0 | -6043.09   | -1142.41 | -889.78 | -7.683e+04 | -1.538e+05 | -4.294e+05 |
| 2      | 19  | 1.133e+05  | 8.287e+04  | -1.43     | 0.0       | 0.0   | -1.050e+04 | 347.05   | 364.81  | 1.003e+04  | -2.916e+04 | 1.812e+04  |
|        |     | 1.812e+04  | -2.916e+04 | 0.03      | 0.0       | 306.0 | -9579.27   | 347.05   | 364.81  | 1.003e+04  | 8.287e+04  | 1.133e+05  |
| 2      | 20  | 5.033e+04  | 8.264e+04  | -1.36     | 0.0       | 0.0   | -1.117e+04 | 44.43    | -549.14 | -5.324e+04 | 8.264e+04  | 4.803e+04  |
|        |     | 4.803e+04  | -8.502e+04 | 1.27      | 0.0       | 306.0 | -1.026e+04 | 44.43    | -549.14 | -5.324e+04 | -8.502e+04 | 5.033e+04  |
| 2      | 21  | -1.215e+05 | 1.516e+04  | 0.70      | 0.0       | 0.0   | -6328.44   | -837.45  | 29.76   | -1.272e+04 | 6440.17    | -1.215e+05 |
|        |     | -3.665e+05 | 6440.17    | 0.31      | 0.0       | 306.0 | -5410.44   | -837.45  | 29.76   | -1.272e+04 | 1.516e+04  | -3.665e+05 |
| 2      | 22  | -9.163e+04 | 1.182e+05  | 0.78      | 0.0       | 0.0   | -7005.57   | -1140.07 | -884.19 | -7.600e+04 | 1.182e+05  | -9.163e+04 |
|        |     | -4.294e+05 | -1.527e+05 | 1.55      | 0.0       | 306.0 | -6087.57   | -1140.07 | -884.19 | -7.600e+04 | -1.527e+05 | -4.294e+05 |
| 2      | 23  | 1.125e+05  | 7.690e+04  | -1.44     | 0.0       | 0.0   | -1.040e+04 | 354.37   | 332.16  | 9002.11    | -2.516e+04 | 1.365e+04  |
|        |     | 1.365e+04  | -2.516e+04 | 0.12      | 0.0       | 306.0 | -9480.12   | 354.37   | 332.16  | 9002.11    | 7.690e+04  | 1.125e+05  |
| 2      | 24  | 4.967e+04  | 8.794e+04  | -1.36     | 0.0       | 0.0   | -1.099e+04 | 47.08    | -592.96 | -5.593e+04 | 8.794e+04  | 4.509e+04  |
|        |     | 4.509e+04  | -9.310e+04 | 1.35      | 0.0       | 306.0 | -1.007e+04 | 47.08    | -592.96 | -5.593e+04 | -9.310e+04 | 4.967e+04  |
| 2      | 25  | -1.186e+05 | 2.325e+04  | 0.70      | 0.0       | 0.0   | -6516.56   | -840.10  | 73.58   | -1.004e+04 | 1138.77    | -1.186e+05 |
|        |     | -3.659e+05 | 1138.77    | 0.23      | 0.0       | 306.0 | -5598.56   | -840.10  | 73.58   | -1.004e+04 | 2.325e+04  | -3.659e+05 |
| 2      | 26  | -8.717e+04 | 1.142e+05  | 0.78      | 0.0       | 0.0   | -7104.72   | -1147.40 | -851.55 | -7.497e+04 | 1.142e+05  | -8.717e+04 |
|        |     | -4.287e+05 | -1.468e+05 | 1.46      | 0.0       | 306.0 | -6186.72   | -1147.40 | -851.55 | -7.497e+04 | -1.468e+05 | -4.287e+05 |
| 2      | 27  | 1.125e+05  | 7.585e+04  | -1.44     | 0.0       | 0.0   | -1.035e+04 | 352.03   | 326.58  | 8174.10    | -2.451e+04 | 1.442e+04  |
|        |     | 1.442e+04  | -2.451e+04 | 0.11      | 0.0       | 306.0 | -9435.63   | 352.03   | 326.58  | 8174.10    | 7.585e+04  | 1.125e+05  |
| 2      | 28  | 4.963e+04  | 8.729e+04  | -1.36     | 0.0       | 0.0   | -1.103e+04 | 49.42    | -587.37 | -5.510e+04 | 8.729e+04  | 4.433e+04  |
|        |     | 4.433e+04  | -9.204e+04 | 1.35      | 0.0       | 306.0 | -1.011e+04 | 49.42    | -587.37 | -5.510e+04 | -9.204e+04 | 4.963e+04  |
| 2      | 29  | -1.178e+05 | 2.219e+04  | 0.71      | 0.0       | 0.0   | -6472.08   | -842.44  | 67.99   | -1.087e+04 | 1789.39    | -1.178e+05 |

| Pilas. | Cmb | M3 mx/mn   | M2 mx/mn   | D 2 / D 3 | Q 2 / Q 3 | Pos.  | N          | V 2      | V 3      | T          | M 2        | M 3        |
|--------|-----|------------|------------|-----------|-----------|-------|------------|----------|----------|------------|------------|------------|
|        |     | -3.658e+05 | 1789.39    | 0.23      | 0.0       | 306.0 | -5554.08   | -842.44  | 67.99    | -1.087e+04 | 2.219e+04  | -3.658e+05 |
| 2      | 30  | -8.793e+04 | 1.136e+05  | 0.78      | 0.0       | 0.0   | -7149.21   | -1145.06 | -845.96  | -7.414e+04 | 1.136e+05  | -8.793e+04 |
|        |     | -4.287e+05 | -1.457e+05 | 1.46      | 0.0       | 306.0 | -6231.21   | -1145.06 | -845.96  | -7.414e+04 | -1.457e+05 | -4.287e+05 |
| 2      | 31  | 1.859e+04  | 2.586e+05  | -0.78     | 0.0       | 0.0   | -8396.48   | 293.33   | 1332.44  | 7.865e+04  | -1.493e+05 | -6.820e+04 |
|        |     | -6.820e+04 | -1.493e+05 | -1.31     | 0.0       | 306.0 | -7478.48   | 293.33   | 1332.44  | 7.865e+04  | 2.586e+05  | 1.859e+04  |
| 2      | 32  | 3.659e+04  | 2.277e+05  | -0.52     | 0.0       | 0.0   | -1.036e+04 | -731.00  | -1751.31 | -1.378e+05 | 2.277e+05  | 3.659e+04  |
|        |     | -1.908e+05 | -3.081e+05 | 2.80      | 0.0       | 306.0 | -9439.01   | -731.00  | -1751.31 | -1.378e+05 | -3.081e+05 | -1.908e+05 |
| 2      | 33  | -1.101e+05 | 2.383e+05  | -0.14     | 0.0       | 0.0   | -7145.83   | -62.02   | 1231.92  | 7.182e+04  | -1.386e+05 | -1.101e+05 |
|        |     | -1.253e+05 | -1.386e+05 | -1.22     | 0.0       | 306.0 | -6227.83   | -62.02   | 1231.92  | 7.182e+04  | 2.383e+05  | -1.253e+05 |
| 2      | 34  | -5309.44   | 2.384e+05  | 0.13      | 0.0       | 0.0   | -9106.36   | -1086.35 | -1851.82 | -1.446e+05 | 2.384e+05  | -5309.44   |
|        |     | -3.348e+05 | -3.284e+05 | 2.88      | 0.0       | 306.0 | -8188.36   | -1086.35 | -1851.82 | -1.446e+05 | -3.284e+05 | -3.348e+05 |
| 2      | 35  | 1.838e+04  | 2.565e+05  | -0.79     | 0.0       | 0.0   | -8353.39   | 294.82   | 1320.97  | 7.809e+04  | -1.479e+05 | -6.931e+04 |
|        |     | -6.931e+04 | -1.479e+05 | -1.28     | 0.0       | 306.0 | -7435.39   | 294.82   | 1320.97  | 7.809e+04  | 2.565e+05  | 1.838e+04  |
| 2      | 36  | 3.548e+04  | 2.291e+05  | -0.52     | 0.0       | 0.0   | -1.031e+04 | -729.50  | -1762.78 | -1.383e+05 | 2.291e+05  | 3.548e+04  |
|        |     | -1.911e+05 | -3.102e+05 | 2.83      | 0.0       | 306.0 | -9395.92   | -729.50  | -1762.78 | -1.383e+05 | -3.102e+05 | -1.911e+05 |
| 2      | 37  | -1.090e+05 | 2.404e+05  | -0.14     | 0.0       | 0.0   | -7188.92   | -63.52   | 1243.39  | 7.238e+04  | -1.400e+05 | -1.090e+05 |
|        |     | -1.251e+05 | -1.400e+05 | -1.25     | 0.0       | 306.0 | -6270.92   | -63.52   | 1243.39  | 7.238e+04  | 2.404e+05  | -1.251e+05 |
| 2      | 38  | -4199.03   | 2.370e+05  | 0.13      | 0.0       | 0.0   | -9149.45   | -1087.85 | -1840.35 | -1.441e+05 | 2.370e+05  | -4199.03   |
|        |     | -3.346e+05 | -3.263e+05 | 2.86      | 0.0       | 306.0 | -8231.45   | -1087.85 | -1840.35 | -1.441e+05 | -3.263e+05 | -3.346e+05 |
| 2      | 39  | 1.874e+04  | 2.550e+05  | -0.78     | 0.0       | 0.0   | -8248.19   | 285.52   | 1313.81  | 7.589e+04  | -1.471e+05 | -6.565e+04 |
|        |     | -6.565e+04 | -1.471e+05 | -1.32     | 0.0       | 306.0 | -7330.19   | 285.52   | 1313.81  | 7.589e+04  | 2.550e+05  | 1.874e+04  |
| 2      | 40  | 3.404e+04  | 2.255e+05  | -0.52     | 0.0       | 0.0   | -1.051e+04 | -723.20  | -1732.68 | -1.350e+05 | 2.255e+05  | 3.404e+04  |
|        |     | -1.910e+05 | -3.046e+05 | 2.81      | 0.0       | 306.0 | -9587.29   | -723.20  | -1732.68 | -1.350e+05 | -3.046e+05 | -1.910e+05 |
| 2      | 41  | -1.076e+05 | 2.347e+05  | -0.14     | 0.0       | 0.0   | -6997.55   | -69.83   | 1213.30  | 6.906e+04  | -1.365e+05 | -1.076e+05 |
|        |     | -1.252e+05 | -1.365e+05 | -1.23     | 0.0       | 306.0 | -6079.55   | -69.83   | 1213.30  | 6.906e+04  | 2.347e+05  | -1.252e+05 |
| 2      | 42  | -7858.99   | 2.362e+05  | 0.13      | 0.0       | 0.0   | -9254.65   | -1078.55 | -1833.19 | -1.419e+05 | 2.362e+05  | -7858.99   |
|        |     | -3.349e+05 | -3.249e+05 | 2.89      | 0.0       | 306.0 | -8336.65   | -1078.55 | -1833.19 | -1.419e+05 | -3.249e+05 | -3.349e+05 |
| 2      | 43  | 1.853e+04  | 2.529e+05  | -0.78     | 0.0       | 0.0   | -8205.10   | 287.02   | 1302.34  | 7.533e+04  | -1.457e+05 | -6.677e+04 |
|        |     | -6.677e+04 | -1.457e+05 | -1.29     | 0.0       | 306.0 | -7287.10   | 287.02   | 1302.34  | 7.533e+04  | 2.529e+05  | 1.853e+04  |
| 2      | 44  | 3.293e+04  | 2.269e+05  | -0.52     | 0.0       | 0.0   | -1.046e+04 | -721.70  | -1744.15 | -1.356e+05 | 2.269e+05  | 3.293e+04  |
|        |     | -1.912e+05 | -3.067e+05 | 2.83      | 0.0       | 306.0 | -9544.20   | -721.70  | -1744.15 | -1.356e+05 | -3.067e+05 | -1.912e+05 |
| 2      | 45  | -1.064e+05 | 2.368e+05  | -0.13     | 0.0       | 0.0   | -7040.64   | -71.32   | 1224.76  | 6.962e+04  | -1.378e+05 | -1.064e+05 |
|        |     | -1.250e+05 | -1.378e+05 | -1.26     | 0.0       | 306.0 | -6122.64   | -71.32   | 1224.76  | 6.962e+04  | 2.368e+05  | -1.250e+05 |
| 2      | 46  | -6748.59   | 2.348e+05  | 0.13      | 0.0       | 0.0   | -9297.74   | -1080.04 | -1821.72 | -1.413e+05 | 2.348e+05  | -6748.59   |
|        |     | -3.347e+05 | -3.228e+05 | 2.87      | 0.0       | 306.0 | -8379.74   | -1080.04 | -1821.72 | -1.413e+05 | -3.228e+05 | -3.347e+05 |
| 2      | 47  | -1.319e+04 | 1.558e+04  | -0.77     | 0.0       | 0.0   | -9492.59   | -97.52   | -14.08   | -1.588e+04 | 1.558e+04  | -1.319e+04 |
|        |     | -4.898e+04 | 1.144e+04  | 0.50      | 0.0       | 306.0 | -8574.59   | -97.52   | -14.08   | -1.588e+04 | 1.144e+04  | -4.898e+04 |
| 2      | 48  | -937.28    | 5.932e+04  | -0.74     | 0.0       | 0.0   | -9721.51   | -217.28  | -371.66  | -4.116e+04 | 5.932e+04  | -937.28    |
|        |     | -7.349e+04 | -5.426e+04 | 0.97      | 0.0       | 306.0 | -8803.51   | -217.28  | -371.66  | -4.116e+04 | -5.426e+04 | -7.349e+04 |
| 2      | 49  | -7.258e+04 | 2.976e+04  | 0.09      | 0.0       | 0.0   | -7781.33   | -575.74  | -147.73  | -2.481e+04 | 2.976e+04  | -7.258e+04 |
|        |     | -2.427e+05 | -1.560e+04 | 0.60      | 0.0       | 306.0 | -6863.33   | -575.74  | -147.73  | -2.481e+04 | -1.560e+04 | -2.427e+05 |
| 2      | 50  | -6.032e+04 | 7.350e+04  | 0.12      | 0.0       | 0.0   | -8010.25   | -695.50  | -505.30  | -5.009e+04 | 7.350e+04  | -6.032e+04 |
|        |     | -2.672e+05 | -8.129e+04 | 1.08      | 0.0       | 306.0 | -7092.25   | -695.50  | -505.30  | -5.009e+04 | -8.129e+04 | -2.672e+05 |
| 2      | 51  | -1.289e+04 | 1.584e+04  | -0.77     | 0.0       | 0.0   | -9475.61   | -98.47   | -16.30   | -1.621e+04 | 1.584e+04  | -1.289e+04 |
|        |     | -4.897e+04 | 1.102e+04  | 0.50      | 0.0       | 306.0 | -8557.61   | -98.47   | -16.30   | -1.621e+04 | 1.102e+04  | -4.897e+04 |
| 2      | 52  | -1239.45   | 5.906e+04  | -0.74     | 0.0       | 0.0   | -9738.49   | -216.33  | -369.44  | -4.083e+04 | 5.906e+04  | -1239.45   |
|        |     | -7.350e+04 | -5.383e+04 | 0.97      | 0.0       | 306.0 | -8820.49   | -216.33  | -369.44  | -4.083e+04 | -5.383e+04 | -7.350e+04 |
| 2      | 53  | -7.227e+04 | 3.002e+04  | 0.09      | 0.0       | 0.0   | -7764.35   | -576.69  | -149.95  | -2.514e+04 | 3.002e+04  | -7.227e+04 |
|        |     | -2.427e+05 | -1.602e+04 | 0.60      | 0.0       | 306.0 | -6846.35   | -576.69  | -149.95  | -2.514e+04 | -1.602e+04 | -2.427e+05 |
| ...    |     |            |            |           |           |       |            |          |          |            |            |            |
| 4      | 96  | -7.276e+04 | -3.361e+04 | 0.61      | 0.0       | 306.0 | -1437.77   | 285.87   | -204.74  | -2.565e+04 | -3.361e+04 | 1.472e+04  |
| Pilas. |     | M3 mx/mn   | M2 mx/mn   | D 2 / D 3 | Q 2 / Q 3 |       | N          | V 2      | V 3      | T          |            |            |
|        |     | -4.370e+05 | -3.609e+05 | -1.80     | 0.0       |       | -1.891e+04 | -1272.58 | -2170.84 | -1.532e+05 |            |            |
|        |     | 3.252e+05  | 4.727e+05  | 3.75      | 0.0       |       | 7190.23    | 1270.19  | 1591.36  | 7.865e+04  |            |            |

| Trave | Cmb | M3 mx/mn   | M2 mx/mn   | D 2 / D 3 | Q 2 / Q 3 | Pos.  | N     | V 2     | V 3      | T         | M 2        | M 3        |
|-------|-----|------------|------------|-----------|-----------|-------|-------|---------|----------|-----------|------------|------------|
|       |     | daN cm     | daN cm     | cm        | daN       | cm    | daN   | daN     | daN      | daN cm    | daN cm     | daN cm     |
| 5     | 1   | 9057.20    | 2.568e+04  | 0.04      | 0.0       | 0.0   | 35.19 | -106.27 | -58.71   | 7690.31   | -1.772e+04 | 9057.20    |
|       |     | -8477.30   | -1.816e+04 | -0.07     | 643.50    | 165.0 | 35.19 | -106.27 | 584.79   | 7690.31   | 2.568e+04  | -8477.30   |
| 5     | 2   | 1.589e+04  | 1.153e+05  | 0.36      | 0.0       | 0.0   | -0.65 | -180.80 | -1701.74 | 6.508e+04 | 1.153e+05  | 1.589e+04  |
|       |     | -1.394e+04 | -1.124e+05 | -0.52     | 643.50    | 165.0 | -0.65 | -180.80 | -1058.24 | 6.508e+04 | -1.124e+05 | -1.394e+04 |
| 5     | 3   | 9057.20    | 2.568e+04  | 0.04      | 0.0       | 0.0   | 35.19 | -106.27 | -58.71   | 7690.31   | -1.772e+04 | 9057.20    |
|       |     | -8477.30   | -1.816e+04 | -0.07     | 643.50    | 165.0 | 35.19 | -106.27 | 584.79   | 7690.31   | 2.568e+04  | -8477.30   |
| 5     | 4   | 1.589e+04  | 1.153e+05  | 0.36      | 0.0       | 0.0   | -0.65 | -180.80 | -1701.74 | 6.508e+04 | 1.153e+05  | 1.589e+04  |
|       |     | -1.394e+04 | -1.124e+05 | -0.52     | 643.50    | 165.0 | -0.65 | -180.80 | -1058.24 | 6.508e+04 | -1.124e+05 | -1.394e+04 |
| 5     | 5   | 6235.42    | 1.746e+04  | 0.03      | 0.0       | 0.0   | 34.77 | -74.45  | -77.12   | 5137.28   | -1.065e+04 | 6235.42    |
|       |     | -6048.60   | -1.161e+04 | -0.04     | 495.00    | 165.0 | 34.77 | -74.45  | 417.88   | 5137.28   | 1.746e+04  | -6048.60   |
| 5     | 6   | 1.307e+04  | 1.224e+05  | 0.35      | 0.0       | 0.0   | -1.08 | -148.98 | -1720.16 | 6.253e+04 | 1.224e+05  | 1.307e+04  |
|       |     | -1.151e+04 | -1.206e+05 | -0.50     | 495.00    | 165.0 | -1.08 | -148.98 | -1225.16 | 6.253e+04 | -1.206e+05 | -1.151e+04 |
| 5     | 7   | 6235.42    | 1.746e+04  | 0.03      | 0.0       | 0.0   | 34.77 | -74.45  | -77.12   | 5137.28   | -1.065e+04 | 6235.42    |

| Trave | Cmb | M3 mx/mn   | M2 mx/mn   | D 2 / D 3 | Q 2 / Q 3 | Pos.  | N       | V 2     | V 3      | T          | M 2        | M 3        |
|-------|-----|------------|------------|-----------|-----------|-------|---------|---------|----------|------------|------------|------------|
|       |     | -6048.60   | -1.161e+04 | -0.04     | 495.00    | 165.0 | 34.77   | -74.45  | 417.88   | 5137.28    | 1.746e+04  | -6048.60   |
| 5     | 8   | 1.307e+04  | 1.224e+05  | 0.35      | 0.0       | 0.0   | -1.08   | -148.98 | -1720.16 | 6.253e+04  | 1.224e+05  | 1.307e+04  |
|       |     | -1.151e+04 | -1.206e+05 | -0.50     | 495.00    | 165.0 | -1.08   | -148.98 | -1225.16 | 6.253e+04  | -1.206e+05 | -1.151e+04 |
| 5     | 9   | 1.882e+04  | 1.723e+05  | 0.50      | 0.0       | 0.0   | -16.02  | -212.74 | -2405.90 | 8.968e+04  | 1.723e+05  | 1.882e+04  |
|       |     | -1.628e+04 | -1.715e+05 | -0.71     | 643.50    | 165.0 | -16.02  | -212.74 | -1762.40 | 8.968e+04  | -1.715e+05 | -1.628e+04 |
| 5     | 10  | 9057.20    | 2.568e+04  | 0.04      | 0.0       | 0.0   | 35.19   | -106.27 | -58.71   | 7690.31    | -1.772e+04 | 9057.20    |
|       |     | -8477.30   | -1.816e+04 | -0.07     | 643.50    | 165.0 | 35.19   | -106.27 | 584.79   | 7690.31    | 2.568e+04  | -8477.30   |
| 5     | 11  | 1.882e+04  | 1.723e+05  | 0.50      | 0.0       | 0.0   | -16.02  | -212.74 | -2405.90 | 8.968e+04  | 1.723e+05  | 1.882e+04  |
|       |     | -1.628e+04 | -1.715e+05 | -0.71     | 643.50    | 165.0 | -16.02  | -212.74 | -1762.40 | 8.968e+04  | -1.715e+05 | -1.628e+04 |
| 5     | 12  | 1.600e+04  | 1.794e+05  | 0.48      | 0.0       | 0.0   | -16.44  | -180.92 | -2424.32 | 8.712e+04  | 1.794e+05  | 1.600e+04  |
|       |     | -1.386e+04 | -1.798e+05 | -0.69     | 495.00    | 165.0 | -16.44  | -180.92 | -1929.32 | 8.712e+04  | -1.798e+05 | -1.386e+04 |
| 5     | 13  | 6235.42    | 1.746e+04  | 0.03      | 0.0       | 0.0   | 34.77   | -74.45  | -77.12   | 5137.28    | -1.065e+04 | 6235.42    |
|       |     | -6048.60   | -1.161e+04 | -0.04     | 495.00    | 165.0 | 34.77   | -74.45  | 417.88   | 5137.28    | 1.746e+04  | -6048.60   |
| 5     | 14  | 1.600e+04  | 1.794e+05  | 0.48      | 0.0       | 0.0   | -16.44  | -180.92 | -2424.32 | 8.712e+04  | 1.794e+05  | 1.600e+04  |
|       |     | -1.386e+04 | -1.798e+05 | -0.69     | 495.00    | 165.0 | -16.44  | -180.92 | -1929.32 | 8.712e+04  | -1.798e+05 | -1.386e+04 |
| 5     | 15  | 1.813e+04  | 9.722e+04  | 0.08      | 0.0       | 0.0   | 68.62   | -192.17 | 943.98   | 6934.78    | -9.952e+04 | 1.813e+04  |
|       |     | -1.416e+04 | -9.952e+04 | -0.12     | 495.00    | 165.0 | 68.62   | -192.17 | 1438.98  | 6934.78    | 9.722e+04  | -1.416e+04 |
| 5     | 16  | 1.598e+04  | 1.958e+05  | 0.47      | 0.0       | 0.0   | 128.19  | -175.27 | -2607.47 | 7.471e+04  | 1.958e+05  | 1.598e+04  |
|       |     | -1.305e+04 | -1.935e+05 | -0.71     | 495.00    | 165.0 | 128.19  | -175.27 | -2112.47 | 7.471e+04  | -1.935e+05 | -1.305e+04 |
| 5     | 17  | 8363.68    | 2.264e+04  | 0.08      | 0.0       | 0.0   | -128.67 | -101.80 | 13.47    | 2.457e+04  | -2.028e+04 | 8363.68    |
|       |     | -8324.93   | -2.028e+04 | -0.08     | 495.00    | 165.0 | -128.67 | -101.80 | 508.47   | 2.457e+04  | 2.264e+04  | -8324.93   |
| 5     | 18  | 6210.65    | 2.750e+05  | 0.47      | 0.0       | 0.0   | -69.10  | -84.89  | -3537.98 | 9.235e+04  | 2.750e+05  | 6210.65    |
|       |     | -7207.47   | -2.681e+05 | -0.67     | 495.00    | 165.0 | -69.10  | -84.89  | -3042.98 | 9.235e+04  | -2.681e+05 | -7207.47   |
| 5     | 19  | 1.810e+04  | 9.599e+04  | 0.09      | 0.0       | 0.0   | 68.41   | -192.08 | 929.13   | 7727.57    | -9.830e+04 | 1.810e+04  |
|       |     | -1.421e+04 | -9.830e+04 | -0.12     | 495.00    | 165.0 | 68.41   | -192.08 | 1424.13  | 7727.57    | 9.599e+04  | -1.421e+04 |
| 5     | 20  | 1.602e+04  | 1.945e+05  | 0.46      | 0.0       | 0.0   | 128.40  | -175.36 | -2592.61 | 7.392e+04  | 1.945e+05  | 1.602e+04  |
|       |     | -1.300e+04 | -1.923e+05 | -0.71     | 495.00    | 165.0 | 128.40  | -175.36 | -2097.61 | 7.392e+04  | -1.923e+05 | -1.300e+04 |
| 5     | 21  | 8328.60    | 2.140e+04  | 0.08      | 0.0       | 0.0   | -128.88 | -101.71 | -1.39    | 2.536e+04  | -1.906e+04 | 8328.60    |
|       |     | -8374.14   | -1.906e+04 | -0.08     | 495.00    | 165.0 | -128.88 | -101.71 | 493.61   | 2.536e+04  | 2.140e+04  | -8374.14   |
| 5     | 22  | 6245.72    | 2.738e+05  | 0.46      | 0.0       | 0.0   | -68.89  | -84.98  | -3523.12 | 9.156e+04  | 2.738e+05  | 6245.72    |
|       |     | -7158.26   | -2.669e+05 | -0.68     | 495.00    | 165.0 | -68.89  | -84.98  | -3028.12 | 9.156e+04  | -2.669e+05 | -7158.26   |
| 5     | 23  | 1.634e+04  | 8.483e+04  | 0.09      | 0.0       | 0.0   | 65.98   | -177.19 | 787.23   | 8866.25    | -8.613e+04 | 1.634e+04  |
|       |     | -1.392e+04 | -8.613e+04 | -0.10     | 495.00    | 165.0 | 65.98   | -177.19 | 1282.23  | 8866.25    | 8.483e+04  | -1.392e+04 |
| 5     | 24  | 1.419e+04  | 2.091e+05  | 0.48      | 0.0       | 0.0   | 125.55  | -160.28 | -2764.22 | 7.665e+04  | 2.091e+05  | 1.419e+04  |
|       |     | -1.281e+04 | -2.059e+05 | -0.70     | 495.00    | 165.0 | 125.55  | -160.28 | -2269.22 | 7.665e+04  | -2.059e+05 | -1.281e+04 |
| 5     | 25  | 1.016e+04  | 3.503e+04  | 0.07      | 0.0       | 0.0   | -126.03 | -116.78 | 170.22   | 2.264e+04  | -3.366e+04 | 1.016e+04  |
|       |     | -8562.99   | -3.366e+04 | -0.10     | 495.00    | 165.0 | -126.03 | -116.78 | 665.22   | 2.264e+04  | 3.503e+04  | -8562.99   |
| 5     | 26  | 8004.44    | 2.616e+05  | 0.45      | 0.0       | 0.0   | -66.46  | -99.88  | -3381.23 | 9.042e+04  | 2.616e+05  | 8004.44    |
|       |     | -7445.53   | -2.557e+05 | -0.69     | 495.00    | 165.0 | -66.46  | -99.88  | -2886.23 | 9.042e+04  | -2.557e+05 | -7445.53   |
| 5     | 27  | 1.631e+04  | 8.360e+04  | 0.10      | 0.0       | 0.0   | 65.77   | -177.10 | 772.37   | 9659.05    | -8.492e+04 | 1.631e+04  |
|       |     | -1.397e+04 | -8.492e+04 | -0.10     | 495.00    | 165.0 | 65.77   | -177.10 | 1267.37  | 9659.05    | 8.360e+04  | -1.397e+04 |
| 5     | 28  | 1.422e+04  | 2.079e+05  | 0.48      | 0.0       | 0.0   | 125.75  | -160.37 | -2749.36 | 7.585e+04  | 2.079e+05  | 1.422e+04  |
|       |     | -1.276e+04 | -2.047e+05 | -0.70     | 495.00    | 165.0 | 125.75  | -160.37 | -2254.36 | 7.585e+04  | -2.047e+05 | -1.276e+04 |
| 5     | 29  | 1.012e+04  | 3.380e+04  | 0.07      | 0.0       | 0.0   | -126.24 | -116.69 | 155.37   | 2.343e+04  | -3.244e+04 | 1.012e+04  |
|       |     | -8612.20   | -3.244e+04 | -0.10     | 495.00    | 165.0 | -126.24 | -116.69 | 650.37   | 2.343e+04  | 3.380e+04  | -8612.20   |
| 5     | 30  | 8039.52    | 2.604e+05  | 0.45      | 0.0       | 0.0   | -66.25  | -99.97  | -3366.37 | 8.962e+04  | 2.604e+05  | 8039.52    |
|       |     | -7396.32   | -2.545e+05 | -0.69     | 495.00    | 165.0 | -66.25  | -99.97  | -2871.37 | 8.962e+04  | -2.545e+05 | -7396.32   |
| 5     | 31  | 1.723e+04  | 4.103e+05  | -0.37     | 0.0       | 0.0   | -69.93  | -180.26 | 4761.66  | -6.597e+04 | -4.163e+05 | 1.723e+04  |
|       |     | -1.342e+04 | -4.163e+05 | 0.59      | 495.00    | 165.0 | -69.93  | -180.26 | 5256.66  | -6.597e+04 | 4.103e+05  | -1.342e+04 |
| 5     | 32  | 1.005e+04  | 5.680e+05  | 0.92      | 0.0       | 0.0   | 128.64  | -123.91 | -7076.50 | 1.600e+05  | 5.680e+05  | 1.005e+04  |
|       |     | -9698.22   | -5.588e+05 | -1.39     | 495.00    | 165.0 | 128.64  | -123.91 | -6581.50 | 1.600e+05  | -5.588e+05 | -9698.22   |
| 5     | 33  | 1.430e+04  | 3.879e+05  | -0.37     | 0.0       | 0.0   | -129.12 | -153.15 | 4482.51  | -6.068e+04 | -3.925e+05 | 1.430e+04  |
|       |     | -1.167e+04 | -3.925e+05 | 0.60      | 495.00    | 165.0 | -129.12 | -153.15 | 4977.51  | -6.068e+04 | 3.879e+05  | -1.167e+04 |
| 5     | 34  | 7118.72    | 5.917e+05  | 0.92      | 0.0       | 0.0   | 69.45   | -96.80  | -7355.66 | 1.653e+05  | 5.917e+05  | 7118.72    |
|       |     | -7946.93   | -5.812e+05 | -1.38     | 495.00    | 165.0 | 69.45   | -96.80  | -6860.66 | 1.653e+05  | -5.812e+05 | -7946.93   |
| 5     | 35  | 1.669e+04  | 4.066e+05  | -0.36     | 0.0       | 0.0   | -70.72  | -175.77 | 4714.63  | -6.539e+04 | -4.122e+05 | 1.669e+04  |
|       |     | -1.335e+04 | -4.122e+05 | 0.59      | 495.00    | 165.0 | -70.72  | -175.77 | 5209.63  | -6.539e+04 | 4.066e+05  | -1.335e+04 |
| 5     | 36  | 9511.96    | 5.720e+05  | 0.92      | 0.0       | 0.0   | 127.84  | -119.42 | -7123.53 | 1.605e+05  | 5.720e+05  | 9511.96    |
|       |     | -9626.80   | -5.625e+05 | -1.39     | 495.00    | 165.0 | 127.84  | -119.42 | -6628.53 | 1.605e+05  | -5.625e+05 | -9626.80   |
| 5     | 37  | 1.483e+04  | 3.916e+05  | -0.37     | 0.0       | 0.0   | -128.32 | -157.65 | 4529.53  | -6.126e+04 | -3.965e+05 | 1.483e+04  |
|       |     | -1.174e+04 | -3.965e+05 | 0.59      | 495.00    | 165.0 | -128.32 | -157.65 | 5024.53  | -6.126e+04 | 3.916e+05  | -1.174e+04 |
| 5     | 38  | 7656.86    | 5.877e+05  | 0.91      | 0.0       | 0.0   | 70.24   | -101.30 | -7308.63 | 1.647e+05  | 5.877e+05  | 7656.86    |
|       |     | -8018.35   | -5.774e+05 | -1.39     | 495.00    | 165.0 | 70.24   | -101.30 | -6813.63 | 1.647e+05  | -5.774e+05 | -8018.35   |
| 5     | 39  | 1.711e+04  | 4.062e+05  | -0.35     | 0.0       | 0.0   | -70.62  | -179.96 | 4712.14  | -6.333e+04 | -4.122e+05 | 1.711e+04  |
|       |     | -1.359e+04 | -4.122e+05 | 0.59      | 495.00    | 165.0 | -70.62  | -179.96 | 5207.14  | -6.333e+04 | 4.062e+05  | -1.359e+04 |
| 5     | 40  | 1.017e+04  | 5.639e+05  | 0.90      | 0.0       | 0.0   | 129.33  | -124.22 | -7026.98 | 1.573e+05  | 5.639e+05  | 1.017e+04  |
|       |     | -9534.19   | -5.547e+05 | -1.40     | 495.00    | 165.0 | 129.33  | -124.22 | -6531.98 | 1.573e+05  | -5.547e+05 | -9534.19   |
| 5     | 41  | 1.418e+04  | 3.838e+05  | -0.35     | 0.0       | 0.0   | -129.81 | -152.85 | 4432.99  | -5.804e+04 | -3.884e+05 | 1.418e+04  |
|       |     | -1.184e+04 | -3.884e+05 | 0.61      | 495.00    | 165.0 | -129.81 | -152.85 | 4927.99  | -5.804e+04 | 3.838e+05  | -1.184e+04 |
| 5     | 42  | 7235.65    | 5.877e+05  | 0.90      | 0.0       | 0.0   | 70.14   | -97.11  | -7306.13 | 1.626e+05  | 5.877e+05  | 7235.65    |
|       |     | -7782.90   | -5.770e+05 | -1.39     | 495.00    | 165.0 | 70.14   | -97.11  | -6811.13 | 1.626e+05  | -5.770e+05 | -7782.90   |
| 5     | 43  | 1.657e+04  | 4.025e+05  | -0.35     | 0.0       | 0.0   | -71.42  | -175.46 | 4665.11  | -6.275e+04 | -4.082e+05 | 1.657e+04  |
|       |     | -1.352e+04 | -4.082e+05 | 0.60      | 495.00    | 165.0 | -71.42  | -175.46 | 5160.11  | -6.275e+04 | 4.025e+05  | -1.352e+04 |
| 5     | 44  | 9628.89    | 5.679e+05  | 0.91      | 0.0       | 0.0   | 128.54  | -119.72 | -7074.01 | 1.579e+05  | 5.679e+05  | 9628.89    |

| Trave | Cmb | M3 mx/mn   | M2 mx/mn   | D 2 / D 3 | Q 2 / Q 3 | Pos.  | N       | V 2     | V 3      | T          | M 2        | M 3        |
|-------|-----|------------|------------|-----------|-----------|-------|---------|---------|----------|------------|------------|------------|
|       |     | -9462.77   | -5.584e+05 | -1.39     | 495.00    | 165.0 | 128.54  | -119.72 | -6579.01 | 1.579e+05  | -5.584e+05 | -9462.77   |
| 5     | 45  | 1.472e+04  | 3.875e+05  | -0.36     | 0.0       | 0.0   | -129.02 | -157.34 | 4480.01  | -5.862e+04 | -3.924e+05 | 1.472e+04  |
|       |     | -1.191e+04 | -3.924e+05 | 0.60      | 495.00    | 165.0 | -129.02 | -157.34 | 4975.01  | -5.862e+04 | 3.875e+05  | -1.191e+04 |
| 5     | 46  | 7773.79    | 5.837e+05  | 0.90      | 0.0       | 0.0   | 70.94   | -101.60 | -7259.11 | 1.620e+05  | 5.837e+05  | 7773.79    |
|       |     | -7854.32   | -5.733e+05 | -1.39     | 495.00    | 165.0 | 70.94   | -101.60 | -6764.11 | 1.620e+05  | -5.733e+05 | -7854.32   |
| 5     | 47  | 1.464e+04  | 1.509e+04  | 0.20      | 0.0       | 0.0   | 27.92   | -161.52 | -427.97  | 3.302e+04  | 1.509e+04  | 1.464e+04  |
|       |     | -1.224e+04 | -1.538e+04 | -0.29     | 495.00    | 165.0 | 27.92   | -161.52 | 67.03    | 3.302e+04  | -1.462e+04 | -1.224e+04 |
| 5     | 48  | 1.376e+04  | 1.291e+05  | 0.35      | 0.0       | 0.0   | 50.93   | -154.12 | -1799.52 | 5.944e+04  | 1.291e+05  | 1.376e+04  |
|       |     | -1.172e+04 | -1.269e+05 | -0.52     | 495.00    | 165.0 | 50.93   | -154.12 | -1304.52 | 5.944e+04  | -1.269e+05 | -1.172e+04 |
| 5     | 49  | 1.058e+04  | 4.635e+04  | 0.20      | 0.0       | 0.0   | -51.41  | -122.94 | -794.48  | 3.984e+04  | 4.635e+04  | 1.058e+04  |
|       |     | -9645.40   | -4.396e+04 | -0.27     | 495.00    | 165.0 | -51.41  | -122.94 | -299.48  | 3.984e+04  | -4.396e+04 | -9645.40   |
| 5     | 50  | 9703.82    | 1.604e+05  | 0.35      | 0.0       | 0.0   | -28.40  | -115.54 | -2166.02 | 6.626e+04  | 1.604e+05  | 9703.82    |
|       |     | -9125.96   | -1.562e+05 | -0.50     | 495.00    | 165.0 | -28.40  | -115.54 | -1671.02 | 6.626e+04  | -1.562e+05 | -9125.96   |
| 5     | 51  | 1.463e+04  | 1.559e+04  | 0.20      | 0.0       | 0.0   | 27.84   | -161.56 | -434.01  | 3.334e+04  | 1.559e+04  | 1.463e+04  |
|       |     | -1.227e+04 | -1.575e+04 | -0.29     | 495.00    | 165.0 | 27.84   | -161.56 | 60.99    | 3.334e+04  | -1.513e+04 | -1.227e+04 |
| 5     | 52  | 1.377e+04  | 1.286e+05  | 0.35      | 0.0       | 0.0   | 51.01   | -154.09 | -1793.48 | 5.912e+04  | 1.286e+05  | 1.377e+04  |
|       |     | -1.170e+04 | -1.264e+05 | -0.52     | 495.00    | 165.0 | 51.01   | -154.09 | -1298.48 | 5.912e+04  | -1.264e+05 | -1.170e+04 |
| 5     | 53  | 1.057e+04  | 4.684e+04  | 0.20      | 0.0       | 0.0   | -51.49  | -122.98 | -800.51  | 4.016e+04  | 4.684e+04  | 1.057e+04  |
|       |     | -9667.71   | -4.446e+04 | -0.27     | 495.00    | 165.0 | -51.49  | -122.98 | -305.51  | 4.016e+04  | -4.446e+04 | -9667.71   |
| 5     | 54  | 9712.76    | 1.599e+05  | 0.35      | 0.0       | 0.0   | -28.33  | -115.51 | -2159.98 | 6.595e+04  | 1.599e+05  | 9712.76    |
|       |     | -9103.64   | -1.557e+05 | -0.50     | 495.00    | 165.0 | -28.33  | -115.51 | -1664.98 | 6.595e+04  | -1.557e+05 | -9103.64   |
| 5     | 55  | 1.389e+04  | 2.040e+04  | 0.20      | 0.0       | 0.0   | 26.80   | -154.89 | -489.85  | 3.376e+04  | 2.040e+04  | 1.389e+04  |
|       |     | -1.206e+04 | -1.950e+04 | -0.28     | 495.00    | 165.0 | 26.80   | -154.89 | 5.15     | 3.376e+04  | -1.950e+04 | -1.206e+04 |
| 5     | 56  | 1.301e+04  | 1.344e+05  | 0.35      | 0.0       | 0.0   | 49.82   | -147.49 | -1861.39 | 6.018e+04  | 1.344e+05  | 1.301e+04  |
|       |     | -1.154e+04 | -1.318e+05 | -0.51     | 495.00    | 165.0 | 49.82   | -147.49 | -1366.39 | 6.018e+04  | -1.318e+05 | -1.154e+04 |
| 5     | 57  | 1.134e+04  | 4.105e+04  | 0.19      | 0.0       | 0.0   | -50.30  | -129.57 | -732.60  | 3.910e+04  | 4.105e+04  | 1.134e+04  |
|       |     | -9828.15   | -3.909e+04 | -0.28     | 495.00    | 165.0 | -50.30  | -129.57 | -237.60  | 3.910e+04  | -3.909e+04 | -9828.15   |
| 5     | 58  | 1.046e+04  | 1.551e+05  | 0.34      | 0.0       | 0.0   | -27.29  | -122.17 | -2104.15 | 6.552e+04  | 1.551e+05  | 1.046e+04  |
|       |     | -9308.71   | -1.514e+05 | -0.51     | 495.00    | 165.0 | -27.29  | -122.17 | -1609.15 | 6.552e+04  | -1.514e+05 | -9308.71   |
| 5     | 59  | 1.388e+04  | 2.089e+04  | 0.21      | 0.0       | 0.0   | 26.73   | -154.93 | -495.89  | 3.408e+04  | 2.089e+04  | 1.388e+04  |
|       |     | -1.208e+04 | -2.000e+04 | -0.28     | 495.00    | 165.0 | 26.73   | -154.93 | -0.89    | 3.408e+04  | -2.000e+04 | -1.208e+04 |
| 5     | 60  | 1.302e+04  | 1.339e+05  | 0.35      | 0.0       | 0.0   | 49.89   | -147.46 | -1855.36 | 5.987e+04  | 1.339e+05  | 1.302e+04  |
|       |     | -1.152e+04 | -1.313e+05 | -0.51     | 495.00    | 165.0 | 49.89   | -147.46 | -1360.36 | 5.987e+04  | -1.313e+05 | -1.152e+04 |
| 5     | 61  | 1.133e+04  | 4.154e+04  | 0.20      | 0.0       | 0.0   | -50.38  | -129.61 | -738.64  | 3.942e+04  | 4.154e+04  | 1.133e+04  |
|       |     | -9850.47   | -3.959e+04 | -0.28     | 495.00    | 165.0 | -50.38  | -129.61 | -243.64  | 3.942e+04  | -3.959e+04 | -9850.47   |
| 5     | 62  | 1.046e+04  | 1.546e+05  | 0.34      | 0.0       | 0.0   | -27.21  | -122.14 | -2098.11 | 6.520e+04  | 1.546e+05  | 1.046e+04  |
|       |     | -9286.40   | -1.509e+05 | -0.51     | 495.00    | 165.0 | -27.21  | -122.14 | -1603.11 | 6.520e+04  | -1.509e+05 | -9286.40   |
| 5     | 63  | 1.425e+04  | 1.061e+05  | 0.02      | 0.0       | 0.0   | -26.70  | -156.65 | 1043.89  | 4588.54    | -1.070e+05 | 1.425e+04  |
|       |     | -1.194e+04 | -1.070e+05 | -0.02     | 495.00    | 165.0 | -26.70  | -156.65 | 1538.89  | 4588.54    | 1.061e+05  | -1.194e+04 |
| 5     | 64  | 1.132e+04  | 2.731e+05  | 0.53      | 0.0       | 0.0   | 50.01   | -131.99 | -3527.93 | 9.265e+04  | 2.731e+05  | 1.132e+04  |
|       |     | -1.021e+04 | -2.682e+05 | -0.78     | 495.00    | 165.0 | 50.01   | -131.99 | -3032.93 | 9.265e+04  | -2.682e+05 | -1.021e+04 |
| 5     | 65  | 1.303e+04  | 9.729e+04  | 0.02      | 0.0       | 0.0   | -50.50  | -145.07 | 933.94   | 6635.96    | -9.763e+04 | 1.303e+04  |
|       |     | -1.116e+04 | -9.763e+04 | -0.01     | 495.00    | 165.0 | -50.50  | -145.07 | 1428.94  | 6635.96    | 9.729e+04  | -1.116e+04 |
| 5     | 66  | 1.010e+04  | 2.825e+05  | 0.53      | 0.0       | 0.0   | 26.21   | -120.42 | -3637.88 | 9.469e+04  | 2.825e+05  | 1.010e+04  |
|       |     | -9429.47   | -2.770e+05 | -0.78     | 495.00    | 165.0 | 26.21   | -120.42 | -3142.88 | 9.469e+04  | -2.770e+05 | -9429.47   |
| 5     | 67  | 1.402e+04  | 1.046e+05  | 0.02      | 0.0       | 0.0   | -27.03  | -154.66 | 1025.33  | 4811.90    | -1.054e+05 | 1.402e+04  |
|       |     | -1.189e+04 | -1.054e+05 | -0.01     | 495.00    | 165.0 | -27.03  | -154.66 | 1520.33  | 4811.90    | 1.046e+05  | -1.189e+04 |
| 5     | 68  | 1.109e+04  | 2.747e+05  | 0.53      | 0.0       | 0.0   | 49.68   | -130.00 | -3546.49 | 9.287e+04  | 2.747e+05  | 1.109e+04  |
|       |     | -1.015e+04 | -2.696e+05 | -0.78     | 495.00    | 165.0 | 49.68   | -130.00 | -3051.49 | 9.287e+04  | -2.696e+05 | -1.015e+04 |
| 5     | 69  | 1.325e+04  | 9.876e+04  | 0.02      | 0.0       | 0.0   | -50.16  | -147.06 | 952.50   | 6412.61    | -9.922e+04 | 1.325e+04  |
|       |     | -1.122e+04 | -9.922e+04 | -0.01     | 495.00    | 165.0 | -50.16  | -147.06 | 1447.50  | 6412.61    | 9.876e+04  | -1.122e+04 |
| 5     | 70  | 1.032e+04  | 2.809e+05  | 0.52      | 0.0       | 0.0   | 26.55   | -122.40 | -3619.32 | 9.447e+04  | 2.809e+05  | 1.032e+04  |
|       |     | -9484.30   | -2.755e+05 | -0.78     | 495.00    | 165.0 | 26.55   | -122.40 | -3124.32 | 9.447e+04  | -2.755e+05 | -9484.30   |
| 5     | 71  | 1.422e+04  | 1.044e+05  | 0.03      | 0.0       | 0.0   | -26.95  | -156.77 | 1023.76  | 5642.93    | -1.054e+05 | 1.422e+04  |
|       |     | -1.201e+04 | -1.054e+05 | -0.01     | 495.00    | 165.0 | -26.95  | -156.77 | 1518.76  | 5642.93    | 1.044e+05  | -1.201e+04 |
| 5     | 72  | 1.135e+04  | 2.714e+05  | 0.52      | 0.0       | 0.0   | 50.27   | -131.87 | -3507.80 | 9.159e+04  | 2.714e+05  | 1.135e+04  |
|       |     | -1.013e+04 | -2.665e+05 | -0.78     | 495.00    | 165.0 | 50.27   | -131.87 | -3012.80 | 9.159e+04  | -2.665e+05 | -1.013e+04 |
| 5     | 73  | 1.300e+04  | 9.562e+04  | 0.03      | 0.0       | 0.0   | -50.75  | -145.20 | 913.81   | 7690.35    | -9.597e+04 | 1.300e+04  |
|       |     | -1.124e+04 | -9.597e+04 | -9.50e-03 | 495.00    | 165.0 | -50.75  | -145.20 | 1408.81  | 7690.35    | 9.562e+04  | -1.124e+04 |
| 5     | 74  | 1.013e+04  | 2.808e+05  | 0.52      | 0.0       | 0.0   | 26.47   | -120.29 | -3617.75 | 9.364e+04  | 2.808e+05  | 1.013e+04  |
|       |     | -9355.09   | -2.753e+05 | -0.78     | 495.00    | 165.0 | 26.47   | -120.29 | -3122.75 | 9.364e+04  | -2.753e+05 | -9355.09   |
| 5     | 75  | 1.399e+04  | 1.030e+05  | 0.03      | 0.0       | 0.0   | -27.28  | -154.78 | 1005.20  | 5866.28    | -1.038e+05 | 1.399e+04  |
|       |     | -1.196e+04 | -1.038e+05 | -0.01     | 495.00    | 165.0 | -27.28  | -154.78 | 1500.20  | 5866.28    | 1.030e+05  | -1.196e+04 |
| 5     | 76  | 1.112e+04  | 2.730e+05  | 0.52      | 0.0       | 0.0   | 49.93   | -129.88 | -3526.37 | 9.182e+04  | 2.730e+05  | 1.112e+04  |
|       |     | -1.008e+04 | -2.679e+05 | -0.78     | 495.00    | 165.0 | 49.93   | -129.88 | -3031.37 | 9.182e+04  | -2.679e+05 | -1.008e+04 |
| 5     | 77  | 1.322e+04  | 9.709e+04  | 0.03      | 0.0       | 0.0   | -50.41  | -147.19 | 932.37   | 7466.99    | -9.756e+04 | 1.322e+04  |
|       |     | -1.129e+04 | -9.756e+04 | -0.01     | 495.00    | 165.0 | -50.41  | -147.19 | 1427.37  | 7466.99    | 9.709e+04  | -1.129e+04 |
| 5     | 78  | 1.035e+04  | 2.792e+05  | 0.52      | 0.0       | 0.0   | 26.80   | -122.28 | -3599.19 | 9.342e+04  | 2.792e+05  | 1.035e+04  |
|       |     | -9409.92   | -2.738e+05 | -0.78     | 495.00    | 165.0 | 26.80   | -122.28 | -3104.19 | 9.342e+04  | -2.738e+05 | -9409.92   |
| 5     | 79  | 6967.08    | 1.976e+04  | 0.03      | 0.0       | 0.0   | 27.07   | -81.75  | -45.16   | 5915.62    | -1.363e+04 | 6967.08    |
|       |     | -6521.00   | -1.397e+04 | -0.05     | 495.00    | 165.0 | 27.07   | -81.75  | 449.84   | 5915.62    | 1.976e+04  | -6521.00   |
| 5     | 80  | 1.152e+04  | 7.507e+04  | 0.24      | 0.0       | 0.0   | 3.17    | -131.43 | -1140.52 | 4.418e+04  | 7.507e+04  | 1.152e+04  |
|       |     | -1.016e+04 | -7.228e+04 | -0.35     | 495.00    | 165.0 | 3.17    | -131.43 | -645.52  | 4.418e+04  | -7.228e+04 | -1.016e+04 |
| 5     | 81  | 6967.08    | 1.976e+04  | 0.03      | 0.0       | 0.0   | 27.07   | -81.75  | -45.16   | 5915.62    | -1.363e+04 | 6967.08    |

| Trave | Cmb | M3 mx/mn   | M2 mx/mn   | D 2 / D 3 | Q 2 / Q 3 | Pos.  | N       | V 2      | V 3      | T          | M 2        | M 3        |
|-------|-----|------------|------------|-----------|-----------|-------|---------|----------|----------|------------|------------|------------|
|       |     | -6521.00   | -1.397e+04 | -0.05     | 495.00    | 165.0 | 27.07   | -81.75   | 449.84   | 5915.62    | 1.976e+04  | -6521.00   |
| 5     | 82  | 1.152e+04  | 7.507e+04  | 0.24      | 0.0       | 0.0   | 3.17    | -131.43  | -1140.52 | 4.418e+04  | 7.507e+04  | 1.152e+04  |
|       |     | -1.016e+04 | -7.228e+04 | -0.35     | 495.00    | 165.0 | 3.17    | -131.43  | -645.52  | 4.418e+04  | -7.228e+04 | -1.016e+04 |
| 5     | 83  | 1.347e+04  | 1.131e+05  | 0.33      | 0.0       | 0.0   | -7.07   | -152.73  | -1609.96 | 6.057e+04  | 1.131e+05  | 1.347e+04  |
|       |     | -1.173e+04 | -1.117e+05 | -0.48     | 495.00    | 165.0 | -7.07   | -152.73  | -1114.96 | 6.057e+04  | -1.117e+05 | -1.173e+04 |
| 5     | 84  | 6967.08    | 1.976e+04  | 0.03      | 0.0       | 0.0   | 27.07   | -81.75   | -45.16   | 5915.62    | -1.363e+04 | 6967.08    |
|       |     | -6521.00   | -1.397e+04 | -0.05     | 495.00    | 165.0 | 27.07   | -81.75   | 449.84   | 5915.62    | 1.976e+04  | -6521.00   |
| 5     | 85  | 1.347e+04  | 1.131e+05  | 0.33      | 0.0       | 0.0   | -7.07   | -152.73  | -1609.96 | 6.057e+04  | 1.131e+05  | 1.347e+04  |
|       |     | -1.173e+04 | -1.117e+05 | -0.48     | 495.00    | 165.0 | -7.07   | -152.73  | -1114.96 | 6.057e+04  | -1.117e+05 | -1.173e+04 |
| 5     | 86  | 6967.08    | 1.976e+04  | 0.03      | 0.0       | 0.0   | 27.07   | -81.75   | -45.16   | 5915.62    | -1.363e+04 | 6967.08    |
|       |     | -6521.00   | -1.397e+04 | -0.05     | 495.00    | 165.0 | 27.07   | -81.75   | 449.84   | 5915.62    | 1.976e+04  | -6521.00   |
| 5     | 87  | 1.087e+04  | 6.240e+04  | 0.21      | 0.0       | 0.0   | 6.59    | -124.34  | -984.04  | 3.871e+04  | 6.240e+04  | 1.087e+04  |
|       |     | -9644.01   | -5.913e+04 | -0.31     | 495.00    | 165.0 | 6.59    | -124.34  | -489.04  | 3.871e+04  | -5.913e+04 | -9644.01   |
| 5     | 88  | 6967.08    | 1.976e+04  | 0.03      | 0.0       | 0.0   | 27.07   | -81.75   | -45.16   | 5915.62    | -1.363e+04 | 6967.08    |
|       |     | -6521.00   | -1.397e+04 | -0.05     | 495.00    | 165.0 | 27.07   | -81.75   | 449.84   | 5915.62    | 1.976e+04  | -6521.00   |
| 5     | 89  | 1.087e+04  | 6.240e+04  | 0.21      | 0.0       | 0.0   | 6.59    | -124.34  | -984.04  | 3.871e+04  | 6.240e+04  | 1.087e+04  |
|       |     | -9644.01   | -5.913e+04 | -0.31     | 495.00    | 165.0 | 6.59    | -124.34  | -489.04  | 3.871e+04  | -5.913e+04 | -9644.01   |
| 5     | 90  | 1.152e+04  | 7.507e+04  | 0.24      | 0.0       | 0.0   | 3.17    | -131.43  | -1140.52 | 4.418e+04  | 7.507e+04  | 1.152e+04  |
|       |     | -1.016e+04 | -7.228e+04 | -0.35     | 495.00    | 165.0 | 3.17    | -131.43  | -645.52  | 4.418e+04  | -7.228e+04 | -1.016e+04 |
| 5     | 91  | 6967.08    | 1.976e+04  | 0.03      | 0.0       | 0.0   | 27.07   | -81.75   | -45.16   | 5915.62    | -1.363e+04 | 6967.08    |
|       |     | -6521.00   | -1.397e+04 | -0.05     | 495.00    | 165.0 | 27.07   | -81.75   | 449.84   | 5915.62    | 1.976e+04  | -6521.00   |
| 5     | 92  | 1.152e+04  | 7.507e+04  | 0.24      | 0.0       | 0.0   | 3.17    | -131.43  | -1140.52 | 4.418e+04  | 7.507e+04  | 1.152e+04  |
|       |     | -1.016e+04 | -7.228e+04 | -0.35     | 495.00    | 165.0 | 3.17    | -131.43  | -645.52  | 4.418e+04  | -7.228e+04 | -1.016e+04 |
| 5     | 93  | 6967.08    | 1.976e+04  | 0.03      | 0.0       | 0.0   | 27.07   | -81.75   | -45.16   | 5915.62    | -1.363e+04 | 6967.08    |
|       |     | -6521.00   | -1.397e+04 | -0.05     | 495.00    | 165.0 | 27.07   | -81.75   | 449.84   | 5915.62    | 1.976e+04  | -6521.00   |
| 5     | 94  | 1.087e+04  | 6.240e+04  | 0.21      | 0.0       | 0.0   | 6.59    | -124.34  | -984.04  | 3.871e+04  | 6.240e+04  | 1.087e+04  |
|       |     | -9644.01   | -5.913e+04 | -0.31     | 495.00    | 165.0 | 6.59    | -124.34  | -489.04  | 3.871e+04  | -5.913e+04 | -9644.01   |
| 5     | 95  | 6967.08    | 1.976e+04  | 0.03      | 0.0       | 0.0   | 27.07   | -81.75   | -45.16   | 5915.62    | -1.363e+04 | 6967.08    |
|       |     | -6521.00   | -1.397e+04 | -0.05     | 495.00    | 165.0 | 27.07   | -81.75   | 449.84   | 5915.62    | 1.976e+04  | -6521.00   |
| 5     | 96  | 1.087e+04  | 6.240e+04  | 0.21      | 0.0       | 0.0   | 6.59    | -124.34  | -984.04  | 3.871e+04  | 6.240e+04  | 1.087e+04  |
|       |     | -9644.01   | -5.913e+04 | -0.31     | 495.00    | 165.0 | 6.59    | -124.34  | -489.04  | 3.871e+04  | -5.913e+04 | -9644.01   |
| 6     | 1   | 7.548e+04  | 3.594e+04  | 0.01      | 0.0       | 0.0   | -314.63 | -1439.40 | -721.95  | -1.048e+05 | 3.594e+04  | 7.548e+04  |
|       |     | -2230.88   | 4999.36    | -0.02     | 268.13    | 55.0  | -314.63 | -1439.40 | -453.83  | -1.048e+05 | 4999.36    | -2230.88   |
| 6     | 2   | 1.975e+05  | 1.529e+05  | 0.15      | 0.0       | 0.0   | -207.74 | -3523.85 | -2001.73 | -1.892e+05 | 1.529e+05  | 1.975e+05  |
|       |     | 3884.24    | 4.752e+04  | -0.18     | 268.13    | 55.0  | -207.74 | -3523.85 | -1733.61 | -1.892e+05 | 4.752e+04  | 3884.24    |
| 6     | 3   | 7.548e+04  | 3.594e+04  | 0.01      | 0.0       | 0.0   | -314.63 | -1439.40 | -721.95  | -1.048e+05 | 3.594e+04  | 7.548e+04  |
|       |     | -2230.88   | 4999.36    | -0.02     | 268.13    | 55.0  | -314.63 | -1439.40 | -453.83  | -1.048e+05 | 4999.36    | -2230.88   |
| 6     | 4   | 1.975e+05  | 1.529e+05  | 0.15      | 0.0       | 0.0   | -207.74 | -3523.85 | -2001.73 | -1.892e+05 | 1.529e+05  | 1.975e+05  |
|       |     | 3884.24    | 4.752e+04  | -0.18     | 268.13    | 55.0  | -207.74 | -3523.85 | -1733.61 | -1.892e+05 | 4.752e+04  | 3884.24    |
| 6     | 5   | 5.110e+04  | 2.248e+04  | 7.48e-03  | 0.0       | 0.0   | -228.75 | -1031.17 | -530.19  | -7.722e+04 | 2.248e+04  | 5.110e+04  |
|       |     | -4487.97   | 405.74     | -0.01     | 206.25    | 55.0  | -228.75 | -1031.17 | -323.94  | -7.722e+04 | 405.74     | -4487.97   |
| 6     | 6   | 1.731e+05  | 1.395e+05  | 0.14      | 0.0       | 0.0   | -121.86 | -3115.62 | -1809.97 | -1.616e+05 | 1.395e+05  | 1.731e+05  |
|       |     | 1627.16    | 4.292e+04  | -0.17     | 206.25    | 55.0  | -121.86 | -3115.62 | -1603.72 | -1.616e+05 | 4.292e+04  | 1627.16    |
| 6     | 7   | 5.110e+04  | 2.248e+04  | 7.48e-03  | 0.0       | 0.0   | -228.75 | -1031.17 | -530.19  | -7.722e+04 | 2.248e+04  | 5.110e+04  |
|       |     | -4487.97   | 405.74     | -0.01     | 206.25    | 55.0  | -228.75 | -1031.17 | -323.94  | -7.722e+04 | 405.74     | -4487.97   |
| 6     | 8   | 1.731e+05  | 1.395e+05  | 0.14      | 0.0       | 0.0   | -121.86 | -3115.62 | -1809.97 | -1.616e+05 | 1.395e+05  | 1.731e+05  |
|       |     | 1627.16    | 4.292e+04  | -0.17     | 206.25    | 55.0  | -121.86 | -3115.62 | -1603.72 | -1.616e+05 | 4.292e+04  | 1627.16    |
| 6     | 9   | 2.498e+05  | 2.031e+05  | 0.21      | 0.0       | 0.0   | -161.94 | -4417.18 | -2550.21 | -2.254e+05 | 2.031e+05  | 2.498e+05  |
|       |     | 6505.01    | 6.574e+04  | -0.24     | 268.13    | 55.0  | -161.94 | -4417.18 | -2282.09 | -2.254e+05 | 6.574e+04  | 6505.01    |
| 6     | 10  | 7.548e+04  | 3.594e+04  | 0.01      | 0.0       | 0.0   | -314.63 | -1439.40 | -721.95  | -1.048e+05 | 3.594e+04  | 7.548e+04  |
|       |     | -2230.88   | 4999.36    | -0.02     | 268.13    | 55.0  | -314.63 | -1439.40 | -453.83  | -1.048e+05 | 4999.36    | -2230.88   |
| 6     | 11  | 2.498e+05  | 2.031e+05  | 0.21      | 0.0       | 0.0   | -161.94 | -4417.18 | -2550.21 | -2.254e+05 | 2.031e+05  | 2.498e+05  |
|       |     | 6505.01    | 6.574e+04  | -0.24     | 268.13    | 55.0  | -161.94 | -4417.18 | -2282.09 | -2.254e+05 | 6.574e+04  | 6505.01    |
| 6     | 12  | 2.254e+05  | 1.896e+05  | 0.20      | 0.0       | 0.0   | -76.06  | -4008.95 | -2358.45 | -1.978e+05 | 1.896e+05  | 2.254e+05  |
|       |     | 4247.92    | 6.115e+04  | -0.23     | 206.25    | 55.0  | -76.06  | -4008.95 | -2152.20 | -1.978e+05 | 6.115e+04  | 4247.92    |
| 6     | 13  | 5.110e+04  | 2.248e+04  | 7.48e-03  | 0.0       | 0.0   | -228.75 | -1031.17 | -530.19  | -7.722e+04 | 2.248e+04  | 5.110e+04  |
|       |     | -4487.97   | 405.74     | -0.01     | 206.25    | 55.0  | -228.75 | -1031.17 | -323.94  | -7.722e+04 | 405.74     | -4487.97   |
| 6     | 14  | 2.254e+05  | 1.896e+05  | 0.20      | 0.0       | 0.0   | -76.06  | -4008.95 | -2358.45 | -1.978e+05 | 1.896e+05  | 2.254e+05  |
|       |     | 4247.92    | 6.115e+04  | -0.23     | 206.25    | 55.0  | -76.06  | -4008.95 | -2152.20 | -1.978e+05 | 6.115e+04  | 4247.92    |
| 6     | 15  | 2.037e+05  | 7.819e+04  | 0.03      | 0.0       | 0.0   | -368.16 | -4735.21 | -1479.90 | -2.864e+05 | 7.819e+04  | 2.037e+05  |
|       |     | -6.818e+04 | 3979.19    | -0.05     | 206.25    | 55.0  | -368.16 | -4735.21 | -1273.65 | -2.864e+05 | 3979.19    | -6.818e+04 |
| 6     | 16  | 1.807e+05  | 1.096e+05  | 0.20      | 0.0       | 0.0   | -493.18 | -4466.34 | -2032.60 | -2.396e+05 | 1.096e+05  | 1.807e+05  |
|       |     | -7.681e+04 | 1560.96    | -0.25     | 206.25    | 55.0  | -493.18 | -4466.34 | -1826.35 | -2.396e+05 | 1560.96    | -7.681e+04 |
| 6     | 17  | 1.214e+05  | 1.240e+05  | 0.03      | 0.0       | 0.0   | 172.01  | -924.42  | -1028.24 | -5.020e+04 | 1.240e+05  | 1.214e+05  |
|       |     | 8.270e+04  | 7.092e+04  | -0.02     | 206.25    | 55.0  | 172.01  | -924.42  | -821.99  | -5.020e+04 | 7.092e+04  | 8.270e+04  |
| 6     | 18  | 9.834e+04  | 1.554e+05  | 0.19      | 0.0       | 0.0   | 46.99   | -655.56  | -1580.94 | -3373.45   | 1.554e+05  | 9.834e+04  |
|       |     | 7.406e+04  | 6.850e+04  | -0.22     | 206.25    | 55.0  | 46.99   | -655.56  | -1374.69 | -3373.45   | 6.850e+04  | 7.406e+04  |
| 6     | 19  | 1.998e+05  | 7.731e+04  | 0.03      | 0.0       | 0.0   | -352.59 | -4698.27 | -1458.32 | -2.858e+05 | 7.731e+04  | 1.998e+05  |
|       |     | -6.992e+04 | 3835.05    | -0.05     | 206.25    | 55.0  | -352.59 | -4698.27 | -1252.07 | -2.858e+05 | 3835.05    | -6.992e+04 |
| 6     | 20  | 1.845e+05  | 1.104e+05  | 0.19      | 0.0       | 0.0   | -508.76 | -4503.27 | -2054.18 | -2.403e+05 | 1.104e+05  | 1.845e+05  |
|       |     | -7.507e+04 | 1705.11    | -0.25     | 206.25    | 55.0  | -508.76 | -4503.27 | -1847.93 | -2.403e+05 | 1705.11    | -7.507e+04 |
| 6     | 21  | 1.175e+05  | 1.231e+05  | 0.03      | 0.0       | 0.0   | 187.59  | -887.49  | -1006.66 | -4.954e+04 | 1.231e+05  | 1.175e+05  |
|       |     | 8.096e+04  | 7.078e+04  | -0.02     | 206.25    | 55.0  | 187.59  | -887.49  | -800.41  | -4.954e+04 | 7.078e+04  | 8.096e+04  |
| 6     | 22  | 1.022e+05  | 1.563e+05  | 0.19      | 0.0       | 0.0   | 31.41   | -692.49  | -1602.52 | -4039.19   | 1.563e+05  | 1.022e+05  |

| Trave | Cmb | M3 mx/mn   | M2 mx/mn   | D 2 / D 3 | Q 2 / Q 3 | Pos.  | N        | V 2      | V 3      | T          | M 2       | M 3        |
|-------|-----|------------|------------|-----------|-----------|-------|----------|----------|----------|------------|-----------|------------|
|       |     | 7.580e+04  | 6.865e+04  | -0.22     | 206.25    | 55.0  | 31.41    | -692.49  | -1396.27 | -4039.19   | 6.865e+04 | 7.580e+04  |
| 6     | 23  | 2.082e+05  | 7.915e+04  | 0.03      | 0.0       | 0.0   | -336.41  | -4816.18 | -1461.56 | -2.883e+05 | 7.915e+04 | 2.082e+05  |
|       |     | -6.621e+04 | 5635.91    | -0.04     | 206.25    | 55.0  | -336.41  | -4816.18 | -1255.31 | -2.883e+05 | 5635.91   | -6.621e+04 |
| 6     | 24  | 1.852e+05  | 1.105e+05  | 0.20      | 0.0       | 0.0   | -461.43  | -4547.31 | -2014.26 | -2.414e+05 | 1.105e+05 | 1.852e+05  |
|       |     | -7.484e+04 | 3217.68    | -0.23     | 206.25    | 55.0  | -461.43  | -4547.31 | -1808.01 | -2.414e+05 | 3217.68   | -7.484e+04 |
| 6     | 25  | 1.168e+05  | 1.231e+05  | 0.03      | 0.0       | 0.0   | 140.26   | -843.45  | -1046.58 | -4.836e+04 | 1.231e+05 | 1.168e+05  |
|       |     | 8.073e+04  | 6.926e+04  | -0.04     | 206.25    | 55.0  | 140.26   | -843.45  | -840.33  | -4.836e+04 | 6.926e+04 | 8.073e+04  |
| 6     | 26  | 9.381e+04  | 1.544e+05  | 0.19      | 0.0       | 0.0   | 15.24    | -574.58  | -1599.28 | -1530.54   | 1.544e+05 | 9.381e+04  |
|       |     | 7.210e+04  | 6.685e+04  | -0.23     | 206.25    | 55.0  | 15.24    | -574.58  | -1393.03 | -1530.54   | 6.685e+04 | 7.210e+04  |
| 6     | 27  | 2.044e+05  | 7.826e+04  | 0.04      | 0.0       | 0.0   | -320.84  | -4779.25 | -1439.98 | -2.876e+05 | 7.826e+04 | 2.044e+05  |
|       |     | -6.795e+04 | 5491.76    | -0.04     | 206.25    | 55.0  | -320.84  | -4779.25 | -1233.73 | -2.876e+05 | 5491.76   | -6.795e+04 |
| 6     | 28  | 1.891e+05  | 1.114e+05  | 0.20      | 0.0       | 0.0   | -477.01  | -4584.25 | -2035.84 | -2.421e+05 | 1.114e+05 | 1.891e+05  |
|       |     | -7.310e+04 | 3361.82    | -0.24     | 206.25    | 55.0  | -477.01  | -4584.25 | -1829.59 | -2.421e+05 | 3361.82   | -7.310e+04 |
| 6     | 29  | 1.130e+05  | 1.222e+05  | 0.03      | 0.0       | 0.0   | 155.84   | -806.51  | -1025.00 | -4.769e+04 | 1.222e+05 | 1.130e+05  |
|       |     | 7.899e+04  | 6.912e+04  | -0.03     | 206.25    | 55.0  | 155.84   | -806.51  | -818.75  | -4.769e+04 | 6.912e+04 | 7.899e+04  |
| 6     | 30  | 9.767e+04  | 1.553e+05  | 0.19      | 0.0       | 0.0   | -0.34    | -611.52  | -1620.86 | -2196.27   | 1.553e+05 | 9.767e+04  |
|       |     | 7.384e+04  | 6.699e+04  | -0.23     | 206.25    | 55.0  | -0.34    | -611.52  | -1414.61 | -2196.27   | 6.699e+04 | 7.384e+04  |
| 6     | 31  | 2.017e+05  | 5.764e+04  | -0.16     | 0.0       | 0.0   | -33.25   | -3715.11 | -677.00  | -2.584e+05 | 5.764e+04 | 2.017e+05  |
|       |     | -5297.25   | 3.023e+04  | 0.19      | 206.25    | 55.0  | -33.25   | -3715.11 | -470.75  | -2.584e+05 | 3.023e+04 | -5297.25   |
| 6     | 32  | 1.250e+05  | 1.622e+05  | 0.39      | 0.0       | 0.0   | -449.98  | -2818.89 | -2519.34 | -1.023e+05 | 1.622e+05 | 1.250e+05  |
|       |     | -3.408e+04 | 2.217e+04  | -0.47     | 206.25    | 55.0  | -449.98  | -2818.89 | -2313.09 | -1.023e+05 | 2.217e+04 | -3.408e+04 |
| 6     | 33  | 1.770e+05  | 7.140e+04  | -0.16     | 0.0       | 0.0   | 128.80   | -2571.88 | -541.50  | -1.875e+05 | 7.140e+04 | 1.770e+05  |
|       |     | 3.996e+04  | 5.031e+04  | 0.20      | 206.25    | 55.0  | 128.80   | -2571.88 | -335.25  | -1.875e+05 | 5.031e+04 | 3.996e+04  |
| 6     | 34  | 1.003e+05  | 1.759e+05  | 0.39      | 0.0       | 0.0   | -287.92  | -1675.65 | -2383.84 | -3.142e+04 | 1.759e+05 | 1.003e+05  |
|       |     | 1.118e+04  | 4.225e+04  | -0.46     | 206.25    | 55.0  | -287.92  | -1675.65 | -2177.59 | -3.142e+04 | 4.225e+04 | 1.118e+04  |
| 6     | 35  | 2.031e+05  | 5.793e+04  | -0.16     | 0.0       | 0.0   | -23.72   | -3739.40 | -671.50  | -2.589e+05 | 5.793e+04 | 2.031e+05  |
|       |     | -4707.31   | 3.073e+04  | 0.19      | 206.25    | 55.0  | -23.72   | -3739.40 | -465.25  | -2.589e+05 | 3.073e+04 | -4707.31   |
| 6     | 36  | 1.263e+05  | 1.625e+05  | 0.39      | 0.0       | 0.0   | -440.45  | -2843.18 | -2513.84 | -1.028e+05 | 1.625e+05 | 1.263e+05  |
|       |     | -3.349e+04 | 2.267e+04  | -0.46     | 206.25    | 55.0  | -440.45  | -2843.18 | -2307.59 | -1.028e+05 | 2.267e+04 | -3.349e+04 |
| 6     | 37  | 1.757e+05  | 7.111e+04  | -0.16     | 0.0       | 0.0   | 119.28   | -2547.58 | -547.00  | -1.870e+05 | 7.111e+04 | 1.757e+05  |
|       |     | 3.937e+04  | 4.981e+04  | 0.19      | 206.25    | 55.0  | 119.28   | -2547.58 | -340.75  | -1.870e+05 | 4.981e+04 | 3.937e+04  |
| 6     | 38  | 9.893e+04  | 1.757e+05  | 0.39      | 0.0       | 0.0   | -297.45  | -1651.36 | -2389.34 | -3.087e+04 | 1.757e+05 | 9.893e+04  |
|       |     | 1.059e+04  | 4.175e+04  | -0.46     | 206.25    | 55.0  | -297.45  | -1651.36 | -2183.09 | -3.087e+04 | 4.175e+04 | 1.059e+04  |
| 6     | 39  | 1.889e+05  | 5.468e+04  | -0.16     | 0.0       | 0.0   | 18.68    | -3592.00 | -605.07  | -2.562e+05 | 5.468e+04 | 1.889e+05  |
|       |     | -1.110e+04 | 2.975e+04  | 0.19      | 206.25    | 55.0  | 18.68    | -3592.00 | -398.82  | -2.562e+05 | 2.975e+04 | -1.110e+04 |
| 6     | 40  | 1.379e+05  | 1.652e+05  | 0.38      | 0.0       | 0.0   | -501.90  | -2942.00 | -2591.27 | -1.045e+05 | 1.652e+05 | 1.379e+05  |
|       |     | -2.827e+04 | 2.265e+04  | -0.47     | 206.25    | 55.0  | -501.90  | -2942.00 | -2385.02 | -1.045e+05 | 2.265e+04 | -2.827e+04 |
| 6     | 41  | 1.642e+05  | 6.844e+04  | -0.16     | 0.0       | 0.0   | 180.73   | -2448.76 | -469.57  | -1.853e+05 | 6.844e+04 | 1.642e+05  |
|       |     | 3.416e+04  | 4.983e+04  | 0.20      | 206.25    | 55.0  | 180.73   | -2448.76 | -263.32  | -1.853e+05 | 4.983e+04 | 3.416e+04  |
| 6     | 42  | 1.132e+05  | 1.789e+05  | 0.38      | 0.0       | 0.0   | -339.85  | -1798.77 | -2455.77 | -3.364e+04 | 1.789e+05 | 1.132e+05  |
|       |     | 1.699e+04  | 4.273e+04  | -0.46     | 206.25    | 55.0  | -339.85  | -1798.77 | -2249.52 | -3.364e+04 | 4.273e+04 | 1.699e+04  |
| 6     | 43  | 1.902e+05  | 5.497e+04  | -0.15     | 0.0       | 0.0   | 28.20    | -3616.29 | -599.57  | -2.567e+05 | 5.497e+04 | 1.902e+05  |
|       |     | -1.051e+04 | 3.025e+04  | 0.20      | 206.25    | 55.0  | 28.20    | -3616.29 | -393.32  | -2.567e+05 | 3.025e+04 | -1.051e+04 |
| 6     | 44  | 1.392e+05  | 1.654e+05  | 0.38      | 0.0       | 0.0   | -492.38  | -2966.29 | -2585.77 | -1.051e+05 | 1.654e+05 | 1.392e+05  |
|       |     | -2.768e+04 | 2.315e+04  | -0.47     | 206.25    | 55.0  | -492.38  | -2966.29 | -2379.52 | -1.051e+05 | 2.315e+04 | -2.768e+04 |
| 6     | 45  | 1.628e+05  | 6.815e+04  | -0.16     | 0.0       | 0.0   | 171.21   | -2424.47 | -475.07  | -1.847e+05 | 6.815e+04 | 1.628e+05  |
|       |     | 3.357e+04  | 4.933e+04  | 0.20      | 206.25    | 55.0  | 171.21   | -2424.47 | -268.82  | -1.847e+05 | 4.933e+04 | 3.357e+04  |
| 6     | 46  | 1.118e+05  | 1.786e+05  | 0.38      | 0.0       | 0.0   | -349.38  | -1774.47 | -2461.27 | -3.309e+04 | 1.786e+05 | 1.118e+05  |
|       |     | 1.640e+04  | 4.223e+04  | -0.47     | 206.25    | 55.0  | -349.38  | -1774.47 | -2255.02 | -3.309e+04 | 4.223e+04 | 1.640e+04  |
| 6     | 47  | 1.720e+05  | 1.015e+05  | 0.08      | 0.0       | 0.0   | -244.84  | -3516.28 | -1515.85 | -2.014e+05 | 1.015e+05 | 1.720e+05  |
|       |     | -2.566e+04 | 2.330e+04  | -0.10     | 206.25    | 55.0  | -244.84  | -3516.28 | -1309.60 | -2.014e+05 | 2.330e+04 | -2.566e+04 |
| 6     | 48  | 1.630e+05  | 1.137e+05  | 0.15      | 0.0       | 0.0   | -299.51  | -3410.73 | -1729.36 | -1.832e+05 | 1.137e+05 | 1.630e+05  |
|       |     | -2.906e+04 | 2.222e+04  | -0.18     | 206.25    | 55.0  | -299.51  | -3410.73 | -1523.11 | -1.832e+05 | 2.222e+04 | -2.906e+04 |
| 6     | 49  | 1.391e+05  | 1.199e+05  | 0.08      | 0.0       | 0.0   | -21.67   | -1980.04 | -1331.48 | -1.066e+05 | 1.199e+05 | 1.391e+05  |
|       |     | 3.495e+04  | 5.026e+04  | -0.09     | 206.25    | 55.0  | -21.67   | -1980.04 | -1125.23 | -1.066e+05 | 5.026e+04 | 3.495e+04  |
| 6     | 50  | 1.301e+05  | 1.321e+05  | 0.14      | 0.0       | 0.0   | -76.34   | -1874.49 | -1544.99 | -8.841e+04 | 1.321e+05 | 1.301e+05  |
|       |     | 3.154e+04  | 4.918e+04  | -0.17     | 206.25    | 55.0  | -76.34   | -1874.49 | -1338.74 | -8.841e+04 | 4.918e+04 | 3.154e+04  |
| 6     | 51  | 1.705e+05  | 1.012e+05  | 0.08      | 0.0       | 0.0   | -240.06  | -3502.01 | -1507.57 | -2.011e+05 | 1.012e+05 | 1.705e+05  |
|       |     | -2.632e+04 | 2.324e+04  | -0.10     | 206.25    | 55.0  | -240.06  | -3502.01 | -1301.32 | -2.011e+05 | 2.324e+04 | -2.632e+04 |
| 6     | 52  | 1.645e+05  | 1.140e+05  | 0.14      | 0.0       | 0.0   | -304.29  | -3424.99 | -1737.65 | -1.835e+05 | 1.140e+05 | 1.645e+05  |
|       |     | -2.840e+04 | 2.228e+04  | -0.18     | 206.25    | 55.0  | -304.29  | -3424.99 | -1531.40 | -1.835e+05 | 2.228e+04 | -2.840e+04 |
| 6     | 53  | 1.376e+05  | 1.196e+05  | 0.08      | 0.0       | 0.0   | -16.88   | -1965.77 | -1323.19 | -1.063e+05 | 1.196e+05 | 1.376e+05  |
|       |     | 3.428e+04  | 5.020e+04  | -0.09     | 206.25    | 55.0  | -16.88   | -1965.77 | -1116.94 | -1.063e+05 | 5.020e+04 | 3.428e+04  |
| ...   |     |            |            |           |           |       |          |          |          |            |           |            |
| 15    | 96  | -1.373e+05 | 227.81     | 0.21      | 0.0       | 567.9 | -362.02  | -1567.76 | -0.16    | 28.63      | 227.81    | -1.373e+05 |
| Trave |     | M3 mx/mn   | M2 mx/mn   | D 2 / D 3 | Q 2 / Q 3 |       | N        | V 2      | V 3      | T          |           |            |
|       |     | -5.582e+05 | -5.812e+05 | -10.69    | -4880.12  |       | -2641.04 | -4816.18 | -7355.66 | -2.883e+05 |           |            |
|       |     | 2.498e+05  | 5.917e+05  | 10.69     | 3287.62   |       | 2757.54  | 4789.07  | 5256.66  | 2.252e+05  |           |            |

| Trave f. | Cmb | M3 mx/mn<br>daN cm | M2 mx/mn<br>daN cm | D 2 / D 3<br>cm | Pt<br>daN/cm2 | Pos.<br>cm | N<br>daN | V 2<br>daN | V 3<br>daN | T<br>daN cm | M 2<br>daN cm | M 3<br>daN cm |
|----------|-----|--------------------|--------------------|-----------------|---------------|------------|----------|------------|------------|-------------|---------------|---------------|
| 9        | 1   | 2.474e+04          | 6799.56            | 0.07            | -1.14         | 0.0        | -17.55   | -7344.46   | 82.04      | -5.37       | -6736.56      | 2.474e+04     |
|          |     | -2.506e+05         | -6736.56           | 0.02            |               | 165.0      | -17.55   | 5176.91    | 82.04      | 2.320e+04   | 6799.56       | -1.106e+04    |
| 9        | 2   | 1.034e+05          | 5.942e+04          | 0.51            | -3.49         | 0.0        | -24.39   | -1.463e+04 | 718.90     | 2.594e+04   | -5.920e+04    | -8.386e+04    |
|          |     | -4.348e+05         | -5.920e+04         | 0.21            |               | 165.0      | -24.39   | 3490.37    | 718.90     | 1.679e+05   | 5.942e+04     | 1.034e+05     |
| 9        | 3   | 2.474e+04          | 6799.56            | 0.07            | -1.14         | 0.0        | -17.55   | -7344.46   | 82.04      | -5.37       | -6736.56      | 2.474e+04     |
|          |     | -2.506e+05         | -6736.56           | 0.02            |               | 165.0      | -17.55   | 5176.91    | 82.04      | 2.320e+04   | 6799.56       | -1.106e+04    |
| 9        | 4   | 1.034e+05          | 5.942e+04          | 0.51            | -3.49         | 0.0        | -24.39   | -1.463e+04 | 718.90     | 2.594e+04   | -5.920e+04    | -8.386e+04    |
|          |     | -4.348e+05         | -5.920e+04         | 0.21            |               | 165.0      | -24.39   | 3490.37    | 718.90     | 1.679e+05   | 5.942e+04     | 1.034e+05     |
| 9        | 5   | 1.677e+04          | 4529.27            | 0.04            | -0.83         | 0.0        | -13.79   | -5371.87   | 54.78      | -1471.23    | -4508.97      | 1.677e+04     |
|          |     | -1.868e+05         | -4508.97           | 0.02            |               | 165.0      | -13.79   | 3966.62    | 54.78      | 1.702e+04   | 4529.27       | -6354.48      |
| 9        | 6   | 1.081e+05          | 5.715e+04          | 0.49            | -3.18         | 0.0        | -20.64   | -1.266e+04 | 691.64     | 2.448e+04   | -5.698e+04    | -9.183e+04    |
|          |     | -3.785e+05         | -5.698e+04         | 0.20            |               | 165.0      | -20.64   | 2280.07    | 691.64     | 1.617e+05   | 5.715e+04     | 1.081e+05     |
| 9        | 7   | 1.677e+04          | 4529.27            | 0.04            | -0.83         | 0.0        | -13.79   | -5371.87   | 54.78      | -1471.23    | -4508.97      | 1.677e+04     |
|          |     | -1.868e+05         | -4508.97           | 0.02            |               | 165.0      | -13.79   | 3966.62    | 54.78      | 1.702e+04   | 4529.27       | -6354.48      |
| 9        | 8   | 1.081e+05          | 5.715e+04          | 0.49            | -3.18         | 0.0        | -20.64   | -1.266e+04 | 691.64     | 2.448e+04   | -5.698e+04    | -9.183e+04    |
|          |     | -3.785e+05         | -5.698e+04         | 0.20            |               | 165.0      | -20.64   | 2280.07    | 691.64     | 1.617e+05   | 5.715e+04     | 1.081e+05     |
| 9        | 9   | 1.524e+05          | 8.196e+04          | 0.70            | -4.50         | 0.0        | -27.33   | -1.775e+04 | 991.85     | 3.706e+04   | -8.169e+04    | -1.304e+05    |
|          |     | -5.271e+05         | -8.169e+04         | 0.29            |               | 165.0      | -27.33   | 2767.56    | 991.85     | 2.299e+05   | 8.196e+04     | 1.524e+05     |
| 9        | 10  | 2.474e+04          | 6799.56            | 0.07            | -1.14         | 0.0        | -17.55   | -7344.46   | 82.04      | -5.37       | -6736.56      | 2.474e+04     |
|          |     | -2.506e+05         | -6736.56           | 0.02            |               | 165.0      | -17.55   | 5176.91    | 82.04      | 2.320e+04   | 6799.56       | -1.106e+04    |
| 9        | 11  | 1.524e+05          | 8.196e+04          | 0.70            | -4.50         | 0.0        | -27.33   | -1.775e+04 | 991.85     | 3.706e+04   | -8.169e+04    | -1.304e+05    |
|          |     | -5.271e+05         | -8.169e+04         | 0.29            |               | 165.0      | -27.33   | 2767.56    | 991.85     | 2.299e+05   | 8.196e+04     | 1.524e+05     |
| 9        | 12  | 1.571e+05          | 7.969e+04          | 0.68            | -4.19         | 0.0        | -23.57   | -1.578e+04 | 964.59     | 3.560e+04   | -7.946e+04    | -1.384e+05    |
|          |     | -4.708e+05         | -7.946e+04         | 0.28            |               | 165.0      | -23.57   | 1557.27    | 964.59     | 2.237e+05   | 7.969e+04     | 1.571e+05     |
| 9        | 13  | 1.677e+04          | 4529.27            | 0.04            | -0.83         | 0.0        | -13.79   | -5371.87   | 54.78      | -1471.23    | -4508.97      | 1.677e+04     |
|          |     | -1.868e+05         | -4508.97           | 0.02            |               | 165.0      | -13.79   | 3966.62    | 54.78      | 1.702e+04   | 4529.27       | -6354.48      |
| 9        | 14  | 1.571e+05          | 7.969e+04          | 0.68            | -4.19         | 0.0        | -23.57   | -1.578e+04 | 964.59     | 3.560e+04   | -7.946e+04    | -1.384e+05    |
|          |     | -4.708e+05         | -7.946e+04         | 0.28            |               | 165.0      | -23.57   | 1557.27    | 964.59     | 2.237e+05   | 7.969e+04     | 1.571e+05     |
| 9        | 15  | 2.471e+05          | 5532.19            | -0.40           | -5.69         | 0.0        | -34.20   | -6896.99   | 64.92      | -3.221e+05  | -5176.75      | 1.014e+05     |
|          |     | -2.031e+05         | -5176.75           | 0.05            |               | 165.0      | -34.20   | 6812.76    | 64.92      | -2.093e+05  | 5532.19       | 2.471e+05     |
| 9        | 16  | -1.850e+04         | 6.863e+04          | 0.60            | 3.37          | 0.0        | -39.63   | -1.104e+04 | 830.99     | -2.142e+05  | -6.848e+04    | -1.631e+05    |
|          |     | -3.703e+05         | -6.848e+04         | 0.28            |               | 165.0      | -39.63   | 1954.81    | 830.99     | -1.113e+05  | 6.863e+04     | -1.850e+04    |
| 9        | 17  | 1.758e+05          | 2.201e+04          | -0.36           | -4.37         | 0.0        | 2.20     | -1.136e+04 | 265.68     | 2.537e+05   | -2.183e+04    | 3.568e+04     |
|          |     | -3.572e+05         | -2.183e+04         | 0.05            |               | 165.0      | 2.20     | 3439.70    | 265.68     | 3.674e+05   | 2.201e+04     | 1.758e+05     |
| 9        | 18  | -8.972e+04         | 8.511e+04          | 0.76            | 3.30          | 0.0        | -3.23    | -1.550e+04 | 1031.75    | 3.616e+05   | -8.514e+04    | -2.288e+05    |
|          |     | -5.132e+05         | -8.514e+04         | 0.27            |               | 165.0      | -3.23    | -1418.25   | 1031.75    | 4.655e+05   | 8.511e+04     | -8.972e+04    |
| 9        | 19  | 2.463e+05          | 6298.17            | -0.40           | -5.70         | 0.0        | -34.17   | -6866.35   | 74.20      | -3.209e+05  | -5942.20      | 1.006e+05     |
|          |     | -2.030e+05         | -5942.20           | 0.05            |               | 165.0      | -34.17   | 6842.36    | 74.20      | -2.079e+05  | 6298.17       | 2.463e+05     |
| 9        | 20  | -1.774e+04         | 6.786e+04          | 0.60            | 3.38          | 0.0        | -39.66   | -1.107e+04 | 821.71     | -2.153e+05  | -6.772e+04    | -1.623e+05    |
|          |     | -3.702e+05         | -6.772e+04         | 0.27            |               | 165.0      | -39.66   | 1925.20    | 821.71     | -1.126e+05  | 6.786e+04     | -1.774e+04    |
| 9        | 21  | 1.751e+05          | 2.278e+04          | -0.36           | -4.38         | 0.0        | 2.23     | -1.133e+04 | 274.96     | 2.549e+05   | -2.260e+04    | 3.492e+04     |
|          |     | -3.572e+05         | -2.260e+04         | 0.05            |               | 165.0      | 2.23     | 3469.30    | 274.96     | 3.688e+05   | 2.278e+04     | 1.751e+05     |
| 9        | 22  | -8.897e+04         | 8.434e+04          | 0.76            | 3.31          | 0.0        | -3.26    | -1.554e+04 | 1022.47    | 3.604e+05   | -8.437e+04    | -2.280e+05    |
|          |     | -5.131e+05         | -8.437e+04         | 0.27            |               | 165.0      | -3.26    | -1447.86   | 1022.47    | 4.641e+05   | 8.434e+04     | -8.897e+04    |
| 9        | 23  | 2.323e+05          | 7124.59            | -0.38           | -5.50         | 0.0        | -34.02   | -7238.23   | 83.78      | -3.208e+05  | -6695.46      | 8.997e+04     |
|          |     | -2.061e+05         | -6695.46           | 0.06            |               | 165.0      | -34.02   | 7139.08    | 83.78      | -2.120e+05  | 7124.59       | 2.323e+05     |
| 9        | 24  | -3.328e+04         | 7.022e+04          | 0.68            | 3.37          | 0.0        | -39.45   | -1.138e+04 | 849.84     | -2.128e+05  | -7.000e+04    | -1.745e+05    |
|          |     | -3.865e+05         | -7.000e+04         | 0.28            |               | 165.0      | -39.45   | 2281.13    | 849.84     | -1.139e+05  | 7.022e+04     | -3.328e+04    |
| 9        | 25  | 1.906e+05          | 2.042e+04          | -0.39           | -4.57         | 0.0        | 2.02     | -1.102e+04 | 246.83     | 2.524e+05   | -2.031e+04    | 4.710e+04     |
|          |     | -3.542e+05         | -2.031e+04         | 0.04            |               | 165.0      | 2.02     | 3113.37    | 246.83     | 3.701e+05   | 2.042e+04     | 1.906e+05     |
| 9        | 26  | -7.494e+04         | 8.351e+04          | 0.68            | 3.31          | 0.0        | -3.41    | -1.516e+04 | 1012.90    | 3.603e+05   | -8.362e+04    | -2.174e+05    |
|          |     | -4.969e+05         | -8.362e+04         | 0.27            |               | 165.0      | -3.41    | -1744.57   | 1012.90    | 4.682e+05   | 8.351e+04     | -7.494e+04    |
| 9        | 27  | 2.315e+05          | 7890.57            | -0.38           | -5.51         | 0.0        | -33.99   | -7207.59   | 93.06      | -3.196e+05  | -7460.90      | 8.921e+04     |
|          |     | -2.061e+05         | -7460.90           | 0.06            |               | 165.0      | -33.99   | 7168.68    | 93.06      | -2.106e+05  | 7890.57       | 2.315e+05     |
| 9        | 28  | -3.253e+04         | 6.945e+04          | 0.68            | 3.38          | 0.0        | -39.48   | -1.141e+04 | 840.56     | -2.140e+05  | -6.924e+04    | -1.738e+05    |
|          |     | -3.865e+05         | -6.924e+04         | 0.28            |               | 165.0      | -39.48   | 2251.52    | 840.56     | -1.153e+05  | 6.945e+04     | -3.253e+04    |
| 9        | 29  | 1.899e+05          | 2.118e+04          | -0.39           | -4.57         | 0.0        | 2.05     | -1.099e+04 | 256.11     | 2.535e+05   | -2.108e+04    | 4.634e+04     |
|          |     | -3.541e+05         | -2.108e+04         | 0.04            |               | 165.0      | 2.05     | 3142.98    | 256.11     | 3.715e+05   | 2.118e+04     | 1.899e+05     |
| 9        | 30  | -7.418e+04         | 8.275e+04          | 0.68            | 3.31          | 0.0        | -3.44    | -1.519e+04 | 1003.62    | 3.591e+05   | -8.285e+04    | -2.166e+05    |
|          |     | -4.969e+05         | -8.285e+04         | 0.26            |               | 165.0      | -3.44    | -1774.18   | 1003.62    | 4.668e+05   | 8.275e+04     | -7.418e+04    |
| 9        | 31  | 5.583e+05          | 6.285e+04          | -0.61           | -7.13         | 0.0        | -15.12   | -3628.57   | -758.56    | -2.464e+05  | 6.285e+04     | 3.870e+05     |
|          |     | -2.297e+05         | -6.231e+04         | -0.21           |               | 165.0      | -15.12   | 1.130e+04  | -758.56    | -1.219e+05  | -6.231e+04    | 5.320e+05     |
| 9        | 32  | -2.821e+05         | 1.480e+05          | 1.34            | 5.25          | 0.0        | -33.23   | -1.743e+04 | 1795.01    | 1.132e+05   | -1.482e+05    | -4.947e+05    |
|          |     | -7.342e+05         | -1.482e+05         | 0.54            |               | 165.0      | -33.23   | -4893.37   | 1795.01    | 2.050e+05   | 1.480e+05     | -3.532e+05    |
| 9        | 33  | 5.372e+05          | 5.786e+04          | -0.56           | -6.36         | 0.0        | -4.20    | -4968.41   | -698.33    | -7.371e+04  | 5.786e+04     | 3.673e+05     |
|          |     | -2.746e+05         | -5.737e+04         | -0.22           |               | 165.0      | -4.20    | 1.029e+04  | -698.33    | 5.116e+04   | -5.737e+04    | 5.106e+05     |
| 9        | 34  | -3.269e+05         | 1.529e+05          | 1.39            | 4.84          | 0.0        | -22.31   | -1.877e+04 | 1855.23    | 2.860e+05   | -1.532e+05    | -5.144e+05    |
|          |     | -7.729e+05         | -1.532e+05         | 0.54            |               | 165.0      | -22.31   | -5905.29   | 1855.23    | 3.780e+05   | 1.529e+05     | -3.746e+05    |
| 9        | 35  | 5.560e+05          | 6.240e+04          | -0.59           | -7.07         | 0.0        | -15.06   | -3730.94   | -752.90    | -2.460e+05  | 6.240e+04     | 3.835e+05     |
|          |     | -2.294e+05         | -6.183e+04         | -0.21           |               | 165.0      | -15.06   | 1.140e+04  | -752.90    | -1.227e+05  | -6.183e+04    | 5.275e+05     |

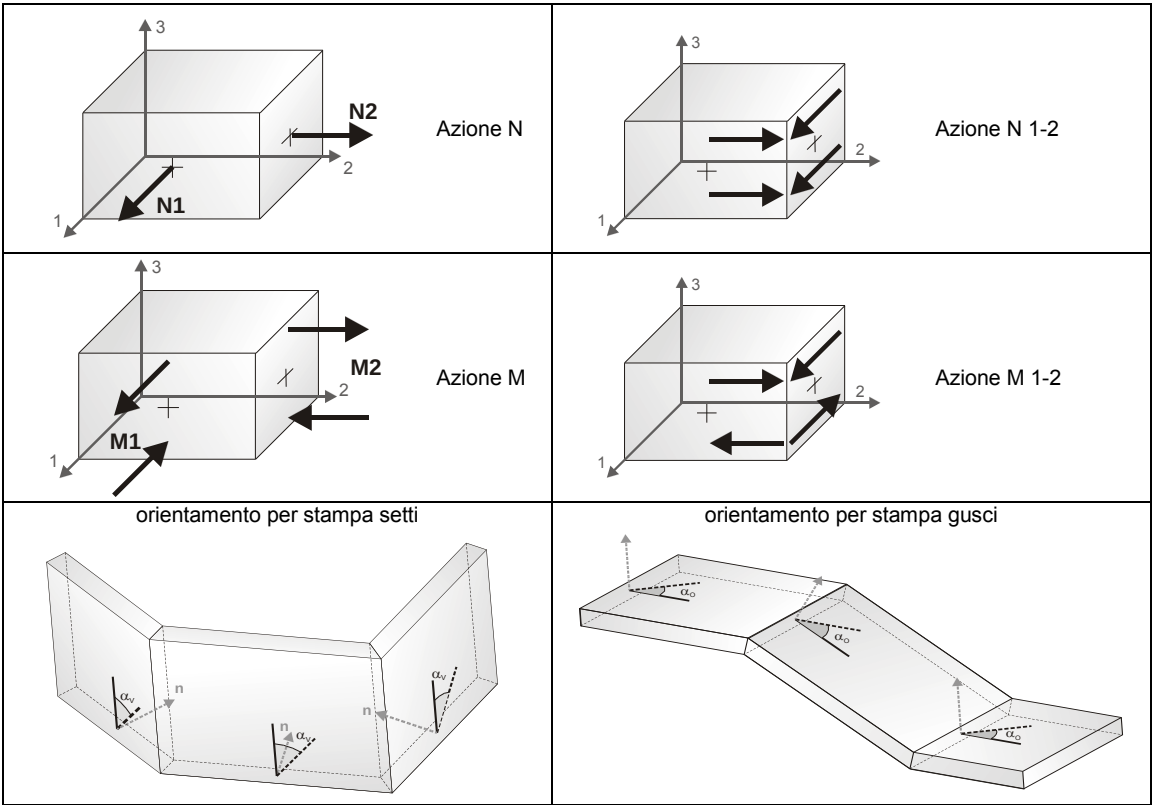
| Trave f. | Cmb | M3 mx/mn   | M2 mx/mn   | D 2 / D 3 | Pt    | Pos.  | N      | V 2        | V 3     | T          | M 2        | M 3        |
|----------|-----|------------|------------|-----------|-------|-------|--------|------------|---------|------------|------------|------------|
| 9        | 36  | -2.817e+05 | 1.485e+05  | 1.36      | 5.25  | 0.0   | -33.17 | -1.754e+04 | 1800.66 | 1.136e+05  | -1.486e+05 | -4.981e+05 |
|          |     | -7.400e+05 | -1.486e+05 | 0.54      |       | 165.0 | -33.17 | -4795.47   | 1800.66 | 2.042e+05  | 1.485e+05  | -3.577e+05 |
| 9        | 37  | 5.395e+05  | 5.831e+04  | -0.59     | -6.42 | 0.0   | -4.25  | -4866.04   | -703.99 | -7.411e+04 | 5.831e+04  | 3.707e+05  |
|          |     | -2.750e+05 | -5.785e+04 | -0.22     |       | 165.0 | -4.25  | 1.019e+04  | -703.99 | 5.196e+04  | -5.785e+04 | 5.150e+05  |
| 9        | 38  | -3.273e+05 | 1.525e+05  | 1.36      | 4.84  | 0.0   | -22.36 | -1.867e+04 | 1849.58 | 2.856e+05  | -1.527e+05 | -5.110e+05 |
|          |     | -7.670e+05 | -1.527e+05 | 0.53      |       | 165.0 | -22.36 | -6003.18   | 1849.58 | 3.788e+05  | 1.525e+05  | -3.702e+05 |
| 9        | 39  | 5.567e+05  | 6.030e+04  | -0.62     | -7.15 | 0.0   | -15.02 | -3526.42   | -727.62 | -2.425e+05 | 6.030e+04  | 3.844e+05  |
|          |     | -2.300e+05 | -5.976e+04 | -0.20     |       | 165.0 | -15.02 | 1.140e+04  | -727.62 | -1.173e+05 | -5.976e+04 | 5.294e+05  |
| 9        | 40  | -2.818e+05 | 1.455e+05  | 1.34      | 5.27  | 0.0   | -33.33 | -1.754e+04 | 1764.07 | 1.093e+05  | -1.456e+05 | -4.921e+05 |
|          |     | -7.337e+05 | -1.456e+05 | 0.53      |       | 165.0 | -33.33 | -4992.06   | 1764.07 | 2.004e+05  | 1.455e+05  | -3.507e+05 |
| 9        | 41  | 5.356e+05  | 5.530e+04  | -0.57     | -6.38 | 0.0   | -4.10  | -4866.26   | -667.39 | -6.981e+04 | 5.530e+04  | 3.647e+05  |
|          |     | -2.748e+05 | -5.482e+04 | -0.21     |       | 165.0 | -4.10  | 1.039e+04  | -667.39 | 5.573e+04  | -5.482e+04 | 5.081e+05  |
| 9        | 42  | -3.266e+05 | 1.504e+05  | 1.39      | 4.86  | 0.0   | -22.41 | -1.888e+04 | 1824.30 | 2.821e+05  | -1.506e+05 | -5.118e+05 |
|          |     | -7.724e+05 | -1.506e+05 | 0.53      |       | 165.0 | -22.41 | -6003.97   | 1824.30 | 3.735e+05  | 1.504e+05  | -3.721e+05 |
| 9        | 43  | 5.543e+05  | 5.984e+04  | -0.59     | -7.10 | 0.0   | -14.96 | -3628.79   | -721.97 | -2.421e+05 | 5.984e+04  | 3.810e+05  |
|          |     | -2.296e+05 | -5.928e+04 | -0.20     |       | 165.0 | -14.96 | 1.150e+04  | -721.97 | -1.181e+05 | -5.928e+04 | 5.250e+05  |
| 9        | 44  | -2.814e+05 | 1.459e+05  | 1.37      | 5.27  | 0.0   | -33.27 | -1.764e+04 | 1769.72 | 1.097e+05  | -1.461e+05 | -4.956e+05 |
|          |     | -7.396e+05 | -1.461e+05 | 0.53      |       | 165.0 | -33.27 | -4894.16   | 1769.72 | 1.996e+05  | 1.459e+05  | -3.552e+05 |
| 9        | 45  | 5.379e+05  | 5.576e+04  | -0.59     | -6.44 | 0.0   | -4.15  | -4763.89   | -673.05 | -7.021e+04 | 5.576e+04  | 3.681e+05  |
|          |     | -2.752e+05 | -5.529e+04 | -0.21     |       | 165.0 | -4.15  | 1.029e+04  | -673.05 | 5.653e+04  | -5.529e+04 | 5.125e+05  |
| 9        | 46  | -3.270e+05 | 1.499e+05  | 1.37      | 4.86  | 0.0   | -22.46 | -1.877e+04 | 1818.64 | 2.817e+05  | -1.502e+05 | -5.084e+05 |
|          |     | -7.666e+05 | -1.502e+05 | 0.53      |       | 165.0 | -22.46 | -6101.87   | 1818.64 | 3.743e+05  | 1.499e+05  | -3.677e+05 |
| 9        | 47  | 1.440e+05  | 2.983e+04  | -0.39     | -3.86 | 0.0   | -25.01 | -9486.24   | 360.14  | -1.168e+05 | -2.959e+04 | 283.73     |
|          |     | -2.718e+05 | -2.959e+04 | 0.12      |       | 165.0 | -25.01 | 4316.82    | 360.14  | -6867.71   | 2.983e+04  | 1.440e+05  |
| 9        | 48  | 4.142e+04  | 5.443e+04  | 0.47      | -2.96 | 0.0   | -27.11 | -1.109e+04 | 658.86  | -7.469e+04 | -5.428e+04 | -1.019e+05 |
|          |     | -3.391e+05 | -5.428e+04 | 0.21      |       | 165.0 | -27.11 | 2440.67    | 658.86  | 3.142e+04  | 5.443e+04  | 4.142e+04  |
| 9        | 49  | 1.159e+05  | 3.620e+04  | -0.38     | -3.01 | 0.0   | -10.32 | -1.132e+04 | 437.81  | 1.142e+05  | -3.604e+04 | -2.555e+04 |
|          |     | -3.349e+05 | -3.604e+04 | 0.12      |       | 165.0 | -10.32 | 2953.83    | 437.81  | 2.247e+05  | 3.620e+04  | 1.159e+05  |
| 9        | 50  | 1.335e+04  | 6.081e+04  | 0.53      | -2.10 | 0.0   | -12.42 | -1.292e+04 | 736.53  | 1.563e+05  | -6.072e+04 | -1.277e+05 |
|          |     | -4.000e+05 | -6.072e+04 | 0.20      |       | 165.0 | -12.42 | 1077.68    | 736.53  | 2.630e+05  | 6.081e+04  | 1.335e+04  |
| 9        | 51  | 1.437e+05  | 3.014e+04  | -0.39     | -3.87 | 0.0   | -25.00 | -9474.79   | 363.84  | -1.163e+05 | -2.990e+04 | -32.14     |
|          |     | -2.718e+05 | -2.990e+04 | 0.12      |       | 165.0 | -25.00 | 4327.87    | 363.84  | -6320.91   | 3.014e+04  | 1.437e+05  |
| 9        | 52  | 4.174e+04  | 5.413e+04  | 0.47      | -2.96 | 0.0   | -27.12 | -1.110e+04 | 655.16  | -7.516e+04 | -5.397e+04 | -1.016e+05 |
|          |     | -3.391e+05 | -5.397e+04 | 0.20      |       | 165.0 | -27.12 | 2429.62    | 655.16  | 3.088e+04  | 5.413e+04  | 4.174e+04  |
| 9        | 53  | 1.156e+05  | 3.651e+04  | -0.38     | -3.01 | 0.0   | -10.31 | -1.130e+04 | 441.51  | 1.147e+05  | -3.634e+04 | -2.586e+04 |
|          |     | -3.349e+05 | -3.634e+04 | 0.12      |       | 165.0 | -10.31 | 2964.88    | 441.51  | 2.253e+05  | 3.651e+04  | 1.156e+05  |
| 9        | 54  | 1.366e+04  | 6.050e+04  | 0.53      | -2.10 | 0.0   | -12.43 | -1.293e+04 | 732.83  | 1.558e+05  | -6.042e+04 | -1.274e+05 |
|          |     | -4.000e+05 | -6.042e+04 | 0.20      |       | 165.0 | -12.43 | 1066.63    | 732.83  | 2.625e+05  | 6.050e+04  | 1.366e+04  |
| 9        | 55  | 1.381e+05  | 3.044e+04  | -0.39     | -3.79 | 0.0   | -24.93 | -9622.55   | 367.35  | -1.162e+05 | -3.017e+04 | -4193.21   |
|          |     | -2.748e+05 | -3.017e+04 | 0.12      |       | 165.0 | -24.93 | 4450.12    | 367.35  | -7856.61   | 3.044e+04  | 1.381e+05  |
| 9        | 56  | 3.554e+04  | 5.504e+04  | 0.50      | -2.88 | 0.0   | -27.03 | -1.122e+04 | 666.07  | -7.414e+04 | -5.486e+04 | -1.064e+05 |
|          |     | -3.456e+05 | -5.486e+04 | 0.21      |       | 165.0 | -27.03 | 2573.96    | 666.07  | 3.043e+04  | 5.504e+04  | 3.554e+04  |
| 9        | 57  | 1.218e+05  | 3.559e+04  | -0.39     | -3.09 | 0.0   | -10.40 | -1.118e+04 | 430.60  | 1.137e+05  | -3.546e+04 | -2.107e+04 |
|          |     | -3.318e+05 | -3.546e+04 | 0.11      |       | 165.0 | -10.40 | 2820.54    | 430.60  | 2.257e+05  | 3.559e+04  | 1.218e+05  |
| 9        | 58  | 1.923e+04  | 6.020e+04  | 0.50      | -2.18 | 0.0   | -12.50 | -1.278e+04 | 729.33  | 1.557e+05  | -6.014e+04 | -1.232e+05 |
|          |     | -3.952e+05 | -6.014e+04 | 0.20      |       | 165.0 | -12.50 | 944.39     | 729.33  | 2.640e+05  | 6.020e+04  | 1.923e+04  |
| 9        | 59  | 1.378e+05  | 3.074e+04  | -0.39     | -3.79 | 0.0   | -24.92 | -9611.11   | 371.05  | -1.157e+05 | -3.048e+04 | -4509.09   |
|          |     | -2.748e+05 | -3.048e+04 | 0.12      |       | 165.0 | -24.92 | 4461.17    | 371.05  | -7309.81   | 3.074e+04  | 1.378e+05  |
| 9        | 60  | 3.585e+04  | 5.474e+04  | 0.50      | -2.88 | 0.0   | -27.04 | -1.123e+04 | 662.37  | -7.461e+04 | -5.455e+04 | -1.060e+05 |
|          |     | -3.455e+05 | -5.455e+04 | 0.21      |       | 165.0 | -27.04 | 2562.91    | 662.37  | 2.989e+04  | 5.474e+04  | 3.585e+04  |
| 9        | 61  | 1.215e+05  | 3.590e+04  | -0.39     | -3.09 | 0.0   | -10.39 | -1.117e+04 | 434.30  | 1.141e+05  | -3.576e+04 | -2.139e+04 |
|          |     | -3.318e+05 | -3.576e+04 | 0.11      |       | 165.0 | -10.39 | 2831.59    | 434.30  | 2.263e+05  | 3.590e+04  | 1.215e+05  |
| 9        | 62  | 1.954e+04  | 5.989e+04  | 0.50      | -2.18 | 0.0   | -12.51 | -1.279e+04 | 725.62  | 1.553e+05  | -5.984e+04 | -1.229e+05 |
|          |     | -3.952e+05 | -5.984e+04 | 0.20      |       | 165.0 | -12.51 | 933.34     | 725.62  | 2.635e+05  | 5.989e+04  | 1.954e+04  |
| 9        | 63  | 2.538e+05  | 3355.47    | -0.38     | -4.40 | 0.0   | -17.42 | -8260.50   | 38.81   | -8.499e+04 | -3048.27   | 1.104e+05  |
|          |     | -2.625e+05 | -3048.27   | 0.01      |       | 165.0 | -17.42 | 6028.62    | 38.81   | 2.952e+04  | 3355.47    | 2.538e+05  |
| 9        | 64  | -8.807e+04 | 8.537e+04  | 0.76      | 2.64  | 0.0   | -24.42 | -1.359e+04 | 1034.56 | 5.523e+04  | -8.533e+04 | -2.301e+05 |
|          |     | -4.675e+05 | -8.533e+04 | 0.31      |       | 165.0 | -24.42 | -225.22    | 1034.56 | 1.572e+05  | 8.537e+04  | -8.807e+04 |
| 9        | 65  | 2.454e+05  | 5267.30    | -0.38     | -3.96 | 0.0   | -13.01 | -8809.35   | 62.11   | -1.569e+04 | -4981.84   | 1.027e+05  |
|          |     | -2.813e+05 | -4981.84   | 0.01      |       | 165.0 | -13.01 | 5619.73    | 62.11   | 9.901e+04  | 5267.30    | 2.454e+05  |
| 9        | 66  | -9.649e+04 | 8.728e+04  | 0.77      | 2.34  | 0.0   | -20.01 | -1.414e+04 | 1057.86 | 1.245e+05  | -8.727e+04 | -2.379e+05 |
|          |     | -4.849e+05 | -8.727e+04 | 0.31      |       | 165.0 | -20.01 | -634.12    | 1057.86 | 2.266e+05  | 8.728e+04  | -9.649e+04 |
| 9        | 67  | 2.521e+05  | 3538.20    | -0.38     | -4.38 | 0.0   | -17.39 | -8301.40   | 40.98   | -8.482e+04 | -3222.40   | 1.091e+05  |
|          |     | -2.628e+05 | -3222.40   | 0.02      |       | 165.0 | -17.39 | 6068.61    | 40.98   | 2.923e+04  | 3538.20    | 2.521e+05  |
| 9        | 68  | -8.983e+04 | 8.555e+04  | 0.76      | 2.64  | 0.0   | -24.39 | -1.363e+04 | 1036.72 | 5.539e+04  | -8.551e+04 | -2.314e+05 |
|          |     | -4.694e+05 | -8.551e+04 | 0.31      |       | 165.0 | -24.39 | -185.24    | 1036.72 | 1.569e+05  | 8.555e+04  | -8.983e+04 |
| 9        | 69  | 2.472e+05  | 5084.58    | -0.38     | -3.98 | 0.0   | -13.03 | -8768.46   | 59.95   | -1.586e+04 | -4807.71   | 1.040e+05  |
|          |     | -2.810e+05 | -4807.71   | 0.01      |       | 165.0 | -13.03 | 5579.74    | 59.95   | 9.930e+04  | 5084.58    | 2.472e+05  |
| 9        | 70  | -9.473e+04 | 8.710e+04  | 0.76      | 2.34  | 0.0   | -20.04 | -1.410e+04 | 1055.70 | 1.244e+05  | -8.709e+04 | -2.365e+05 |
|          |     | -4.829e+05 | -8.709e+04 | 0.31      |       | 165.0 | -20.04 | -674.11    | 1055.70 | 2.269e+05  | 8.710e+04  | -9.473e+04 |
| 9        | 71  | 2.528e+05  | 4373.51    | -0.38     | -4.41 | 0.0   | -17.38 | -8222.35   | 51.15   | -8.344e+04 | -4065.62   | 1.094e+05  |
|          |     | -2.625e+05 | -4065.62   | 0.02      |       | 165.0 | -17.38 | 6065.46    | 51.15   | 3.135e+04  | 4373.51    | 2.528e+05  |
| 9        | 72  | -8.703e+04 | 8.435e+04  | 0.76      | 2.65  | 0.0   | -24.46 | -1.363e+04 | 1022.22 | 5.367e+04  | -8.431e+04 | -2.290e+05 |
|          |     | -4.674e+05 | -8.431e+04 | 0.30      |       | 165.0 | -24.46 | -262.06    | 1022.22 | 1.553e+05  | 8.435e+04  | -8.703e+04 |

| Trave f. | Cmb | M3 mx/mn   | M2 mx/mn   | D 2 / D 3 | Pt    | Pos.  | N      | V 2        | V 3     | T          | M 2        | M 3        |
|----------|-----|------------|------------|-----------|-------|-------|--------|------------|---------|------------|------------|------------|
| 9        | 73  | 2.444e+05  | 6285.34    | -0.38     | -3.96 | 0.0   | -12.97 | -8771.20   | 74.45   | -1.414e+04 | -5999.19   | 1.016e+05  |
|          |     | -2.813e+05 | -5999.19   | 0.02      |       | 165.0 | -12.97 | 5656.56    | 74.45   | 1.008e+05  | 6285.34    | 2.444e+05  |
| 9        | 74  | -9.545e+04 | 8.626e+04  | 0.78      | 2.35  | 0.0   | -20.05 | -1.418e+04 | 1045.53 | 1.230e+05  | -8.625e+04 | -2.368e+05 |
|          |     | -4.847e+05 | -8.625e+04 | 0.30      |       | 165.0 | -20.05 | -670.96    | 1045.53 | 2.248e+05  | 8.626e+04  | -9.545e+04 |
| 9        | 75  | 2.510e+05  | 4556.23    | -0.38     | -4.39 | 0.0   | -17.35 | -8263.24   | 53.31   | -8.327e+04 | -4239.76   | 1.080e+05  |
|          |     | -2.628e+05 | -4239.76   | 0.02      |       | 165.0 | -17.35 | 6105.45    | 53.31   | 3.105e+04  | 4556.23    | 2.510e+05  |
| 9        | 76  | -8.879e+04 | 8.453e+04  | 0.77      | 2.64  | 0.0   | -24.43 | -1.367e+04 | 1024.39 | 5.384e+04  | -8.449e+04 | -2.304e+05 |
|          |     | -4.693e+05 | -8.449e+04 | 0.31      |       | 165.0 | -24.43 | -222.07    | 1024.39 | 1.550e+05  | 8.453e+04  | -8.879e+04 |
| 9        | 77  | 2.461e+05  | 6102.62    | -0.38     | -3.99 | 0.0   | -13.00 | -8730.31   | 72.29   | -1.431e+04 | -5825.06   | 1.030e+05  |
|          |     | -2.810e+05 | -5825.06   | 0.02      |       | 165.0 | -13.00 | 5616.58    | 72.29   | 1.011e+05  | 6102.62    | 2.461e+05  |
| 9        | 78  | -9.368e+04 | 8.608e+04  | 0.77      | 2.35  | 0.0   | -20.07 | -1.414e+04 | 1043.36 | 1.228e+05  | -8.607e+04 | -2.355e+05 |
|          |     | -4.828e+05 | -8.607e+04 | 0.30      |       | 165.0 | -20.07 | -710.94    | 1043.36 | 2.251e+05  | 8.608e+04  | -9.368e+04 |
| 9        | 79  | 1.903e+04  | 5230.43    | 0.05      | -0.88 | 0.0   | -13.50 | -5649.59   | 63.11   | -4.13      | -5181.97   | 1.903e+04  |
|          |     | -1.928e+05 | -5181.97   | 0.02      |       | 165.0 | -13.50 | 3982.24    | 63.11   | 1.785e+04  | 5230.43    | -8509.29   |
| 9        | 80  | 6.777e+04  | 4.031e+04  | 0.35      | -2.44 | 0.0   | -18.06 | -1.051e+04 | 487.68  | 1.729e+04  | -4.016e+04 | -5.337e+04 |
|          |     | -3.124e+05 | -4.016e+04 | 0.14      |       | 165.0 | -18.06 | 2857.87    | 487.68  | 1.143e+05  | 4.031e+04  | 6.777e+04  |
| 9        | 81  | 1.903e+04  | 5230.43    | 0.05      | -0.88 | 0.0   | -13.50 | -5649.59   | 63.11   | -4.13      | -5181.97   | 1.903e+04  |
|          |     | -1.928e+05 | -5181.97   | 0.02      |       | 165.0 | -13.50 | 3982.24    | 63.11   | 1.785e+04  | 5230.43    | -8509.29   |
| 9        | 82  | 6.777e+04  | 4.031e+04  | 0.35      | -2.44 | 0.0   | -18.06 | -1.051e+04 | 487.68  | 1.729e+04  | -4.016e+04 | -5.337e+04 |
|          |     | -3.124e+05 | -4.016e+04 | 0.14      |       | 165.0 | -18.06 | 2857.87    | 487.68  | 1.143e+05  | 4.031e+04  | 6.777e+04  |
| 9        | 83  | 1.005e+05  | 5.534e+04  | 0.47      | -3.12 | 0.0   | -20.02 | -1.259e+04 | 669.65  | 2.471e+04  | -5.515e+04 | -8.440e+04 |
|          |     | -3.739e+05 | -5.515e+04 | 0.20      |       | 165.0 | -20.02 | 2376.01    | 669.65  | 1.556e+05  | 5.534e+04  | 1.005e+05  |
| 9        | 84  | 1.903e+04  | 5230.43    | 0.05      | -0.88 | 0.0   | -13.50 | -5649.59   | 63.11   | -4.13      | -5181.97   | 1.903e+04  |
|          |     | -1.928e+05 | -5181.97   | 0.02      |       | 165.0 | -13.50 | 3982.24    | 63.11   | 1.785e+04  | 5230.43    | -8509.29   |
| 9        | 85  | 1.005e+05  | 5.534e+04  | 0.47      | -3.12 | 0.0   | -20.02 | -1.259e+04 | 669.65  | 2.471e+04  | -5.515e+04 | -8.440e+04 |
|          |     | -3.739e+05 | -5.515e+04 | 0.20      |       | 165.0 | -20.02 | 2376.01    | 669.65  | 1.556e+05  | 5.534e+04  | 1.005e+05  |
| 9        | 86  | 1.903e+04  | 5230.43    | 0.05      | -0.88 | 0.0   | -13.50 | -5649.59   | 63.11   | -4.13      | -5181.97   | 1.903e+04  |
|          |     | -1.928e+05 | -5181.97   | 0.02      |       | 165.0 | -13.50 | 3982.24    | 63.11   | 1.785e+04  | 5230.43    | -8509.29   |
| 9        | 87  | 5.688e+04  | 3.530e+04  | 0.30      | -2.22 | 0.0   | -17.41 | -9812.95   | 427.03  | 1.482e+04  | -3.516e+04 | -4.303e+04 |
|          |     | -2.918e+05 | -3.516e+04 | 0.13      |       | 165.0 | -17.41 | 3018.50    | 427.03  | 1.005e+05  | 3.530e+04  | 5.688e+04  |
| 9        | 88  | 1.903e+04  | 5230.43    | 0.05      | -0.88 | 0.0   | -13.50 | -5649.59   | 63.11   | -4.13      | -5181.97   | 1.903e+04  |
|          |     | -1.928e+05 | -5181.97   | 0.02      |       | 165.0 | -13.50 | 3982.24    | 63.11   | 1.785e+04  | 5230.43    | -8509.29   |
| 9        | 89  | 5.688e+04  | 3.530e+04  | 0.30      | -2.22 | 0.0   | -17.41 | -9812.95   | 427.03  | 1.482e+04  | -3.516e+04 | -4.303e+04 |
|          |     | -2.918e+05 | -3.516e+04 | 0.13      |       | 165.0 | -17.41 | 3018.50    | 427.03  | 1.005e+05  | 3.530e+04  | 5.688e+04  |
| 9        | 90  | 6.777e+04  | 4.031e+04  | 0.35      | -2.44 | 0.0   | -18.06 | -1.051e+04 | 487.68  | 1.729e+04  | -4.016e+04 | -5.337e+04 |
|          |     | -3.124e+05 | -4.016e+04 | 0.14      |       | 165.0 | -18.06 | 2857.87    | 487.68  | 1.143e+05  | 4.031e+04  | 6.777e+04  |
| 9        | 91  | 1.903e+04  | 5230.43    | 0.05      | -0.88 | 0.0   | -13.50 | -5649.59   | 63.11   | -4.13      | -5181.97   | 1.903e+04  |
|          |     | -1.928e+05 | -5181.97   | 0.02      |       | 165.0 | -13.50 | 3982.24    | 63.11   | 1.785e+04  | 5230.43    | -8509.29   |
| 9        | 92  | 6.777e+04  | 4.031e+04  | 0.35      | -2.44 | 0.0   | -18.06 | -1.051e+04 | 487.68  | 1.729e+04  | -4.016e+04 | -5.337e+04 |
|          |     | -3.124e+05 | -4.016e+04 | 0.14      |       | 165.0 | -18.06 | 2857.87    | 487.68  | 1.143e+05  | 4.031e+04  | 6.777e+04  |
| 9        | 93  | 1.903e+04  | 5230.43    | 0.05      | -0.88 | 0.0   | -13.50 | -5649.59   | 63.11   | -4.13      | -5181.97   | 1.903e+04  |
|          |     | -1.928e+05 | -5181.97   | 0.02      |       | 165.0 | -13.50 | 3982.24    | 63.11   | 1.785e+04  | 5230.43    | -8509.29   |
| 9        | 94  | 5.688e+04  | 3.530e+04  | 0.30      | -2.22 | 0.0   | -17.41 | -9812.95   | 427.03  | 1.482e+04  | -3.516e+04 | -4.303e+04 |
|          |     | -2.918e+05 | -3.516e+04 | 0.13      |       | 165.0 | -17.41 | 3018.50    | 427.03  | 1.005e+05  | 3.530e+04  | 5.688e+04  |
| 9        | 95  | 1.903e+04  | 5230.43    | 0.05      | -0.88 | 0.0   | -13.50 | -5649.59   | 63.11   | -4.13      | -5181.97   | 1.903e+04  |
|          |     | -1.928e+05 | -5181.97   | 0.02      |       | 165.0 | -13.50 | 3982.24    | 63.11   | 1.785e+04  | 5230.43    | -8509.29   |
| 9        | 96  | 5.688e+04  | 3.530e+04  | 0.30      | -2.22 | 0.0   | -17.41 | -9812.95   | 427.03  | 1.482e+04  | -3.516e+04 | -4.303e+04 |
|          |     | -2.918e+05 | -3.516e+04 | 0.13      |       | 165.0 | -17.41 | 3018.50    | 427.03  | 1.005e+05  | 3.530e+04  | 5.688e+04  |
|          |     |            |            |           |       |       |        |            |         |            |            |            |
| Trave f. |     | M3 mx/mn   | M2 mx/mn   | D 2 / D 3 | Pt    |       | N      | V 2        | V 3     | T          |            |            |
|          |     | -7.729e+05 | -1.532e+05 | -0.62     | -7.15 |       | -39.66 | -1.888e+04 | -758.56 | -3.221e+05 |            |            |
|          |     | 5.583e+05  | 1.529e+05  | 1.39      | 5.27  |       | 2.23   | 1.150e+04  | 1855.23 | 4.682e+05  |            |            |

# RISULTATI ELEMENTI TIPO SHELL

## LEGENDA RISULTATI ELEMENTI TIPO SHELL

Il controllo dei risultati delle analisi condotte, per quanto concerne gli elementi tipo shell, è possibile in relazione alle tabelle sottoriportate. Per ogni elemento, e per ogni combinazione(o caso di carico) vengono riportati i risultati più significativi.



In particolare vengono riportati in ogni nodo di un elemento per ogni combinazione:

| tensione di Von Mises |             | (valore riassuntivo del complessivo stato di sollecitazione)                                                                                                   |
|-----------------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>N max</b>          |             | sforzo membranale principale massimo                                                                                                                           |
| <b>N min</b>          |             | sforzo membranale principale minimo                                                                                                                            |
| <b>M max</b>          |             | sforzo flessionale principale massimo                                                                                                                          |
| <b>M min</b>          |             | sforzo flessionale principale minimo                                                                                                                           |
| <b>N1</b>             | <b>N2</b>   | sforzi membranali e flessionali in direzione locale 1 e 2 dell'elemento (lo sforzo 2-1 è uguale allo sforzo 1-2 per la reciprocità delle tensioni tangenziali) |
| <b>N1-2</b>           | <b>M1</b>   |                                                                                                                                                                |
| <b>M2</b>             | <b>M1-2</b> |                                                                                                                                                                |

I suddetti risultati possono a scelta del progettista essere preceduti o sostituiti da valori di sollecitazione non più riferiti al sistema locale dell'elemento ma al sistema globale.

In questo caso gli elementi vengono raggruppati in gruppi (M-S: macro gusci o macro setti, raggruppati per materiale, spessore, e posizione fisica) per la valutazione dei valori mediati ai nodi appartenenti agli elementi dei gruppi stessi.

I valori di sollecitazione sono, in questo caso, riferiti ad una terna specifica del gruppo ruotata di  $\alpha_0$  attorno all'asse Z per i gusci e ruotata di  $\alpha_v$  attorno alla normale (che per definizione è orizzontale) al piano del setto.

Per i setti, in particolare, se  $\alpha_v$  è zero, l'asse '1-1 rappresenta la verticale e l'asse '2-2 l'orizzontale contenuta nel setto.

Le azioni sui setti possono essere espresse anche con formato macro, cioè riferite all'intero macroelemento.

In particolare vengono riportati per ogni quota □ dei nodi e per ogni combinazione i seguenti valori:

|                |                                                                                    |
|----------------|------------------------------------------------------------------------------------|
| <b>N memb.</b> | Azione membranale complessiva agente sulla parete in direzione □                   |
| <b>V memb.</b> | Azione complessiva di taglio agente nel piano del macroelemento                    |
| <b>V orto</b>  | Azione complessiva di taglio agente in direzione perpendicolare al macroelemento   |
| <b>M memb.</b> | Azione flessionale complessiva agente nel piano del macroelemento                  |
| <b>M orto</b>  | Azione flessionale complessiva agente in direzione perpendicolare al macroelemento |
| <b>T</b>       | Azione torsionale complessiva agente nel piano orizzontale                         |

| Macro | Tipo  | Angolo 1-□ (gradi) |
|-------|-------|--------------------|
| 2     | Setto | 0.0                |

| M_S | Cmb | Z       | N memb.    | V memb.   | V orto    | M memb.   | M orto     | T          |
|-----|-----|---------|------------|-----------|-----------|-----------|------------|------------|
|     |     | cm      | daN        | daN       | daN       | daN cm    | daN cm     | daN cm     |
| 2   | 1   | -139.00 | -1.526e+04 | 156.70    | 234.54    | 1.027e+05 | -1.270e+05 | -1.050e+04 |
| 2   | 1   | -57.33  | -1.526e+04 | 156.70    | 234.54    | 9.008e+04 | -1.078e+05 | -5.181e+04 |
| 2   | 1   | 24.33   | -1.395e+04 | 156.70    | 234.54    | 7.721e+04 | -8.869e+04 | -5.096e+04 |
| 2   | 1   | 106.00  | -1.263e+04 | 156.70    | 234.54    | 6.441e+04 | -6.953e+04 | -5.084e+04 |
| 2   | 1   | 187.67  | -1.132e+04 | 156.70    | 234.54    | 5.162e+04 | -5.038e+04 | -5.041e+04 |
| 2   | 1   | 269.33  | -1.001e+04 | 156.70    | 234.54    | 3.882e+04 | -3.122e+04 | -4.696e+04 |
| 2   | 1   | 351.00  | -8693.24   | 156.70    | 234.54    | 2.603e+04 | -1.207e+04 | -1.994e+04 |
| 2   | 1   | 424.67  | -6518.12   | 1.40e-05  | 0.0       | -14.85    | 5.96e-06   | 266.92     |
| 2   | 1   | 498.33  | -5333.01   | -8.56e-06 | 0.0       | -0.49     | 2.63e-06   | -1.74      |
| 2   | 1   | 572.00  | -4147.89   | -8.51e-06 | 0.0       | -0.05     | 0.0        | -3.88      |
| 2   | 1   | 645.67  | -2962.78   | 8.52e-06  | 0.0       | -2.77e-03 | 0.0        | -0.90      |
| 2   | 1   | 719.33  | -1777.67   | 4.26e-06  | 0.0       | 2.37e-03  | 0.0        | -0.17      |
| 2   | 1   | 793.00  | -592.56    | 0.0       | 0.0       | -1.63e-04 | 0.0        | -0.07      |
| 2   | 2   | -139.00 | -1.594e+04 | 1376.49   | 1759.78   | 9.160e+05 | -8.187e+05 | -1.044e+05 |
| 2   | 2   | -57.33  | -1.594e+04 | 1376.49   | 1759.78   | 8.054e+05 | -6.750e+05 | -5.089e+05 |
| 2   | 2   | 24.33   | -1.463e+04 | 1376.49   | 1759.78   | 6.924e+05 | -5.313e+05 | -5.003e+05 |
| 2   | 2   | 106.00  | -1.332e+04 | 1376.49   | 1759.78   | 5.799e+05 | -3.875e+05 | -4.991e+05 |
| 2   | 2   | 187.67  | -1.200e+04 | 1376.49   | 1759.78   | 4.675e+05 | -2.438e+05 | -4.949e+05 |
| 2   | 2   | 269.33  | -1.069e+04 | 1376.49   | 1759.78   | 3.551e+05 | -1.001e+05 | -4.616e+05 |
| 2   | 2   | 351.00  | -9375.54   | 1376.49   | 1759.78   | 2.427e+05 | 4.361e+04  | -2.006e+05 |
| 2   | 2   | 424.67  | -6518.12   | 1.23e-05  | -1.09e-06 | -134.09   | -3.53e-05  | 2146.27    |
| 2   | 2   | 498.33  | -5333.01   | -8.77e-06 | 0.0       | -4.49     | 4.36e-06   | -77.58     |
| 2   | 2   | 572.00  | -4147.89   | -8.57e-06 | 0.0       | -0.45     | 0.0        | -45.89     |
| 2   | 2   | 645.67  | -2962.78   | 8.48e-06  | 0.0       | -0.02     | 0.0        | -9.84      |
| 2   | 2   | 719.33  | -1777.67   | 4.24e-06  | 0.0       | 6.99e-03  | 0.0        | -1.85      |
| 2   | 2   | 793.00  | -592.56    | 0.0       | 0.0       | 1.28e-03  | 0.0        | -0.72      |
| 2   | 3   | -139.00 | -1.526e+04 | 156.70    | 234.54    | 1.027e+05 | -1.270e+05 | -1.050e+04 |
| 2   | 3   | -57.33  | -1.526e+04 | 156.70    | 234.54    | 9.008e+04 | -1.078e+05 | -5.181e+04 |
| 2   | 3   | 24.33   | -1.395e+04 | 156.70    | 234.54    | 7.721e+04 | -8.869e+04 | -5.096e+04 |
| 2   | 3   | 106.00  | -1.263e+04 | 156.70    | 234.54    | 6.441e+04 | -6.953e+04 | -5.084e+04 |
| 2   | 3   | 187.67  | -1.132e+04 | 156.70    | 234.54    | 5.162e+04 | -5.038e+04 | -5.041e+04 |
| 2   | 3   | 269.33  | -1.001e+04 | 156.70    | 234.54    | 3.882e+04 | -3.122e+04 | -4.696e+04 |
| 2   | 3   | 351.00  | -8693.24   | 156.70    | 234.54    | 2.603e+04 | -1.207e+04 | -1.994e+04 |
| 2   | 3   | 424.67  | -6518.12   | 1.40e-05  | 0.0       | -14.85    | 5.96e-06   | 266.92     |
| 2   | 3   | 498.33  | -5333.01   | -8.56e-06 | 0.0       | -0.49     | 2.63e-06   | -1.74      |
| 2   | 3   | 572.00  | -4147.89   | -8.51e-06 | 0.0       | -0.05     | 0.0        | -3.88      |
| 2   | 3   | 645.67  | -2962.78   | 8.52e-06  | 0.0       | -2.77e-03 | 0.0        | -0.90      |
| 2   | 3   | 719.33  | -1777.67   | 4.26e-06  | 0.0       | 2.37e-03  | 0.0        | -0.17      |
| 2   | 3   | 793.00  | -592.56    | 0.0       | 0.0       | -1.63e-04 | 0.0        | -0.07      |
| 2   | 4   | -139.00 | -1.594e+04 | 1376.49   | 1759.78   | 9.160e+05 | -8.187e+05 | -1.044e+05 |
| 2   | 4   | -57.33  | -1.594e+04 | 1376.49   | 1759.78   | 8.054e+05 | -6.750e+05 | -5.089e+05 |
| 2   | 4   | 24.33   | -1.463e+04 | 1376.49   | 1759.78   | 6.924e+05 | -5.313e+05 | -5.003e+05 |
| 2   | 4   | 106.00  | -1.332e+04 | 1376.49   | 1759.78   | 5.799e+05 | -3.875e+05 | -4.991e+05 |
| 2   | 4   | 187.67  | -1.200e+04 | 1376.49   | 1759.78   | 4.675e+05 | -2.438e+05 | -4.949e+05 |
| 2   | 4   | 269.33  | -1.069e+04 | 1376.49   | 1759.78   | 3.551e+05 | -1.001e+05 | -4.616e+05 |
| 2   | 4   | 351.00  | -9375.54   | 1376.49   | 1759.78   | 2.427e+05 | 4.361e+04  | -2.006e+05 |
| 2   | 4   | 424.67  | -6518.12   | 1.23e-05  | -1.09e-06 | -134.09   | -3.53e-05  | 2146.27    |
| 2   | 4   | 498.33  | -5333.01   | -8.77e-06 | 0.0       | -4.49     | 4.36e-06   | -77.58     |
| 2   | 4   | 572.00  | -4147.89   | -8.57e-06 | 0.0       | -0.45     | 0.0        | -45.89     |
| 2   | 4   | 645.67  | -2962.78   | 8.48e-06  | 0.0       | -0.02     | 0.0        | -9.84      |
| 2   | 4   | 719.33  | -1777.67   | 4.24e-06  | 0.0       | 6.99e-03  | 0.0        | -1.85      |
| 2   | 4   | 793.00  | -592.56    | 0.0       | 0.0       | 1.28e-03  | 0.0        | -0.72      |
| 2   | 5   | -139.00 | -1.177e+04 | 101.19    | 157.55    | 6.640e+04 | -8.978e+04 | -6838.79   |
| 2   | 5   | -57.33  | -1.177e+04 | 101.19    | 157.55    | 5.827e+04 | -7.691e+04 | -3.372e+04 |
| 2   | 5   | 24.33   | -1.076e+04 | 101.19    | 157.55    | 4.996e+04 | -6.404e+04 | -3.317e+04 |
| 2   | 5   | 106.00  | -9745.13   | 101.19    | 157.55    | 4.169e+04 | -5.118e+04 | -3.309e+04 |
| 2   | 5   | 187.67  | -8734.51   | 101.19    | 157.55    | 3.343e+04 | -3.831e+04 | -3.281e+04 |
| 2   | 5   | 269.33  | -7723.88   | 101.19    | 157.55    | 2.517e+04 | -2.544e+04 | -3.057e+04 |
| 2   | 5   | 351.00  | -6713.26   | 101.19    | 157.55    | 1.691e+04 | -1.258e+04 | -1.299e+04 |
| 2   | 5   | 424.67  | -5013.94   | 1.08e-05  | 0.0       | -9.62     | 4.38e-06   | 172.38     |
| 2   | 5   | 498.33  | -4102.31   | -6.58e-06 | 0.0       | -0.32     | 2.03e-06   | -1.30      |
| 2   | 5   | 572.00  | -3190.69   | -6.55e-06 | 0.0       | -0.03     | 0.0        | -2.55      |
| 2   | 5   | 645.67  | -2279.06   | 6.55e-06  | 0.0       | -1.92e-03 | 0.0        | -0.59      |
| 2   | 5   | 719.33  | -1367.44   | 3.28e-06  | 0.0       | 1.76e-03  | 0.0        | -0.11      |
| 2   | 5   | 793.00  | -455.81    | 0.0       | 0.0       | -1.46e-04 | 0.0        | -0.05      |
| 2   | 6   | -139.00 | -1.245e+04 | 1320.98   | 1682.79   | 8.797e+05 | -7.815e+05 | -1.008e+05 |
| 2   | 6   | -57.33  | -1.245e+04 | 1320.98   | 1682.79   | 7.735e+05 | -6.440e+05 | -4.908e+05 |
| 2   | 6   | 24.33   | -1.144e+04 | 1320.98   | 1682.79   | 6.651e+05 | -5.066e+05 | -4.825e+05 |
| 2   | 6   | 106.00  | -1.043e+04 | 1320.98   | 1682.79   | 5.572e+05 | -3.692e+05 | -4.813e+05 |
| 2   | 6   | 187.67  | -9416.81   | 1320.98   | 1682.79   | 4.493e+05 | -2.318e+05 | -4.773e+05 |
| 2   | 6   | 269.33  | -8406.18   | 1320.98   | 1682.79   | 3.414e+05 | -9.433e+04 | -4.452e+05 |
| 2   | 6   | 351.00  | -7395.56   | 1320.98   | 1682.79   | 2.336e+05 | 4.310e+04  | -1.936e+05 |
| 2   | 6   | 424.67  | -5013.94   | 9.03e-06  | -1.21e-06 | -128.86   | -3.69e-05  | 2051.73    |

| M | S  | Cmb     | Z          | N memb.   | V memb.   | V orto    | M memb.    | M orto     | T |
|---|----|---------|------------|-----------|-----------|-----------|------------|------------|---|
| 2 | 6  | 498.33  | -4102.31   | -6.79e-06 | 0.0       | -4.32     | 3.75e-06   | -77.14     |   |
| 2 | 6  | 572.00  | -3190.69   | -6.60e-06 | 0.0       | -0.44     | 0.0        | -44.55     |   |
| 2 | 6  | 645.67  | -2279.06   | 6.51e-06  | 0.0       | -0.02     | 0.0        | -9.53      |   |
| 2 | 6  | 719.33  | -1367.44   | 3.26e-06  | 0.0       | 6.38e-03  | 0.0        | -1.79      |   |
| 2 | 6  | 793.00  | -455.81    | 0.0       | 0.0       | 1.29e-03  | 0.0        | -0.70      |   |
| 2 | 7  | -139.00 | -1.177e+04 | 101.19    | 157.55    | 6.640e+04 | -8.978e+04 | -6838.79   |   |
| 2 | 7  | -57.33  | -1.177e+04 | 101.19    | 157.55    | 5.827e+04 | -7.691e+04 | -3.372e+04 |   |
| 2 | 7  | 24.33   | -1.076e+04 | 101.19    | 157.55    | 4.996e+04 | -6.404e+04 | -3.317e+04 |   |
| 2 | 7  | 106.00  | -9745.13   | 101.19    | 157.55    | 4.169e+04 | -5.118e+04 | -3.309e+04 |   |
| 2 | 7  | 187.67  | -8734.51   | 101.19    | 157.55    | 3.343e+04 | -3.831e+04 | -3.281e+04 |   |
| 2 | 7  | 269.33  | -7723.88   | 101.19    | 157.55    | 2.517e+04 | -2.544e+04 | -3.057e+04 |   |
| 2 | 7  | 351.00  | -6713.26   | 101.19    | 157.55    | 1.691e+04 | -1.258e+04 | -1.299e+04 |   |
| 2 | 7  | 424.67  | -5013.94   | 1.08e-05  | 0.0       | -9.62     | 4.38e-06   | 172.38     |   |
| 2 | 7  | 498.33  | -4102.31   | -6.58e-06 | 0.0       | -0.32     | 2.03e-06   | -1.30      |   |
| 2 | 7  | 572.00  | -3190.69   | -6.55e-06 | 0.0       | -0.03     | 0.0        | -2.55      |   |
| 2 | 7  | 645.67  | -2279.06   | 6.55e-06  | 0.0       | -1.92e-03 | 0.0        | -0.59      |   |
| 2 | 7  | 719.33  | -1367.44   | 3.28e-06  | 0.0       | 1.76e-03  | 0.0        | -0.11      |   |
| 2 | 7  | 793.00  | -455.81    | 0.0       | 0.0       | -1.46e-04 | 0.0        | -0.05      |   |
| 2 | 8  | -139.00 | -1.245e+04 | 1320.98   | 1682.79   | 8.797e+05 | -7.815e+05 | -1.008e+05 |   |
| 2 | 8  | -57.33  | -1.245e+04 | 1320.98   | 1682.79   | 7.735e+05 | -6.440e+05 | -4.908e+05 |   |
| 2 | 8  | 24.33   | -1.144e+04 | 1320.98   | 1682.79   | 6.651e+05 | -5.066e+05 | -4.825e+05 |   |
| 2 | 8  | 106.00  | -1.043e+04 | 1320.98   | 1682.79   | 5.572e+05 | -3.692e+05 | -4.813e+05 |   |
| 2 | 8  | 187.67  | -9416.81   | 1320.98   | 1682.79   | 4.493e+05 | -2.318e+05 | -4.773e+05 |   |
| 2 | 8  | 269.33  | -8406.18   | 1320.98   | 1682.79   | 3.414e+05 | -9.433e+04 | -4.452e+05 |   |
| 2 | 8  | 351.00  | -7395.56   | 1320.98   | 1682.79   | 2.336e+05 | 4.310e+04  | -1.936e+05 |   |
| 2 | 8  | 424.67  | -5013.94   | 9.03e-06  | -1.21e-06 | -128.86   | -3.69e-05  | 2051.73    |   |
| 2 | 8  | 498.33  | -4102.31   | -6.79e-06 | 0.0       | -4.32     | 3.75e-06   | -77.14     |   |
| 2 | 8  | 572.00  | -3190.69   | -6.60e-06 | 0.0       | -0.44     | 0.0        | -44.55     |   |
| 2 | 8  | 645.67  | -2279.06   | 6.51e-06  | 0.0       | -0.02     | 0.0        | -9.53      |   |
| 2 | 8  | 719.33  | -1367.44   | 3.26e-06  | 0.0       | 6.38e-03  | 0.0        | -1.79      |   |
| 2 | 8  | 793.00  | -455.81    | 0.0       | 0.0       | 1.29e-03  | 0.0        | -0.70      |   |
| 2 | 9  | -139.00 | -1.624e+04 | 1899.26   | 2413.46   | 1.265e+06 | -1.115e+06 | -1.447e+05 |   |
| 2 | 9  | -57.33  | -1.624e+04 | 1899.26   | 2413.46   | 1.112e+06 | -9.180e+05 | -7.048e+05 |   |
| 2 | 9  | 24.33   | -1.492e+04 | 1899.26   | 2413.46   | 9.560e+05 | -7.209e+05 | -6.929e+05 |   |
| 2 | 9  | 106.00  | -1.361e+04 | 1899.26   | 2413.46   | 8.008e+05 | -5.238e+05 | -6.912e+05 |   |
| 2 | 9  | 187.67  | -1.230e+04 | 1899.26   | 2413.46   | 6.457e+05 | -3.267e+05 | -6.854e+05 |   |
| 2 | 9  | 269.33  | -1.098e+04 | 1899.26   | 2413.46   | 4.906e+05 | -1.296e+05 | -6.393e+05 |   |
| 2 | 9  | 351.00  | -9667.95   | 1899.26   | 2413.46   | 3.356e+05 | 6.747e+04  | -2.780e+05 |   |
| 2 | 9  | 424.67  | -6518.12   | 1.15e-05  | -1.83e-06 | -185.19   | -5.30e-05  | 2951.70    |   |
| 2 | 9  | 498.33  | -5333.01   | -8.86e-06 | 0.0       | -6.21     | 5.09e-06   | -110.08    |   |
| 2 | 9  | 572.00  | -4147.89   | -8.59e-06 | 0.0       | -0.63     | 1.12e-06   | -63.89     |   |
| 2 | 9  | 645.67  | -2962.78   | 8.46e-06  | 0.0       | -0.03     | 1.28e-06   | -13.67     |   |
| 2 | 9  | 719.33  | -1777.67   | 4.23e-06  | 0.0       | 8.97e-03  | 0.0        | -2.57      |   |
| 2 | 9  | 793.00  | -592.56    | 0.0       | 0.0       | 1.89e-03  | 0.0        | -1.00      |   |
| 2 | 10 | -139.00 | -1.526e+04 | 156.70    | 234.54    | 1.027e+05 | -1.270e+05 | -1.050e+04 |   |
| 2 | 10 | -57.33  | -1.526e+04 | 156.70    | 234.54    | 9.008e+04 | -1.078e+05 | -5.181e+04 |   |
| 2 | 10 | 24.33   | -1.395e+04 | 156.70    | 234.54    | 7.721e+04 | -8.869e+04 | -5.096e+04 |   |
| 2 | 10 | 106.00  | -1.263e+04 | 156.70    | 234.54    | 6.441e+04 | -6.953e+04 | -5.084e+04 |   |
| 2 | 10 | 187.67  | -1.132e+04 | 156.70    | 234.54    | 5.162e+04 | -5.038e+04 | -5.041e+04 |   |
| 2 | 10 | 269.33  | -1.001e+04 | 156.70    | 234.54    | 3.882e+04 | -3.122e+04 | -4.696e+04 |   |
| 2 | 10 | 351.00  | -8693.24   | 156.70    | 234.54    | 2.603e+04 | -1.207e+04 | -1.994e+04 |   |
| 2 | 10 | 424.67  | -6518.12   | 1.40e-05  | 0.0       | -14.85    | 5.96e-06   | 266.92     |   |
| 2 | 10 | 498.33  | -5333.01   | -8.56e-06 | 0.0       | -0.49     | 2.63e-06   | -1.74      |   |
| 2 | 10 | 572.00  | -4147.89   | -8.51e-06 | 0.0       | -0.05     | 0.0        | -3.88      |   |
| 2 | 10 | 645.67  | -2962.78   | 8.52e-06  | 0.0       | -2.77e-03 | 0.0        | -0.90      |   |
| 2 | 10 | 719.33  | -1777.67   | 4.26e-06  | 0.0       | 2.37e-03  | 0.0        | -0.17      |   |
| 2 | 10 | 793.00  | -592.56    | 0.0       | 0.0       | -1.63e-04 | 0.0        | -0.07      |   |
| 2 | 11 | -139.00 | -1.624e+04 | 1899.26   | 2413.46   | 1.265e+06 | -1.115e+06 | -1.447e+05 |   |
| 2 | 11 | -57.33  | -1.624e+04 | 1899.26   | 2413.46   | 1.112e+06 | -9.180e+05 | -7.048e+05 |   |
| 2 | 11 | 24.33   | -1.492e+04 | 1899.26   | 2413.46   | 9.560e+05 | -7.209e+05 | -6.929e+05 |   |
| 2 | 11 | 106.00  | -1.361e+04 | 1899.26   | 2413.46   | 8.008e+05 | -5.238e+05 | -6.912e+05 |   |
| 2 | 11 | 187.67  | -1.230e+04 | 1899.26   | 2413.46   | 6.457e+05 | -3.267e+05 | -6.854e+05 |   |
| 2 | 11 | 269.33  | -1.098e+04 | 1899.26   | 2413.46   | 4.906e+05 | -1.296e+05 | -6.393e+05 |   |
| 2 | 11 | 351.00  | -9667.95   | 1899.26   | 2413.46   | 3.356e+05 | 6.747e+04  | -2.780e+05 |   |
| 2 | 11 | 424.67  | -6518.12   | 1.15e-05  | -1.83e-06 | -185.19   | -5.30e-05  | 2951.70    |   |
| 2 | 11 | 498.33  | -5333.01   | -8.86e-06 | 0.0       | -6.21     | 5.09e-06   | -110.08    |   |
| 2 | 11 | 572.00  | -4147.89   | -8.59e-06 | 0.0       | -0.63     | 1.12e-06   | -63.89     |   |
| 2 | 11 | 645.67  | -2962.78   | 8.46e-06  | 0.0       | -0.03     | 1.28e-06   | -13.67     |   |
| 2 | 11 | 719.33  | -1777.67   | 4.23e-06  | 0.0       | 8.97e-03  | 0.0        | -2.57      |   |
| 2 | 11 | 793.00  | -592.56    | 0.0       | 0.0       | 1.89e-03  | 0.0        | -1.00      |   |
| 2 | 12 | -139.00 | -1.274e+04 | 1843.74   | 2336.46   | 1.228e+06 | -1.078e+06 | -1.410e+05 |   |
| 2 | 12 | -57.33  | -1.274e+04 | 1843.74   | 2336.46   | 1.080e+06 | -8.871e+05 | -6.868e+05 |   |
| 2 | 12 | 24.33   | -1.173e+04 | 1843.74   | 2336.46   | 9.287e+05 | -6.963e+05 | -6.751e+05 |   |
| 2 | 12 | 106.00  | -1.072e+04 | 1843.74   | 2336.46   | 7.781e+05 | -5.055e+05 | -6.734e+05 |   |

| M S | Cmb | Z       | N memb.    | V memb.   | V orto    | M memb.    | M orto     | T          |
|-----|-----|---------|------------|-----------|-----------|------------|------------|------------|
| 2   | 12  | 187.67  | -9709.22   | 1843.74   | 2336.46   | 6.275e+05  | -3.147e+05 | -6.678e+05 |
| 2   | 12  | 269.33  | -8698.60   | 1843.74   | 2336.46   | 4.770e+05  | -1.238e+05 | -6.230e+05 |
| 2   | 12  | 351.00  | -7687.97   | 1843.74   | 2336.46   | 3.265e+05  | 6.696e+04  | -2.710e+05 |
| 2   | 12  | 424.67  | -5013.94   | 8.29e-06  | -1.94e-06 | -179.96    | -5.46e-05  | 2857.16    |
| 2   | 12  | 498.33  | -4102.31   | -6.88e-06 | 0.0       | -6.04      | 4.49e-06   | -109.65    |
| 2   | 12  | 572.00  | -3190.69   | -6.63e-06 | 0.0       | -0.61      | 0.0        | -62.56     |
| 2   | 12  | 645.67  | -2279.06   | 6.49e-06  | 0.0       | -0.03      | 1.20e-06   | -13.36     |
| 2   | 12  | 719.33  | -1367.44   | 3.25e-06  | 0.0       | 8.36e-03   | 0.0        | -2.51      |
| 2   | 12  | 793.00  | -455.81    | 0.0       | 0.0       | 1.91e-03   | 0.0        | -0.98      |
| 2   | 13  | -139.00 | -1.177e+04 | 101.19    | 157.55    | 6.640e+04  | -8.978e+04 | -6838.79   |
| 2   | 13  | -57.33  | -1.177e+04 | 101.19    | 157.55    | 5.827e+04  | -7.691e+04 | -3.372e+04 |
| 2   | 13  | 24.33   | -1.076e+04 | 101.19    | 157.55    | 4.996e+04  | -6.404e+04 | -3.317e+04 |
| 2   | 13  | 106.00  | -9745.13   | 101.19    | 157.55    | 4.169e+04  | -5.118e+04 | -3.309e+04 |
| 2   | 13  | 187.67  | -8734.51   | 101.19    | 157.55    | 3.343e+04  | -3.831e+04 | -3.281e+04 |
| 2   | 13  | 269.33  | -7723.88   | 101.19    | 157.55    | 2.517e+04  | -2.544e+04 | -3.057e+04 |
| 2   | 13  | 351.00  | -6713.26   | 101.19    | 157.55    | 1.691e+04  | -1.258e+04 | -1.299e+04 |
| 2   | 13  | 424.67  | -5013.94   | 1.08e-05  | 0.0       | -9.62      | 4.38e-06   | 172.38     |
| 2   | 13  | 498.33  | -4102.31   | -6.58e-06 | 0.0       | -0.32      | 2.03e-06   | -1.30      |
| 2   | 13  | 572.00  | -3190.69   | -6.55e-06 | 0.0       | -0.03      | 0.0        | -2.55      |
| 2   | 13  | 645.67  | -2279.06   | 6.55e-06  | 0.0       | -1.92e-03  | 0.0        | -0.59      |
| 2   | 13  | 719.33  | -1367.44   | 3.28e-06  | 0.0       | 1.76e-03   | 0.0        | -0.11      |
| 2   | 13  | 793.00  | -455.81    | 0.0       | 0.0       | -1.46e-04  | 0.0        | -0.05      |
| 2   | 14  | -139.00 | -1.274e+04 | 1843.74   | 2336.46   | 1.228e+06  | -1.078e+06 | -1.410e+05 |
| 2   | 14  | -57.33  | -1.274e+04 | 1843.74   | 2336.46   | 1.080e+06  | -8.871e+05 | -6.868e+05 |
| 2   | 14  | 24.33   | -1.173e+04 | 1843.74   | 2336.46   | 9.287e+05  | -6.963e+05 | -6.751e+05 |
| 2   | 14  | 106.00  | -1.072e+04 | 1843.74   | 2336.46   | 7.781e+05  | -5.055e+05 | -6.734e+05 |
| 2   | 14  | 187.67  | -9709.22   | 1843.74   | 2336.46   | 6.275e+05  | -3.147e+05 | -6.678e+05 |
| 2   | 14  | 269.33  | -8698.60   | 1843.74   | 2336.46   | 4.770e+05  | -1.238e+05 | -6.230e+05 |
| 2   | 14  | 351.00  | -7687.97   | 1843.74   | 2336.46   | 3.265e+05  | 6.696e+04  | -2.710e+05 |
| 2   | 14  | 424.67  | -5013.94   | 8.29e-06  | -1.94e-06 | -179.96    | -5.46e-05  | 2857.16    |
| 2   | 14  | 498.33  | -4102.31   | -6.88e-06 | 0.0       | -6.04      | 4.49e-06   | -109.65    |
| 2   | 14  | 572.00  | -3190.69   | -6.63e-06 | 0.0       | -0.61      | 0.0        | -62.56     |
| 2   | 14  | 645.67  | -2279.06   | 6.49e-06  | 0.0       | -0.03      | 1.20e-06   | -13.36     |
| 2   | 14  | 719.33  | -1367.44   | 3.25e-06  | 0.0       | 8.36e-03   | 0.0        | -2.51      |
| 2   | 14  | 793.00  | -455.81    | 0.0       | 0.0       | 1.91e-03   | 0.0        | -0.98      |
| 2   | 15  | -139.00 | -8514.22   | 144.12    | 7343.57   | 1.574e+05  | -3.309e+06 | 7746.90    |
| 2   | 15  | -57.33  | -8806.90   | 144.12    | 7343.57   | 8.790e+04  | -3.156e+06 | -1.441e+05 |
| 2   | 15  | 24.33   | -6368.87   | 641.40    | 7504.14   | -2.344e+04 | -2.587e+06 | -4.824e+04 |
| 2   | 15  | 106.00  | -5848.21   | 803.38    | 7404.55   | -1.195e+04 | -2.004e+06 | -2.767e+04 |
| 2   | 15  | 187.67  | -5123.08   | 657.57    | 7233.57   | -1.236e+04 | -1.425e+06 | -1.948e+04 |
| 2   | 15  | 269.33  | -4342.19   | 279.50    | 7003.90   | -1.851e+04 | -8.661e+05 | 1260.64    |
| 2   | 15  | 351.00  | -3995.89   | -300.63   | 6792.56   | -1.126e+05 | 3.254e+05  | 2.951e+04  |
| 2   | 15  | 424.67  | -4837.46   | -467.05   | 3206.88   | -9.537e+04 | -7.528e+05 | 4.633e+04  |
| 2   | 15  | 498.33  | -4082.58   | -403.18   | 2845.73   | -7.025e+04 | -5.333e+05 | 2.599e+04  |
| 2   | 15  | 572.00  | -3244.66   | -373.93   | 2381.94   | -4.973e+04 | -3.428e+05 | 1.701e+04  |
| 2   | 15  | 645.67  | -2304.28   | -280.26   | 1823.79   | -2.697e+04 | -1.876e+05 | 1.426e+04  |
| 2   | 15  | 719.33  | -1326.31   | -180.03   | 1175.00   | -1.236e+04 | -7.627e+04 | 8177.17    |
| 2   | 15  | 793.00  | -457.73    | -63.39    | 425.60    | -2387.05   | -1.629e+04 | 4556.54    |
| 2   | 16  | -139.00 | -8554.73   | 2837.42   | 7283.24   | 1.614e+06  | -3.290e+06 | -1.548e+05 |
| 2   | 16  | -57.33  | -8844.45   | 2837.42   | 7283.24   | 1.505e+06  | -3.137e+06 | -5.499e+05 |
| 2   | 16  | 24.33   | -6408.33   | 3299.34   | 7447.06   | 1.222e+06  | -2.545e+06 | -5.720e+05 |
| 2   | 16  | 106.00  | -5886.82   | 3407.30   | 7347.84   | 1.033e+06  | -1.971e+06 | -5.515e+05 |
| 2   | 16  | 187.67  | -5161.22   | 3188.20   | 7177.30   | 8.423e+05  | -1.401e+06 | -5.433e+05 |
| 2   | 16  | 269.33  | -4379.39   | 2715.99   | 6948.26   | 6.507e+05  | -8.710e+05 | -5.206e+05 |
| 2   | 16  | 351.00  | -4033.59   | 2010.73   | 6738.54   | 3.802e+05  | 3.220e+05  | -2.243e+05 |
| 2   | 16  | 424.67  | -4837.19   | 637.03    | 3200.95   | 1.376e+05  | -7.518e+05 | 3678.16    |
| 2   | 16  | 498.33  | -4080.82   | 539.05    | 2848.45   | 9.066e+04  | -5.332e+05 | 1.918e+04  |
| 2   | 16  | 572.00  | -3243.33   | 398.26    | 2377.87   | 5.237e+04  | -3.428e+05 | 2.019e+04  |
| 2   | 16  | 645.67  | -2303.33   | 295.09    | 1825.34   | 2.842e+04  | -1.876e+05 | 1.333e+04  |
| 2   | 16  | 719.33  | -1325.71   | 181.41    | 1174.31   | 1.026e+04  | -7.627e+04 | 8703.91    |
| 2   | 16  | 793.00  | -457.51    | 63.90     | 425.64    | 2411.70    | -1.629e+04 | 4335.37    |
| 2   | 17  | -139.00 | -1.597e+04 | -737.61   | -4598.23  | -2.166e+05 | 2.041e+06  | -4490.98   |
| 2   | 17  | -57.33  | -1.568e+04 | -737.61   | -4598.23  | -2.763e+05 | 2.107e+06  | -2.264e+05 |
| 2   | 17  | 24.33   | -1.609e+04 | -1199.53  | -4762.05  | -1.659e+05 | 1.734e+06  | -1.911e+05 |
| 2   | 17  | 106.00  | -1.459e+04 | -1307.50  | -4662.83  | -1.485e+05 | 1.379e+06  | -2.097e+05 |
| 2   | 17  | 187.67  | -1.330e+04 | -1088.39  | -4492.29  | -1.292e+05 | 1.029e+06  | -2.116e+05 |
| 2   | 17  | 269.33  | -1.206e+04 | -616.18   | -4263.24  | -1.091e+05 | 7.180e+05  | -1.835e+05 |
| 2   | 17  | 351.00  | -1.038e+04 | 89.08     | -4053.53  | -9984.62   | -2.558e+05 | -8.163e+04 |
| 2   | 17  | 424.67  | -5190.68   | -637.03   | -3200.95  | -1.379e+05 | 7.518e+05  | -403.75    |
| 2   | 17  | 498.33  | -4123.81   | -539.05   | -2848.45  | -9.066e+04 | 5.332e+05  | -1.930e+04 |
| 2   | 17  | 572.00  | -3138.05   | -398.26   | -2377.87  | -5.237e+04 | 3.428e+05  | -2.026e+04 |
| 2   | 17  | 645.67  | -2254.79   | -295.09   | -1825.34  | -2.842e+04 | 1.876e+05  | -1.335e+04 |
| 2   | 17  | 719.33  | -1409.17   | -181.41   | -1174.31  | -1.026e+04 | 7.627e+04  | -8706.74   |
| 2   | 17  | 793.00  | -454.11    | -63.90    | -425.64   | -2411.70   | 1.629e+04  | -4336.48   |

| M S | Cmb | Z       | N memb.    | V memb.  | V orto   | M memb.    | M orto     | T          |
|-----|-----|---------|------------|----------|----------|------------|------------|------------|
| 2   | 18  | -139.00 | -1.601e+04 | 1955.68  | -4658.56 | 1.240e+06  | 2.060e+06  | -1.670e+05 |
| 2   | 18  | -57.33  | -1.571e+04 | 1955.68  | -4658.56 | 1.141e+06  | 2.126e+06  | -6.321e+05 |
| 2   | 18  | 24.33   | -1.613e+04 | 1458.40  | -4819.13 | 1.080e+06  | 1.776e+06  | -7.148e+05 |
| 2   | 18  | 106.00  | -1.463e+04 | 1296.42  | -4719.54 | 8.966e+05  | 1.412e+06  | -7.336e+05 |
| 2   | 18  | 187.67  | -1.333e+04 | 1442.23  | -4548.56 | 7.255e+05  | 1.052e+06  | -7.354e+05 |
| 2   | 18  | 269.33  | -1.209e+04 | 1820.31  | -4318.89 | 5.602e+05  | 7.131e+05  | -7.054e+05 |
| 2   | 18  | 351.00  | -1.042e+04 | 2400.44  | -4107.55 | 4.828e+05  | -2.592e+05 | -3.354e+05 |
| 2   | 18  | 424.67  | -5190.41   | 467.05   | -3206.88 | 9.517e+04  | 7.528e+05  | -4.305e+04 |
| 2   | 18  | 498.33  | -4122.05   | 403.18   | -2845.73 | 7.024e+04  | 5.333e+05  | -2.611e+04 |
| 2   | 18  | 572.00  | -3136.72   | 373.93   | -2381.94 | 4.973e+04  | 3.428e+05  | -1.708e+04 |
| 2   | 18  | 645.67  | -2253.85   | 280.26   | -1823.79 | 2.697e+04  | 1.876e+05  | -1.428e+04 |
| 2   | 18  | 719.33  | -1408.57   | 180.03   | -1175.00 | 1.236e+04  | 7.627e+04  | -8180.00   |
| 2   | 18  | 793.00  | -453.90    | 63.39    | -425.60  | 2387.05    | 1.629e+04  | -4557.64   |
| 2   | 19  | -139.00 | -8517.58   | 98.47    | 7339.66  | 1.398e+05  | -3.308e+06 | 4981.12    |
| 2   | 19  | -57.33  | -8810.04   | 98.47    | 7339.66  | 7.074e+04  | -3.155e+06 | -1.494e+05 |
| 2   | 19  | 24.33   | -6372.18   | 596.10   | 7500.29  | -3.759e+04 | -2.586e+06 | -5.473e+04 |
| 2   | 19  | 106.00  | -5851.52   | 758.57   | 7400.73  | -2.270e+04 | -2.003e+06 | -3.415e+04 |
| 2   | 19  | 187.67  | -5126.41   | 613.44   | 7229.79  | -1.981e+04 | -1.424e+06 | -2.599e+04 |
| 2   | 19  | 269.33  | -4345.50   | 236.43   | 7000.18  | -2.272e+04 | -8.686e+05 | -5217.08   |
| 2   | 19  | 351.00  | -3999.36   | -342.10  | 6789.27  | -1.136e+05 | 3.252e+05  | 2.711e+04  |
| 2   | 19  | 424.67  | -4837.54   | -468.60  | 3206.11  | -9.573e+04 | -7.526e+05 | 4.610e+04  |
| 2   | 19  | 498.33  | -4082.58   | -404.36  | 2845.40  | -7.042e+04 | -5.332e+05 | 2.596e+04  |
| 2   | 19  | 572.00  | -3244.67   | -374.86  | 2381.98  | -4.985e+04 | -3.428e+05 | 1.628e+04  |
| 2   | 19  | 645.67  | -2304.29   | -280.93  | 1823.75  | -2.703e+04 | -1.876e+05 | 1.426e+04  |
| 2   | 19  | 719.33  | -1326.32   | -180.44  | 1175.00  | -1.238e+04 | -7.627e+04 | 8181.44    |
| 2   | 19  | 793.00  | -457.73    | -63.53   | 425.60   | -2392.14   | -1.629e+04 | 4554.92    |
| 2   | 20  | -139.00 | -8551.38   | 2883.07  | 7287.16  | 1.631e+06  | -3.291e+06 | -1.520e+05 |
| 2   | 20  | -57.33  | -8841.31   | 2883.07  | 7287.16  | 1.522e+06  | -3.138e+06 | -5.446e+05 |
| 2   | 20  | 24.33   | -6405.02   | 3344.64  | 7450.91  | 1.236e+06  | -2.546e+06 | -5.655e+05 |
| 2   | 20  | 106.00  | -5883.51   | 3452.12  | 7351.66  | 1.044e+06  | -1.972e+06 | -5.450e+05 |
| 2   | 20  | 187.67  | -5157.90   | 3232.33  | 7181.09  | 8.498e+05  | -1.402e+06 | -5.368e+05 |
| 2   | 20  | 269.33  | -4376.07   | 2759.05  | 6951.98  | 6.550e+05  | -8.684e+05 | -5.141e+05 |
| 2   | 20  | 351.00  | -4030.11   | 2052.20  | 6741.82  | 3.813e+05  | 3.222e+05  | -2.219e+05 |
| 2   | 20  | 424.67  | -4837.11   | 638.57   | 3201.72  | 1.380e+05  | -7.519e+05 | 3905.13    |
| 2   | 20  | 498.33  | -4080.82   | 540.23   | 2848.79  | 9.083e+04  | -5.332e+05 | 1.921e+04  |
| 2   | 20  | 572.00  | -3243.32   | 399.19   | 2377.83  | 5.249e+04  | -3.428e+05 | 2.093e+04  |
| 2   | 20  | 645.67  | -2303.32   | 295.76   | 1825.38  | 2.848e+04  | -1.876e+05 | 1.334e+04  |
| 2   | 20  | 719.33  | -1325.70   | 181.82   | 1174.31  | 1.028e+04  | -7.627e+04 | 8699.64    |
| 2   | 20  | 793.00  | -457.51    | 64.04    | 425.64   | 2416.79    | -1.629e+04 | 4337.00    |
| 2   | 21  | -139.00 | -1.597e+04 | -783.27  | -4602.14 | -2.342e+05 | 2.042e+06  | -7256.75   |
| 2   | 21  | -57.33  | -1.568e+04 | -783.27  | -4602.14 | -2.934e+05 | 2.108e+06  | -2.317e+05 |
| 2   | 21  | 24.33   | -1.609e+04 | -1244.84 | -4765.90 | -1.801e+05 | 1.735e+06  | -1.976e+05 |
| 2   | 21  | 106.00  | -1.459e+04 | -1352.31 | -4666.65 | -1.592e+05 | 1.380e+06  | -2.162e+05 |
| 2   | 21  | 187.67  | -1.330e+04 | -1132.53 | -4496.08 | -1.366e+05 | 1.029e+06  | -2.182e+05 |
| 2   | 21  | 269.33  | -1.206e+04 | -659.25  | -4266.97 | -1.133e+05 | 7.154e+05  | -1.900e+05 |
| 2   | 21  | 351.00  | -1.038e+04 | 47.61    | -4056.81 | -1.101e+04 | -2.560e+05 | -8.402e+04 |
| 2   | 21  | 424.67  | -5190.76   | -638.57  | -3201.72 | -1.382e+05 | 7.519e+05  | -630.72    |
| 2   | 21  | 498.33  | -4123.81   | -540.23  | -2848.79 | -9.084e+04 | 5.332e+05  | -1.933e+04 |
| 2   | 21  | 572.00  | -3138.05   | -399.19  | -2377.83 | -5.249e+04 | 3.428e+05  | -2.100e+04 |
| 2   | 21  | 645.67  | -2254.80   | -295.76  | -1825.38 | -2.848e+04 | 1.876e+05  | -1.335e+04 |
| 2   | 21  | 719.33  | -1409.18   | -181.82  | -1174.31 | -1.028e+04 | 7.627e+04  | -8702.46   |
| 2   | 21  | 793.00  | -454.12    | -64.04   | -425.64  | -2416.79   | 1.629e+04  | -4338.10   |
| 2   | 22  | -139.00 | -1.600e+04 | 2001.34  | -4654.64 | 1.257e+06  | 2.059e+06  | -1.643e+05 |
| 2   | 22  | -57.33  | -1.571e+04 | 2001.34  | -4654.64 | 1.158e+06  | 2.125e+06  | -6.269e+05 |
| 2   | 22  | 24.33   | -1.613e+04 | 1503.71  | -4815.28 | 1.094e+06  | 1.775e+06  | -7.084e+05 |
| 2   | 22  | 106.00  | -1.463e+04 | 1341.24  | -4715.72 | 9.073e+05  | 1.411e+06  | -7.271e+05 |
| 2   | 22  | 187.67  | -1.333e+04 | 1486.36  | -4544.78 | 7.329e+05  | 1.052e+06  | -7.289e+05 |
| 2   | 22  | 269.33  | -1.209e+04 | 1863.38  | -4315.17 | 5.644e+05  | 7.156e+05  | -6.989e+05 |
| 2   | 22  | 351.00  | -1.041e+04 | 2441.90  | -4104.26 | 4.839e+05  | -2.590e+05 | -3.330e+05 |
| 2   | 22  | 424.67  | -5190.34   | 468.60   | -3206.11 | 9.553e+04  | 7.526e+05  | -4.282e+04 |
| 2   | 22  | 498.33  | -4122.05   | 404.36   | -2845.40 | 7.041e+04  | 5.332e+05  | -2.608e+04 |
| 2   | 22  | 572.00  | -3136.71   | 374.86   | -2381.98 | 4.985e+04  | 3.428e+05  | -1.635e+04 |
| 2   | 22  | 645.67  | -2253.84   | 280.93   | -1823.75 | 2.703e+04  | 1.876e+05  | -1.427e+04 |
| 2   | 22  | 719.33  | -1408.56   | 180.44   | -1175.00 | 1.238e+04  | 7.627e+04  | -8184.27   |
| 2   | 22  | 793.00  | -453.89    | 63.53    | -425.60  | 2392.14    | 1.629e+04  | -4556.02   |
| 2   | 23  | -139.00 | -8581.12   | -250.48  | 7390.89  | 1.200e+04  | -3.319e+06 | -9628.49   |
| 2   | 23  | -57.33  | -8753.28   | -250.48  | 7390.89  | -5.305e+04 | -3.166e+06 | -2.079e+05 |
| 2   | 23  | 24.33   | -7563.12   | -8.01    | 7497.30  | -1.274e+05 | -2.595e+06 | -5.585e+04 |
| 2   | 23  | 106.00  | -6665.91   | 89.03    | 7395.48  | -1.083e+05 | -2.010e+06 | -8.056e+04 |
| 2   | 23  | 187.67  | -5678.58   | 95.77    | 7224.96  | -9.340e+04 | -1.429e+06 | -7.437e+04 |
| 2   | 23  | 269.33  | -4698.75   | -104.90  | 6992.59  | -8.071e+04 | -8.685e+05 | -5.284e+04 |
| 2   | 23  | 351.00  | -3826.26   | -121.26  | 6774.43  | -9.859e+04 | 4.643e+05  | -2.810e+04 |
| 2   | 23  | 424.67  | -4852.61   | -595.15  | 3223.96  | -1.233e+05 | -7.551e+05 | -1809.28   |
| 2   | 23  | 498.33  | -4157.58   | -491.70  | 2854.63  | -8.344e+04 | -5.350e+05 | -1.929e+04 |

| M_S | Cmb | Z      | N memb.    | V memb.  | V orto   | M memb.    | M orto     | T          |
|-----|-----|--------|------------|----------|----------|------------|------------|------------|
| 2   | 23  | 572.00 | -3218.13   | -395.76  | 2389.47  | -5.217e+04 | -3.439e+05 | -2.023e+04 |
| 2   | 23  | 645.67 | -2291.19   | -292.02  | 1829.63  | -2.810e+04 | -1.882e+05 | -1.330e+04 |
| 2   | 23  | 719.33 | -1355.72   | -181.06  | 1178.82  | -1.160e+04 | -7.652e+04 | -8684.72   |
| ... |     |        |            |          |          |            |            |            |
| 2   | 96  | 793.00 | -455.81    | 0.0      | 0.0      | 6.97e-04   | 0.0        | -0.43      |
| M_S |     |        | N memb.    | V memb.  | V orto   | M memb.    | M orto     | T          |
|     |     |        | -1.624e+04 | -3807.14 | -4819.13 | -1.859e+06 | -3.319e+06 | -1.281e+06 |
|     |     |        | -453.89    | 5906.95  | 7504.14  | 3.241e+06  | 2.136e+06  | 5.454e+05  |

| Macro | Tipo   | Angolo 1-□ (gradi) |
|-------|--------|--------------------|
| 1     | Guscio | 0.0                |

| M_G | Cmb | Nodo | N max     | N min     | N 1       | N 2    | N 1-2     | M max   | M min    | M 1      | M 2     | M 1-2    |
|-----|-----|------|-----------|-----------|-----------|--------|-----------|---------|----------|----------|---------|----------|
|     |     |      | daN/cm    | daN/cm    | daN/cm    | daN/cm | daN/cm    | daN     | daN      | daN      | daN     | daN      |
| 1   | 1   | 1    | 1.16      | -0.53     | -0.53     | 1.15   | 8.06e-02  | 32.39   | -23.50   | -18.51   | 27.40   | 15.94    |
| 1   | 1   | 2    | 14.08     | 2.11      | 4.27      | 11.92  | 4.60      | -115.59 | -2034.21 | -2034.13 | -115.67 | 12.37    |
| 1   | 1   | 3    | 8.88e-02  | -2.32     | 5.55e-02  | -2.29  | -0.28     | 69.68   | -291.91  | -8.24    | -213.99 | 148.67   |
| 1   | 1   | 10   | 0.93      | -1.34     | 0.92      | -1.33  | -9.04e-02 | 73.49   | -4.11    | 18.32    | 51.06   | -35.18   |
| 1   | 1   | 11   | 10.91     | 4.70      | 7.55      | 8.05   | -3.09     | -84.11  | -1516.99 | -1516.96 | -84.14  | -7.16    |
| 1   | 1   | 12   | 1.10      | -1.11     | -1.06     | 1.04   | 0.36      | 80.14   | -254.25  | 12.60    | -186.71 | -134.25  |
| 1   | 1   | 19   | 0.30      | -1.37     | -1.35     | 0.28   | -0.16     | 146.84  | -24.17   | 145.44   | -22.77  | -15.43   |
| 1   | 1   | 20   | 1.26      | -1.65     | -0.11     | -0.28  | 1.45      | 181.92  | -38.64   | 136.53   | 6.75    | -89.17   |
| 1   | 1   | 21   | 0.82      | -0.47     | 5.58e-02  | 0.29   | 0.63      | 6.28    | -26.81   | -4.53    | -15.99  | -15.52   |
| 1   | 1   | 22   | -8.85e-02 | -4.41     | -4.40     | -0.10  | 0.23      | 175.78  | -76.85   | 167.98   | -69.04  | -43.71   |
| 1   | 1   | 23   | 1.90      | -2.31     | -3.72e-02 | -0.38  | 2.10      | 234.85  | -71.98   | 160.46   | 2.40    | -131.49  |
| 1   | 1   | 24   | -2.28     | -9.60     | -9.31     | -2.57  | 1.43      | -87.77  | -368.07  | -339.63  | -116.21 | -84.63   |
| 1   | 1   | 25   | 2.06      | -0.23     | 0.99      | 0.84   | 1.14      | 20.84   | -360.71  | -291.95  | -47.91  | -146.65  |
| 1   | 1   | 26   | 6.20      | -3.79     | -3.73     | 6.14   | 0.81      | -355.64 | -1934.41 | -1934.37 | -355.68 | 7.81     |
| 1   | 1   | 27   | 1.29      | -0.79     | 0.83      | -0.33  | 0.86      | 156.57  | -61.11   | 97.23    | -1.77   | -96.93   |
| 1   | 1   | 28   | 0.37      | -1.24     | 0.13      | -1.00  | 0.57      | 14.50   | -25.12   | 4.63     | -15.24  | -17.14   |
| 1   | 1   | 29   | 2.65      | -0.60     | 2.39      | -0.35  | 0.87      | 196.19  | -59.39   | 122.60   | 14.20   | -115.73  |
| 1   | 1   | 30   | 4.90      | 0.58      | 4.33      | 1.14   | 1.46      | 26.73   | -255.19  | -212.53  | -15.93  | -101.03  |
| 1   | 1   | 31   | 5.45      | -1.54     | -1.31     | 5.23   | 1.25      | -295.05 | -1684.56 | -1684.06 | -295.55 | -26.37   |
| 1   | 1   | 32   | 1.70      | -0.48     | 1.44      | -0.21  | -0.71     | 94.83   | -8.84    | 85.71    | 0.27    | -29.35   |
| 1   | 1   | 33   | 2.90      | -0.36     | 2.73      | -0.20  | -0.71     | 104.06  | -49.04   | 97.92    | -42.89  | -30.05   |
| 1   | 1   | 34   | 3.71      | -2.03     | 3.24      | -1.57  | -1.57     | -94.45  | -220.21  | -219.33  | -95.33  | -10.47   |
| 1   | 1   | 35   | 7.05      | -2.52     | -0.55     | 5.08   | 3.87      | -90.74  | -606.55  | -590.61  | -106.68 | 89.25    |
| 1   | 1   | 36   | 2.13      | -2.84     | 2.13      | -2.84  | -4.33e-02 | -198.52 | -598.79  | -572.25  | -225.06 | 99.59    |
| 1   | 1   | 37   | 4.37      | -1.17     | -1.01     | 4.20   | -0.93     | -100.68 | -586.59  | -585.66  | -101.61 | 21.20    |
| 1   | 1   | 38   | 0.58      | -1.52     | -0.22     | -0.72  | -1.02     | -179.10 | -600.93  | -589.50  | -190.53 | -68.48   |
| 1   | 1   | 39   | 2.03      | -0.27     | 0.15      | 1.60   | 0.90      | 1.14    | -41.35   | -1.98    | -38.24  | 11.08    |
| 1   | 1   | 40   | 3.33      | -1.68e-02 | 4.07e-02  | 3.27   | 0.43      | 2.19    | -26.22   | -0.20    | -23.82  | 7.89     |
| 1   | 2   | 1    | 11.32     | -5.87     | -5.84     | 11.29  | 0.72      | 31.76   | -170.60  | -168.91  | 30.08   | 18.38    |
| 1   | 2   | 2    | 46.08     | -27.52    | -11.01    | 29.57  | 30.70     | -283.58 | -2987.94 | -2986.41 | -285.11 | -64.29   |
| 1   | 2   | 3    | 2.69      | -16.99    | 2.69      | -16.99 | -4.65e-02 | 54.76   | -570.20  | -108.12  | -407.33 | 274.34   |
| 1   | 2   | 10   | 8.29      | -13.06    | 8.27      | -13.03 | -0.73     | 394.86  | 4.96     | 158.47   | 241.35  | -190.50  |
| 1   | 2   | 11   | 31.00     | -11.48    | 24.15     | -4.63  | -15.62    | 1663.67 | -21.16   | 1648.86  | -6.35   | 157.26   |
| 1   | 2   | 12   | 14.82     | -8.05     | -8.03     | 14.80  | 0.74      | 160.05  | -232.20  | 90.38    | -162.53 | -149.92  |
| 1   | 2   | 19   | 3.35      | -12.20    | -11.71    | 2.86   | -2.70     | 786.46  | -73.62   | 758.51   | -45.66  | -152.52  |
| 1   | 2   | 20   | 10.44     | -14.09    | -2.66     | -0.99  | 12.24     | 1189.68 | -506.57  | 659.10   | 24.01   | -786.43  |
| 1   | 2   | 21   | 9.47      | -3.44     | 0.49      | 5.54   | 5.94      | 90.12   | -197.47  | -37.92   | -69.44  | -142.93  |
| 1   | 2   | 22   | 0.67      | -34.84    | -34.84    | 0.67   | -0.20     | 1697.64 | -193.63  | 1656.08  | -152.07 | -277.26  |
| 1   | 2   | 23   | 13.08     | -22.58    | -6.32     | -3.19  | 17.76     | 2070.41 | -525.32  | 1520.13  | 24.96   | -1060.93 |
| 1   | 2   | 24   | -6.61     | -72.32    | -71.97    | -6.96  | 4.80      | 1445.32 | -356.82  | 1349.47  | -260.97 | -404.40  |
| 1   | 2   | 25   | 13.51     | -23.27    | -2.90     | -6.86  | 18.28     | 2216.51 | -500.80  | 1666.44  | 49.27   | -1091.85 |
| 1   | 2   | 26   | 14.57     | -15.28    | -11.56    | 10.85  | 9.86      | -511.73 | -1745.85 | -1745.67 | -511.90 | 14.54    |
| 1   | 2   | 27   | 13.88     | -8.89     | 6.54      | -1.55  | 10.64     | 1017.01 | -753.60  | 312.85   | -49.44  | -866.58  |
| 1   | 2   | 28   | 4.23      | -10.19    | 1.15      | -7.11  | 5.91      | 147.16  | -165.49  | 43.14    | -61.47  | -147.32  |
| 1   | 2   | 29   | 23.08     | -8.41     | 17.70     | -3.03  | 11.85     | 1912.73 | -576.36  | 1200.85  | 135.52  | -1124.79 |
| 1   | 2   | 30   | 32.30     | -5.54     | 30.38     | -3.62  | 8.30      | 2874.53 | -93.66   | 2434.82  | 346.05  | -1054.41 |
| 1   | 2   | 31   | 18.38     | -3.94     | 11.56     | 2.89   | 10.28     | 506.90  | 18.16    | 500.12   | 24.95   | -57.18   |
| 1   | 2   | 32   | 17.08     | -3.85     | 15.38     | -2.15  | -5.71     | 444.82  | -51.31   | 233.13   | 160.37  | -245.38  |
| 1   | 2   | 33   | 35.47     | -1.10     | 34.92     | -0.55  | -4.45     | 1192.41 | -45.76   | 1064.93  | 81.72   | -376.29  |
| 1   | 2   | 34   | 52.07     | 1.08      | 51.29     | 1.87   | -6.27     | 2605.17 | -150.49  | 2535.24  | -80.56  | -433.36  |
| 1   | 2   | 35   | 31.65     | -18.03    | -3.85     | 17.47  | 22.44     | 75.20   | -1262.97 | -908.43  | -279.34 | 590.54   |
| 1   | 2   | 36   | 18.91     | -11.59    | 18.83     | -11.51 | 1.57      | -214.29 | -831.89  | -642.83  | -403.35 | 284.65   |
| 1   | 2   | 37   | 10.85     | -9.68     | -8.11     | 9.29   | 5.45      | 10.12   | -1172.29 | -906.76  | -255.40 | 493.41   |
| 1   | 2   | 38   | 15.17     | -10.97    | -4.05     | 8.25   | -11.53    | -91.95  | -877.39  | -877.35  | -91.98  | 4.99     |
| 1   | 2   | 39   | 13.22     | -4.16     | 0.76      | 8.30   | 7.83      | 36.14   | -234.85  | -5.99    | -192.72 | 98.20    |
| 1   | 2   | 40   | 24.96     | -1.32     | -0.37     | 24.02  | 4.89      | 68.65   | -126.93  | 14.86    | -73.13  | 87.33    |
| 1   | 3   | 1    | 1.16      | -0.53     | -0.53     | 1.15   | 8.06e-02  | 32.39   | -23.50   | -18.51   | 27.40   | 15.94    |

| M_G | Cmb | Nodo | N max     | N min     | N 1       | N 2       | N 1-2     | M max   | M min    | M 1      | M 2     | M 1-2    |
|-----|-----|------|-----------|-----------|-----------|-----------|-----------|---------|----------|----------|---------|----------|
| 1   | 3   | 2    | 14.08     | 2.11      | 4.27      | 11.92     | 4.60      | -115.59 | -2034.21 | -2034.13 | -115.67 | 12.37    |
| 1   | 3   | 3    | 8.88e-02  | -2.32     | 5.55e-02  | -2.29     | -0.28     | 69.68   | -291.91  | -8.24    | -213.99 | 148.67   |
| 1   | 3   | 10   | 0.93      | -1.34     | 0.92      | -1.33     | -9.04e-02 | 73.49   | -4.11    | 18.32    | 51.06   | -35.18   |
| 1   | 3   | 11   | 10.91     | 4.70      | 7.55      | 8.05      | -3.09     | -84.11  | -1516.99 | -1516.96 | -84.14  | -7.16    |
| 1   | 3   | 12   | 1.10      | -1.11     | -1.06     | 1.04      | 0.36      | 80.14   | -254.25  | 12.60    | -186.71 | -134.25  |
| 1   | 3   | 19   | 0.30      | -1.37     | -1.35     | 0.28      | -0.16     | 146.84  | -24.17   | 145.44   | -22.77  | -15.43   |
| 1   | 3   | 20   | 1.26      | -1.65     | -0.11     | -0.28     | 1.45      | 181.92  | -38.64   | 136.53   | 6.75    | -89.17   |
| 1   | 3   | 21   | 0.82      | -0.47     | 5.58e-02  | 0.29      | 0.63      | 6.28    | -26.81   | -4.53    | -15.99  | -15.52   |
| 1   | 3   | 22   | -8.85e-02 | -4.41     | -4.40     | -0.10     | 0.23      | 175.78  | -76.85   | 167.98   | -69.04  | -43.71   |
| 1   | 3   | 23   | 1.90      | -2.31     | -3.72e-02 | -0.38     | 2.10      | 234.85  | -71.98   | 160.46   | 2.40    | -131.49  |
| 1   | 3   | 24   | -2.28     | -9.60     | -9.31     | -2.57     | 1.43      | -87.77  | -368.07  | -339.63  | -116.21 | -84.63   |
| 1   | 3   | 25   | 2.06      | -0.23     | 0.99      | 0.84      | 1.14      | 20.84   | -360.71  | -291.95  | -47.91  | -146.65  |
| 1   | 3   | 26   | 6.20      | -3.79     | -3.73     | 6.14      | 0.81      | -355.64 | -1934.41 | -1934.37 | -355.68 | 7.81     |
| 1   | 3   | 27   | 1.29      | -0.79     | 0.83      | -0.33     | 0.86      | 156.57  | -61.11   | 97.23    | -1.77   | -96.93   |
| 1   | 3   | 28   | 0.37      | -1.24     | 0.13      | -1.00     | 0.57      | 14.50   | -25.12   | 4.63     | -15.24  | -17.14   |
| 1   | 3   | 29   | 2.65      | -0.60     | 2.39      | -0.35     | 0.87      | 196.19  | -59.39   | 122.60   | 14.20   | -115.73  |
| 1   | 3   | 30   | 4.90      | 0.58      | 4.33      | 1.14      | 1.46      | 26.73   | -255.19  | -212.53  | -15.93  | -101.03  |
| 1   | 3   | 31   | 5.45      | -1.54     | -1.31     | 5.23      | 1.25      | -295.05 | -1684.56 | -1684.06 | -295.55 | -26.37   |
| 1   | 3   | 32   | 1.70      | -0.48     | 1.44      | -0.21     | -0.71     | 94.83   | -8.84    | 85.71    | 0.27    | -29.35   |
| 1   | 3   | 33   | 2.90      | -0.36     | 2.73      | -0.20     | -0.71     | 104.06  | -49.04   | 97.92    | -42.89  | -30.05   |
| 1   | 3   | 34   | 3.71      | -2.03     | 3.24      | -1.57     | -1.57     | -94.45  | -220.21  | -219.33  | -95.33  | -10.47   |
| 1   | 3   | 35   | 7.05      | -2.52     | -0.55     | 5.08      | 3.87      | -90.74  | -606.55  | -590.61  | -106.68 | 89.25    |
| 1   | 3   | 36   | 2.13      | -2.84     | 2.13      | -2.84     | -4.33e-02 | -198.52 | -598.79  | -572.25  | -225.06 | 99.59    |
| 1   | 3   | 37   | 4.37      | -1.17     | -1.01     | 4.20      | -0.93     | -100.68 | -586.59  | -585.66  | -101.61 | 21.20    |
| 1   | 3   | 38   | 0.58      | -1.52     | -0.22     | -0.72     | -1.02     | -179.10 | -600.93  | -589.50  | -190.53 | -68.48   |
| 1   | 3   | 39   | 2.03      | -0.27     | 0.15      | 1.60      | 0.90      | 1.14    | -41.35   | -1.98    | -38.24  | 11.08    |
| 1   | 3   | 40   | 3.33      | -1.68e-02 | 4.07e-02  | 3.27      | 0.43      | 2.19    | -26.22   | -0.20    | -23.82  | 7.89     |
| 1   | 4   | 1    | 11.32     | -5.87     | -5.84     | 11.29     | 0.72      | 31.76   | -170.60  | -168.91  | 30.08   | 18.38    |
| 1   | 4   | 2    | 46.08     | -27.52    | -11.01    | 29.57     | 30.70     | -283.58 | -2987.94 | -2986.41 | -285.11 | -64.29   |
| 1   | 4   | 3    | 2.69      | -16.99    | 2.69      | -16.99    | -4.65e-02 | 54.76   | -570.20  | -108.12  | -407.33 | 274.34   |
| 1   | 4   | 10   | 8.29      | -13.06    | 8.27      | -13.03    | -0.73     | 394.86  | 4.96     | 158.47   | 241.35  | -190.50  |
| 1   | 4   | 11   | 31.00     | -11.48    | 24.15     | -4.63     | -15.62    | 1663.67 | -21.16   | 1648.86  | -6.35   | 157.26   |
| 1   | 4   | 12   | 14.82     | -8.05     | -8.03     | 14.80     | 0.74      | 160.05  | -232.20  | 90.38    | -162.53 | -149.92  |
| 1   | 4   | 19   | 3.35      | -12.20    | -11.71    | 2.86      | -2.70     | 786.46  | -73.62   | 758.51   | -45.66  | -152.52  |
| 1   | 4   | 20   | 10.44     | -14.09    | -2.66     | -0.99     | 12.24     | 1189.68 | -506.57  | 659.10   | 24.01   | -786.43  |
| 1   | 4   | 21   | 9.47      | -3.44     | 0.49      | 5.54      | 5.94      | 90.12   | -197.47  | -37.92   | -69.44  | -142.93  |
| 1   | 4   | 22   | 0.67      | -34.84    | -34.84    | 0.67      | -0.20     | 1697.64 | -193.63  | 1656.08  | -152.07 | -277.26  |
| 1   | 4   | 23   | 13.08     | -22.58    | -6.32     | -3.19     | 17.76     | 2070.41 | -525.32  | 1520.13  | 24.96   | -1060.93 |
| 1   | 4   | 24   | -6.61     | -72.32    | -71.97    | -6.96     | 4.80      | 1445.32 | -356.82  | 1349.47  | -260.97 | -404.40  |
| 1   | 4   | 25   | 13.51     | -23.27    | -2.90     | -6.86     | 18.28     | 2216.51 | -500.80  | 1666.44  | 49.27   | -1091.85 |
| 1   | 4   | 26   | 14.57     | -15.28    | -11.56    | 10.85     | 9.86      | -511.73 | -1745.85 | -1745.67 | -511.90 | 14.54    |
| 1   | 4   | 27   | 13.88     | -8.89     | 6.54      | -1.55     | 10.64     | 1017.01 | -753.60  | 312.85   | -49.44  | -866.58  |
| 1   | 4   | 28   | 4.23      | -10.19    | 1.15      | -7.11     | 5.91      | 147.16  | -165.49  | 43.14    | -61.47  | -147.32  |
| 1   | 4   | 29   | 23.08     | -8.41     | 17.70     | -3.03     | 11.85     | 1912.73 | -576.36  | 1200.85  | 135.52  | -1124.79 |
| 1   | 4   | 30   | 32.30     | -5.54     | 30.38     | -3.62     | 8.30      | 2874.53 | -93.66   | 2434.82  | 346.05  | -1054.41 |
| 1   | 4   | 31   | 18.38     | -3.94     | 11.56     | 2.89      | 10.28     | 506.90  | 18.16    | 500.12   | 24.95   | -57.18   |
| 1   | 4   | 32   | 17.08     | -3.85     | 15.38     | -2.15     | -5.71     | 444.82  | -51.31   | 233.13   | 160.37  | -245.38  |
| 1   | 4   | 33   | 35.47     | -1.10     | 34.92     | -0.55     | -4.45     | 1192.41 | -45.76   | 1064.93  | 81.72   | -376.29  |
| 1   | 4   | 34   | 52.07     | 1.08      | 51.29     | 1.87      | -6.27     | 2605.17 | -150.49  | 2535.24  | -80.56  | -433.36  |
| 1   | 4   | 35   | 31.65     | -18.03    | -3.85     | 17.47     | 22.44     | 75.20   | -1262.97 | -908.43  | -279.34 | 590.54   |
| 1   | 4   | 36   | 18.91     | -11.59    | 18.83     | -11.51    | 1.57      | -214.29 | -831.89  | -642.83  | -403.35 | 284.65   |
| 1   | 4   | 37   | 10.85     | -9.68     | -8.11     | 9.29      | 5.45      | 10.12   | -1172.29 | -906.76  | -255.40 | 493.41   |
| 1   | 4   | 38   | 15.17     | -10.97    | -4.05     | 8.25      | -11.53    | -91.95  | -877.39  | -877.35  | -91.98  | 4.99     |
| 1   | 4   | 39   | 13.22     | -4.16     | 0.76      | 8.30      | 7.83      | 36.14   | -234.85  | -5.99    | -192.72 | 98.20    |
| 1   | 4   | 40   | 24.96     | -1.32     | -0.37     | 24.02     | 4.89      | 68.65   | -126.93  | 14.86    | -73.13  | 87.33    |
| 1   | 5   | 1    | 0.76      | -0.34     | -0.34     | 0.75      | 5.30e-02  | 25.69   | -16.13   | -11.92   | 21.49   | 12.58    |
| 1   | 5   | 2    | 10.43     | 1.97      | 3.47      | 8.92      | 3.24      | -86.69  | -1549.95 | -1549.87 | -86.77  | 10.77    |
| 1   | 5   | 3    | 3.43e-02  | -1.59     | 3.03e-03  | -1.56     | -0.22     | 53.99   | -221.31  | -4.96    | -162.36 | 112.93   |
| 1   | 5   | 10   | 0.61      | -0.87     | 0.61      | -0.86     | -5.89e-02 | 52.29   | -3.60    | 11.90    | 36.79   | -25.02   |
| 1   | 5   | 11   | 8.31      | 3.74      | 5.62      | 6.43      | -2.25     | -66.35  | -1215.36 | -1215.32 | -66.39  | -7.18    |
| 1   | 5   | 12   | 0.65      | -0.77     | -0.72     | 0.60      | 0.27      | 60.82   | -196.96  | 8.57     | -144.71 | -103.62  |
| 1   | 5   | 19   | 0.19      | -0.91     | -0.90     | 0.19      | -8.60e-02 | 104.78  | -17.68   | 104.02   | -16.93  | -9.56    |
| 1   | 5   | 20   | 0.85      | -1.11     | -5.07e-02 | -0.21     | 0.98      | 125.95  | -22.54   | 98.56    | 4.85    | -57.59   |
| 1   | 5   | 21   | 0.51      | -0.33     | 3.62e-02  | 0.15      | 0.42      | 3.54    | -18.20   | -2.95    | -11.71  | -9.95    |
| 1   | 5   | 22   | -7.37e-02 | -3.00     | -2.99     | -8.51e-02 | 0.18      | 116.08  | -57.16   | 110.80   | -51.88  | -29.77   |
| 1   | 5   | 23   | 1.32      | -1.53     | 5.31e-02  | -0.26     | 1.41      | 155.68  | -46.80   | 107.15   | 1.74    | -86.44   |
| 1   | 5   | 24   | -1.68     | -6.60     | -6.36     | -1.91     | 1.06      | -70.49  | -297.89  | -280.81  | -87.57  | -59.94   |
| 1   | 5   | 25   | 1.45      | 0.11      | 0.82      | 0.74      | 0.67      | 0.69    | -285.76  | -247.37  | -37.69  | -97.58   |
| 1   | 5   | 26   | 4.70      | -2.80     | -2.76     | 4.66      | 0.50      | -271.54 | -1490.49 | -1490.45 | -271.58 | 7.29     |
| 1   | 5   | 27   | 0.82      | -0.51     | 0.56      | -0.24     | 0.53      | 109.04  | -36.52   | 73.17    | -0.65   | -62.73   |
| 1   | 5   | 28   | 0.23      | -0.83     | 8.34e-02  | -0.69     | 0.37      | 9.10    | -17.36   | 2.97     | -11.22  | -11.17   |
| 1   | 5   | 29   | 1.77      | -0.37     | 1.64      | -0.24     | 0.52      | 128.08  | -35.93   | 82.75    | 9.39    | -73.34   |
| 1   | 5   | 30   | 3.42      | 0.51      | 3.00      | 0.94      | 1.03      | 2.62    | -215.30  | -195.73  | -16.95  | -62.30   |
| 1   | 5   | 31   | 4.20      | -1.32     | -1.20     | 4.07      | 0.83      | -232.37 | -1328.83 | -1328.51 | -232.69 | -18.71   |

| M_G | Cmb | Nodo | N max     | N min    | N 1       | N 2       | N 1-2     | M max   | M min    | M 1      | M 2     | M 1-2    |
|-----|-----|------|-----------|----------|-----------|-----------|-----------|---------|----------|----------|---------|----------|
| 1   | 5   | 32   | 1.10      | -0.32    | 0.91      | -0.14     | -0.48     | 70.61   | -7.21    | 65.44    | -2.03   | -19.39   |
| 1   | 5   | 33   | 1.78      | -0.28    | 1.65      | -0.15     | -0.50     | 68.74   | -38.06   | 65.65    | -34.97  | -17.91   |
| 1   | 5   | 34   | 2.19      | -1.65    | 1.81      | -1.27     | -1.15     | -74.08  | -202.50  | -202.48  | -74.10  | -1.51    |
| 1   | 5   | 35   | 5.12      | -1.75    | -0.39     | 3.76      | 2.74      | -69.92  | -461.49  | -451.40  | -80.01  | 62.04    |
| 1   | 5   | 36   | 1.43      | -2.06    | 1.43      | -2.06     | -4.26e-02 | -151.84 | -459.24  | -440.12  | -170.97 | 74.25    |
| 1   | 5   | 37   | 3.37      | -0.86    | -0.69     | 3.20      | -0.83     | -76.57  | -448.66  | -448.40  | -76.83  | 9.85     |
| 1   | 5   | 38   | 0.32      | -1.10    | -9.56e-02 | -0.68     | -0.65     | -139.26 | -461.01  | -451.65  | -148.62 | -54.07   |
| 1   | 5   | 39   | 1.45      | -0.15    | 0.11      | 1.18      | 0.60      | 0.45    | -29.33   | -1.49    | -27.38  | 7.36     |
| 1   | 5   | 40   | 2.30      | 7.72e-03 | 3.96e-02  | 2.27      | 0.27      | 0.99    | -19.41   | -0.32    | -18.10  | 4.99     |
| 1   | 6   | 1    | 10.92     | -5.67    | -5.65     | 10.89     | 0.69      | 25.37   | -163.52  | -162.32  | 24.17   | 15.02    |
| 1   | 6   | 2    | 42.43     | -27.67   | -11.81    | 26.58     | 29.33     | -254.28 | -2504.09 | -2502.15 | -256.21 | -65.89   |
| 1   | 6   | 3    | 2.64      | -16.26   | 2.64      | -16.26    | 1.15e-02  | 39.29   | -499.83  | -104.84  | -355.70 | 238.60   |
| 1   | 6   | 10   | 7.97      | -12.59   | 7.95      | -12.56    | -0.69     | 373.76  | 5.36     | 152.04   | 227.08  | -180.34  |
| 1   | 6   | 11   | 28.51     | -12.55   | 22.22     | -6.26     | -14.79    | 1963.17 | -1.26    | 1950.50  | 11.41   | 157.24   |
| 1   | 6   | 12   | 14.38     | -7.71    | -7.69     | 14.36     | 0.65      | 140.81  | -174.99  | 86.35    | -120.53 | -119.29  |
| 1   | 6   | 19   | 3.24      | -11.74   | -11.26    | 2.76      | -2.63     | 744.52  | -67.25   | 717.10   | -39.83  | -146.66  |
| 1   | 6   | 20   | 10.03     | -13.55   | -2.60     | -0.92     | 11.76     | 1133.72 | -490.48  | 621.14   | 22.10   | -754.85  |
| 1   | 6   | 21   | 9.17      | -3.30    | 0.47      | 5.40      | 5.73      | 87.37   | -188.86  | -36.34   | -65.16  | -137.36  |
| 1   | 6   | 22   | 0.69      | -33.43   | -33.42    | 0.69      | -0.25     | 1638.01 | -174.02  | 1598.90  | -134.91 | -263.32  |
| 1   | 6   | 23   | 12.50     | -21.80   | -6.23     | -3.07     | 17.08     | 1991.43 | -500.32  | 1466.81  | 24.30   | -1015.87 |
| 1   | 6   | 24   | -6.00     | -69.33   | -69.02    | -6.31     | 4.43      | 1491.91 | -315.96  | 1408.29  | -232.34 | -379.71  |
| 1   | 6   | 25   | 12.90     | -22.93   | -3.07     | -6.97     | 17.81     | 2215.39 | -444.88  | 1711.01  | 59.50   | -1042.77 |
| 1   | 6   | 26   | 13.21     | -14.43   | -10.60    | 9.38      | 9.56      | -427.57 | -1301.98 | -1301.75 | -427.80 | 14.02    |
| 1   | 6   | 27   | 13.41     | -8.61    | 6.27      | -1.46     | 10.31     | 969.50  | -729.03  | 288.79   | -48.32  | -832.37  |
| 1   | 6   | 28   | 4.10      | -9.79    | 1.11      | -6.80     | 5.71      | 141.77  | -157.74  | 41.48    | -57.45  | -141.35  |
| 1   | 6   | 29   | 22.21     | -8.19    | 16.94     | -2.92     | 11.50     | 1844.59 | -552.89  | 1160.99  | 130.71  | -1082.41 |
| 1   | 6   | 30   | 30.83     | -5.62    | 29.04     | -3.83     | 7.87      | 2861.55 | -64.91   | 2451.62  | 345.03  | -1015.69 |
| 1   | 6   | 31   | 17.76     | -4.35    | 11.67     | 1.74      | 9.87      | 858.85  | 84.63    | 855.67   | 87.81   | -49.53   |
| 1   | 6   | 32   | 16.48     | -3.69    | 14.86     | -2.07     | -5.48     | 422.47  | -51.54   | 212.86   | 158.07  | -235.42  |
| 1   | 6   | 33   | 34.35     | -1.02    | 33.84     | -0.51     | -4.23     | 1156.91 | -34.60   | 1032.66  | 89.64   | -364.15  |
| 1   | 6   | 34   | 50.56     | 1.46     | 49.86     | 2.17      | -5.86     | 2619.33 | -126.57  | 2552.09  | -59.33  | -424.40  |
| 1   | 6   | 35   | 29.74     | -17.27   | -3.69     | 16.16     | 21.31     | 108.76  | -1130.66 | -769.22  | -252.68 | 563.33   |
| 1   | 6   | 36   | 18.22     | -10.81   | 18.14     | -10.73    | 1.57      | -158.40 | -701.55  | -510.69  | -349.26 | 259.30   |
| 1   | 6   | 37   | 10.01     | -9.52    | -7.79     | 8.28      | 5.55      | 52.19   | -1052.31 | -769.50  | -230.63 | 482.06   |
| 1   | 6   | 38   | 14.90     | -10.54   | -3.92     | 8.28      | -11.16    | -49.53  | -740.05  | -739.50  | -50.08  | 19.40    |
| 1   | 6   | 39   | 12.63     | -4.04    | 0.72      | 7.88      | 7.53      | 35.55   | -222.92  | -5.50    | -181.87 | 94.48    |
| 1   | 6   | 40   | 23.93     | -1.29    | -0.37     | 23.01     | 4.73      | 67.56   | -120.23  | 14.75    | -67.42  | 84.43    |
| 1   | 7   | 1    | 0.76      | -0.34    | -0.34     | 0.75      | 5.30e-02  | 25.69   | -16.13   | -11.92   | 21.49   | 12.58    |
| 1   | 7   | 2    | 10.43     | 1.97     | 3.47      | 8.92      | 3.24      | -86.69  | -1549.95 | -1549.87 | -86.77  | 10.77    |
| 1   | 7   | 3    | 3.43e-02  | -1.59    | 3.03e-03  | -1.56     | -0.22     | 53.99   | -221.31  | -4.96    | -162.36 | 112.93   |
| 1   | 7   | 10   | 0.61      | -0.87    | 0.61      | -0.86     | -5.89e-02 | 52.29   | -3.60    | 11.90    | 36.79   | -25.02   |
| 1   | 7   | 11   | 8.31      | 3.74     | 5.62      | 6.43      | -2.25     | -66.35  | -1215.36 | -1215.32 | -66.39  | -7.18    |
| 1   | 7   | 12   | 0.65      | -0.77    | -0.72     | 0.60      | 0.27      | 60.82   | -196.96  | 8.57     | -144.71 | -103.62  |
| 1   | 7   | 19   | 0.19      | -0.91    | -0.90     | 0.19      | -8.60e-02 | 104.78  | -17.68   | 104.02   | -16.93  | -9.56    |
| 1   | 7   | 20   | 0.85      | -1.11    | -5.07e-02 | -0.21     | 0.98      | 125.95  | -22.54   | 98.56    | 4.85    | -57.59   |
| 1   | 7   | 21   | 0.51      | -0.33    | 3.62e-02  | 0.15      | 0.42      | 3.54    | -18.20   | -2.95    | -11.71  | -9.95    |
| 1   | 7   | 22   | -7.37e-02 | -3.00    | -2.99     | -8.51e-02 | 0.18      | 116.08  | -57.16   | 110.80   | -51.88  | -29.77   |
| 1   | 7   | 23   | 1.32      | -1.53    | 5.31e-02  | -0.26     | 1.41      | 155.68  | -46.80   | 107.15   | 1.74    | -86.44   |
| 1   | 7   | 24   | -1.68     | -6.60    | -6.36     | -1.91     | 1.06      | -70.49  | -297.89  | -280.81  | -87.57  | -59.94   |
| 1   | 7   | 25   | 1.45      | 0.11     | 0.82      | 0.74      | 0.67      | 0.69    | -285.76  | -247.37  | -37.69  | -97.58   |
| 1   | 7   | 26   | 4.70      | -2.80    | -2.76     | 4.66      | 0.50      | -271.54 | -1490.49 | -1490.45 | -271.58 | 7.29     |
| 1   | 7   | 27   | 0.82      | -0.51    | 0.56      | -0.24     | 0.53      | 109.04  | -36.52   | 73.17    | -0.65   | -62.73   |
| 1   | 7   | 28   | 0.23      | -0.83    | 8.34e-02  | -0.69     | 0.37      | 9.10    | -17.36   | 2.97     | -11.22  | -11.17   |
| 1   | 7   | 29   | 1.77      | -0.37    | 1.64      | -0.24     | 0.52      | 128.08  | -35.93   | 82.75    | 9.39    | -73.34   |
| 1   | 7   | 30   | 3.42      | 0.51     | 3.00      | 0.94      | 1.03      | 2.62    | -215.30  | -195.73  | -16.95  | -62.30   |
| 1   | 7   | 31   | 4.20      | -1.32    | -1.20     | 4.07      | 0.83      | -232.37 | -1328.83 | -1328.51 | -232.69 | -18.71   |
| 1   | 7   | 32   | 1.10      | -0.32    | 0.91      | -0.14     | -0.48     | 70.61   | -7.21    | 65.44    | -2.03   | -19.39   |
| 1   | 7   | 33   | 1.78      | -0.28    | 1.65      | -0.15     | -0.50     | 68.74   | -38.06   | 65.65    | -34.97  | -17.91   |
| 1   | 7   | 34   | 2.19      | -1.65    | 1.81      | -1.27     | -1.15     | -74.08  | -202.50  | -202.48  | -74.10  | -1.51    |
| 1   | 7   | 35   | 5.12      | -1.75    | -0.39     | 3.76      | 2.74      | -69.92  | -461.49  | -451.40  | -80.01  | 62.04    |
| 1   | 7   | 36   | 1.43      | -2.06    | 1.43      | -2.06     | -4.26e-02 | -151.84 | -459.24  | -440.12  | -170.97 | 74.25    |
| 1   | 7   | 37   | 3.37      | -0.86    | -0.69     | 3.20      | -0.83     | -76.57  | -448.66  | -448.40  | -76.83  | 9.85     |
| 1   | 7   | 38   | 0.32      | -1.10    | -9.56e-02 | -0.68     | -0.65     | -139.26 | -461.01  | -451.65  | -148.62 | -54.07   |
| 1   | 7   | 39   | 1.45      | -0.15    | 0.11      | 1.18      | 0.60      | 0.45    | -29.33   | -1.49    | -27.38  | 7.36     |
| 1   | 7   | 40   | 2.30      | 7.72e-03 | 3.96e-02  | 2.27      | 0.27      | 0.99    | -19.41   | -0.32    | -18.10  | 4.99     |
| 1   | 8   | 1    | 10.92     | -5.67    | -5.65     | 10.89     | 0.69      | 25.37   | -163.52  | -162.32  | 24.17   | 15.02    |
| 1   | 8   | 2    | 42.43     | -27.67   | -11.81    | 26.58     | 29.33     | -254.28 | -2504.09 | -2502.15 | -256.21 | -65.89   |
| 1   | 8   | 3    | 2.64      | -16.26   | 2.64      | -16.26    | 1.15e-02  | 39.29   | -499.83  | -104.84  | -355.70 | 238.60   |
| 1   | 8   | 10   | 7.97      | -12.59   | 7.95      | -12.56    | -0.69     | 373.76  | 5.36     | 152.04   | 227.08  | -180.34  |
| 1   | 8   | 11   | 28.51     | -12.55   | 22.22     | -6.26     | -14.79    | 1963.17 | -1.26    | 1950.50  | 11.41   | 157.24   |
| 1   | 8   | 12   | 14.38     | -7.71    | -7.69     | 14.36     | 0.65      | 140.81  | -174.99  | 86.35    | -120.53 | -119.29  |
| 1   | 8   | 19   | 3.24      | -11.74   | -11.26    | 2.76      | -2.63     | 744.52  | -67.25   | 717.10   | -39.83  | -146.66  |
| 1   | 8   | 20   | 10.03     | -13.55   | -2.60     | -0.92     | 11.76     | 1133.72 | -490.48  | 621.14   | 22.10   | -754.85  |
| 1   | 8   | 21   | 9.17      | -3.30    | 0.47      | 5.40      | 5.73      | 87.37   | -188.86  | -36.34   | -65.16  | -137.36  |

| M | G  | Cmb | Nodo      | N max  | N min     | N 1    | N 2       | N 1-2   | M max    | M min    | M 1     | M 2      | M 1-2 |
|---|----|-----|-----------|--------|-----------|--------|-----------|---------|----------|----------|---------|----------|-------|
| 1 | 8  | 22  | 0.69      | -33.43 | -33.42    | 0.69   | -0.25     | 1638.01 | -174.02  | 1598.90  | -134.91 | -263.32  |       |
| 1 | 8  | 23  | 12.50     | -21.80 | -6.23     | -3.07  | 17.08     | 1991.43 | -500.32  | 1466.81  | 24.30   | -1015.87 |       |
| 1 | 8  | 24  | 6.00      | -69.33 | -69.02    | -6.31  | 4.43      | 1491.91 | -315.96  | 1408.29  | -232.34 | -379.71  |       |
| 1 | 8  | 25  | 12.90     | -22.93 | -3.07     | -6.97  | 17.81     | 2215.39 | -444.88  | 1711.01  | 59.50   | -1042.77 |       |
| 1 | 8  | 26  | 13.21     | -14.43 | -10.60    | 9.38   | 9.56      | -427.57 | -1301.98 | -1301.75 | -427.80 | 14.02    |       |
| 1 | 8  | 27  | 13.41     | -8.61  | 6.27      | -1.46  | 10.31     | 969.50  | -729.03  | 288.79   | -48.32  | -832.37  |       |
| 1 | 8  | 28  | 4.10      | -9.79  | 1.11      | -6.80  | 5.71      | 141.77  | -157.74  | 41.48    | -57.45  | -141.35  |       |
| 1 | 8  | 29  | 22.21     | -8.19  | 16.94     | -2.92  | 11.50     | 1844.59 | -552.89  | 1160.99  | 130.71  | -1082.41 |       |
| 1 | 8  | 30  | 30.83     | -5.62  | 29.04     | -3.83  | 7.87      | 2861.55 | -64.91   | 2451.62  | 345.03  | -1015.69 |       |
| 1 | 8  | 31  | 17.76     | -4.35  | 11.67     | 1.74   | 9.87      | 858.85  | 84.63    | 855.67   | 87.81   | -49.53   |       |
| 1 | 8  | 32  | 16.48     | -3.69  | 14.86     | -2.07  | -5.48     | 422.47  | -51.54   | 212.86   | 158.07  | -235.42  |       |
| 1 | 8  | 33  | 34.35     | -1.02  | 33.84     | -0.51  | -4.23     | 1156.91 | -34.60   | 1032.66  | 89.64   | -364.15  |       |
| 1 | 8  | 34  | 50.56     | 1.46   | 49.86     | 2.17   | -5.86     | 2619.33 | -126.57  | 2552.09  | -59.33  | -424.40  |       |
| 1 | 8  | 35  | 29.74     | -17.27 | -3.69     | 16.16  | 21.31     | 108.76  | -1130.66 | -769.22  | -252.68 | 563.33   |       |
| 1 | 8  | 36  | 18.22     | -10.81 | 18.14     | -10.73 | 1.57      | -158.40 | -701.55  | -510.69  | -349.26 | 259.30   |       |
| 1 | 8  | 37  | 10.01     | -9.52  | -7.79     | 8.28   | 5.55      | 52.19   | -1052.31 | -769.50  | -230.63 | 482.06   |       |
| 1 | 8  | 38  | 14.90     | -10.54 | -3.92     | 8.28   | -11.16    | -49.53  | -740.05  | -739.50  | -50.08  | 19.40    |       |
| 1 | 8  | 39  | 12.63     | -4.04  | 0.72      | 7.88   | 7.53      | 35.55   | -222.92  | -5.50    | -181.87 | 94.48    |       |
| 1 | 8  | 40  | 23.93     | -1.29  | -0.37     | 23.01  | 4.73      | 67.56   | -120.23  | 14.75    | -67.42  | 84.43    |       |
| 1 | 9  | 1   | 15.68     | -8.16  | -8.12     | 15.64  | 0.99      | 32.65   | -234.79  | -233.37  | 31.23   | 19.42    |       |
| 1 | 9  | 2   | 59.80     | -40.23 | -17.56    | 37.14  | 41.88     | -354.63 | -3397.64 | -3394.53 | -357.73 | -97.15   |       |
| 1 | 9  | 3   | 3.82      | -23.28 | 3.82      | -23.28 | 5.43e-02  | 48.88   | -689.99  | -150.92  | -490.19 | 328.19   |       |
| 1 | 9  | 10  | 11.45     | -18.08 | 11.41     | -18.04 | -1.00     | 533.02  | 8.41     | 218.53   | 322.90  | -257.06  |       |
| 1 | 9  | 11  | 40.06     | -18.86 | 31.26     | -10.07 | -21.00    | 3022.95 | 9.69     | 3005.64  | 27.00   | 227.72   |       |
| 1 | 9  | 12  | 20.72     | -11.04 | -11.02    | 20.69  | 0.90      | 194.49  | -222.94  | 123.71   | -152.17 | -156.63  |       |
| 1 | 9  | 19  | 4.66      | -16.85 | -16.15    | 3.97   | -3.79     | 1061.23 | -95.45   | 1021.26  | -55.48  | -211.27  |       |
| 1 | 9  | 20  | 14.38     | -19.43 | -3.75     | -1.30  | 16.86     | 1623.04 | -708.58  | 883.07   | 31.40   | -1085.26 |       |
| 1 | 9  | 21  | 13.19     | -4.72  | 0.68      | 7.79   | 8.22      | 126.27  | -270.84  | -52.22   | -92.34  | -197.54  |       |
| 1 | 9  | 22  | 1.01      | -47.88 | -47.88    | 1.00   | -0.39     | 2349.96 | -243.76  | 2293.84  | -187.65 | -377.35  |       |
| 1 | 9  | 23  | 17.88     | -31.28 | -9.01     | -4.40  | 24.47     | 2857.25 | -719.78  | 2102.84  | 34.63   | -1459.26 |       |
| 1 | 9  | 24  | -8.42     | -99.25 | -98.82    | -8.85  | 6.24      | 2190.03 | -439.67  | 2073.37  | -323.02 | -541.44  |       |
| 1 | 9  | 25  | 18.42     | -33.15 | -4.57     | -10.16 | 25.63     | 3221.53 | -624.85  | 2505.75  | 90.92   | -1496.93 |       |
| 1 | 9  | 26  | 18.52     | -20.57 | -14.92    | 12.87  | 13.75     | -578.57 | -1665.09 | -1664.81 | -578.85 | 17.43    |       |
| 1 | 9  | 27  | 19.28     | -12.38 | 8.98      | -2.08  | 14.83     | 1387.47 | -1052.09 | 405.26   | -69.87  | -1196.42 |       |
| 1 | 9  | 28  | 5.89      | -14.04 | 1.59      | -9.73  | 8.20      | 204.17  | -225.80  | 59.64    | -81.28  | -203.11  |       |
| 1 | 9  | 29  | 31.87     | -11.79 | 24.26     | -4.18  | 16.56     | 2648.39 | -797.92  | 1662.95  | 187.52  | -1557.25 |       |
| 1 | 9  | 30  | 44.08     | -8.21  | 41.54     | -5.67  | 11.24     | 4155.17 | -84.59   | 3569.40  | 501.18  | -1463.01 |       |
| 1 | 9  | 31  | 25.54     | -6.58  | 17.07     | 1.89   | 14.15     | 1440.08 | 158.43   | 1436.20  | 162.31  | -70.39   |       |
| 1 | 9  | 32  | 23.68     | -5.29  | 21.36     | -2.98  | -7.86     | 602.29  | -76.99   | 296.31   | 228.99  | -337.97  |       |
| 1 | 9  | 33  | 49.44     | -1.44  | 48.71     | -0.71  | -6.05     | 1659.90 | -45.41   | 1479.37  | 135.13  | -524.67  |       |
| 1 | 9  | 34  | 72.87     | 2.35   | 71.88     | 3.34   | -8.29     | 3812.95 | -171.41  | 3715.78  | -74.23  | -614.60  |       |
| 1 | 9  | 35  | 42.24     | -24.72 | -5.27     | 22.79  | 30.40     | 177.42  | -1575.40 | -1044.63 | -353.34 | 805.37   |       |
| 1 | 9  | 36  | 26.12     | -15.35 | 25.99     | -15.22 | 2.26      | -199.85 | -952.99  | -673.07  | -479.76 | 363.95   |       |
| 1 | 9  | 37  | 14.12     | -13.81 | -11.16    | 11.46  | 8.19      | 101.26  | -1466.95 | -1044.37 | -321.32 | 695.79   |       |
| 1 | 9  | 38  | 21.54     | -15.14 | -5.69     | 12.09  | -16.04    | -48.35  | -1002.12 | -1000.72 | -49.75  | 36.47    |       |
| 1 | 9  | 39  | 18.02     | -5.84  | 1.02      | 11.17  | 10.80     | 51.47   | -318.10  | -7.71    | -258.92 | 135.53   |       |
| 1 | 9  | 40  | 34.23     | -1.88  | -0.55     | 32.90  | 6.80      | 97.96   | -170.91  | 21.32    | -94.27  | 121.38   |       |
| 1 | 10 | 1   | 1.16      | -0.53  | -0.53     | 1.15   | 8.06e-02  | 32.39   | -23.50   | -18.51   | 27.40   | 15.94    |       |
| 1 | 10 | 2   | 14.08     | 2.11   | 4.27      | 11.92  | 4.60      | -115.59 | -2034.21 | -2034.13 | -115.67 | 12.37    |       |
| 1 | 10 | 3   | 8.88e-02  | -2.32  | 5.55e-02  | -2.29  | -0.28     | 69.68   | -291.91  | -8.24    | -213.99 | 148.67   |       |
| 1 | 10 | 10  | 0.93      | -1.34  | 0.92      | -1.33  | -9.04e-02 | 73.49   | -4.11    | 18.32    | 51.06   | -35.18   |       |
| 1 | 10 | 11  | 10.91     | 4.70   | 7.55      | 8.05   | -3.09     | -84.11  | -1516.99 | -1516.96 | -84.14  | -7.16    |       |
| 1 | 10 | 12  | 1.10      | -1.11  | -1.06     | 1.04   | 0.36      | 80.14   | -254.25  | 12.60    | -186.71 | -134.25  |       |
| 1 | 10 | 19  | 0.30      | -1.37  | -1.35     | 0.28   | -0.16     | 146.84  | -24.17   | 145.44   | -22.77  | -15.43   |       |
| 1 | 10 | 20  | 1.26      | -1.65  | -0.11     | -0.28  | 1.45      | 181.92  | -38.64   | 136.53   | 6.75    | -89.17   |       |
| 1 | 10 | 21  | 0.82      | -0.47  | 5.58e-02  | 0.29   | 0.63      | 6.28    | -26.81   | -4.53    | -15.99  | -15.52   |       |
| 1 | 10 | 22  | -8.85e-02 | -4.41  | -4.40     | -0.10  | 0.23      | 175.78  | -76.85   | 167.98   | -69.04  | -43.71   |       |
| 1 | 10 | 23  | 1.90      | -2.31  | -3.72e-02 | -0.38  | 2.10      | 234.85  | -71.98   | 160.46   | 2.40    | -131.49  |       |
| 1 | 10 | 24  | -2.28     | -9.60  | -9.31     | -2.57  | 1.43      | -87.77  | -368.07  | -339.63  | -116.21 | -84.63   |       |
| 1 | 10 | 25  | 2.06      | -0.23  | 0.99      | 0.84   | 1.14      | 20.84   | -360.71  | -291.95  | -47.91  | -146.65  |       |
| 1 | 10 | 26  | 6.20      | -3.79  | -3.73     | 6.14   | 0.81      | -355.64 | -1934.41 | -1934.37 | -355.68 | 7.81     |       |
| 1 | 10 | 27  | 1.29      | -0.79  | 0.83      | -0.33  | 0.86      | 156.57  | -61.11   | 97.23    | -1.77   | -96.93   |       |
| 1 | 10 | 28  | 0.37      | -1.24  | 0.13      | -1.00  | 0.57      | 14.50   | -25.12   | 4.63     | -15.24  | -17.14   |       |
| 1 | 10 | 29  | 2.65      | -0.60  | 2.39      | -0.35  | 0.87      | 196.19  | -59.39   | 122.60   | 14.20   | -115.73  |       |
| 1 | 10 | 30  | 4.90      | 0.58   | 4.33      | 1.14   | 1.46      | 26.73   | -255.19  | -212.53  | -15.93  | -101.03  |       |
| 1 | 10 | 31  | 5.45      | -1.54  | -1.31     | 5.23   | 1.25      | -295.05 | -1684.56 | -1684.06 | -295.55 | -26.37   |       |
| 1 | 10 | 32  | 1.70      | -0.48  | 1.44      | -0.21  | -0.71     | 94.83   | -8.84    | 85.71    | 0.27    | -29.35   |       |
| 1 | 10 | 33  | 2.90      | -0.36  | 2.73      | -0.20  | -0.71     | 104.06  | -49.04   | 97.92    | -42.89  | -30.05   |       |
| 1 | 10 | 34  | 3.71      | -2.03  | 3.24      | -1.57  | -1.57     | -94.45  | -220.21  | -219.33  | -95.33  | -10.47   |       |
| 1 | 10 | 35  | 7.05      | -2.52  | -0.55     | 5.08   | 3.87      | -90.74  | -606.55  | -590.61  | -106.68 | 89.25    |       |
| 1 | 10 | 36  | 2.13      | -2.84  | 2.13      | -2.84  | -4.33e-02 | -198.52 | -598.79  | -572.25  | -225.06 | 99.59    |       |
| 1 | 10 | 37  | 4.37      | -1.17  | -1.01     | 4.20   | -0.93     | -100.68 | -586.59  | -585.66  | -101.61 | 21.20    |       |
| 1 | 10 | 38  | 0.58      | -1.52  | -0.22     | -0.72  | -1.02     | -179.10 | -600.93  | -589.50  | -190.53 | -68.48   |       |
| 1 | 10 | 39  | 2.03      | -0.27  | 0.15      | 1.60   | 0.90      | 1.14    | -41.35   | -1.98    | -38.24  | 11.08    |       |

| M_G | Cmb | Nodo | N max  | N min     | N 1      | N 2    | N 1-2    | M max     | M min    | M 1       | M 2     | M 1-2    |
|-----|-----|------|--------|-----------|----------|--------|----------|-----------|----------|-----------|---------|----------|
| 1   | 10  | 40   | 3.33   | -1.68e-02 | 4.07e-02 | 3.27   | 0.43     | 2.19      | -26.22   | -0.20     | -23.82  | 7.89     |
| 1   | 11  | 1    | 15.68  | -8.16     | -8.12    | 15.64  | 0.99     | 32.65     | -234.79  | -233.37   | 31.23   | 19.42    |
| 1   | 11  | 2    | 59.80  | -40.23    | -17.56   | 37.14  | 41.88    | -354.63   | -3397.64 | -3394.53  | -357.73 | -97.15   |
| 1   | 11  | 3    | 3.82   | -23.28    | 3.82     | -23.28 | 5.43e-02 | 48.88     | -689.99  | -150.92   | -490.19 | 328.19   |
| 1   | 11  | 10   | 11.45  | -18.08    | 11.41    | -18.04 | -1.00    | 533.02    | 8.41     | 218.53    | 322.90  | -257.06  |
| 1   | 11  | 11   | 40.06  | -18.86    | 31.26    | -10.07 | -21.00   | 3022.95   | 9.69     | 3005.64   | 27.00   | 227.72   |
| 1   | 11  | 12   | 20.72  | -11.04    | -11.02   | 20.69  | 0.90     | 194.49    | -222.94  | 123.71    | -152.17 | -156.63  |
| 1   | 11  | 19   | 4.66   | -16.85    | -16.15   | 3.97   | -3.79    | 1061.23   | -95.45   | 1021.26   | -55.48  | -211.27  |
| 1   | 11  | 20   | 14.38  | -19.43    | -3.75    | -1.30  | 16.86    | 1623.04   | -708.58  | 883.07    | 31.40   | -1085.26 |
| 1   | 11  | 21   | 13.19  | -4.72     | 0.68     | 7.79   | 8.22     | 126.27    | -270.84  | -52.22    | -92.34  | -197.54  |
| 1   | 11  | 22   | 1.01   | -47.88    | -47.88   | 1.00   | -0.39    | 2349.96   | -243.76  | 2293.84   | -187.65 | -377.35  |
| 1   | 11  | 23   | 17.88  | -31.28    | -9.01    | -4.40  | 24.47    | 2857.25   | -719.78  | 2102.84   | 34.63   | -1459.26 |
| 1   | 11  | 24   | -8.42  | -99.25    | -98.82   | -8.85  | 6.24     | 2190.03   | -439.67  | 2073.37   | -323.02 | -541.44  |
| 1   | 11  | 25   | 18.42  | -33.15    | -4.57    | -10.16 | 25.63    | 3221.53   | -624.85  | 2505.75   | 90.92   | -1496.93 |
| 1   | 11  | 26   | 18.52  | -20.57    | -14.92   | 12.87  | 13.75    | -578.57   | -1665.09 | -1664.81  | -578.85 | 17.43    |
| 1   | 11  | 27   | 19.28  | -12.38    | 8.98     | -2.08  | 14.83    | 1387.47   | -1052.09 | 405.26    | -69.87  | -1196.42 |
| 1   | 11  | 28   | 5.89   | -14.04    | 1.59     | -9.73  | 8.20     | 204.17    | -225.80  | 59.64     | -81.28  | -203.11  |
| 1   | 11  | 29   | 31.87  | -11.79    | 24.26    | -4.18  | 16.56    | 2648.39   | -797.92  | 1662.95   | 187.52  | -1557.25 |
| 1   | 11  | 30   | 44.08  | -8.21     | 41.54    | -5.67  | 11.24    | 4155.17   | -84.59   | 3569.40   | 501.18  | -1463.01 |
| ... |     |      |        |           |          |        |          |           |          |           |         |          |
| 1   | 96  | 40   | 14.92  | -0.75     | -0.21    | 14.37  | 2.88     | 39.32     | -77.37   | 8.45      | -46.50  | 51.47    |
| M_G |     |      | N max  | N min     | N 1      | N 2    | N 1-2    | M max     | M min    | M 1       | M 2     | M 1-2    |
|     |     |      |        | -172.88   | -171.60  | -51.88 | -51.69   |           | -9398.78 | -9086.11  | -843.61 | -3925.82 |
|     |     |      | 156.57 |           | 156.33   | 65.46  | 63.40    | 1.249e+04 |          | 1.217e+04 | 1143.40 | 2472.86  |

| Macro | Tipo   | Angolo 1-□ (gradi) |
|-------|--------|--------------------|
| 3     | Guscio | 0.0                |

| M_G | Cmb | Nodo | N max  | N min     | N 1      | N 2    | N 1-2  | M max   | M min    | M 1      | M 2       | M 1-2   |
|-----|-----|------|--------|-----------|----------|--------|--------|---------|----------|----------|-----------|---------|
|     |     |      | daN/cm | daN/cm    | daN/cm   | daN/cm | daN/cm | daN     | daN      | daN      | daN       | daN     |
| 3   | 1   | 4    | 1.28   | -8.73     | -8.64    | 1.19   | 0.95   | 309.87  | 38.66    | 308.86   | 39.67     | -16.48  |
| 3   | 1   | 6    | 13.47  | -2.95     | 11.90    | -1.38  | -4.83  | 3.05    | -364.45  | -361.34  | -5.96e-02 | -33.64  |
| 3   | 1   | 13   | 17.80  | 2.89      | 16.77    | 3.91   | -3.77  | -3.10   | -93.23   | -93.19   | -3.13     | 1.76    |
| 3   | 1   | 15   | 25.87  | -2.58     | 25.51    | -2.21  | 3.19   | 22.60   | -210.73  | -204.11  | 15.99     | -38.71  |
| 3   | 1   | 61   | 2.99   | -2.31     | -2.24    | 2.92   | -0.62  | 121.68  | 29.79    | 121.50   | 29.97     | -4.10   |
| 3   | 1   | 62   | 4.16   | 2.05      | 2.44     | 3.77   | -0.82  | -4.52   | -11.03   | -9.89    | -5.66     | -2.47   |
| 3   | 1   | 63   | 3.00   | -3.51     | -2.50    | 1.99   | -2.36  | 21.89   | -136.31  | -107.14  | -7.28     | -61.35  |
| 3   | 1   | 64   | -0.27  | -6.82     | -6.71    | -0.39  | -0.85  | 48.11   | -130.99  | -93.97   | 11.09     | -72.52  |
| 3   | 1   | 65   | 3.84   | 2.53      | 3.70     | 2.68   | -0.41  | -11.08  | -174.36  | -155.06  | -30.38    | -52.71  |
| 3   | 1   | 66   | 12.88  | -0.85     | 12.84    | -0.82  | 0.70   | 7.46    | -192.61  | -189.47  | 4.33      | -24.85  |
| 3   | 1   | 67   | 3.21   | -6.51     | -5.12    | 1.82   | -3.41  | -24.44  | -282.95  | -264.80  | -42.60    | -66.05  |
| 3   | 1   | 68   | 3.35   | -1.29     | 0.98     | 1.08   | -2.32  | 18.57   | -294.66  | -283.67  | 7.59      | -57.62  |
| 3   | 1   | 69   | 2.18   | -9.95e-02 | 2.67e-02 | 2.05   | 0.52   | -18.67  | -280.43  | -259.28  | -39.82    | -71.34  |
| 3   | 1   | 70   | 18.08  | 0.74      | 17.74    | 1.07   | 2.39   | 17.77   | -285.75  | -276.57  | 8.58      | -52.00  |
| 3   | 1   | 71   | -7.45  | -9.08     | -8.98    | -7.54  | 0.39   | -67.89  | -385.26  | -379.61  | -73.54    | -41.98  |
| 3   | 1   | 72   | -4.20  | -10.12    | -5.46    | -8.87  | -2.42  | -45.49  | -324.35  | -319.05  | -50.79    | -38.07  |
| 3   | 2   | 4    | -8.30  | -109.20   | -108.15  | -9.35  | -10.21 | 1744.17 | 189.14   | 1735.56  | 197.76    | -115.43 |
| 3   | 2   | 6    | 10.08  | -28.86    | -18.14   | -0.64  | -17.40 | 2.08    | -1513.92 | -1452.07 | -59.77    | -299.89 |
| 3   | 2   | 13   | 142.61 | 15.09     | 140.38   | 17.32  | -16.71 | -201.28 | -2013.16 | -2012.96 | -201.48   | -18.96  |
| 3   | 2   | 15   | 128.89 | -8.15     | 128.78   | -8.04  | 3.88   | 473.35  | -186.58  | 180.34   | 106.43    | -327.89 |
| 3   | 2   | 61   | 2.82   | -17.29    | -15.41   | 0.94   | -5.85  | 291.66  | 94.01    | 287.79   | 97.89     | -27.40  |
| 3   | 2   | 62   | 32.70  | 7.92      | 31.30    | 9.33   | -5.73  | -234.02 | -943.25  | -941.97  | -235.30   | -30.04  |
| 3   | 2   | 63   | 8.91   | -30.18    | -23.20   | 1.93   | -14.97 | 395.02  | -754.28  | -366.77  | 7.51      | -543.32 |
| 3   | 2   | 64   | 1.19   | -81.16    | -81.10   | 1.13   | -2.17  | 454.24  | -598.17  | -194.38  | 50.45     | -511.77 |
| 3   | 2   | 65   | 41.58  | 5.87      | 38.84    | 8.61   | -9.49  | 90.17   | -1101.66 | -807.98  | -203.51   | -513.59 |
| 3   | 2   | 66   | 113.82 | -3.18     | 113.81   | -3.17  | 1.05   | 115.36  | -1198.34 | -1071.74 | -11.25    | -387.68 |
| 3   | 2   | 67   | 11.92  | -34.26    | -25.83   | 3.48   | -17.84 | 241.40  | -1163.37 | -786.16  | -135.81   | -622.58 |
| 3   | 2   | 68   | 3.25   | -54.32    | -53.85   | 2.79   | -5.17  | 236.27  | -1081.43 | -857.34  | 12.17     | -495.05 |
| 3   | 2   | 69   | 28.71  | 3.91      | 25.90    | 6.72   | -7.86  | 301.87  | -1112.14 | -713.27  | -97.01    | -636.32 |
| 3   | 2   | 70   | 118.08 | 2.39      | 117.71   | 2.76   | 6.52   | 278.46  | -995.95  | -742.42  | 24.94     | -508.74 |
| 3   | 2   | 71   | -12.16 | -30.69    | -28.77   | -14.08 | -5.64  | -133.05 | -1250.77 | -1126.79 | -257.04   | -351.01 |
| 3   | 2   | 72   | 9.67   | -32.25    | 5.45     | -28.03 | -12.63 | 155.61  | -682.37  | -504.74  | -22.02    | -342.49 |
| 3   | 3   | 4    | 1.28   | -8.73     | -8.64    | 1.19   | 0.95   | 309.87  | 38.66    | 308.86   | 39.67     | -16.48  |
| 3   | 3   | 6    | 13.47  | -2.95     | 11.90    | -1.38  | -4.83  | 3.05    | -364.45  | -361.34  | -5.96e-02 | -33.64  |
| 3   | 3   | 13   | 17.80  | 2.89      | 16.77    | 3.91   | -3.77  | -3.10   | -93.23   | -93.19   | -3.13     | 1.76    |
| 3   | 3   | 15   | 25.87  | -2.58     | 25.51    | -2.21  | 3.19   | 22.60   | -210.73  | -204.11  | 15.99     | -38.71  |
| 3   | 3   | 61   | 2.99   | -2.31     | -2.24    | 2.92   | -0.62  | 121.68  | 29.79    | 121.50   | 29.97     | -4.10   |
| 3   | 3   | 62   | 4.16   | 2.05      | 2.44     | 3.77   | -0.82  | -4.52   | -11.03   | -9.89    | -5.66     | -2.47   |
| 3   | 3   | 63   | 3.00   | -3.51     | -2.50    | 1.99   | -2.36  | 21.89   | -136.31  | -107.14  | -7.28     | -61.35  |
| 3   | 3   | 64   | -0.27  | -6.82     | -6.71    | -0.39  | -0.85  | 48.11   | -130.99  | -93.97   | 11.09     | -72.52  |
| 3   | 3   | 65   | 3.84   | 2.53      | 3.70     | 2.68   | -0.41  | -11.08  | -174.36  | -155.06  | -30.38    | -52.71  |

| M | G | Cmb | Nodo | N max  | N min     | N 1      | N 2    | N 1-2  | M max   | M min    | M 1      | M 2     | M 1-2   |
|---|---|-----|------|--------|-----------|----------|--------|--------|---------|----------|----------|---------|---------|
| 3 |   | 3   | 66   | 12.88  | -0.85     | 12.84    | -0.82  | 0.70   | 7.46    | -192.61  | -189.47  | 4.33    | -24.85  |
| 3 |   | 3   | 67   | 3.21   | -6.51     | -5.12    | 1.82   | -3.41  | -24.44  | -282.95  | -264.80  | -42.60  | -66.05  |
| 3 |   | 3   | 68   | 3.35   | -1.29     | 0.98     | 1.08   | -2.32  | 18.57   | -294.66  | -283.67  | 7.59    | -57.62  |
| 3 |   | 3   | 69   | 2.18   | -9.95e-02 | 2.67e-02 | 2.05   | 0.52   | -18.67  | -280.43  | -259.28  | -39.82  | -71.34  |
| 3 |   | 3   | 70   | 18.08  | 0.74      | 17.74    | 1.07   | 2.39   | 17.77   | -285.75  | -276.57  | 8.58    | -52.00  |
| 3 |   | 3   | 71   | -7.45  | -9.08     | -8.98    | -7.54  | 0.39   | -67.89  | -385.26  | -379.61  | -73.54  | -41.98  |
| 3 |   | 3   | 72   | -4.20  | -10.12    | -5.46    | -8.87  | -2.42  | -45.49  | -324.35  | -319.05  | -50.79  | -38.07  |
| 3 |   | 4   | 4    | -8.30  | -109.20   | -108.15  | -9.35  | -10.21 | 1744.17 | 189.14   | 1735.56  | 197.76  | -115.43 |
| 3 |   | 4   | 6    | 10.08  | -28.86    | -18.14   | -0.64  | -17.40 | 2.08    | -1513.92 | -1452.07 | -59.77  | -299.89 |
| 3 |   | 4   | 13   | 142.61 | 15.09     | 140.38   | 17.32  | -16.71 | -201.28 | -2013.16 | -2012.96 | -201.48 | -18.96  |
| 3 |   | 4   | 15   | 128.89 | -8.15     | 128.78   | -8.04  | 3.88   | 473.35  | -186.58  | 180.34   | 106.43  | -327.89 |
| 3 |   | 4   | 61   | 2.82   | -17.29    | -15.41   | 0.94   | -5.85  | 291.66  | 94.01    | 287.79   | 97.89   | -27.40  |
| 3 |   | 4   | 62   | 32.70  | 7.92      | 31.30    | 9.33   | -5.73  | -234.02 | -943.25  | -941.97  | -235.30 | -30.04  |
| 3 |   | 4   | 63   | 8.91   | -30.18    | -23.20   | 1.93   | -14.97 | 395.02  | -754.28  | -366.77  | 7.51    | -543.32 |
| 3 |   | 4   | 64   | 1.19   | -81.16    | -81.10   | 1.13   | -2.17  | 454.24  | -598.17  | -194.38  | 50.45   | -511.77 |
| 3 |   | 4   | 65   | 41.58  | 5.87      | 38.84    | 8.61   | -9.49  | 90.17   | -1101.66 | -807.98  | -203.51 | -513.59 |
| 3 |   | 4   | 66   | 113.82 | -3.18     | 113.81   | -3.17  | 1.05   | 115.36  | -1198.34 | -1071.74 | -11.25  | -387.68 |
| 3 |   | 4   | 67   | 11.92  | -34.26    | -25.83   | 3.48   | -17.84 | 241.40  | -1163.37 | -786.16  | -135.81 | -622.58 |
| 3 |   | 4   | 68   | 3.25   | -54.32    | -53.85   | 2.79   | -5.17  | 236.27  | -1081.43 | -857.34  | 12.17   | -495.05 |
| 3 |   | 4   | 69   | 28.71  | 3.91      | 25.90    | 6.72   | -7.86  | 301.87  | -1112.14 | -713.27  | -97.01  | -636.32 |
| 3 |   | 4   | 70   | 118.08 | 2.39      | 117.71   | 2.76   | 6.52   | 278.46  | -995.95  | -742.42  | 24.94   | -508.74 |
| 3 |   | 4   | 71   | -12.16 | -30.69    | -28.77   | -14.08 | -5.64  | -133.05 | -1250.77 | -1126.79 | -257.04 | -351.01 |
| 3 |   | 4   | 72   | 9.67   | -32.25    | 5.45     | -28.03 | -12.63 | 155.61  | -682.37  | -504.74  | -22.02  | -342.49 |
| 3 |   | 5   | 4    | 1.22   | -5.29     | -5.15    | 1.08   | 0.94   | 231.85  | 28.88    | 231.28   | 29.44   | -10.71  |
| 3 |   | 5   | 6    | 10.91  | -2.20     | 9.81     | -1.10  | -3.63  | 2.57    | -271.45  | -269.65  | 0.77    | -22.13  |
| 3 |   | 5   | 13   | 12.21  | 2.04      | 11.39    | 2.86   | -2.77  | 1.69    | -29.89   | -29.85   | 1.65    | 1.17    |
| 3 |   | 5   | 15   | 19.05  | -1.96     | 18.73    | -1.64  | 2.57   | 14.62   | -170.20  | -166.85  | 11.26   | -24.68  |
| 3 |   | 5   | 61   | 2.30   | -1.69     | -1.65    | 2.27   | -0.39  | 106.77  | 25.42    | 106.67   | 25.52   | -2.92   |
| 3 |   | 5   | 62   | 3.00   | 1.22      | 1.40     | 2.82   | -0.54  | 21.40   | 2.28     | 21.31    | 2.38    | -1.34   |
| 3 |   | 5   | 63   | 2.26   | -2.39     | -1.72    | 1.59   | -1.63  | 14.04   | -91.17   | -72.58   | -4.55   | -40.12  |
| 3 |   | 5   | 64   | -0.22  | -4.20     | -4.10    | -0.32  | -0.63  | 33.39   | -89.60   | -64.34   | 8.13    | -49.69  |
| 3 |   | 5   | 65   | 2.39   | 1.96      | 2.32     | 2.04   | -0.16  | -7.56   | -115.66  | -103.68  | -19.54  | -33.94  |
| 3 |   | 5   | 66   | 8.67   | -0.63     | 8.64     | -0.60  | 0.53   | 5.13    | -127.70  | -126.31  | 3.74    | -13.53  |
| 3 |   | 5   | 67   | 2.39   | -4.75     | -3.78    | 1.42   | -2.44  | -21.44  | -207.71  | -197.41  | -31.74  | -42.57  |
| 3 |   | 5   | 68   | 3.04   | -0.61     | 1.60     | 0.83   | -1.78  | 12.50   | -218.08  | -211.51  | 5.93    | -38.39  |
| 3 |   | 5   | 69   | 1.73   | -0.58     | -0.43    | 1.58   | 0.57   | -17.57  | -206.05  | -193.74  | -29.88  | -46.58  |
| 3 |   | 5   | 70   | 12.83  | 0.54      | 12.55    | 0.82   | 1.83   | 11.50   | -211.61  | -206.69  | 6.59    | -32.74  |
| 3 |   | 5   | 71   | -5.71  | -7.01     | -6.85    | -5.87  | 0.43   | -52.29  | -292.52  | -289.31  | -55.50  | -27.55  |
| 3 |   | 5   | 72   | -3.59  | -7.70     | -4.56    | -6.73  | -1.74  | -37.85  | -252.52  | -249.75  | -40.62  | -24.23  |
| 3 |   | 6   | 4    | -8.37  | -105.75   | -104.66  | -9.45  | -10.22 | 1666.11 | 179.40   | 1657.98  | 187.53  | -109.66 |
| 3 |   | 6   | 6    | 8.70   | -29.30    | -20.23   | -0.36  | -16.20 | 2.10    | -1421.41 | -1360.38 | -58.94  | -288.38 |
| 3 |   | 6   | 13   | 137.04 | 14.22     | 135.00   | 16.26  | -15.71 | -196.48 | -1949.84 | -1949.62 | -196.70 | -19.56  |
| 3 |   | 6   | 15   | 122.08 | -7.55     | 122.00   | -7.47  | 3.26   | 478.81  | -159.50  | 217.60   | 101.70  | -313.85 |
| 3 |   | 6   | 61   | 2.15   | -16.68    | -14.83   | 0.29   | -5.61  | 276.71  | 89.69    | 272.95   | 93.44   | -26.22  |
| 3 |   | 6   | 62   | 31.53  | 7.10      | 30.25    | 8.38   | -5.44  | -226.04 | -911.99  | -910.77  | -227.26 | -28.91  |
| 3 |   | 6   | 63   | 8.16   | -29.05    | -22.42   | 1.53   | -14.24 | 388.47  | -710.44  | -332.21  | 10.24   | -522.10 |
| 3 |   | 6   | 64   | 1.24   | -78.54    | -78.50   | 1.20   | -1.96  | 441.69  | -558.95  | -164.74  | 47.48   | -488.93 |
| 3 |   | 6   | 65   | 40.12  | 5.31      | 37.46    | 7.97   | -9.24  | 94.88   | -1044.15 | -756.60  | -192.67 | -494.81 |
| 3 |   | 6   | 66   | 109.61 | -2.96     | 109.61   | -2.95  | 0.88   | 114.31  | -1134.71 | -1008.57 | -11.83  | -376.35 |
| 3 |   | 6   | 67   | 11.09  | -32.49    | -24.49   | 3.09   | -16.87 | 246.78  | -1090.50 | -718.77  | -124.95 | -599.10 |
| 3 |   | 6   | 68   | 2.92   | -53.61    | -53.23   | 2.53   | -4.63  | 232.89  | -1007.55 | -785.18  | 10.51   | -475.81 |
| 3 |   | 6   | 69   | 28.22  | 3.48      | 25.44    | 6.25   | -7.81  | 305.36  | -1040.15 | -647.73  | -87.06  | -611.56 |
| 3 |   | 6   | 70   | 112.83 | 2.19      | 112.51   | 2.51   | 5.96   | 275.63  | -925.24  | -672.55  | -22.94  | -489.49 |
| 3 |   | 6   | 71   | -10.46 | -28.58    | -26.64   | -12.40 | -5.60  | -115.93 | -1159.56 | -1036.50 | -238.99 | -336.58 |
| 3 |   | 6   | 72   | 10.29  | -29.83    | 6.35     | -25.89 | -11.95 | 167.34  | -614.63  | -435.44  | -11.85  | -328.65 |
| 3 |   | 7   | 4    | 1.22   | -5.29     | -5.15    | 1.08   | 0.94   | 231.85  | 28.88    | 231.28   | 29.44   | -10.71  |
| 3 |   | 7   | 6    | 10.91  | -2.20     | 9.81     | -1.10  | -3.63  | 2.57    | -271.45  | -269.65  | 0.77    | -22.13  |
| 3 |   | 7   | 13   | 12.21  | 2.04      | 11.39    | 2.86   | -2.77  | 1.69    | -29.89   | -29.85   | 1.65    | 1.17    |
| 3 |   | 7   | 15   | 19.05  | -1.96     | 18.73    | -1.64  | 2.57   | 14.62   | -170.20  | -166.85  | 11.26   | -24.68  |
| 3 |   | 7   | 61   | 2.30   | -1.69     | -1.65    | 2.27   | -0.39  | 106.77  | 25.42    | 106.67   | 25.52   | -2.92   |
| 3 |   | 7   | 62   | 3.00   | 1.22      | 1.40     | 2.82   | -0.54  | 21.40   | 2.28     | 21.31    | 2.38    | -1.34   |
| 3 |   | 7   | 63   | 2.26   | -2.39     | -1.72    | 1.59   | -1.63  | 14.04   | -91.17   | -72.58   | -4.55   | -40.12  |
| 3 |   | 7   | 64   | -0.22  | -4.20     | -4.10    | -0.32  | -0.63  | 33.39   | -89.60   | -64.34   | 8.13    | -49.69  |
| 3 |   | 7   | 65   | 2.39   | 1.96      | 2.32     | 2.04   | -0.16  | -7.56   | -115.66  | -103.68  | -19.54  | -33.94  |
| 3 |   | 7   | 66   | 8.67   | -0.63     | 8.64     | -0.60  | 0.53   | 5.13    | -127.70  | -126.31  | 3.74    | -13.53  |
| 3 |   | 7   | 67   | 2.39   | -4.75     | -3.78    | 1.42   | -2.44  | -21.44  | -207.71  | -197.41  | -31.74  | -42.57  |
| 3 |   | 7   | 68   | 3.04   | -0.61     | 1.60     | 0.83   | -1.78  | 12.50   | -218.08  | -211.51  | 5.93    | -38.39  |
| 3 |   | 7   | 69   | 1.73   | -0.58     | -0.43    | 1.58   | 0.57   | -17.57  | -206.05  | -193.74  | -29.88  | -46.58  |
| 3 |   | 7   | 70   | 12.83  | 0.54      | 12.55    | 0.82   | 1.83   | 11.50   | -211.61  | -206.69  | 6.59    | -32.74  |
| 3 |   | 7   | 71   | -5.71  | -7.01     | -6.85    | -5.87  | 0.43   | -52.29  | -292.52  | -289.31  | -55.50  | -27.55  |
| 3 |   | 7   | 72   | -3.59  | -7.70     | -4.56    | -6.73  | -1.74  | -37.85  | -252.52  | -249.75  | -40.62  | -24.23  |
| 3 |   | 8   | 4    | -8.37  | -105.75   | -104.66  | -9.45  | -10.22 | 1666.11 | 179.40   | 1657.98  | 187.53  | -109.66 |
| 3 |   | 8   | 6    | 8.70   | -29.30    | -20.23   | -0.36  | -16.20 | 2.10    | -1421.41 | -1360.38 | -58.94  | -288.38 |
| 3 |   | 8   | 13   | 137.04 | 14.22     | 135.00   | 16.26  | -15.71 | -196.48 | -1949.84 | -1949.62 | -196.70 | -19.56  |

| M | G  | Cmb | Nodo   | N max     | N min    | N 1       | N 2    | N 1-2   | M max    | M min    | M 1       | M 2     | M 1-2 |
|---|----|-----|--------|-----------|----------|-----------|--------|---------|----------|----------|-----------|---------|-------|
| 3 | 8  | 15  | 122.08 | -7.55     | 122.00   | -7.47     | 3.26   | 478.81  | -159.50  | 217.60   | 101.70    | -313.85 |       |
| 3 | 8  | 61  | 2.15   | -16.68    | -14.83   | 0.29      | -5.61  | 276.71  | 89.69    | 272.95   | 93.44     | -26.22  |       |
| 3 | 8  | 62  | 31.53  | 7.10      | 30.25    | 8.38      | -5.44  | -226.04 | -911.99  | -910.77  | -227.26   | -28.91  |       |
| 3 | 8  | 63  | 8.16   | -29.05    | -22.42   | 1.53      | -14.24 | 388.47  | -710.44  | -332.21  | 10.24     | -522.10 |       |
| 3 | 8  | 64  | 1.24   | -78.54    | -78.50   | 1.20      | -1.96  | 441.69  | -558.95  | -164.74  | 47.48     | -488.93 |       |
| 3 | 8  | 65  | 40.12  | 5.31      | 37.46    | 7.97      | -9.24  | 94.88   | -1044.15 | -756.60  | -192.67   | -494.81 |       |
| 3 | 8  | 66  | 109.61 | -2.96     | 109.61   | -2.95     | 0.88   | 114.31  | -1134.71 | -1008.57 | -11.83    | -376.35 |       |
| 3 | 8  | 67  | 11.09  | -32.49    | -24.49   | 3.09      | -16.87 | 246.78  | -1090.50 | -718.77  | -124.95   | -599.10 |       |
| 3 | 8  | 68  | 2.92   | -53.61    | -53.23   | 2.53      | -4.63  | 232.89  | -1007.55 | -785.18  | 10.51     | -475.81 |       |
| 3 | 8  | 69  | 28.22  | 3.48      | 25.44    | 6.25      | -7.81  | 305.36  | -1040.15 | -647.73  | -87.06    | -611.56 |       |
| 3 | 8  | 70  | 112.83 | 2.19      | 112.51   | 2.51      | 5.96   | 275.63  | -925.24  | -672.55  | 22.94     | -489.49 |       |
| 3 | 8  | 71  | -10.46 | -28.58    | -26.64   | -12.40    | -5.60  | -115.93 | -1159.56 | -1036.50 | -238.99   | -336.58 |       |
| 3 | 8  | 72  | 10.29  | -29.83    | 6.35     | -25.89    | -11.95 | 167.34  | -614.63  | -435.44  | -11.85    | -328.65 |       |
| 3 | 9  | 4   | -12.24 | -152.42   | -150.80  | -13.86    | -14.99 | 2358.90 | 253.61   | 2347.00  | 265.51    | -157.83 |       |
| 3 | 9  | 6   | 11.80  | -43.14    | -31.01   | -0.33     | -22.78 | 3.76    | -2008.64 | -1919.52 | -85.36    | -414.00 |       |
| 3 | 9  | 13  | 196.22 | 20.20     | 193.36   | 23.06     | -22.25 | -286.18 | -2836.03 | -2835.72 | -286.48   | -27.85  |       |
| 3 | 9  | 15  | 173.13 | -10.64    | 173.04   | -10.54    | 4.17   | 707.89  | -217.60  | 345.10   | 145.19    | -451.82 |       |
| 3 | 9  | 61  | 2.83   | -23.80    | -21.06   | 9.62e-02  | -8.09  | 364.93  | 121.12   | 359.05   | 126.99    | -37.38  |       |
| 3 | 9  | 62  | 45.48  | 9.89      | 43.66    | 11.71     | -7.83  | -331.98 | -1343.17 | -1341.44 | -333.71   | -41.86  |       |
| 3 | 9  | 63  | 11.44  | -41.61    | -32.07   | 1.90      | -20.37 | 557.09  | -1021.28 | -478.03  | 13.85     | -749.88 |       |
| 3 | 9  | 64  | 1.84   | -113.05   | -112.99  | 1.78      | -2.74  | 631.36  | -801.46  | -237.41  | 67.32     | -700.02 |       |
| 3 | 9  | 65  | 57.75  | 7.30      | 53.91    | 11.14     | -13.39 | 135.62  | -1501.13 | -1087.80 | -277.71   | -711.11 |       |
| 3 | 9  | 66  | 157.09 | -4.18     | 157.08   | -4.17     | 1.20   | 164.80  | -1632.58 | -1449.85 | -17.92    | -543.17 |       |
| 3 | 9  | 67  | 15.66  | -46.17    | -34.70   | 4.20      | -24.03 | 364.03  | -1549.39 | -1009.59 | -175.76   | -861.09 |       |
| 3 | 9  | 68  | 4.02   | -77.85    | -77.35   | 3.52      | -6.39  | 337.48  | -1426.54 | -1103.20 | 14.14     | -682.51 |       |
| 3 | 9  | 69  | 41.04  | 4.67      | 36.98    | 8.72      | -11.45 | 447.76  | -1477.11 | -907.84  | -121.51   | -878.46 |       |
| 3 | 9  | 70  | 160.99 | 3.05      | 160.55   | 3.49      | 8.29   | 401.37  | -1311.50 | -942.07  | 31.95     | -704.49 |       |
| 3 | 9  | 71  | -13.97 | -40.16    | -37.25   | -16.88    | -8.23  | -154.81 | -1627.88 | -1447.01 | -335.68   | -483.45 |       |
| 3 | 9  | 72  | 15.69  | -41.80    | 10.12    | -36.24    | -17.00 | 256.38  | -850.40  | -584.33  | -9.69     | -472.95 |       |
| 3 | 10 | 4   | 1.28   | -8.73     | -8.64    | 1.19      | 0.95   | 309.87  | 38.66    | 308.86   | 39.67     | -16.48  |       |
| 3 | 10 | 6   | 13.47  | -2.95     | 11.90    | -1.38     | -4.83  | 3.05    | -364.45  | -361.34  | -5.96e-02 | -33.64  |       |
| 3 | 10 | 13  | 17.80  | 2.89      | 16.77    | 3.91      | -3.77  | -3.10   | -93.23   | -93.19   | -3.13     | 1.76    |       |
| 3 | 10 | 15  | 25.87  | -2.58     | 25.51    | -2.21     | 3.19   | 22.60   | -210.73  | -204.11  | 15.99     | -38.71  |       |
| 3 | 10 | 61  | 2.99   | -2.31     | -2.24    | 2.92      | -0.62  | 121.68  | 29.79    | 121.50   | 29.97     | -4.10   |       |
| 3 | 10 | 62  | 4.16   | 2.05      | 2.44     | 3.77      | -0.82  | -4.52   | -11.03   | -9.89    | -5.66     | -2.47   |       |
| 3 | 10 | 63  | 3.00   | -3.51     | -2.50    | 1.99      | -2.36  | 21.89   | -136.31  | -107.14  | -7.28     | -61.35  |       |
| 3 | 10 | 64  | -0.27  | -6.82     | -6.71    | -0.39     | -0.85  | 48.11   | -130.99  | -93.97   | 11.09     | -72.52  |       |
| 3 | 10 | 65  | 3.84   | 2.53      | 3.70     | 2.68      | -0.41  | -11.08  | -174.36  | -155.06  | -30.38    | -52.71  |       |
| 3 | 10 | 66  | 12.88  | -0.85     | 12.84    | -0.82     | 0.70   | 7.46    | -192.61  | -189.47  | 4.33      | -24.85  |       |
| 3 | 10 | 67  | 3.21   | -6.51     | -5.12    | 1.82      | -3.41  | -24.44  | -282.95  | -264.80  | -42.60    | -66.05  |       |
| 3 | 10 | 68  | 3.35   | -1.29     | 0.98     | 1.08      | -2.32  | 18.57   | -294.66  | -283.67  | 7.59      | -57.62  |       |
| 3 | 10 | 69  | 2.18   | -9.95e-02 | 2.67e-02 | 2.05      | 0.52   | -18.67  | -280.43  | -259.28  | -39.82    | -71.34  |       |
| 3 | 10 | 70  | 18.08  | 0.74      | 17.74    | 1.07      | 2.39   | 17.77   | -285.75  | -276.57  | 8.58      | -52.00  |       |
| 3 | 10 | 71  | -7.45  | -9.08     | -8.98    | -7.54     | 0.39   | -67.89  | -385.26  | -379.61  | -73.54    | -41.98  |       |
| 3 | 10 | 72  | -4.20  | -10.12    | -5.46    | -8.87     | -2.42  | -45.49  | -324.35  | -319.05  | -50.79    | -38.07  |       |
| 3 | 11 | 4   | -12.24 | -152.42   | -150.80  | -13.86    | -14.99 | 2358.90 | 253.61   | 2347.00  | 265.51    | -157.83 |       |
| 3 | 11 | 6   | 11.80  | -43.14    | -31.01   | -0.33     | -22.78 | 3.76    | -2008.64 | -1919.52 | -85.36    | -414.00 |       |
| 3 | 11 | 13  | 196.22 | 20.20     | 193.36   | 23.06     | -22.25 | -286.18 | -2836.03 | -2835.72 | -286.48   | -27.85  |       |
| 3 | 11 | 15  | 173.13 | -10.64    | 173.04   | -10.54    | 4.17   | 707.89  | -217.60  | 345.10   | 145.19    | -451.82 |       |
| 3 | 11 | 61  | 2.83   | -23.80    | -21.06   | 9.62e-02  | -8.09  | 364.93  | 121.12   | 359.05   | 126.99    | -37.38  |       |
| 3 | 11 | 62  | 45.48  | 9.89      | 43.66    | 11.71     | -7.83  | -331.98 | -1343.17 | -1341.44 | -333.71   | -41.86  |       |
| 3 | 11 | 63  | 11.44  | -41.61    | -32.07   | 1.90      | -20.37 | 557.09  | -1021.28 | -478.03  | 13.85     | -749.88 |       |
| 3 | 11 | 64  | 1.84   | -113.05   | -112.99  | 1.78      | -2.74  | 631.36  | -801.46  | -237.41  | 67.32     | -700.02 |       |
| 3 | 11 | 65  | 57.75  | 7.30      | 53.91    | 11.14     | -13.39 | 135.62  | -1501.13 | -1087.80 | -277.71   | -711.11 |       |
| 3 | 11 | 66  | 157.09 | -4.18     | 157.08   | -4.17     | 1.20   | 164.80  | -1632.58 | -1449.85 | -17.92    | -543.17 |       |
| 3 | 11 | 67  | 15.66  | -46.17    | -34.70   | 4.20      | -24.03 | 364.03  | -1549.39 | -1009.59 | -175.76   | -861.09 |       |
| 3 | 11 | 68  | 4.02   | -77.85    | -77.35   | 3.52      | -6.39  | 337.48  | -1426.54 | -1103.20 | 14.14     | -682.51 |       |
| 3 | 11 | 69  | 41.04  | 4.67      | 36.98    | 8.72      | -11.45 | 447.76  | -1477.11 | -907.84  | -121.51   | -878.46 |       |
| 3 | 11 | 70  | 160.99 | 3.05      | 160.55   | 3.49      | 8.29   | 401.37  | -1311.50 | -942.07  | 31.95     | -704.49 |       |
| 3 | 11 | 71  | -13.97 | -40.16    | -37.25   | -16.88    | -8.23  | -154.81 | -1627.88 | -1447.01 | -335.68   | -483.45 |       |
| 3 | 11 | 72  | 15.69  | -41.80    | 10.12    | -36.24    | -17.00 | 256.38  | -850.40  | -584.33  | -9.69     | -472.95 |       |
| 3 | 12 | 4   | -12.30 | -148.98   | -147.31  | -13.97    | -15.00 | 2280.84 | 243.87   | 2269.42  | 255.28    | -152.07 |       |
| 3 | 12 | 6   | 10.61  | -43.76    | -33.11   | -4.68e-02 | -21.58 | 3.91    | -1916.27 | -1827.83 | -84.53    | -402.49 |       |
| 3 | 12 | 13  | 190.65 | 19.33     | 187.97   | 22.00     | -21.25 | -281.38 | -2772.71 | -2772.38 | -281.71   | -28.45  |       |
| 3 | 12 | 15  | 166.33 | -10.04    | 166.26   | -9.97     | 3.55   | 715.60  | -192.77  | 382.37   | 140.46    | -437.78 |       |
| 3 | 12 | 61  | 2.17   | -23.20    | -20.47   | -0.56     | -7.85  | 349.98  | 116.78   | 344.22   | 122.54    | -36.21  |       |
| 3 | 12 | 62  | 44.32  | 9.06      | 42.62    | 10.76     | -7.54  | -323.99 | -1311.92 | -1310.24 | -325.67   | -40.72  |       |
| 3 | 12 | 63  | 10.69  | -40.48    | -31.29   | 1.51      | -19.64 | 550.66  | -977.55  | -443.47  | 16.58     | -728.66 |       |
| 3 | 12 | 64  | 1.90   | -110.44   | -110.38  | 1.84      | -2.53  | 619.01  | -762.43  | -207.77  | 64.35     | -677.18 |       |
| 3 | 12 | 65  | 56.29  | 6.74      | 52.53    | 10.50     | -13.14 | 140.43  | -1443.72 | -1036.42 | -266.87   | -692.33 |       |
| 3 | 12 | 66  | 152.88 | -3.96     | 152.88   | -3.96     | 1.03   | 163.91  | -1569.11 | -1386.69 | -18.51    | -531.85 |       |
| 3 | 12 | 67  | 14.84  | -44.40    | -33.37   | 3.80      | -23.06 | 369.84  | -1476.94 | -942.20  | -164.90   | -837.61 |       |
| 3 | 12 | 68  | 3.69   | -77.15    | -76.72   | 3.26      | -5.85  | 334.62  | -1353.18 | -1031.03 | 12.48     | -663.28 |       |
| 3 | 12 | 69  | 40.56  | 4.23      | 36.53    | 8.25      | -11.40 | 451.66  | -1405.53 | -842.30  | -111.57   | -853.70 |       |

| M | G  | Cmb | Nodo   | N max   | N min   | N 1       | N 2    | N 1-2    | M max    | M min    | M 1      | M 2     | M 1-2 |
|---|----|-----|--------|---------|---------|-----------|--------|----------|----------|----------|----------|---------|-------|
| 3 | 12 | 70  | 155.75 | 2.85    | 155.35  | 3.24      | 7.74   | 399.25   | -1241.50 | -872.20  | 29.95    | -685.23 |       |
| 3 | 12 | 71  | -12.27 | -38.05  | -35.12  | -15.20    | -8.19  | -137.24  | -1537.11 | -1356.72 | -317.63  | -469.02 |       |
| 3 | 12 | 72  | 16.31  | -39.38  | 11.02   | -34.10    | -16.32 | 269.25   | -783.80  | -515.02  | 0.48     | -459.12 |       |
| 3 | 13 | 4   | 1.22   | -5.29   | -5.15   | 1.08      | 0.94   | 231.85   | 28.88    | 231.28   | 29.44    | -10.71  |       |
| 3 | 13 | 6   | 10.91  | -2.20   | 9.81    | -1.10     | -3.63  | 2.57     | -271.45  | -269.65  | 0.77     | -22.13  |       |
| 3 | 13 | 13  | 12.21  | 2.04    | 11.39   | 2.86      | -2.77  | 1.69     | -29.89   | -29.85   | 1.65     | 1.17    |       |
| 3 | 13 | 15  | 19.05  | -1.96   | 18.73   | -1.64     | 2.57   | 14.62    | -170.20  | -166.85  | 11.26    | -24.68  |       |
| 3 | 13 | 61  | 2.30   | -1.69   | -1.65   | 2.27      | -0.39  | 106.77   | 25.42    | 106.67   | 25.52    | -2.92   |       |
| 3 | 13 | 62  | 3.00   | 1.22    | 1.40    | 2.82      | -0.54  | 21.40    | 2.28     | 21.31    | 2.38     | -1.34   |       |
| 3 | 13 | 63  | 2.26   | -2.39   | -1.72   | 1.59      | -1.63  | 14.04    | -91.17   | -72.58   | -4.55    | -40.12  |       |
| 3 | 13 | 64  | -0.22  | -4.20   | -4.10   | -0.32     | -0.63  | 33.39    | -89.60   | -64.34   | 8.13     | -49.69  |       |
| 3 | 13 | 65  | 2.39   | 1.96    | 2.32    | 2.04      | -0.16  | -7.56    | -115.66  | -103.68  | -19.54   | -33.94  |       |
| 3 | 13 | 66  | 8.67   | -0.63   | 8.64    | -0.60     | 0.53   | 5.13     | -127.70  | -126.31  | 3.74     | -13.53  |       |
| 3 | 13 | 67  | 2.39   | -4.75   | -3.78   | 1.42      | -2.44  | -21.44   | -207.71  | -197.41  | -31.74   | -42.57  |       |
| 3 | 13 | 68  | 3.04   | -0.61   | 1.60    | 0.83      | -1.78  | 12.50    | -218.08  | -211.51  | 5.93     | -38.39  |       |
| 3 | 13 | 69  | 1.73   | -0.58   | -0.43   | 1.58      | 0.57   | -17.57   | -206.05  | -193.74  | -29.88   | -46.58  |       |
| 3 | 13 | 70  | 12.83  | 0.54    | 12.55   | 0.82      | 1.83   | 11.50    | -211.61  | -206.69  | 6.59     | -32.74  |       |
| 3 | 13 | 71  | -5.71  | -7.01   | -6.85   | -5.87     | 0.43   | -52.29   | -292.52  | -289.31  | -55.50   | -27.55  |       |
| 3 | 13 | 72  | -3.59  | -7.70   | -4.56   | -6.73     | -1.74  | -37.85   | -252.52  | -249.75  | -40.62   | -24.23  |       |
| 3 | 14 | 4   | -12.30 | -148.98 | -147.31 | -13.97    | -15.00 | 2280.84  | 243.87   | 2269.42  | 255.28   | -152.07 |       |
| 3 | 14 | 6   | 10.61  | -43.76  | -33.11  | -4.68e-02 | -21.58 | 3.91     | -1916.27 | -1827.83 | -84.53   | -402.49 |       |
| 3 | 14 | 13  | 190.65 | 19.33   | 187.97  | 22.00     | -21.25 | -281.38  | -2772.71 | -2772.38 | -281.71  | -28.45  |       |
| 3 | 14 | 15  | 166.33 | -10.04  | 166.26  | -9.97     | 3.55   | 715.60   | -192.77  | 382.37   | 140.46   | -437.78 |       |
| 3 | 14 | 61  | 2.17   | -23.20  | -20.47  | -0.56     | -7.85  | 349.98   | 116.78   | 344.22   | 122.54   | -36.21  |       |
| 3 | 14 | 62  | 44.32  | 9.06    | 42.62   | 10.76     | -7.54  | -323.99  | -1311.92 | -1310.24 | -325.67  | -40.72  |       |
| 3 | 14 | 63  | 10.69  | -40.48  | -31.29  | 1.51      | -19.64 | 550.66   | -977.55  | -443.47  | 16.58    | -728.66 |       |
| 3 | 14 | 64  | 1.90   | -110.44 | -110.38 | 1.84      | -2.53  | 619.01   | -762.43  | -207.77  | 64.35    | -677.18 |       |
| 3 | 14 | 65  | 56.29  | 6.74    | 52.53   | 10.50     | -13.14 | 140.43   | -1443.72 | -1036.42 | -266.87  | -692.33 |       |
| 3 | 14 | 66  | 152.88 | -3.96   | 152.88  | -3.96     | 1.03   | 163.91   | -1569.11 | -1386.69 | -18.51   | -531.85 |       |
| 3 | 14 | 67  | 14.84  | -44.40  | -33.37  | 3.80      | -23.06 | 369.84   | -1476.94 | -942.20  | -164.90  | -837.61 |       |
| 3 | 14 | 68  | 3.69   | -77.15  | -76.72  | 3.26      | -5.85  | 334.62   | -1353.18 | -1031.03 | 12.48    | -663.28 |       |
| 3 | 14 | 69  | 40.56  | 4.23    | 36.53   | 8.25      | -11.40 | 451.66   | -1405.53 | -842.30  | -111.57  | -853.70 |       |
| 3 | 14 | 70  | 155.75 | 2.85    | 155.35  | 3.24      | 7.74   | 399.25   | -1241.50 | -872.20  | 29.95    | -685.23 |       |
| 3 | 14 | 71  | -12.27 | -38.05  | -35.12  | -15.20    | -8.19  | -137.24  | -1537.11 | -1356.72 | -317.63  | -469.02 |       |
| 3 | 14 | 72  | 16.31  | -39.38  | 11.02   | -34.10    | -16.32 | 269.25   | -783.80  | -515.02  | 0.48     | -459.12 |       |
| 3 | 15 | 4   | 39.28  | 9.56    | 36.92   | 11.91     | 8.02   | -444.89  | -3052.40 | -3046.93 | -450.36  | -119.26 |       |
| 3 | 15 | 6   | 93.43  | -11.69  | 89.62   | -7.88     | -19.63 | -243.08  | -2966.99 | -2963.92 | -246.15  | 91.31   |       |
| 3 | 15 | 13  | 133.77 | 10.60   | 128.51  | 15.86     | -24.90 | -538.90  | -4732.49 | -4728.98 | -542.42  | 121.40  |       |
| 3 | 15 | 15  | 133.83 | -19.85  | 132.08  | -18.10    | 16.31  | -199.36  | -2204.91 | -2201.84 | -202.43  | 78.39   |       |
| 3 | 15 | 61  | 35.70  | 10.34   | 35.14   | 10.90     | 3.73   | -760.19  | -4104.20 | -4101.96 | -762.43  | 86.46   |       |
| 3 | 15 | 62  | 1.89   | -24.43  | -19.64  | -2.90     | -10.15 | -941.36  | -4617.45 | -4615.90 | -942.92  | 75.61   |       |
| 3 | 15 | 63  | 24.43  | 8.28    | 21.93   | 10.78     | -5.85  | -583.03  | -3909.05 | -3907.81 | -584.27  | -64.23  |       |
| 3 | 15 | 64  | 49.17  | 20.47   | 47.29   | 22.34     | 7.09   | -409.58  | -4049.21 | -4049.21 | -409.58  | 0.48    |       |
| 3 | 15 | 65  | 22.53  | 1.32    | 5.01    | 18.84     | -8.04  | -700.72  | -3993.28 | -3992.41 | -701.60  | -53.71  |       |
| 3 | 15 | 66  | 106.74 | 12.89   | 106.63  | 13.00     | -3.20  | -330.49  | -4033.55 | -4032.00 | -332.05  | 75.91   |       |
| 3 | 15 | 67  | 27.04  | 0.51    | 17.92   | 9.64      | -12.60 | -438.40  | -3120.50 | -3116.33 | -442.57  | -105.71 |       |
| 3 | 15 | 68  | 62.96  | 19.53   | 62.04   | 20.46     | -6.27  | -235.66  | -3296.77 | -3296.66 | -235.76  | 18.11   |       |
| 3 | 15 | 69  | 13.64  | -14.24  | -14.23  | 13.62     | 0.56   | -416.46  | -3110.09 | -3105.46 | -421.09  | -111.58 |       |
| 3 | 15 | 70  | 118.79 | 14.29   | 116.95  | 16.13     | 13.72  | -251.49  | -3353.27 | -3353.16 | -251.60  | 18.28   |       |
| 3 | 15 | 71  | 23.49  | -43.31  | 23.08   | -42.89    | -5.23  | -540.70  | -2961.01 | -2961.00 | -540.71  | 4.67    |       |
| 3 | 15 | 72  | -37.42 | -54.34  | -37.45  | -54.31    | -0.74  | -388.11  | -2654.96 | -2654.84 | -388.22  | 15.87   |       |
| 3 | 16 | 4   | -5.75  | -71.83  | -71.83  | -5.75     | -0.47  | -192.67  | -1835.34 | -1801.30 | -226.70  | -233.99 |       |
| 3 | 16 | 6   | 31.56  | -30.12  | 14.37   | -12.93    | -27.65 | -305.23  | -3511.55 | -3481.58 | -335.20  | -308.53 |       |
| 3 | 16 | 13  | 242.10 | 28.11   | 236.75  | 33.47     | -33.43 | -757.86  | -5911.29 | -5911.28 | -757.87  | 5.79    |       |
| 3 | 16 | 15  | 206.80 | -13.27  | 206.49  | -12.96    | 8.24   | -48.49   | -1731.99 | -1669.05 | -111.43  | -319.37 |       |
| 3 | 16 | 61  | 13.09  | 0.58    | 4.26    | 9.41      | -5.70  | -679.91  | -3632.58 | -3632.44 | -680.05  | -20.77  |       |
| 3 | 16 | 62  | 25.10  | -15.87  | 10.58   | -1.34     | -19.60 | -1012.01 | -5018.72 | -5018.46 | -1012.27 | -32.30  |       |
| 3 | 16 | 63  | 19.58  | -16.87  | -8.48   | 11.19     | -15.34 | -453.59  | -3707.11 | -3625.92 | -534.77  | -507.48 |       |
| 3 | 16 | 64  | 15.54  | -51.37  | -51.37  | 15.54     | -0.55  | -216.79  | -3379.30 | -3317.02 | -279.07  | -439.41 |       |
| 3 | 16 | 65  | 45.99  | 7.23    | 34.82   | 18.41     | -17.56 | -671.35  | -4296.87 | -4227.08 | -741.15  | -498.16 |       |
| 3 | 16 | 66  | 205.34 | 19.15   | 204.71  | 19.79     | -10.89 | -425.47  | -4742.56 | -4711.40 | -456.63  | -365.45 |       |
| 3 | 16 | 67  | 23.29  | -25.89  | -12.12  | 9.52      | -22.08 | -306.80  | -3300.96 | -3157.22 | -450.55  | -640.10 |       |
| 3 | 16 | 68  | 20.19  | -25.29  | -20.73  | 15.63     | -13.67 | -182.86  | -3528.36 | -3446.71 | -264.50  | -516.20 |       |
| 3 | 16 | 69  | 23.50  | 5.53    | 15.28   | 13.75     | -8.95  | -260.41  | -3193.00 | -3043.15 | -410.26  | -645.75 |       |
| 3 | 16 | 70  | 199.17 | 20.70   | 198.95  | 20.92     | 6.27   | -133.13  | -3261.43 | -3174.41 | -220.15  | -514.44 |       |
| 3 | 16 | 71  | -1.16  | -48.71  | -6.19   | -43.68    | -14.63 | -509.20  | -3195.51 | -3136.25 | -568.46  | -394.56 |       |
| 3 | 16 | 72  | -6.43  | -55.54  | -8.63   | -53.34    | -10.16 | -290.60  | -2532.00 | -2464.60 | -358.00  | -382.78 |       |
| 3 | 17 | 4   | -5.87  | -95.71  | -93.11  | -8.47     | -15.07 | 4451.34  | 527.77   | 4450.49  | 528.63   | 57.86   |       |
| 3 | 17 | 6   | 11.96  | -41.86  | -41.84  | 11.94     | 1.07   | 1284.93  | 222.81   | 1263.61  | 244.12   | -148.94 |       |
| 3 | 17 | 13  | -3.70  | -25.91  | -22.58  | -7.02     | 7.92   | 2843.05  | 450.31   | 2842.55  | 450.81   | -34.66  |       |
| 3 | 17 | 15  | 1.14   | -10.36  | -9.88   | 0.66      | -2.29  | 1960.25  | 254.45   | 1940.86  | 273.84   | -180.84 |       |
| 3 | 17 | 61  | -7.42  | -28.29  | -27.78  | -7.93     | -3.21  | 4072.89  | 829.51   | 4072.75  | 829.65   | -21.04  |       |
| 3 | 17 | 62  | 41.68  | 11.08   | 37.15   | 15.61     | 10.86  | 3582.99  | 653.57   | 3582.93  | 653.64   | -13.51  |       |
| 3 | 17 | 63  | -5.58  | -29.55  | -26.91  | -8.22     | -7.50  | 3105.81  | 505.77   | 3065.47  | 546.11   | -321.34 |       |

| M_G | Cmb | Nodo | N max  | N min   | N 1     | N 2    | N 1-2  | M max   | M min    | M 1      | M 2      | M 1-2    |
|-----|-----|------|--------|---------|---------|--------|--------|---------|----------|----------|----------|----------|
| 3   | 17  | 64   | -13.69 | -72.45  | -72.32  | -13.82 | -2.78  | 3062.54 | 313.02   | 3019.45  | 356.11   | -341.49  |
| 3   | 17  | 65   | 24.75  | -5.58   | 24.43   | -5.26  | 3.08   | 3024.96 | 399.23   | 2993.60  | 430.59   | -285.22  |
| 3   | 17  | 66   | -14.96 | -40.76  | -31.09  | -24.63 | 12.49  | 3094.68 | 420.38   | 3075.50  | 439.56   | -225.66  |
| 3   | 17  | 67   | -3.09  | -28.41  | -27.31  | -4.18  | -5.16  | 2009.63 | 188.73   | 1955.39  | 242.97   | -309.56  |
| 3   | 17  | 68   | -10.71 | -61.97  | -61.31  | -11.36 | 5.76   | 2166.47 | 252.83   | 2136.14  | 283.16   | -239.00  |
| 3   | 17  | 69   | 24.51  | -3.80   | 24.18   | -3.47  | -3.02  | 2012.77 | 201.56   | 1952.47  | 261.86   | -324.93  |
| 3   | 17  | 70   | -14.09 | -21.94  | -19.33  | -16.70 | 3.70   | 2076.67 | 220.66   | 2039.05  | 258.27   | -261.54  |
| 3   | 17  | 71   | 22.72  | -38.38  | -37.78  | 22.11  | 6.03   | 1429.51 | 159.87   | 1413.67  | 175.71   | -140.92  |
| 3   | 17  | 72   | 23.33  | 4.02    | 16.85   | 10.50  | -9.12  | 1704.92 | 309.58   | 1690.80  | 323.70   | -139.67  |
| 3   | 18  | 4    | -23.04 | -204.96 | -201.85 | -26.14 | -23.56 | 5696.77 | 751.63   | 5696.12  | 752.29   | -56.87   |
| 3   | 18  | 6    | 7.27   | -117.48 | -117.09 | 6.89   | -6.95  | 1073.77 | -172.75  | 745.95   | 155.07   | -548.78  |
| 3   | 18  | 13   | 85.65  | 10.58   | 85.65   | 10.59  | -0.62  | 1675.91 | 219.69   | 1660.24  | 235.36   | -150.27  |
| 3   | 18  | 15   | 66.30  | 4.04    | 64.53   | 5.81   | -10.35 | 2621.97 | 216.53   | 2473.65  | 364.85   | -578.60  |
| 3   | 18  | 61   | -6.36  | -61.72  | -58.66  | -9.42  | -12.64 | 4546.81 | 907.50   | 4542.28  | 912.03   | -128.27  |
| 3   | 18  | 62   | 67.41  | 17.13   | 67.37   | 17.17  | 1.41   | 3186.03 | 578.62   | 3180.36  | 584.28   | -121.42  |
| 3   | 18  | 63   | -2.54  | -62.59  | -57.31  | -7.81  | -17.00 | 3545.53 | 397.44   | 3347.36  | 595.61   | -764.59  |
| 3   | 18  | 64   | -19.91 | -171.70 | -170.98 | -20.63 | -10.42 | 3929.00 | 309.25   | 3751.64  | 486.62   | -781.38  |
| 3   | 18  | 65   | 54.92  | -6.37   | 54.23   | -5.69  | -6.44  | 2965.72 | 184.25   | 2758.93  | 391.04   | -729.68  |
| 3   | 18  | 66   | 67.26  | -18.11  | 66.99   | -17.84 | 4.80   | 2591.53 | 119.54   | 2396.10  | 314.97   | -667.02  |
| 3   | 18  | 67   | -0.53  | -61.12  | -57.35  | -4.30  | -14.64 | 2265.30 | -115.81  | 1914.50  | 235.00   | -843.95  |
| 3   | 18  | 68   | -16.18 | -144.10 | -144.08 | -16.20 | -1.64  | 2281.15 | -40.64   | 1986.08  | 254.42   | -773.32  |
| 3   | 18  | 69   | 56.33  | -5.98   | 53.70   | -3.35  | -12.53 | 2367.15 | -79.69   | 2014.77  | 272.69   | -859.10  |
| 3   | 18  | 70   | 62.86  | -12.09  | 62.67   | -11.90 | -3.75  | 2502.85 | 4.67     | 2217.80  | 289.72   | -794.26  |
| 3   | 18  | 71   | 21.46  | -67.18  | -67.05  | 21.33  | -3.36  | 1460.68 | -74.30   | 1238.42  | 147.96   | -540.16  |
| 3   | 18  | 72   | 53.79  | 3.35    | 45.67   | 11.47  | -18.54 | 2051.72 | 183.25   | 1881.04  | 353.93   | -538.31  |
| 3   | 19  | 4    | 37.90  | 9.11    | 35.41   | 11.60  | 8.09   | -439.70 | -3024.49 | -3018.71 | -445.47  | -122.04  |
| 3   | 19  | 6    | 91.73  | -11.84  | 87.85   | -7.96  | -19.67 | -245.93 | -2979.49 | -2976.93 | -248.49  | 83.66    |
| 3   | 19  | 13   | 135.17 | 10.99   | 129.99  | 16.17  | -24.83 | -543.26 | -4755.06 | -4751.72 | -546.60  | 118.53   |
| 3   | 19  | 15   | 135.51 | -19.74  | 133.79  | -18.02 | 16.28  | -197.33 | -2189.58 | -2187.05 | -199.85  | 70.93    |
| 3   | 19  | 61   | 35.19  | 10.32   | 34.62   | 10.89  | 3.73   | -758.21 | -4092.06 | -4089.95 | -760.32  | 83.82    |
| 3   | 19  | 62   | 1.98   | -24.03  | -19.15  | -2.89  | -10.15 | -942.46 | -4623.55 | -4622.10 | -943.90  | 72.90    |
| 3   | 19  | 63   | 23.95  | 8.23    | 21.39   | 10.79  | -5.80  | -581.35 | -3901.91 | -3900.27 | -582.99  | -73.85   |
| 3   | 19  | 64   | 47.76  | 20.24   | 45.74   | 22.26  | 7.16   | -406.73 | -4032.41 | -4032.39 | -406.75  | -9.10    |
| 3   | 19  | 65   | 22.58  | 1.77    | 5.52    | 18.83  | -7.99  | -700.94 | -3997.07 | -3995.85 | -702.16  | -63.43   |
| 3   | 19  | 66   | 108.24 | 12.98   | 108.13  | 13.09  | -3.13  | -333.18 | -4045.34 | -4044.16 | -334.36  | 66.19    |
| ... |     |      |        |         |         |        |        |         |          |          |          |          |
| 3   | 96  | 72   | 4.67   | -20.41  | 2.03    | -17.77 | -7.69  | 74.36   | -448.52  | -351.53  | -22.63   | -203.24  |
| M_G |     |      | N max  | N min   | N 1     | N 2    | N 1-2  | M max   | M min    | M 1      | M 2      | M 1-2    |
|     |     |      |        | -287.70 | -285.04 | -54.48 | -33.50 |         | -5919.34 | -5919.30 | -1015.28 | -1407.62 |
|     |     |      | 313.93 |         | 310.13  | 46.01  | 19.93  | 5717.00 |          | 5716.17  | 915.47   | 551.49   |

| Macro | Tipo   | Angolo 1-□ (gradi) |
|-------|--------|--------------------|
| 4     | Guscio | 0.0                |

| M_G | Cmb | Nodo | N max  | N min     | N 1      | N 2       | N 1-2  | M max   | M min    | M 1      | M 2    | M 1-2   |
|-----|-----|------|--------|-----------|----------|-----------|--------|---------|----------|----------|--------|---------|
|     |     |      | daN/cm | daN/cm    | daN/cm   | daN/cm    | daN/cm | daN     | daN      | daN      | daN    | daN     |
| 4   | 1   | 6    | 8.29   | -3.15     | 7.11     | -1.96     | 3.49   | 3.50    | -377.44  | -370.26  | -3.68  | -51.80  |
| 4   | 1   | 7    | 81.29  | 19.32     | 60.85    | 39.76     | -29.13 | 1172.08 | 159.86   | 1149.18  | 182.76 | -150.52 |
| 4   | 1   | 15   | 29.26  | -2.42     | 28.26    | -1.42     | -5.55  | 11.81   | -214.20  | -213.59  | 11.20  | -11.75  |
| 4   | 1   | 16   | 35.87  | -2.12     | 33.77    | -2.35e-02 | 8.68   | 1012.71 | 122.90   | 1006.91  | 128.69 | 71.57   |
| 4   | 1   | 71   | -4.85  | -9.21     | -7.61    | -6.46     | -2.10  | -63.32  | -379.07  | -372.89  | -69.50 | -43.76  |
| 4   | 1   | 72   | -5.14  | -7.41     | -5.18    | -7.37     | 0.28   | -44.12  | -320.10  | -316.57  | -47.65 | -31.00  |
| 4   | 1   | 73   | 1.83   | -1.10     | 1.91e-02 | 0.71      | 1.43   | 6.89    | -365.42  | -364.67  | 6.14   | -16.69  |
| 4   | 1   | 74   | 2.60   | -1.89     | -1.71    | 2.42      | 0.87   | -38.84  | -336.68  | -335.37  | -40.15 | -19.68  |
| 4   | 1   | 75   | 0.70   | -0.64     | -0.11    | 0.18      | 0.66   | 6.86    | -214.67  | -213.64  | 5.84   | 15.02   |
| 4   | 1   | 76   | 3.00   | 8.32e-02  | 2.59     | 0.49      | -1.02  | -19.12  | -203.10  | -203.06  | -19.15 | -2.56   |
| 4   | 1   | 77   | 4.04   | 0.12      | 3.88     | 0.28      | 0.77   | 85.49   | -4.92    | 75.53    | 5.04   | 28.30   |
| 4   | 1   | 78   | 5.36   | -0.14     | 4.67     | 0.55      | -1.83  | 71.91   | 6.81     | 71.90    | 6.82   | 0.67    |
| 4   | 1   | 79   | 7.58   | -13.10    | 7.03     | -12.54    | 3.35   | 526.91  | -17.71   | 526.62   | -17.41 | 12.73   |
| 4   | 1   | 80   | 17.20  | -5.62     | 7.54     | 4.04      | -11.28 | 489.07  | 75.86    | 488.19   | 76.75  | -19.05  |
| 4   | 1   | 81   | 3.41   | -9.73     | -9.72    | 3.39      | -0.47  | 1090.30 | 231.47   | 1089.10  | 232.67 | -32.03  |
| 4   | 1   | 82   | 6.42   | -0.81     | 2.49     | 3.13      | -3.60  | -31.56  | -326.48  | -326.21  | -31.82 | -8.80   |
| 4   | 1   | 83   | 5.92   | -8.50e-03 | 5.37     | 0.54      | -1.72  | -15.88  | -203.87  | -202.01  | -17.73 | -18.56  |
| 4   | 1   | 84   | 6.79   | 0.92      | 6.66     | 1.05      | -0.85  | 77.94   | -1.41    | 71.39    | 5.14   | -21.83  |
| 4   | 1   | 85   | 9.42   | 0.87      | 0.93     | 9.36      | 0.70   | 482.97  | 64.02    | 482.71   | 64.28  | -10.46  |
| 4   | 1   | 86   | -13.13 | -19.89    | -16.60   | -16.42    | -3.38  | 1024.88 | 195.86   | 1024.23  | 196.51 | -23.22  |
| 4   | 1   | 87   | 13.13  | 0.42      | 12.90    | 0.64      | -1.67  | 7.75    | -346.02  | -345.82  | 7.55   | -8.27   |
| 4   | 1   | 88   | 8.12   | -0.18     | 8.03     | -8.78e-02 | -0.89  | 11.38   | -215.99  | -210.76  | 6.15   | -34.10  |
| 4   | 1   | 89   | 6.80   | -1.42     | 6.65     | -1.26     | -1.12  | 97.20   | -19.47   | 72.43    | 5.30   | -47.71  |
| 4   | 1   | 90   | 16.03  | 4.89      | 15.96    | 4.96      | 0.88   | 508.28  | -15.40   | 505.25   | -12.37 | -39.73  |
| 4   | 2   | 6    | -6.44  | -53.15    | -53.07   | -6.52     | 1.96   | 2.18    | -1528.67 | -1462.10 | -64.40 | -312.22 |

| M | G | Cmb | Nodo     | N max     | N min    | N 1       | N 2      | N 1-2   | M max    | M min    | M 1     | M 2     | M 1-2 |
|---|---|-----|----------|-----------|----------|-----------|----------|---------|----------|----------|---------|---------|-------|
| 4 | 2 | 7   | 227.24   | 47.51     | 113.83   | 160.92    | -86.72   | 2669.84 | 411.87   | 2613.44  | 468.28  | -352.40 |       |
| 4 | 2 | 15  | 160.69   | -4.48     | 158.15   | -1.94     | -20.33   | 332.57  | -100.01  | 143.25   | 89.30   | -214.60 |       |
| 4 | 2 | 16  | 63.42    | -48.30    | 62.80    | -47.68    | 8.33     | 2573.79 | 270.40   | 2559.59  | 284.60  | 180.30  |       |
| 4 | 2 | 71  | -6.11    | -29.62    | -22.88   | -12.85    | -10.63   | -133.09 | -1206.74 | -1094.49 | -245.34 | -328.51 |       |
| 4 | 2 | 72  | 3.52     | -23.86    | 2.49     | -22.83    | -5.21    | 120.42  | -651.95  | -513.48  | -18.04  | -296.26 |       |
| 4 | 2 | 73  | 1.84     | -45.87    | -45.81   | 1.79      | 1.68     | 17.30   | -1009.80 | -1003.37 | 10.87   | -81.01  |       |
| 4 | 2 | 74  | 5.51     | -17.58    | -15.85   | 3.78      | -6.08    | -122.68 | -901.02  | -892.01  | -131.68 | -83.23  |       |
| 4 | 2 | 75  | 0.43     | -33.66    | -33.66   | 0.43      | 3.40e-02 | 15.21   | -625.33  | -624.38  | 14.25   | 24.72   |       |
| 4 | 2 | 76  | 10.52    | -12.28    | -2.99    | 1.22      | -11.20   | -56.59  | -587.83  | -587.54  | -56.89  | -12.58  |       |
| 4 | 2 | 77  | 6.18e-02 | -11.77    | -11.72   | 2.07e-02  | 0.70     | 117.78  | -30.65   | 73.94    | 13.19   | 67.71   |       |
| 4 | 2 | 78  | 14.68    | -10.04    | 4.81     | -0.17     | -12.11   | 69.87   | 11.44    | 69.78    | 11.53   | 2.30    |       |
| 4 | 2 | 79  | -6.50    | -55.30    | -13.11   | -48.68    | 16.70    | 1187.03 | -45.95   | 1186.12  | -45.04  | 33.40   |       |
| 4 | 2 | 80  | 49.75    | -26.27    | 27.93    | -4.45     | -34.39   | 1089.07 | 187.35   | 1087.79  | 188.64  | -34.07  |       |
| 4 | 2 | 81  | 61.24    | -0.20     | 0.28     | 60.76     | -5.40    | 2602.32 | 598.65   | 2601.71  | 599.26  | -34.87  |       |
| 4 | 2 | 82  | 39.29    | -0.23     | 28.25    | 10.81     | -17.73   | -41.43  | -802.92  | -799.49  | -44.86  | -50.97  |       |
| 4 | 2 | 83  | 33.92    | -3.89     | 28.79    | 1.24      | -12.95   | -34.95  | -580.01  | -575.78  | -39.18  | -47.86  |       |
| 4 | 2 | 84  | 30.15    | -4.89     | 25.10    | 0.16      | -12.31   | 102.20  | -17.36   | 72.87    | 11.97   | -51.44  |       |
| 4 | 2 | 85  | 30.23    | -3.69     | 5.31     | 21.24     | -14.98   | 1106.19 | 156.33   | 1106.03  | 156.49  | -12.16  |       |
| 4 | 2 | 86  | -35.29   | -50.29    | -46.46   | -39.12    | -6.54    | 2487.34 | 472.40   | 2487.25  | 472.49  | -13.46  |       |
| 4 | 2 | 87  | 90.16    | 1.36      | 89.97    | 1.55      | -4.12    | 27.99   | -813.37  | -811.19  | 25.81   | -42.74  |       |
| 4 | 2 | 88  | 60.45    | 3.09e-02  | 60.39    | 8.37e-02  | -1.79    | 29.50   | -601.04  | -589.37  | 17.82   | -84.99  |       |
| 4 | 2 | 89  | 39.69    | -0.43     | 39.60    | -0.34     | -1.92    | 166.24  | -73.65   | 77.54    | 15.05   | -115.80 |       |
| 4 | 2 | 90  | 36.77    | 15.91     | 34.96    | 17.71     | 5.86     | 1168.06 | -30.75   | 1160.13  | -22.82  | -97.22  |       |
| 4 | 3 | 6   | 8.29     | -3.15     | 7.11     | -1.96     | 3.49     | 3.50    | -377.44  | -370.26  | -3.68   | -51.80  |       |
| 4 | 3 | 7   | 81.29    | 19.32     | 60.85    | 39.76     | -29.13   | 1172.08 | 159.86   | 1149.18  | 182.76  | -150.52 |       |
| 4 | 3 | 15  | 29.26    | -2.42     | 28.26    | -1.42     | -5.55    | 11.81   | -214.20  | -213.59  | 11.20   | -11.75  |       |
| 4 | 3 | 16  | 35.87    | -2.12     | 33.77    | -2.35e-02 | 8.68     | 1012.71 | 122.90   | 1006.91  | 128.69  | 71.57   |       |
| 4 | 3 | 71  | -4.85    | -9.21     | -7.61    | -6.46     | -2.10    | -63.32  | -379.07  | -372.89  | -69.50  | -43.76  |       |
| 4 | 3 | 72  | -5.14    | -7.41     | -5.18    | -7.37     | 0.28     | -44.12  | -320.10  | -316.57  | -47.65  | -31.00  |       |
| 4 | 3 | 73  | 1.83     | -1.10     | 1.91e-02 | 0.71      | 1.43     | 6.89    | -365.42  | -364.67  | 6.14    | -16.69  |       |
| 4 | 3 | 74  | 2.60     | -1.89     | -1.71    | 2.42      | 0.87     | -38.84  | -336.68  | -335.37  | -40.15  | -19.68  |       |
| 4 | 3 | 75  | 0.70     | -0.64     | -0.11    | 0.18      | 0.66     | 6.86    | -214.67  | -213.64  | 5.84    | 15.02   |       |
| 4 | 3 | 76  | 3.00     | 8.32e-02  | 2.59     | 0.49      | -1.02    | -19.12  | -203.10  | -203.06  | -19.15  | -2.56   |       |
| 4 | 3 | 77  | 4.04     | 0.12      | 3.88     | 0.28      | 0.77     | 85.49   | -4.92    | 75.53    | 5.04    | 28.30   |       |
| 4 | 3 | 78  | 5.36     | -0.14     | 4.67     | 0.55      | -1.83    | 71.91   | 6.81     | 71.90    | 6.82    | 0.67    |       |
| 4 | 3 | 79  | 7.58     | -13.10    | 7.03     | -12.54    | 3.35     | 526.91  | -17.71   | 526.62   | -17.41  | 12.73   |       |
| 4 | 3 | 80  | 17.20    | -5.62     | 7.54     | 4.04      | -11.28   | 489.07  | 75.86    | 488.19   | 76.75   | -19.05  |       |
| 4 | 3 | 81  | 3.41     | -9.73     | -9.72    | 3.39      | -0.47    | 1090.30 | 231.47   | 1089.10  | 232.67  | -32.03  |       |
| 4 | 3 | 82  | 6.42     | -0.81     | 2.49     | 3.13      | -3.60    | -31.56  | -326.48  | -326.21  | -31.82  | -8.80   |       |
| 4 | 3 | 83  | 5.92     | -8.50e-03 | 5.37     | 0.54      | -1.72    | -15.88  | -203.87  | -202.01  | -17.73  | -18.56  |       |
| 4 | 3 | 84  | 6.79     | 0.92      | 6.66     | 1.05      | -0.85    | 77.94   | -1.41    | 71.39    | 5.14    | -21.83  |       |
| 4 | 3 | 85  | 9.42     | 0.87      | 0.93     | 9.36      | 0.70     | 482.97  | 64.02    | 482.71   | 64.28   | -10.46  |       |
| 4 | 3 | 86  | -13.13   | -19.89    | -16.60   | -16.42    | -3.38    | 1024.88 | 195.86   | 1024.23  | 196.51  | -23.22  |       |
| 4 | 3 | 87  | 13.13    | 0.42      | 12.90    | 0.64      | -1.67    | 7.75    | -346.02  | -345.82  | 7.55    | 8.27    |       |
| 4 | 3 | 88  | 8.12     | -0.18     | 8.03     | -8.78e-02 | -0.89    | 11.38   | -215.99  | -210.76  | 6.15    | -34.10  |       |
| 4 | 3 | 89  | 6.80     | -1.42     | 6.65     | -1.26     | -1.12    | 97.20   | -19.47   | 72.43    | 5.30    | -47.71  |       |
| 4 | 3 | 90  | 16.03    | 4.89      | 15.96    | 4.96      | 0.88     | 508.28  | -15.40   | 505.25   | -12.37  | -39.73  |       |
| 4 | 4 | 6   | -6.44    | -53.15    | -53.07   | -6.52     | 1.96     | 2.18    | -1528.67 | -1462.10 | -64.40  | -312.22 |       |
| 4 | 4 | 7   | 227.24   | 47.51     | 113.83   | 160.92    | -86.72   | 2669.84 | 411.87   | 2613.44  | 468.28  | -352.40 |       |
| 4 | 4 | 15  | 160.69   | -4.48     | 158.15   | -1.94     | -20.33   | 332.57  | -100.01  | 143.25   | 89.30   | -214.60 |       |
| 4 | 4 | 16  | 63.42    | -48.30    | 62.80    | -47.68    | 8.33     | 2573.79 | 270.40   | 2559.59  | 284.60  | 180.30  |       |
| 4 | 4 | 71  | -6.11    | -29.62    | -22.88   | -12.85    | -10.63   | -133.09 | -1206.74 | -1094.49 | -245.34 | -328.51 |       |
| 4 | 4 | 72  | 3.52     | -23.86    | 2.49     | -22.83    | -5.21    | 120.42  | -651.95  | -513.48  | -18.04  | -296.26 |       |
| 4 | 4 | 73  | 1.84     | -45.87    | -45.81   | 1.79      | 1.68     | 17.30   | -1009.80 | -1003.37 | 10.87   | -81.01  |       |
| 4 | 4 | 74  | 5.51     | -17.58    | -15.85   | 3.78      | -6.08    | -122.68 | -901.02  | -892.01  | -131.68 | -83.23  |       |
| 4 | 4 | 75  | 0.43     | -33.66    | -33.66   | 0.43      | 3.40e-02 | 15.21   | -625.33  | -624.38  | 14.25   | 24.72   |       |
| 4 | 4 | 76  | 10.52    | -12.28    | -2.99    | 1.22      | -11.20   | -56.59  | -587.83  | -587.54  | -56.89  | -12.58  |       |
| 4 | 4 | 77  | 6.18e-02 | -11.77    | -11.72   | 2.07e-02  | 0.70     | 117.78  | -30.65   | 73.94    | 13.19   | 67.71   |       |
| 4 | 4 | 78  | 14.68    | -10.04    | 4.81     | -0.17     | -12.11   | 69.87   | 11.44    | 69.78    | 11.53   | 2.30    |       |
| 4 | 4 | 79  | -6.50    | -55.30    | -13.11   | -48.68    | 16.70    | 1187.03 | -45.95   | 1186.12  | -45.04  | 33.40   |       |
| 4 | 4 | 80  | 49.75    | -26.27    | 27.93    | -4.45     | -34.39   | 1089.07 | 187.35   | 1087.79  | 188.64  | -34.07  |       |
| 4 | 4 | 81  | 61.24    | -0.20     | 0.28     | 60.76     | -5.40    | 2602.32 | 598.65   | 2601.71  | 599.26  | -34.87  |       |
| 4 | 4 | 82  | 39.29    | -0.23     | 28.25    | 10.81     | -17.73   | -41.43  | -802.92  | -799.49  | -44.86  | -50.97  |       |
| 4 | 4 | 83  | 33.92    | -3.89     | 28.79    | 1.24      | -12.95   | -34.95  | -580.01  | -575.78  | -39.18  | -47.86  |       |
| 4 | 4 | 84  | 30.15    | -4.89     | 25.10    | 0.16      | -12.31   | 102.20  | -17.36   | 72.87    | 11.97   | -51.44  |       |
| 4 | 4 | 85  | 30.23    | -3.69     | 5.31     | 21.24     | -14.98   | 1106.19 | 156.33   | 1106.03  | 156.49  | -12.16  |       |
| 4 | 4 | 86  | -35.29   | -50.29    | -46.46   | -39.12    | -6.54    | 2487.34 | 472.40   | 2487.25  | 472.49  | -13.46  |       |
| 4 | 4 | 87  | 90.16    | 1.36      | 89.97    | 1.55      | -4.12    | 27.99   | -813.37  | -811.19  | 25.81   | -42.74  |       |
| 4 | 4 | 88  | 60.45    | 3.09e-02  | 60.39    | 8.37e-02  | -1.79    | 29.50   | -601.04  | -589.37  | 17.82   | -84.99  |       |
| 4 | 4 | 89  | 39.69    | -0.43     | 39.60    | -0.34     | -1.92    | 166.24  | -73.65   | 77.54    | 15.05   | -115.80 |       |
| 4 | 4 | 90  | 36.77    | 15.91     | 34.96    | 17.71     | 5.86     | 1168.06 | -30.75   | 1160.13  | -22.82  | -97.22  |       |
| 4 | 5 | 6   | 7.35     | -2.36     | 6.47     | -1.48     | 2.79     | 2.76    | -281.36  | -276.58  | -2.02   | -36.55  |       |
| 4 | 5 | 7   | 58.65    | 13.11     | 46.73    | 25.03     | -20.02   | 884.85  | 118.33   | 869.25   | 133.93  | -108.24 |       |
| 4 | 5 | 15  | 21.03    | -1.90     | 20.26    | -1.13     | -4.12    | 7.81    | -174.34  | -174.23  | 7.70    | -4.46   |       |

| M | G | Cmb | Nodo   | N max     | N min  | N 1       | N 2      | N 1-2   | M max    | M min    | M 1     | M 2     | M 1-2 |
|---|---|-----|--------|-----------|--------|-----------|----------|---------|----------|----------|---------|---------|-------|
| 4 | 5 | 16  | 29.58  | -1.45     | 28.09  | 4.36e-02  | 6.63     | 769.24  | 93.52    | 764.81   | 97.96   | 54.55   |       |
| 4 | 5 | 71  | -3.90  | -7.02     | -5.90  | -5.02     | -1.50    | -48.73  | -287.98  | -284.36  | -52.35  | -29.23  |       |
| 4 | 5 | 72  | -4.24  | -5.70     | -4.31  | -5.62     | 0.32     | -36.35  | -249.26  | -247.55  | -38.06  | -19.03  |       |
| 4 | 5 | 73  | 1.65   | -0.58     | 0.54   | 0.54      | 1.12     | 5.27    | -283.87  | -283.40  | 4.81    | -11.62  |       |
| 4 | 5 | 74  | 2.11   | -1.49     | -1.28  | 1.90      | 0.84     | -29.80  | -262.13  | -261.36  | -30.57  | -13.37  |       |
| 4 | 5 | 75  | 0.64   | -0.41     | 0.12   | 0.11      | 0.52     | 5.40    | -172.24  | -171.34  | 4.50    | 12.60   |       |
| 4 | 5 | 76  | 2.17   | 0.18      | 1.96   | 0.40      | -0.61    | -15.01  | -163.17  | -163.16  | -15.01  | -0.53   |       |
| 4 | 5 | 77  | 3.05   | -1.22e-02 | 2.93   | 0.10      | 0.58     | 57.58   | -6.21    | 47.48    | 3.89    | 23.29   |       |
| 4 | 5 | 78  | 4.03   | 8.62e-02  | 3.47   | 0.65      | -1.38    | 45.40   | 4.06     | 45.28    | 4.18    | 2.18    |       |
| 4 | 5 | 79  | 7.66   | -7.74     | 7.46   | -7.54     | 1.75     | 390.11  | -12.90   | 389.68   | -12.48  | 13.05   |       |
| 4 | 5 | 80  | 12.63  | -4.18     | 4.36   | 4.09      | -8.40    | 363.47  | 54.97    | 363.01   | 55.43   | -11.90  |       |
| 4 | 5 | 81  | -1.86  | -8.64     | -8.64  | -1.86     | 4.77e-02 | 817.76  | 169.15   | 816.97   | 169.93  | -22.60  |       |
| 4 | 5 | 82  | 4.56   | -0.72     | 1.47   | 2.36      | -2.60    | -25.04  | -255.48  | -255.39  | -25.13  | -4.60   |       |
| 4 | 5 | 83  | 4.15   | 7.10e-02  | 3.79   | 0.43      | -1.15    | -13.03  | -163.56  | -162.49  | -14.10  | -12.66  |       |
| 4 | 5 | 84  | 4.84   | 0.97      | 4.81   | 1.00      | -0.34    | 49.97   | -2.14    | 44.85    | 2.97    | -15.50  |       |
| 4 | 5 | 85  | 7.76   | -0.14     | 0.11   | 7.50      | 1.40     | 358.72  | 46.71    | 358.54   | 46.90   | -7.61   |       |
| 4 | 5 | 86  | -10.64 | -16.61    | -12.82 | -14.43    | -2.87    | 771.81  | 145.55   | 771.39   | 145.98  | -16.29  |       |
| 4 | 5 | 87  | 9.16   | 0.31      | 8.98   | 0.50      | -1.27    | 5.79    | -271.17  | -271.11  | 5.73    | -4.16   |       |
| 4 | 5 | 88  | 5.57   | -0.15     | 5.49   | -7.32e-02 | -0.67    | 8.09    | -172.90  | -169.51  | 4.70    | -24.56  |       |
| 4 | 5 | 89  | 4.93   | -1.13     | 4.81   | -1.02     | -0.83    | 65.70   | -16.46   | 45.19    | 4.05    | -35.56  |       |
| 4 | 5 | 90  | 13.58  | 3.87      | 13.50  | 3.95      | 0.88     | 376.88  | -11.66   | 374.46   | -9.25   | -30.54  |       |
| 4 | 6 | 6   | -6.01  | -53.74    | -53.70 | -6.04     | 1.26     | 1.63    | -1432.79 | -1368.42 | -62.74  | -296.98 |       |
| 4 | 6 | 7   | 203.97 | 41.93     | 99.71  | 146.19    | -77.62   | 2382.50 | 370.47   | 2333.51  | 419.46  | -310.12 |       |
| 4 | 6 | 15  | 152.47 | -3.97     | 150.15 | -1.65     | -18.91   | 347.10  | -78.68   | 182.61   | 85.81   | -207.31 |       |
| 4 | 6 | 16  | 57.50  | -47.99    | 57.13  | -47.61    | 6.28     | 2330.33 | 241.03   | 2317.49  | 253.87  | 163.29  |       |
| 4 | 6 | 71  | -5.14  | -27.45    | -21.17 | -11.42    | -10.03   | -117.26 | -1116.89 | -1005.96 | -228.19 | -313.98 |       |
| 4 | 6 | 72  | 4.40   | -22.13    | 3.35   | -21.08    | -5.17    | 131.80  | -584.72  | -444.46  | -8.46   | -284.29 |       |
| 4 | 6 | 73  | 1.66   | -45.33    | -45.29 | 1.62      | 1.36     | 15.69   | -928.25  | -922.11  | 9.54    | -75.93  |       |
| 4 | 6 | 74  | 5.08   | -17.24    | -15.41 | 3.26      | -6.11    | -113.71 | -826.40  | -818.00  | -122.11 | -76.92  |       |
| 4 | 6 | 75  | 0.37   | -33.43    | -33.42 | 0.37      | -0.10    | 13.74   | -582.91  | -582.07  | 12.91   | 22.30   |       |
| 4 | 6 | 76  | 9.81   | -12.30    | -3.62  | 1.12      | -10.80   | -52.52  | -547.86  | -547.64  | -52.74  | -10.54  |       |
| 4 | 6 | 77  | -0.14  | -12.70    | -12.67 | -0.16     | 0.51     | 93.91   | -35.99   | 45.89    | 12.04   | 62.71   |       |
| 4 | 6 | 78  | 13.57  | -10.03    | 3.61   | -7.45e-02 | -11.66   | 43.58   | 8.47     | 43.16    | 8.89    | 3.80    |       |
| 4 | 6 | 79  | -6.54  | -49.82    | -12.69 | -43.68    | 15.11    | 1050.23 | -41.16   | 1049.19  | -40.11  | 33.72   |       |
| 4 | 6 | 80  | 44.90  | -24.55    | 24.75  | -4.40     | -31.52   | 963.52  | 166.41   | 962.61   | 167.32  | -26.91  |       |
| 4 | 6 | 81  | 55.95  | 0.92      | 1.36   | 55.51     | -4.88    | 2329.94 | 536.17   | 2329.58  | 536.53  | -25.44  |       |
| 4 | 6 | 82  | 37.45  | -0.17     | 27.24  | 10.04     | -16.73   | -35.02  | -731.82  | -728.66  | -38.17  | -46.77  |       |
| 4 | 6 | 83  | 32.15  | -3.81     | 27.21  | 1.13      | -12.38   | -32.06  | -539.74  | -536.25  | -35.55  | -41.96  |       |
| 4 | 6 | 84  | 28.21  | -4.85     | 23.25  | 0.11      | -11.80   | 76.73   | -20.61   | 46.33    | 9.80    | -45.11  |       |
| 4 | 6 | 85  | 28.03  | -4.17     | 4.49   | 19.37     | -14.28   | 981.96  | 139.00   | 981.86   | 139.11  | -9.31   |       |
| 4 | 6 | 86  | -33.26 | -46.55    | -42.69 | -37.13    | -6.04    | 2234.43 | 421.93   | 2234.40  | 421.96  | -6.53   |       |
| 4 | 6 | 87  | 86.20  | 1.24      | 86.04  | 1.40      | -3.72    | 25.95   | -738.43  | -736.47  | 23.99   | -38.63  |       |
| 4 | 6 | 88  | 57.90  | 5.55e-02  | 57.86  | 9.83e-02  | -1.57    | 26.28   | -558.03  | -548.12  | 16.37   | -75.44  |       |
| 4 | 6 | 89  | 37.83  | -0.16     | 37.76  | -8.98e-02 | -1.64    | 137.30  | -73.20   | 50.29    | 13.81   | -103.65 |       |
| 4 | 6 | 90  | 34.44  | 14.76     | 32.50  | 16.70     | 5.87     | 1036.68 | -27.03   | 1029.34  | -19.69  | -88.04  |       |
| 4 | 7 | 6   | 7.35   | -2.36     | 6.47   | -1.48     | 2.79     | 2.76    | -281.36  | -276.58  | -2.02   | -36.55  |       |
| 4 | 7 | 7   | 58.65  | 13.11     | 46.73  | 25.03     | -20.02   | 884.85  | 118.33   | 869.25   | 133.93  | -108.24 |       |
| 4 | 7 | 15  | 21.03  | -1.90     | 20.26  | -1.13     | -4.12    | 7.81    | -174.34  | -174.23  | 7.70    | -4.46   |       |
| 4 | 7 | 16  | 29.58  | -1.45     | 28.09  | 4.36e-02  | 6.63     | 769.24  | 93.52    | 764.81   | 97.96   | 54.55   |       |
| 4 | 7 | 71  | -3.90  | -7.02     | -5.90  | -5.02     | -1.50    | -48.73  | -287.98  | -284.36  | -52.35  | -29.23  |       |
| 4 | 7 | 72  | -4.24  | -5.70     | -4.31  | -5.62     | 0.32     | -36.35  | -249.26  | -247.55  | -38.06  | -19.03  |       |
| 4 | 7 | 73  | 1.65   | -0.58     | 0.54   | 0.54      | 1.12     | 5.27    | -283.87  | -283.40  | 4.81    | -11.62  |       |
| 4 | 7 | 74  | 2.11   | -1.49     | -1.28  | 1.90      | 0.84     | -29.80  | -262.13  | -261.36  | -30.57  | -13.37  |       |
| 4 | 7 | 75  | 0.64   | -0.41     | 0.12   | 0.11      | 0.52     | 5.40    | -172.24  | -171.34  | 4.50    | 12.60   |       |
| 4 | 7 | 76  | 2.17   | 0.18      | 1.96   | 0.40      | -0.61    | -15.01  | -163.17  | -163.16  | -15.01  | -0.53   |       |
| 4 | 7 | 77  | 3.05   | -1.22e-02 | 2.93   | 0.10      | 0.58     | 57.58   | -6.21    | 47.48    | 3.89    | 23.29   |       |
| 4 | 7 | 78  | 4.03   | 8.62e-02  | 3.47   | 0.65      | -1.38    | 45.40   | 4.06     | 45.28    | 4.18    | 2.18    |       |
| 4 | 7 | 79  | 7.66   | -7.74     | 7.46   | -7.54     | 1.75     | 390.11  | -12.90   | 389.68   | -12.48  | 13.05   |       |
| 4 | 7 | 80  | 12.63  | -4.18     | 4.36   | 4.09      | -8.40    | 363.47  | 54.97    | 363.01   | 55.43   | -11.90  |       |
| 4 | 7 | 81  | -1.86  | -8.64     | -8.64  | -1.86     | 4.77e-02 | 817.76  | 169.15   | 816.97   | 169.93  | -22.60  |       |
| 4 | 7 | 82  | 4.56   | -0.72     | 1.47   | 2.36      | -2.60    | -25.04  | -255.48  | -255.39  | -25.13  | -4.60   |       |
| 4 | 7 | 83  | 4.15   | 7.10e-02  | 3.79   | 0.43      | -1.15    | -13.03  | -163.56  | -162.49  | -14.10  | -12.66  |       |
| 4 | 7 | 84  | 4.84   | 0.97      | 4.81   | 1.00      | -0.34    | 49.97   | -2.14    | 44.85    | 2.97    | -15.50  |       |
| 4 | 7 | 85  | 7.76   | -0.14     | 0.11   | 7.50      | 1.40     | 358.72  | 46.71    | 358.54   | 46.90   | -7.61   |       |
| 4 | 7 | 86  | -10.64 | -16.61    | -12.82 | -14.43    | -2.87    | 771.81  | 145.55   | 771.39   | 145.98  | -16.29  |       |
| 4 | 7 | 87  | 9.16   | 0.31      | 8.98   | 0.50      | -1.27    | 5.79    | -271.17  | -271.11  | 5.73    | -4.16   |       |
| 4 | 7 | 88  | 5.57   | -0.15     | 5.49   | -7.32e-02 | -0.67    | 8.09    | -172.90  | -169.51  | 4.70    | -24.56  |       |
| 4 | 7 | 89  | 4.93   | -1.13     | 4.81   | -1.02     | -0.83    | 65.70   | -16.46   | 45.19    | 4.05    | -35.56  |       |
| 4 | 7 | 90  | 13.58  | 3.87      | 13.50  | 3.95      | 0.88     | 376.88  | -11.66   | 374.46   | -9.25   | -30.54  |       |
| 4 | 8 | 6   | -6.01  | -53.74    | -53.70 | -6.04     | 1.26     | 1.63    | -1432.79 | -1368.42 | -62.74  | -296.98 |       |
| 4 | 8 | 7   | 203.97 | 41.93     | 99.71  | 146.19    | -77.62   | 2382.50 | 370.47   | 2333.51  | 419.46  | -310.12 |       |
| 4 | 8 | 15  | 152.47 | -3.97     | 150.15 | -1.65     | -18.91   | 347.10  | -78.68   | 182.61   | 85.81   | -207.31 |       |
| 4 | 8 | 16  | 57.50  | -47.99    | 57.13  | -47.61    | 6.28     | 2330.33 | 241.03   | 2317.49  | 253.87  | 163.29  |       |
| 4 | 8 | 71  | -5.14  | -27.45    | -21.17 | -11.42    | -10.03   | -117.26 | -1116.89 | -1005.96 | -228.19 | -313.98 |       |

| M | G  | Cmb | Nodo      | N max     | N min    | N 1       | N 2     | N 1-2   | M max    | M min    | M 1     | M 2     | M 1-2 |
|---|----|-----|-----------|-----------|----------|-----------|---------|---------|----------|----------|---------|---------|-------|
| 4 | 8  | 72  | 4.40      | -22.13    | 3.35     | -21.08    | -5.17   | 131.80  | -584.72  | -444.46  | -8.46   | -284.29 |       |
| 4 | 8  | 73  | 1.66      | -45.33    | -45.29   | 1.62      | 1.36    | 15.69   | -928.25  | -922.11  | 9.54    | -75.93  |       |
| 4 | 8  | 74  | 5.08      | -17.24    | -15.41   | 3.26      | -6.11   | -113.71 | -826.40  | -818.00  | -122.11 | -76.92  |       |
| 4 | 8  | 75  | 0.37      | -33.43    | -33.42   | 0.37      | -0.10   | 13.74   | -582.91  | -582.07  | 12.91   | 22.30   |       |
| 4 | 8  | 76  | 9.81      | -12.30    | -3.62    | 1.12      | -10.80  | -52.52  | -547.86  | -547.64  | -52.74  | -10.54  |       |
| 4 | 8  | 77  | -0.14     | -12.70    | -12.67   | -0.16     | 0.51    | 93.91   | -35.99   | 45.89    | 12.04   | 62.71   |       |
| 4 | 8  | 78  | 13.57     | -10.03    | 3.61     | -7.45e-02 | -11.66  | 43.58   | 8.47     | 43.16    | 8.89    | 3.80    |       |
| 4 | 8  | 79  | -6.54     | -49.82    | -12.69   | -43.68    | 15.11   | 1050.23 | -41.16   | 1049.19  | -40.11  | 33.72   |       |
| 4 | 8  | 80  | 44.90     | -24.55    | 24.75    | -4.40     | -31.52  | 963.52  | 166.41   | 962.61   | 167.32  | -26.91  |       |
| 4 | 8  | 81  | 55.95     | 0.92      | 1.36     | 55.51     | -4.88   | 2329.94 | 536.17   | 2329.58  | 536.53  | -25.44  |       |
| 4 | 8  | 82  | 37.45     | -0.17     | 27.24    | 10.04     | -16.73  | -35.02  | -731.82  | -728.66  | -38.17  | -46.77  |       |
| 4 | 8  | 83  | 32.15     | -3.81     | 27.21    | 1.13      | -12.38  | -32.06  | -539.74  | -536.25  | -35.55  | -41.96  |       |
| 4 | 8  | 84  | 28.21     | -4.85     | 23.25    | 0.11      | -11.80  | 76.73   | -20.61   | 46.33    | 9.80    | -45.11  |       |
| 4 | 8  | 85  | 28.03     | -4.17     | 4.49     | 19.37     | -14.28  | 981.96  | 139.00   | 981.86   | 139.11  | -9.31   |       |
| 4 | 8  | 86  | -33.26    | -46.55    | -42.69   | -37.13    | -6.04   | 2234.43 | 421.93   | 2234.40  | 421.96  | -6.53   |       |
| 4 | 8  | 87  | 86.20     | 1.24      | 86.04    | 1.40      | -3.72   | 25.95   | -738.43  | -736.47  | 23.99   | -38.63  |       |
| 4 | 8  | 88  | 57.90     | 5.55e-02  | 57.86    | 9.83e-02  | -1.57   | 26.28   | -558.03  | -548.12  | 16.37   | -75.44  |       |
| 4 | 8  | 89  | 37.83     | -0.16     | 37.76    | -8.98e-02 | -1.64   | 137.30  | -73.20   | 50.29    | 13.81   | -103.65 |       |
| 4 | 8  | 90  | 34.44     | 14.76     | 32.50    | 16.70     | 5.87    | 1036.68 | -27.03   | 1029.34  | -19.69  | -88.04  |       |
| 4 | 9  | 6   | -8.45     | -78.88    | -78.85   | -8.47     | 1.31    | 2.53    | -2022.98 | -1930.03 | -90.42  | -423.84 |       |
| 4 | 9  | 7   | 292.45    | 56.93     | 136.54   | 212.85    | -111.41 | 3311.77 | 519.85   | 3240.98  | 590.65  | -438.92 |       |
| 4 | 9  | 15  | 217.06    | -5.41     | 213.81   | -2.16     | -26.67  | 523.23  | -104.27  | 296.19   | 122.78  | -301.53 |       |
| 4 | 9  | 16  | 75.71     | -68.57    | 75.24    | -68.10    | 8.18    | 3242.83 | 333.62   | 3225.02  | 351.43  | 226.90  |       |
| 4 | 9  | 71  | -6.64     | -38.38    | -29.42   | -15.59    | -14.29  | -157.78 | -1566.67 | -1403.75 | -320.70 | -450.55 |       |
| 4 | 9  | 72  | 7.33      | -31.01    | 5.77     | -29.45    | -7.57   | 204.17  | -807.41  | -597.88  | -5.36   | -409.94 |       |
| 4 | 9  | 73  | 2.29      | -65.50    | -65.45   | 2.25      | 1.78    | 21.97   | -1286.17 | -1277.10 | 12.90   | -108.57 |       |
| 4 | 9  | 74  | 7.18      | -24.73    | -21.90   | 4.36      | -9.06   | -158.36 | -1143.12 | -1130.57 | -170.91 | -110.46 |       |
| 4 | 9  | 75  | 0.54      | -48.03    | -48.03   | 0.54      | -0.23   | 18.87   | -801.42  | -800.40  | 17.85   | 28.88   |       |
| 4 | 9  | 76  | 14.02     | -17.87    | -5.38    | 1.53      | -15.57  | -72.64  | -752.73  | -752.31  | -73.06  | -16.87  |       |
| 4 | 9  | 77  | -6.70e-02 | -18.44    | -18.41   | -9.12e-02 | 0.67    | 134.18  | -44.24   | 73.26    | 16.68   | 84.61   |       |
| 4 | 9  | 78  | 18.92     | -14.53    | 4.87     | -0.48     | -16.51  | 69.03   | 13.39    | 68.87    | 13.55   | 2.99    |       |
| 4 | 9  | 79  | -12.09    | -73.83    | -21.75   | -64.17    | 22.43   | 1469.94 | -58.06   | 1468.77  | -56.89  | 42.26   |       |
| 4 | 9  | 80  | 63.92     | -35.34    | 36.67    | -8.09     | -44.30  | 1346.24 | 235.11   | 1344.76  | 236.59  | -40.50  |       |
| 4 | 9  | 81  | 86.04     | 3.88      | 4.57     | 85.34     | -7.52   | 3250.49 | 755.85   | 3249.97  | 756.37  | -36.08  |       |
| 4 | 9  | 82  | 53.61     | -0.21     | 39.30    | 14.10     | -23.78  | -45.47  | -1007.31 | -1002.32 | -50.45  | -69.05  |       |
| 4 | 9  | 83  | 45.93     | -5.57     | 38.82    | 1.54      | -17.76  | -43.11  | -741.23  | -735.96  | -48.38  | -60.41  |       |
| 4 | 9  | 84  | 40.32     | -7.54     | 33.01    | -0.23     | -17.22  | 114.71  | -26.31   | 73.50    | 14.90   | -64.13  |       |
| 4 | 9  | 85  | 40.47     | -6.96     | 7.18     | 26.33     | -21.69  | 1373.31 | 195.86   | 1373.17  | 196.00  | -12.89  |       |
| 4 | 9  | 86  | -44.60    | -63.51    | -59.26   | -48.85    | -7.90   | 3114.29 | 590.74   | 3114.26  | 590.77  | -9.28   |       |
| 4 | 9  | 87  | 123.21    | 1.71      | 122.99   | 1.93      | -5.16   | 36.80   | -1013.79 | -1010.63 | 33.64   | -57.52  |       |
| 4 | 9  | 88  | 82.89     | 0.10      | 82.84    | 0.16      | -2.17   | 37.29   | -766.09  | -751.63  | 22.83   | -106.80 |       |
| 4 | 9  | 89  | 53.81     | -3.49e-02 | 53.72    | 6.09e-02  | -2.27   | 197.59  | -98.63   | 79.73    | 19.23   | -144.99 |       |
| 4 | 9  | 90  | 45.92     | 20.36     | 43.11    | 23.18     | 8.00    | 1450.84 | -37.34   | 1440.79  | -27.29  | -121.86 |       |
| 4 | 10 | 6   | 8.29      | -3.15     | 7.11     | -1.96     | 3.49    | 3.50    | -377.44  | -370.26  | -3.68   | -51.80  |       |
| 4 | 10 | 7   | 81.29     | 19.32     | 60.85    | 39.76     | -29.13  | 1172.08 | 159.86   | 1149.18  | 182.76  | -150.52 |       |
| 4 | 10 | 15  | 29.26     | -2.42     | 28.26    | -1.42     | -5.55   | 11.81   | -214.20  | -213.59  | 11.20   | -11.75  |       |
| 4 | 10 | 16  | 35.87     | -2.12     | 33.77    | -2.35e-02 | 8.68    | 1012.71 | 122.90   | 1006.91  | 128.69  | 71.57   |       |
| 4 | 10 | 71  | -4.85     | -9.21     | -7.61    | -6.46     | -2.10   | -63.32  | -379.07  | -372.89  | -69.50  | -43.76  |       |
| 4 | 10 | 72  | -5.14     | -7.41     | -5.18    | -7.37     | 0.28    | -44.12  | -320.10  | -316.57  | -47.65  | -31.00  |       |
| 4 | 10 | 73  | 1.83      | -1.10     | 1.91e-02 | 0.71      | 1.43    | 6.89    | -365.42  | -364.67  | 6.14    | -16.69  |       |
| 4 | 10 | 74  | 2.60      | -1.89     | -1.71    | 2.42      | 0.87    | -38.84  | -336.68  | -335.37  | -40.15  | -19.68  |       |
| 4 | 10 | 75  | 0.70      | -0.64     | -0.11    | 0.18      | 0.66    | 6.86    | -214.67  | -213.64  | 5.84    | 15.02   |       |
| 4 | 10 | 76  | 3.00      | 8.32e-02  | 2.59     | 0.49      | -1.02   | -19.12  | -203.10  | -203.06  | -19.15  | -2.56   |       |
| 4 | 10 | 77  | 4.04      | 0.12      | 3.88     | 0.28      | 0.77    | 85.49   | -4.92    | 75.53    | 5.04    | 28.30   |       |
| 4 | 10 | 78  | 5.36      | -0.14     | 4.67     | 0.55      | -1.83   | 71.91   | 6.81     | 71.90    | 6.82    | 0.67    |       |
| 4 | 10 | 79  | 7.58      | -13.10    | 7.03     | -12.54    | 3.35    | 526.91  | -17.71   | 526.62   | -17.41  | 12.73   |       |
| 4 | 10 | 80  | 17.20     | -5.62     | 7.54     | 4.04      | -11.28  | 489.07  | 75.86    | 488.19   | 76.75   | -19.05  |       |
| 4 | 10 | 81  | 3.41      | -9.73     | -9.72    | 3.39      | -0.47   | 1090.30 | 231.47   | 1089.10  | 232.67  | -32.03  |       |
| 4 | 10 | 82  | 6.42      | -0.81     | 2.49     | 3.13      | -3.60   | -31.56  | -326.48  | -326.21  | -31.82  | -8.80   |       |
| 4 | 10 | 83  | 5.92      | -8.50e-03 | 5.37     | 0.54      | -1.72   | -15.88  | -203.87  | -202.01  | -17.73  | -18.56  |       |
| 4 | 10 | 84  | 6.79      | 0.92      | 6.66     | 1.05      | -0.85   | 77.94   | -1.41    | 71.39    | 5.14    | -21.83  |       |
| 4 | 10 | 85  | 9.42      | 0.87      | 0.93     | 9.36      | 0.70    | 482.97  | 64.02    | 482.71   | 64.28   | -10.46  |       |
| 4 | 10 | 86  | -13.13    | -19.89    | -16.60   | -16.42    | -3.38   | 1024.88 | 195.86   | 1024.23  | 196.51  | -23.22  |       |
| 4 | 10 | 87  | 13.13     | 0.42      | 12.90    | 0.64      | -1.67   | 7.75    | -346.02  | -345.82  | 7.55    | -8.27   |       |
| 4 | 10 | 88  | 8.12      | -0.18     | 8.03     | -8.78e-02 | -0.89   | 11.38   | -215.99  | -210.76  | 6.15    | -34.10  |       |
| 4 | 10 | 89  | 6.80      | -1.42     | 6.65     | -1.26     | -1.12   | 97.20   | -19.47   | 72.43    | 5.30    | -47.71  |       |
| 4 | 10 | 90  | 16.03     | 4.89      | 15.96    | 4.96      | 0.88    | 508.28  | -15.40   | 505.25   | -12.37  | -39.73  |       |
| 4 | 11 | 6   | -8.45     | -78.88    | -78.85   | -8.47     | 1.31    | 2.53    | -2022.98 | -1930.03 | -90.42  | -423.84 |       |
| 4 | 11 | 7   | 292.45    | 56.93     | 136.54   | 212.85    | -111.41 | 3311.77 | 519.85   | 3240.98  | 590.65  | -438.92 |       |
| 4 | 11 | 15  | 217.06    | -5.41     | 213.81   | -2.16     | -26.67  | 523.23  | -104.27  | 296.19   | 122.78  | -301.53 |       |
| 4 | 11 | 16  | 75.71     | -68.57    | 75.24    | -68.10    | 8.18    | 3242.83 | 333.62   | 3225.02  | 351.43  | 226.90  |       |
| 4 | 11 | 71  | -6.64     | -38.38    | -29.42   | -15.59    | -14.29  | -157.78 | -1566.67 | -1403.75 | -320.70 | -450.55 |       |
| 4 | 11 | 72  | 7.33      | -31.01    | 5.77     | -29.45    | -7.57   | 204.17  | -807.41  | -597.88  | -5.36   | -409.94 |       |
| 4 | 11 | 73  | 2.29      | -65.50    | -65.45   | 2.25      | 1.78    | 21.97   | -1286.17 | -1277.10 | 12.90   | -108.57 |       |

| M_G | Cmb | Nodo | N max     | N min     | N 1     | N 2       | N 1-2   | M max   | M min    | M 1      | M 2     | M 1-2   |
|-----|-----|------|-----------|-----------|---------|-----------|---------|---------|----------|----------|---------|---------|
| 4   | 11  | 74   | 7.18      | -24.73    | -21.90  | 4.36      | -9.06   | -158.36 | -1143.12 | -1130.57 | -170.91 | -110.46 |
| 4   | 11  | 75   | 0.54      | -48.03    | -48.03  | 0.54      | -0.23   | 18.87   | -801.42  | -800.40  | 17.85   | 28.88   |
| 4   | 11  | 76   | 14.02     | -17.87    | -5.38   | 1.53      | -15.57  | -72.64  | -752.73  | -752.31  | -73.06  | -16.87  |
| 4   | 11  | 77   | -6.70e-02 | -18.44    | -18.41  | -9.12e-02 | 0.67    | 134.18  | -44.24   | 73.26    | 16.68   | 84.61   |
| 4   | 11  | 78   | 18.92     | -14.53    | 4.87    | -0.48     | -16.51  | 69.03   | 13.39    | 68.87    | 13.55   | 2.99    |
| 4   | 11  | 79   | -12.09    | -73.83    | -21.75  | -64.17    | 22.43   | 1469.94 | -58.06   | 1468.77  | -56.89  | 42.26   |
| 4   | 11  | 80   | 63.92     | -35.34    | 36.67   | -8.09     | -44.30  | 1346.24 | 235.11   | 1344.76  | 236.59  | -40.50  |
| 4   | 11  | 81   | 86.04     | 3.88      | 4.57    | 85.34     | -7.52   | 3250.49 | 755.85   | 3249.97  | 756.37  | -36.08  |
| 4   | 11  | 82   | 53.61     | -0.21     | 39.30   | 14.10     | -23.78  | -45.47  | -1007.31 | -1002.32 | -50.45  | -69.05  |
| 4   | 11  | 83   | 45.93     | -5.57     | 38.82   | 1.54      | -17.76  | -43.11  | -741.23  | -735.96  | -48.38  | -60.41  |
| 4   | 11  | 84   | 40.32     | -7.54     | 33.01   | -0.23     | -17.22  | 114.71  | -26.31   | 73.50    | 14.90   | -64.13  |
| 4   | 11  | 85   | 40.47     | -6.96     | 7.18    | 26.33     | -21.69  | 1373.31 | 195.86   | 1373.17  | 196.00  | -12.89  |
| 4   | 11  | 86   | -44.60    | -63.51    | -59.26  | -48.85    | -7.90   | 3114.29 | 590.74   | 3114.26  | 590.77  | -9.28   |
| 4   | 11  | 87   | 123.21    | 1.71      | 122.99  | 1.93      | -5.16   | 36.80   | -1013.79 | -1010.63 | 33.64   | -57.52  |
| 4   | 11  | 88   | 82.89     | 0.10      | 82.84   | 0.16      | -2.17   | 37.29   | -766.09  | -751.63  | 22.83   | -106.80 |
| 4   | 11  | 89   | 53.81     | -3.49e-02 | 53.72   | 6.09e-02  | -2.27   | 197.59  | -98.63   | 79.73    | 19.23   | -144.99 |
| 4   | 11  | 90   | 45.92     | 20.36     | 43.11   | 23.18     | 8.00    | 1450.84 | -37.34   | 1440.79  | -27.29  | -121.86 |
| 4   | 12  | 6    | -7.99     | -79.50    | -79.49  | -8.00     | 0.61    | 2.05    | -1927.16 | -1836.35 | -88.76  | -408.59 |
| 4   | 12  | 7    | 269.34    | 51.19     | 122.41  | 198.12    | -102.30 | 3024.42 | 478.46   | 2961.05  | 541.83  | -396.64 |
| 4   | 12  | 15   | 208.85    | -4.90     | 205.82  | -1.88     | -25.24  | 540.90  | -86.07   | 335.55   | 119.28  | -294.25 |
| 4   | 12  | 16   | 69.84     | -68.31    | 69.57   | -68.04    | 6.13    | 2999.37 | 304.25   | 2982.92  | 320.69  | 209.89  |
| 4   | 12  | 71   | -5.67     | -36.21    | -27.72  | -14.16    | -13.68  | -141.57 | -1477.21 | -1315.22 | -303.55 | -436.02 |
| 4   | 12  | 72   | 8.21      | -29.28    | 6.64    | -27.70    | -7.52   | 216.68  | -741.30  | -528.85  | 4.23    | -397.98 |
| 4   | 12  | 73   | 2.11      | -64.96    | -64.93  | 2.08      | 1.47    | 20.37   | -1204.64 | -1195.84 | 11.57   | -103.50 |
| 4   | 12  | 74   | 6.76      | -24.40    | -21.47  | 3.84      | -9.09   | -149.38 | -1068.52 | -1056.56 | -161.33 | -104.15 |
| 4   | 12  | 75   | 0.48      | -47.80    | -47.80  | 0.48      | -0.37   | 17.42   | -759.00  | -758.10  | 16.51   | 26.46   |
| 4   | 12  | 76   | 13.33     | -17.90    | -6.01   | 1.44      | -15.16  | -68.57  | -712.75  | -712.41  | -68.91  | -14.83  |
| 4   | 12  | 77   | -0.26     | -19.37    | -19.36  | -0.27     | 0.48    | 111.34  | -50.60   | 45.21    | 15.53   | 79.60   |
| 4   | 12  | 78   | 17.83     | -14.55    | 3.67    | -0.38     | -16.06  | 42.88   | 10.28    | 42.25    | 10.91   | 4.50    |
| 4   | 12  | 79   | -12.10    | -68.39    | -21.32  | -59.17    | 20.83   | 1333.14 | -53.26   | 1331.84  | -51.96  | 42.58   |
| 4   | 12  | 80   | 59.06     | -33.61    | 33.49   | -8.04     | -41.42  | 1220.68 | 214.17   | 1219.58  | 215.27  | -33.35  |
| 4   | 12  | 81   | 80.75     | 5.00      | 5.65    | 80.10     | -7.00   | 2978.15 | 693.33   | 2977.84  | 693.64  | -26.65  |
| 4   | 12  | 82   | 51.78     | -0.17     | 38.28   | 13.33     | -22.78  | -39.05  | -936.21  | -931.50  | -43.76  | -64.85  |
| 4   | 12  | 83   | 44.16     | -5.49     | 37.24   | 1.43      | -17.20  | -40.22  | -700.96  | -696.44  | -44.75  | -54.51  |
| 4   | 12  | 84   | 38.38     | -7.50     | 31.16   | -0.27     | -16.71  | 90.13   | -30.44   | 46.96    | 12.73   | -57.80  |
| 4   | 12  | 85   | 38.28     | -7.45     | 6.37    | 24.46     | -21.00  | 1249.09 | 178.53   | 1249.00  | 178.63  | -10.04  |
| 4   | 12  | 86   | -42.61    | -59.73    | -55.48  | -46.86    | -7.39   | 2861.42 | 540.23   | 2861.41  | 540.23  | -2.35   |
| 4   | 12  | 87   | 119.26    | 1.60      | 119.07  | 1.79      | -4.77   | 34.75   | -938.86  | -935.92  | 31.82   | -53.40  |
| 4   | 12  | 88   | 80.35     | 0.12      | 80.30   | 0.17      | -1.96   | 34.08   | -723.09  | -710.38  | 21.38   | -97.25  |
| 4   | 12  | 89   | 51.95     | 0.23      | 51.88   | 0.31      | -1.98   | 169.18  | -98.72   | 52.48    | 17.99   | -132.84 |
| 4   | 12  | 90   | 43.63     | 19.18     | 40.65   | 22.16     | 8.01    | 1319.45 | -33.62   | 1310.00  | -24.17  | -112.68 |
| 4   | 13  | 6    | 7.35      | -2.36     | 6.47    | -1.48     | 2.79    | 2.76    | -281.36  | -276.58  | -2.02   | -36.55  |
| 4   | 13  | 7    | 58.65     | 13.11     | 46.73   | 25.03     | -20.02  | 884.85  | 118.33   | 869.25   | 133.93  | -108.24 |
| 4   | 13  | 15   | 21.03     | -1.90     | 20.26   | -1.13     | -4.12   | 7.81    | -174.34  | -174.23  | 7.70    | -4.46   |
| 4   | 13  | 16   | 29.58     | -1.45     | 28.09   | 4.36e-02  | 6.63    | 769.24  | 93.52    | 764.81   | 97.96   | 54.55   |
| 4   | 13  | 71   | -3.90     | -7.02     | -5.90   | -5.02     | -1.50   | -48.73  | -287.98  | -284.36  | -52.35  | -29.23  |
| 4   | 13  | 72   | -4.24     | -5.70     | -4.31   | -5.62     | 0.32    | -36.35  | -249.26  | -247.55  | -38.06  | -19.03  |
| 4   | 13  | 73   | 1.65      | -0.58     | 0.54    | 0.54      | 1.12    | 5.27    | -283.87  | -283.40  | 4.81    | -11.62  |
| 4   | 13  | 74   | 2.11      | -1.49     | -1.28   | 1.90      | 0.84    | -29.80  | -262.13  | -261.36  | -30.57  | -13.37  |
| 4   | 13  | 75   | 0.64      | -0.41     | 0.12    | 0.11      | 0.52    | 5.40    | -172.24  | -171.34  | 4.50    | 12.60   |
| 4   | 13  | 76   | 2.17      | 0.18      | 1.96    | 0.40      | -0.61   | -15.01  | -163.17  | -163.16  | -15.01  | -0.53   |
| ... |     |      |           |           |         |           |         |         |          |          |         |         |
| 4   | 96  | 90   | 24.09     | 10.15     | 23.14   | 11.10     | 3.52    | 768.00  | -20.62   | 762.87   | -15.48  | -63.41  |
| M_G |     |      | N max     | N min     | N 1     | N 2       | N 1-2   | M max   | M min    | M 1      | M 2     | M 1-2   |
|     |     |      |           | -187.85   | -186.83 | -159.43   | -111.41 |         | -2646.44 | -2607.62 | -394.52 | -706.34 |
|     |     |      | 292.45    |           | 265.46  | 212.85    | 33.79   | 4462.43 |          | 4411.98  | 884.82  | 307.19  |

# VERIFICHE PER ELEMENTI IN ACCIAIO

## LEGENDA TABELLA VERIFICHE PER ELEMENTI IN ACCIAIO

Il programma consente la verifica dei seguenti tipi di elementi:

1. **aste**                                      2. **travi**                                      3. **pilastri**

L'esito delle verifiche è espresso con un codice come di seguito indicato

**Ok:**                      verifica con esito positivo  
**NV:**                    verifica con esito negativo  
**Nr:**                    verifica non richiesta.

Per comodità gli elementi vengono raggruppati in tabelle in relazione al tipo.

Ai fini delle verifiche (come da D.M. 14 Gennaio 2008 e circ. 2 Febbraio 2009 n.617) i tipi elementi differiscono per i seguenti aspetti:

| Verifica    |                                   | Aste                     | Travi                    | Pilastri                 |
|-------------|-----------------------------------|--------------------------|--------------------------|--------------------------|
| 4.2.3.1     | Classificazione                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4.2.4.1.2   | Trazione, Compressione            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|             | Taglio, Torsione                  |                          | <input type="checkbox"/> | <input type="checkbox"/> |
|             | Flessione, taglio e forza assiale |                          | <input type="checkbox"/> | <input type="checkbox"/> |
| 4.2.4.1.3.1 | Aste compresse                    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4.2.4.1.3.2 | Instabilità flesso-torsionale     |                          | <input type="checkbox"/> | <input type="checkbox"/> |
| 4.2.4.1.3.3 | Membrature inflesse e compresse   |                          | <input type="checkbox"/> | <input type="checkbox"/> |

Ai fini delle verifiche per strutture dissipative (come da D.M. 14 Gennaio 2008 e circ. 2 Febbraio 2009 n.617 per strutture intelaiate e a controventi concentrici) si considerano le verifiche del capitolo 4 con azioni amplificate e le verifiche del capitolo 7:

| Verifica    |                                                 | Travi                    | Pilastri                 |
|-------------|-------------------------------------------------|--------------------------|--------------------------|
| 4.2.4.1.2   | Trazione, Compressione                          | <input type="checkbox"/> | <input type="checkbox"/> |
|             | Taglio, Torsione                                |                          | <input type="checkbox"/> |
|             | Flessione, taglio e forza assiale               | <input type="checkbox"/> | <input type="checkbox"/> |
| 4.2.4.1.3.1 | Aste compresse                                  | <input type="checkbox"/> | <input type="checkbox"/> |
| 4.2.4.1.3.2 | Instabilità flesso-torsionale                   |                          | <input type="checkbox"/> |
| 7.5.3       | Sfruttamento per momento                        | <input type="checkbox"/> |                          |
| 7.5.4       | Sfruttamento per sforzo normale                 | <input type="checkbox"/> |                          |
| 7.5.5       | Sfruttamento per taglio da capacità flessionale | <input type="checkbox"/> |                          |
| 7.5.9       | Sfruttamento per taglio amplificato             |                          | <input type="checkbox"/> |

Viene inoltre riportata la verifica del par. 7.5.4.3 Gerarchia delle resistenze trave-colonna per ogni colonna, considerando piede e testa in entrambe le direzioni globali ☐ e ☐.

L'insieme delle verifiche sopra riportate è condotto sugli elementi purché dotati di sezione idonea come da tabella seguente:

| Azione                                      | SEZIONI GENERICHE                                 | PROFILI SEMPLICI | PROFILI ACCOPPIATI                                        |
|---------------------------------------------|---------------------------------------------------|------------------|-----------------------------------------------------------|
| 4.2.3.1 Classificazione automatica          | L, doppio T, C, rettangolare cava, circolare cava | Tutti            | Da profilo semplice                                       |
| 4.2.3.1 Classificazione di default 2        | Circolare                                         |                  |                                                           |
| 4.2.3.1 Classificazione di default 3        | restanti                                          |                  |                                                           |
| 4.2.4.1.2 Trazione                          | si                                                | si               | si                                                        |
| 4.2.4.1.2 Compressione                      | si                                                | si               | si                                                        |
| 4.2.4.1.2 Taglio, Torsione                  | si                                                | si               | si                                                        |
| 4.2.4.1.2 Flessione, taglio e forza assiale | si                                                | si               | si                                                        |
| 4.2.4.1.3.1 Aste compresse                  | si                                                | si               | per elementi ravvicinati e a croce o coppie calastrellate |
| 4.2.4.1.3.2 Travi inflesse                  | doppio T simmetrica                               | doppio T         | no                                                        |

Le verifiche sono riportate in tabelle con il significato sotto indicato; le verifiche sono espresse dal rapporto tra l'azione di progetto e la capacità ultima, pertanto la verifica ha esito positivo per rapporti non superiori all'unità.

| Asta   | Trave | Pilastro | numero dell'elemento                                                                                                                                                     |    |   |                                             |
|--------|-------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|---------------------------------------------|
| Stato  |       |          | codice di verifica per resistenza, stabilità, svergolamento                                                                                                              |    |   |                                             |
| Note   |       |          | sezione e materiali adottati per l'elemento                                                                                                                              |    |   |                                             |
| V N    |       |          | (ASTE) verifica come da par. 4.2.4.1.2 per punto (4.2.6) e (4.2.10)                                                                                                      |    |   |                                             |
| V V/T  |       |          | (TRAVI E PILASTRI) verifica di resistenza come da par. 4.2.4.1.2 per azioni taglio-torsione (4.2.17 e 4.2.29)                                                            |    |   |                                             |
| V N/M  |       |          | (TRAVI E PILASTRI) verifica di resistenza come da par. 4.2.4.1.2 per azioni composte (4.2.34) con riduzione per taglio (4.2.41) ove richiesto                            |    |   |                                             |
| N      | M3    | M2       | V2                                                                                                                                                                       | V3 | T | sollecitazioni di interesse per la verifica |
| V stab |       |          | (ASTE) verifica come da par. 4.2.4.1.3 per punto (4.2.42)                                                                                                                |    |   |                                             |
| V stab |       |          | (TRAVI E PILASTRI) verifica come da par. 4.2.4.1.3 per punti (C4.2.32) o (C4.2.36) (membrature inflesse e compresse senza/con presenza di instabilità flesso-torsionale) |    |   |                                             |

|                              |                                                                                                                                                                               |              |                                                                                                    |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------------------------------------------------------------------------------------------------|
| <b>BetaxL</b>                | <b>B22xL</b>                                                                                                                                                                  | <b>B33xL</b> | lunghezze libere di inflessione (se indicato riferiti al piano di normale 22 o 33 rispettivamente) |
| <b>Snellezza</b>             | snellezza massima                                                                                                                                                             |              |                                                                                                    |
| <b>Classe</b>                | classe del profilo                                                                                                                                                            |              |                                                                                                    |
| <b>Chi mn</b>                | coefficiente di riduzione (della capacità) per la modalità di instabilità pertinente                                                                                          |              |                                                                                                    |
| <b>Rif. cmb</b>              | combinazioni in cui si sono rispettivamente attinti i valori di verifica più elevati                                                                                          |              |                                                                                                    |
| <b>V flst</b>                | (TRAVI E PILASTRI) verifica di stabilità come da par. 4.2.4.1.3.2 per punto (4.2.49)                                                                                          |              |                                                                                                    |
| <b>B1-1 x L</b>              | eta1-1 x L: interasse tra i ritegni torsionali                                                                                                                                |              |                                                                                                    |
| <b>Chi LT</b>                | coefficiente di riduzione (della capacità) per la modalità di instabilità flesso-torsionale                                                                                   |              |                                                                                                    |
| <b>Snell adim</b>            | Valore della snellezza adimensionale, utilizzato per il controllo previsto al par. 7.5.5                                                                                      |              |                                                                                                    |
| <b>v.Omeg</b>                | Valore del rapporto capacità/domanda per l' azione di interesse (momento per travi e azione assiale per aste) utilizzato per l' amplificazione delle azioni                   |              |                                                                                                    |
| <b>f.Om. N</b>               | Fattore di amplificazione delle azioni assiali per travi e colonne (prodotto di 1.1 x Omega x gamma rd materiale); utilizzato come specificato al par. 7.5.5                  |              |                                                                                                    |
| <b>f.Om. T</b>               | Fattore di amplificazione delle azioni (assiali, flettenti e taglianti) per colonne (prodotto di 1.1 x Omega x gamma rd materiale); utilizzato come specificato al par. 7.5.4 |              |                                                                                                    |
| <b>V.7.5.3 M Ed</b>          | Verifica come prevista al punto 7.5.3 e valore dell' azione flettente                                                                                                         |              |                                                                                                    |
| <b>V.7.5.4 N Ed</b>          | Verifica come prevista al punto 7.5.4 e valore dell' azione assiale                                                                                                           |              |                                                                                                    |
| <b>V.7.5.5 V Ed,G V Ed,M</b> | Verifica come prevista al punto 7.5.5 e valore dei tagli dovuti ai carichi e alla capacità                                                                                    |              |                                                                                                    |
| <b>V.7.5.9 V Ed</b>          | Verifica come prevista al punto 7.5.9 e valore dell' azione di taglio                                                                                                         |              |                                                                                                    |
| <b>sovr. Xi (Xf, Yi, Yf)</b> | Valore della sovraresistenza come prevista al par. 7.5.4.3 (i valori non sono normalizzati pertanto saranno maggiori uguali a gamma rd classe di duttilità)                   |              |                                                                                                    |

| Trave | Stato | Note     | V V/T | V N/M | V stab | Cl. | LamS 22 | LamS 33 | Snell. | Chi mn | V flst | LamS LT | Chi LT | Rif. cmb  |
|-------|-------|----------|-------|-------|--------|-----|---------|---------|--------|--------|--------|---------|--------|-----------|
| 12    | ok    | s=5,m=10 | 0.03  | 0.15  |        | 1   |         |         |        |        |        |         |        | 34,34,0,0 |
| 13    | ok    | s=5,m=10 | 0.05  | 0.79  |        | 1   |         |         |        |        |        |         |        | 34,34,0,0 |
| 14    | ok    | s=5,m=10 | 0.10  | 0.92  | 0.68   | 1   | 3.0     | 0.9     | 281.4  | 0.10   |        |         |        | 9,25,39,0 |
| 15    | ok    | s=5,m=10 | 0.15  | 1.05  |        | 1   |         |         |        |        |        |         |        | 9,17,0,0  |
| Trave |       |          | V V/T | V N/M | V stab |     | LamS 22 | LamS 33 | Snell. | Chi mn | V flst | LamS LT | Chi LT |           |
|       |       |          | 0.15  | 1.05  | 0.68   |     | 3.00    | 0.87    | 281.43 | 0.10   |        |         |        |           |

| Trave | v.Omeg | f.Om. N | Stato | V N/M | V stab | Rif. cmb | V.7.5.3 M Ed | V.7.5.4 N Ed | V.7.5.5 V Ed,G | V Ed,M |
|-------|--------|---------|-------|-------|--------|----------|--------------|--------------|----------------|--------|
|       |        |         |       |       |        |          | daN cm       | daN          | daN            | daN    |
| 12    |        |         |       |       |        |          | 0.0          | 0.0          | 0.0            | 0.0    |
| 13    |        |         |       |       |        |          | 0.0          | 0.0          | 0.0            | 0.0    |
| 14    |        |         |       |       |        |          | 0.0          | 0.0          | 0.0            | 0.0    |
| 15    |        |         |       |       |        |          | 0.0          | 0.0          | 0.0            | 0.0    |
| Trave | v.Omeg |         |       | V N/M | V stab |          | V.7.5.3 M Ed | V.7.5.4 N Ed | V.7.5.5 V Ed,G | V Ed,M |
|       |        |         |       |       |        |          | 0.0          | 0.0          | 0.0            | 0.0    |
|       |        |         |       |       |        |          | 0.0          | 0.0          | 0.0            | 0.0    |

# VERIFICHE ELEMENTI TRAVE C.A.

## LEGENDA TABELLA VERIFICHE ELEMENTI TRAVE C.A.

In tabella vengono riportati per ogni elemento il numero dello stesso ed il codice di verifica.

Nel caso in cui si sia proceduto alla progettazione con le tensioni ammissibili vengono riportate le massime tensioni nell'elemento (massima compressione nel calcestruzzo, massima compressione media nel calcestruzzo, massima tensione nell'acciaio, massima tensione tangenziale) con l'indicazione delle combinazioni in cui si sono attinti i rispettivi valori.

Nel caso in cui si sia proceduto alla progettazione con il metodo degli stati limite vengono riportati il rapporto  $x/d$ , le verifiche per sollecitazioni proporzionali e la verifica per compressione media con l'indicazione delle combinazioni in cui si sono attinti i rispettivi valori.

Per gli elementi tipo pilastro sono riportati numero e diametro dei ferri di vertice, numero e diametro di ferri disposti lungo i lati L1 (paralleli alla base della sezione) e lungo i lati L2 (paralleli all'altezza della sezione).

Per gli elementi tipo trave sono riportati infine le quantità di armatura inferiore e superiore.

In particolare i simboli utilizzati con il metodo delle tensioni ammissibili assumono il seguente significato:

|                       |                                                                                                                                                                  |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>M P X Y</b>        | Numero della pilastrata e posizione in pianta                                                                                                                    |
| <b>M T Z P P</b>      | Numero della travata, quota media pilastrata iniziale e finale (nodo in assenza di pilastrata)                                                                   |
| <b>Pilas. o Trave</b> | numero identificativo dell'elemento                                                                                                                              |
| <b>Note</b>           | Viene riportato il codice relativo alla sezione(s) e relativo al materiale(m); nella terza riga viene riportato il valore delle snellezze in direzione 2-2 e 3-3 |
| <b>Stato</b>          | Codici di verifica relativi alle tensioni normali e alle tensioni tangenziali                                                                                    |
| <b>Quota</b>          | Ascissa del punto di verifica                                                                                                                                    |
| <b>%Af</b>            | Percentuale di area di armatura rispetto a quella di calcestruzzo                                                                                                |
| <b>Armat. long.</b>   | Numero e diametro dei ferri di armatura longitudinale: ferri di vertice + ferri di lato<br>(vedi seguente figura)                                                |
| <b>Af inf.</b>        | Area di armatura longitudinale posta all'intradosso della trave                                                                                                  |
| <b>Af sup</b>         | Area di armatura longitudinale posta all'estradosso della trave                                                                                                  |
| <b>Sc max</b>         | Massima tensione di compressione del calcestruzzo                                                                                                                |
| <b>Sc med</b>         | Massima tensione media di compressione del calcestruzzo                                                                                                          |
| <b>Sf max</b>         | Tensione massima nell'acciaio                                                                                                                                    |
| <b>staffe</b>         | Vengono riportati i dati del tratto di staffatura in cui cade la sezione di verifica;<br>in particolare: numero dei bracci, diametro, passo, lunghezza tratto    |
| <b>Tau max</b>        | Tensione massima tangenziale nel cls                                                                                                                             |
| <b>Rif. comb</b>      | Combinazioni in cui si generano i seguenti valori di tensione:<br>Sc max, Sc med, Sf max, Tau max                                                                |
| <b>Afv</b>            | area dell'armatura atta ad assorbire le azioni di taglio                                                                                                         |
| <b>AfT</b>            | area dell'armatura atta ad assorbire le azioni di torsione                                                                                                       |
| <b>Scorr. P</b>       | Scorrimento dei piegati                                                                                                                                          |
| <b>Af long.</b>       | Area del ferro longitudinale aggiuntivo per assorbire la torsione                                                                                                |

## Progettazione delle fondazioni

Il D.M.14/02/2008 - par: 7.2.5 prevede:

“Per le strutture progettate sia per CD “A” sia per CD “B” il dimensionamento delle strutture di fondazione e la verifica di sicurezza del complesso fondazione-terreno devono essere eseguiti assumendo come azioni in fondazione le resistenze degli elementi strutturali soprastanti [...] si richiede tuttavia che tali azioni risultino non maggiori di quelle trasferite dagli elementi soprastanti, amplificate con un  $\gamma_{Rd}$  pari a 1,1 in CD “B” e 1,3 in CD “A” e comunque non maggiori di quelle derivanti da una analisi elastica della struttura in elevazione eseguita con un fattore di struttura  $q$  pari a 1....”

Nel contesto visualizzazione risultati e nella stampa della relazione sulle fondazioni PRO\_SAP mostra le sollecitazioni che derivano dall'analisi non incrementate sia in termini di pressioni sul terreno che in termini di sollecitazioni. La progettazione degli elementi strutturali con proprietà fondazione è effettuata da PRO\_SAP (per travi e platee) o da PRO\_CAD Plinti (per plinti e pali di fondazione) incrementando le sollecitazioni delle combinazioni con sisma del fattore:  $\gamma_{rd} = 1.1$  in CDB  $\gamma_{rd} = 1.3$  in CDA per pali, plinti, travi e platee.

Per i bicchieri dei plinti di fondazione prefabbricati l'incremento delle sollecitazioni ha un fattore:  $\gamma_{rd} = 1.2$  in CDB  $\gamma_{rd} = 1.35$  in CDA. N.B.: se il fattore di struttura  $q$  è  $=1$  la progettazione viene effettuata senza nessun incremento.

Le verifiche geotecniche vengono effettuate dal modulo geotecnico incrementando automaticamente le sollecitazioni del fattore:  $\gamma_{rd} = 1.1$  in CDB  $\gamma_{rd} = 1.3$  in CDA per pali, plinti, travi e platee.

N.B.: se il fattore di struttura  $q$  è  $=1$  le verifiche geotecniche vengono effettuate senza nessun incremento.

Mentre i simboli utilizzati con il metodo degli stati limite assumono il seguente significato:

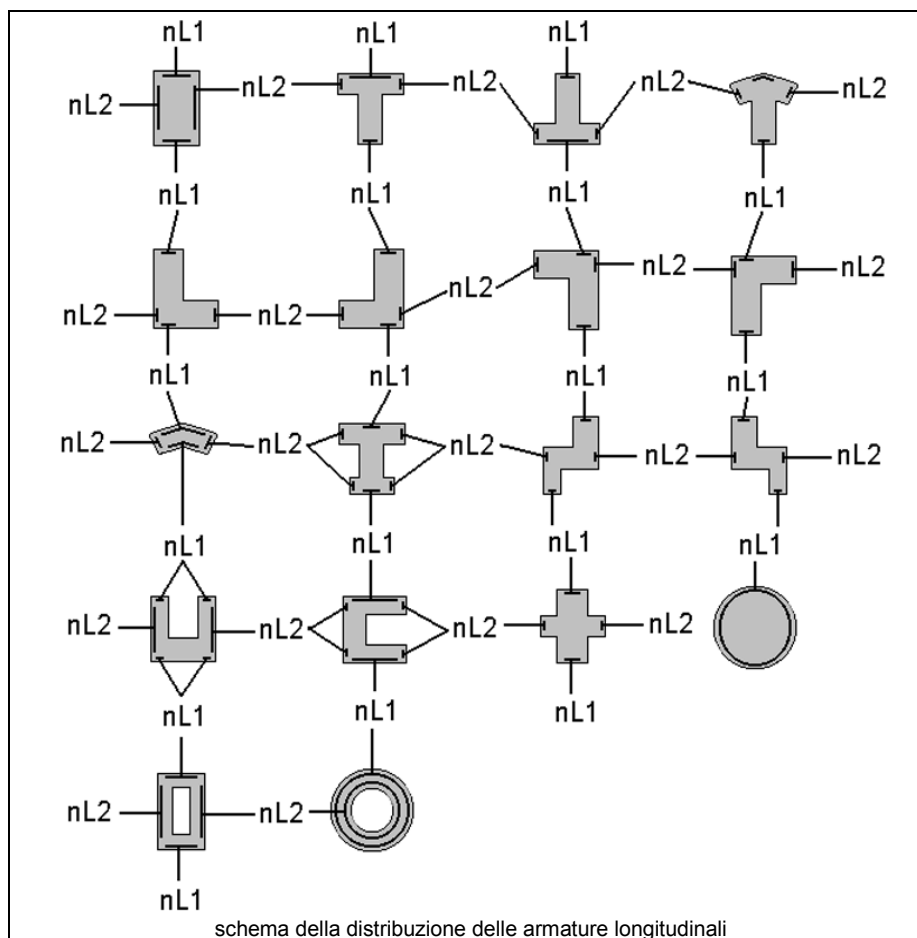
|                         |                                                                                                                                                                           |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>r. snell.</b>        | Rapporto $\lambda$ su $\lambda^*$ :<br>valore superiore a 1 per elementi snelli, caso in cui viene effettuata la verifica con il metodo diretto dello stato di equilibrio |
| <b>Verifica(verif.)</b> | rapporto $S_d/S_u$ con sollecitazioni ultime proporzionali o a sforzo normale costante:<br>valore minore o uguale a 1 per verifica positiva                               |
| <b>ver.sis</b>          | rapporto $N_d/N_u$ con $N_u$ calcolato come al punto 7.4.4.2.2.1; valore minore o uguale a 1 per verifica positiva                                                        |
| <b>ver.V/T</b>          | rapporto $S_d/S_u$ con sollecitazioni taglianti e torcenti proporzionali<br>valore minore o uguale a 1 per verifica positiva                                              |
| <b>x/d</b>              | rapporto tra posizione dell'asse neutro e altezza utile alla rottura della sezione<br>(per sola flessione)                                                                |

Per gli elementi progettati secondo il criterio della gerarchia delle resistenze (pilastri e travi) si riporta una ulteriore tabella di seguito descritta:

|                     |                                                                                                                                                                                                                                                                                |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>M negativo i</b> | Valore del momento resistente negativo (positivo) all'estremità iniziale i (finale f) della trave                                                                                                                                                                              |
| <b>V M-i M+f</b>    | Taglio generato dai momenti resistenti negativo i e positivo f (positivo i e negativo f)                                                                                                                                                                                       |
| <b>V totale</b>     | Massimo valore assoluto ottenuto per combinazione del taglio isostatico e dei tagli concomitanti (p.to 7.4.4.1.1.)                                                                                                                                                             |
| <b>Verif. V</b>     | Rapporto tra il taglio massimo e $V_{r1}$ (p.to 7.4.4.1.2.2);                                                                                                                                                                                                                  |
| <b>Sovr. 2-2 i</b>  | Sovraresistenza del pilastro (come da formula 7.4.4). Rapporto tra i momenti resistenti delle travi e dei pilastri. Il valore del fattore rispettivamente per il momento 2-2 (3-3) alla base i ed alla sommità f del pilastro deve essere maggiore del $\gamma_{mRd}$ adottato |
| <b>M 2-2 i</b>      | Valore del momento resistente rispettivamente per 2-2 (3-3) alla base i ed alla sommità f del pilastro (massimo momento in presenza dello sforzo normale di calcolo)                                                                                                           |
| <b>Luce per V</b>   | Luce di calcolo per la definizione del taglio (generato dai momenti resistenti)                                                                                                                                                                                                |
| <b>V M2-2</b>       | Valore del taglio generato dai momenti resistenti 2-2 (3-3)                                                                                                                                                                                                                    |

Per i nodi trave-pilastro viene riportata la seguente tabella relativa al calcolo delle armature di confinamento e alla verifica di resistenza del nodo (richiesta solo per strutture in classe di duttilità alta); le caselle vuote indicano parametri non riportati in quanto non necessari.

|                 |                                                                                                |
|-----------------|------------------------------------------------------------------------------------------------|
| <b>Stato</b>    | Esito della verifica (come da formula 7.4.8) per resistenza a compressione del nodo (solo CDA) |
| <b>I 7.4.29</b> | Passo delle staffe di confinamento come richiesto dalla formula 7.4.29                         |
| <b>Bj2(3)</b>   | Dimensione del nodo per il taglio in direzione 2 (3)                                           |
| <b>Hjc2(2)</b>  | Distanza tra le giaciture di armatura del pilastro per il taglio in direzione 2 (3)            |
| <b>V. 7.4.8</b> | Rapporto tra il taglio $V_{bd}$ e il taglio resistente come da formula 7.4.8 (solo CDA)        |
| <b>I 7.4.10</b> | Passo delle staffe valutato in funzione della formula 7.4.10 (solo CDA)                        |



|        |             |       |        |      | M_P= 1    | X=580.0      | Y=0.0   |         |                |           |           |             |
|--------|-------------|-------|--------|------|-----------|--------------|---------|---------|----------------|-----------|-----------|-------------|
| Pilas. | Note        | Stato | Quota  | %Af  | r. snell. | Armat. long. | verif.  | ver.sis | Staffe         | v V/T cls | v V/T acc | Rif. cmb    |
|        |             |       | cm     |      |           |              |         |         | L=cm           |           |           |             |
| 1      | s=1,m=1     | ok,ok | -139.0 | 1.01 | 0.43      | 4d16 0+2 d16 | 0.64    | 0.17    | 2+2d8/8 L=64   | 0.77      | 0.35      | 34,40,34,34 |
|        |             |       | 53.0   | 1.01 | 0.43      | 4d16 0+2 d16 | 0.16    | 0.17    | 2+2d8/15 L=256 | 0.77      | 0.65      | 23,40,34,34 |
|        | [b=1.0;1.0] |       | 245.0  | 1.01 | 0.43      | 4d16 0+2 d16 | 0.49    | 0.16    | 2+2d8/8 L=64   | 0.77      | 0.35      | 34,40,34,34 |
| 2      | s=1,m=1     | ok,ok | 245.0  | 1.01 | 0.60      | 4d16 0+2 d16 | 0.35    | 0.10    | 2+2d8/8 L=56   | 0.82      | 0.39      | 34,20,34,34 |
|        |             |       | 398.0  | 1.01 | 0.60      | 4d16 0+2 d16 | 0.29    | 0.10    | 2+2d8/15 L=194 | 0.82      | 0.74      | 22,20,34,34 |
|        | [b=1.0;1.0] |       | 551.0  | 1.01 | 0.60      | 4d16 0+2 d16 | 0.59    | 0.09    | 2+2d8/8 L=56   | 0.82      | 0.39      | 34,20,34,34 |
|        |             |       |        |      | M_P= 2    | X=580.0      | Y=165.0 |         |                |           |           |             |
| Pilas. | Note        | Stato | Quota  | %Af  | r. snell. | Armat. long. | verif.  | ver.sis | Staffe         | v V/T cls | v V/T acc | Rif. cmb    |
| 3      | s=1,m=1     | ok,ok | -139.0 | 1.01 | 0.55      | 4d16 0+2 d16 | 0.94    | 0.10    | 2+2d8/8 L=64   | 0.75      | 0.33      | 34,43,36,34 |
|        |             |       | 53.0   | 1.01 | 0.55      | 4d16 0+2 d16 | 0.23    | 0.10    | 2+2d8/15 L=256 | 0.75      | 0.62      | 28,43,36,34 |
|        | [b=1.0;1.0] |       | 245.0  | 1.01 | 0.55      | 4d16 0+2 d16 | 0.73    | 0.09    | 2+2d8/8 L=64   | 0.75      | 0.33      | 34,43,36,34 |
| 4      | s=1,m=1     | ok,ok | 245.0  | 1.01 | 0.33      | 4d16 0+2 d16 | 0.40    | 0.05    | 2+2d8/8 L=56   | 0.79      | 0.37      | 34,43,34,34 |
|        |             |       | 398.0  | 1.01 | 0.33      | 4d16 0+2 d16 | 0.23    | 0.04    | 2+2d8/15 L=194 | 0.79      | 0.69      | 25,43,34,34 |
|        | [b=1.0;1.0] |       | 551.0  | 1.01 | 0.33      | 4d16 0+2 d16 | 0.53    | 0.04    | 2+2d8/8 L=56   | 0.79      | 0.37      | 34,43,34,34 |
|        |             |       |        |      |           |              |         |         |                |           |           |             |
| Pilas. |             |       |        | %Af  | r. snell. |              | verif.  | ver.sis |                | v V/T cls | v V/T acc |             |
|        |             |       |        | 1.01 | 0.60      |              | 0.94    | 0.17    |                | 0.82      | 0.74      |             |

| Pilas. | sovr. Xi | sovr. Xf | sovr. Yi | sovr. Yf | M 2-2 i   | M 2-2 f   | M 3-3 i   | M 3-3 f   | Luce per V | V M2-2  | V M3-3  |
|--------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|------------|---------|---------|
|        |          |          |          |          | daN cm    | daN cm    | daN cm    | daN cm    | cm         | daN     | daN     |
| 1      | 0.0      | 0.0      | 0.0      | 3.47     | 7.852e+05 | 7.728e+05 | 1.063e+06 | 1.050e+06 | 369.00     | 4681.55 | 6339.79 |
| 2      | 0.0      | 0.0      | 3.47     | 0.0      | 7.002e+05 | 6.900e+05 | 9.654e+05 | 9.522e+05 | 241.00     | 6392.19 | 8812.95 |
| 3      | 0.0      | 0.0      | 0.0      | 2.93     | 7.031e+05 | 6.903e+05 | 9.691e+05 | 9.525e+05 | 369.00     | 4192.06 | 5778.02 |
| 4      | 0.0      | 0.0      | 2.93     | 0.0      | 6.325e+05 | 6.221e+05 | 8.767e+05 | 8.628e+05 | 241.00     | 5774.19 | 8003.08 |
|        |          |          |          |          |           |           |           |           |            |         |         |
| Pilas. |          |          |          |          | M 2-2 i   | M 2-2 f   | M 3-3 i   | M 3-3 f   |            | V M2-2  | V M3-3  |
|        |          |          |          |          | 7.852e+05 | 7.728e+05 | 1.063e+06 | 1.050e+06 |            | 6392.19 | 8812.95 |

| Nodo | Stato | Pilas. | Diam st | I 7.4.29 | n. br. 2 | Bj2  | Hjc2 | n. br. 3 | Bj3  | Hjc3 | V. 7.4.8 | I 7.4.10 | Rif. cmb |
|------|-------|--------|---------|----------|----------|------|------|----------|------|------|----------|----------|----------|
|      |       |        | mm      | cm       |          | cm   | cm   |          | cm   | cm   |          |          |          |
| 7    |       | 2      | 8       | 8.0      | 2        | 30.0 |      | 2        | 40.0 |      |          |          |          |
| 8    |       | 1      | 8       | 8.0      | 2        | 30.0 |      | 2        | 40.0 |      |          |          |          |
| 16   |       | 4      | 8       | 8.0      | 2        | 30.0 |      | 2        | 40.0 |      |          |          |          |
| 17   |       | 3      | 8       | 8.0      | 2        | 30.0 |      | 2        | 40.0 |      |          |          |          |
|      |       |        |         |          |          |      |      |          |      |      |          |          |          |
| Nodo |       |        |         | I 7.4.29 |          |      |      |          |      |      | V. 7.4.8 | I 7.4.10 |          |
|      |       |        |         | 8.00     |          |      |      |          |      |      |          |          |          |

|       |         |       |      |         |         |          | M_T= 3 | Z=-139.0 | P=1       | P=2       |             |          |  |
|-------|---------|-------|------|---------|---------|----------|--------|----------|-----------|-----------|-------------|----------|--|
| Trave | Note    | Pos.  | %Af  | Af inf. | Af. sup | Af long. | x/d    | V N/M    | V V/T cls | V V/T acc | Staffe      | Rif. cmb |  |
|       |         | cm    |      |         |         |          |        |          |           |           | L=cm        |          |  |
| 9     | ok,ok   | 0.0   | 0.22 | 14.4    | 14.4    | 0.0      | 0.07   | 0.18     | 0.24      | 0.21      | 2d8/5 L=135 | 34,34,42 |  |
|       | s=3,m=1 | 165.0 | 0.22 | 14.4    | 14.4    | 0.0      | 0.07   | 0.19     | 0.17      | 0.13      | 2d8/5 L=135 | 31,38,43 |  |
|       |         |       |      |         |         |          | M_T= 1 | Z=245.0  | N=8       | N=17      |             |          |  |
| Trave | Note    | Pos.  | %Af  | Af inf. | Af. sup | Af long. | x/d    | V N/M    | V V/T cls | V V/T acc | Staffe      | Rif. cmb |  |
| 5     | ok,ok   | 0.0   | 0.22 | 2.6     | 2.6     | 3.3      | 0.09   | 0.05     | 0.78      | 0.83      | 2d8/8 L=50  | 9,34,34  |  |
|       | s=1,m=1 | 82.5  | 0.22 | 2.6     | 2.6     | 3.3      | 0.09   | 5.51e-03 | 0.77      | 0.83      | 2d8/8 L=35  | 15,34,34 |  |
|       |         | 165.0 | 0.22 | 2.6     | 2.6     | 3.3      | 0.09   | 0.05     | 0.76      | 0.83      | 2d8/8 L=50  | 9,34,34  |  |
|       |         |       |      |         |         |          | M_T= 2 | Z=551.0  | P=1       | P=2       |             |          |  |
| Trave | Note    | Pos.  | %Af  | Af inf. | Af. sup | Af long. | x/d    | V N/M    | V V/T cls | V V/T acc | Staffe      | Rif. cmb |  |
| 6     | ok,ok   | 0.0   | 0.22 | 3.3     | 3.3     | 5.4      | 0.08   | 0.43     | 0.66      | 0.93      | 2d8/8 L=40  | 9,23,23  |  |
|       | s=2,m=1 | 55.0  | 0.22 | 3.3     | 3.3     | 5.4      | 0.08   | 0.14     | 0.66      | 0.93      | 2d8/8 L=40  | 17,23,23 |  |
| 7     | ok,ok   | 0.0   | 0.22 | 3.3     | 3.3     | 2.7      | 0.08   | 0.14     | 0.29      | 0.99      | 2d8/20 L=55 | 17,12,31 |  |
|       | s=2,m=1 | 55.0  | 0.22 | 3.3     | 3.3     | 2.7      | 0.08   | 0.16     | 0.28      | 0.99      | 2d8/20 L=55 | 28,31,31 |  |
| 8     | ok,ok   | 0.0   | 0.22 | 3.3     | 3.3     | 3.3      | 0.08   | 0.19     | 0.39      | 0.90      | 2d8/12 L=40 | 28,16,16 |  |
|       | s=2,m=1 | 55.0  | 0.22 | 3.3     | 3.3     | 3.3      | 0.08   | 0.16     | 0.39      | 0.90      | 2d8/12 L=40 | 22,16,16 |  |
|       |         |       |      |         |         |          | M_T= 4 | Z=551.0  | N=5       | N=7       |             |          |  |
| Trave | Note    | Pos.  | %Af  | Af inf. | Af. sup | Af long. | x/d    | V N/M    | V V/T cls | V V/T acc | Staffe      | Rif. cmb |  |
| 10    | ok,ok   | 0.0   | 0.22 | 3.3     | 3.3     | 4.2      | 0.08   | 0.97     | 0.65      | 0.65      | 2d8/5 L=120 | 9,39,39  |  |

|       |         |       |      |         |         |          |               |                |             |             |              |          |  |
|-------|---------|-------|------|---------|---------|----------|---------------|----------------|-------------|-------------|--------------|----------|--|
|       | s=2,m=1 | 140.0 | 0.22 | 3.3     | 3.3     | 4.2      | 0.08          | 0.07           | 0.65        | 0.65        | 2d8/5 L=120  | 16,39,39 |  |
|       |         |       |      |         |         |          | <b>M_T= 5</b> | <b>Z=551.0</b> | <b>N=14</b> | <b>N=16</b> |              |          |  |
| Trave | Note    | Pos.  | %Af  | Af inf. | Af. sup | Af long. | x/d           | V N/M          | V V/T cls   | V V/T acc   | Staffe       | Rif. cmb |  |
| 11    | ok,ok   | 0.0   | 0.22 | 3.3     | 3.3     | 0.0      | 0.08          | 0.22           | 0.40        | 0.25        | 2d8/10 L=120 | 35,31,15 |  |
|       | s=2,m=1 | 140.0 | 0.22 | 3.3     | 3.3     | 0.0      | 0.08          | 0.02           | 0.40        | 0.25        | 2d8/10 L=120 | 24,31,15 |  |
|       |         |       |      |         |         |          |               |                |             |             |              |          |  |
| Trave |         |       | %Af  | Af inf. | Af. sup | Af long. | x/d           | V N/M          | V V/T cls   | V V/T acc   |              |          |  |
|       |         |       | 0.22 | 14.37   | 14.37   | 5.39     | 0.09          | 0.97           | 0.78        | 0.99        |              |          |  |

| Trave | M negativo i | M positivo i | M negativo f | M positivo f | Luce per V | V M-i M+f | V M+i M-f | VEd,min | VEd,max | Vr1 | As  |
|-------|--------------|--------------|--------------|--------------|------------|-----------|-----------|---------|---------|-----|-----|
|       | daN cm       | daN cm       | daN cm       | daN cm       | cm         | daN       | daN       | daN     | daN     | daN | cm2 |
| 5     | 3.613e+05    | 3.613e+05    | 3.613e+05    | 3.613e+05    | 135.00     | 5352.03   | 5352.03   | 0.0     | 0.0     | 0.0 | 0.0 |
| 10    | 5.741e+05    | 5.741e+05    | 5.741e+05    | 5.741e+05    | 120.00     | 9568.25   | 9568.25   | 0.0     | 0.0     | 0.0 | 0.0 |
| 11    | 5.741e+05    | 5.741e+05    | 5.741e+05    | 5.741e+05    | 120.00     | 9568.25   | 9568.25   | 0.0     | 0.0     | 0.0 | 0.0 |
|       |              |              |              |              |            |           |           |         |         |     |     |
| Trave | M negativo i | M positivo i | M negativo f | M positivo f |            | V M-i M+f | V M+i M-f | VEd,min | VEd,max | Vr1 | As  |
|       |              |              |              |              |            |           |           | 0.0     |         |     |     |
|       | 5.741e+05    | 5.741e+05    | 5.741e+05    | 5.741e+05    |            | 9568.25   | 9568.25   |         | 0.0     | 0.0 | 0.0 |

# STATI LIMITE D' ESERCIZIO

## LEGENDA TABELLA STATI LIMITE D' ESERCIZIO

In tabella vengono riportati i valori di interesse per il controllo degli stati limite d'esercizio.

In particolare vengono riportati, in relazione al tipo di elemento strutturale, i risultati relativi alle tre categorie di combinazione considerate:

- Combinazioni rare
- Combinazioni frequenti
- Combinazioni quasi permanenti.

I valori di interesse sono i seguenti:

|              |                                                                                                                                |
|--------------|--------------------------------------------------------------------------------------------------------------------------------|
| <b>rRfck</b> | rapporto tra la massima compressione nel calcestruzzo e la tensione fck in combinazioni rare<br>[normalizzato a 1]             |
| <b>rRfyk</b> | rapporto tra la massima tensione nell'acciaio e la tensione fyk in combinazioni rare<br>[normalizzato a 1]                     |
| <b>rPfck</b> | rapporto tra la massima compressione nel calcestruzzo e la tensione fck in combinazioni quasi permanenti<br>[normalizzato a 1] |
| <b>wR</b>    | apertura caratteristica delle fessure in combinazioni rare [mm]                                                                |
| <b>wF</b>    | apertura caratteristica delle fessure in combinazioni frequenti [mm]                                                           |
| <b>wP</b>    | apertura caratteristica delle fessure in combinazioni quasi permanenti [mm]                                                    |
| <b>dR</b>    | massima deformazione in combinazioni rare                                                                                      |
| <b>dF</b>    | massima deformazione in combinazioni frequenti                                                                                 |
| <b>dP</b>    | massima deformazione in combinazioni quasi permanenti                                                                          |

Per ognuno dei nove valori soprariportati viene indicata (Rif.cmb) la combinazione in cui si è verificato.

In relazione al tipo di elemento strutturale i valori sono selezionati nel modo seguente:

|               |                                        |                                        |                                        |                                                                              |
|---------------|----------------------------------------|----------------------------------------|----------------------------------------|------------------------------------------------------------------------------|
| pilastr       | <b>rRfck</b>                           | <b>rRfyk</b>                           | <b>rPfck</b>                           | per sezioni significative                                                    |
| travi         | <b>rRfck</b><br><b>wR</b><br><b>dR</b> | <b>rRfyk</b><br><b>wF</b><br><b>dF</b> | <b>rPfck</b><br><b>wP</b><br><b>dP</b> | per sezioni significative<br>per sezioni significative<br>massimi in campata |
| setti e gusci | <b>rRfck</b><br><b>wR</b>              | <b>rRfyk</b><br><b>wF</b>              | <b>rPfck</b><br><b>wP</b>              | massimi nei nodi dell'elemento<br>massimi nei nodi dell'elemento             |

Si precisa che i valori di massima deformazione per travi sono riferiti al piano verticale (piano locale 1-2 con momenti flettenti 3-3).

| Pilas. | Pos.  | rRfck        | rRfyk        | rPfck        | Rif. cmb | Pos.  | rRfck        | rRfyk        | rPfck        | Rif. cmb |
|--------|-------|--------------|--------------|--------------|----------|-------|--------------|--------------|--------------|----------|
|        | cm    |              |              |              |          | cm    |              |              |              |          |
| 1      | 0.0   | 0.14         | 0.08         | 0.12         | 83,83,94 | 192.0 | 0.09         | 0.05         | 0.10         | 83,83,94 |
|        | 384.0 | 0.19         | 0.10         | 0.17         | 83,83,94 |       |              |              |              |          |
| 2      | 0.0   | 0.12         | 0.07         | 0.13         | 83,83,94 | 153.0 | 0.13         | 0.07         | 0.15         | 83,83,94 |
|        | 306.0 | 0.27         | 0.15         | 0.28         | 83,83,94 |       |              |              |              |          |
| 3      | 0.0   | 0.34         | 0.31         | 0.27         | 83,83,94 | 192.0 | 0.14         | 0.13         | 0.13         | 83,83,94 |
|        | 384.0 | 0.12         | 0.11         | 0.12         | 83,83,94 |       |              |              |              |          |
| 4      | 0.0   | 0.20         | 0.16         | 0.18         | 83,83,94 | 153.0 | 0.06         | 0.04         | 0.08         | 79,79,93 |
|        | 306.0 | 0.17         | 0.15         | 0.10         | 83,83,93 |       |              |              |              |          |
| Pilas. |       | <b>rRfck</b> | <b>rRfyk</b> | <b>rPfck</b> |          |       | <b>rRfck</b> | <b>rRfyk</b> | <b>rPfck</b> |          |
|        |       | 0.34         | 0.31         | 0.28         |          |       |              |              |              |          |

| Trave | Pos.  | rRfck        | rRfyk        | rPfck        | Rif. cmb | wR        | wF        | wP        | Rif. cmb | dR        | dF        | dP        | Rif. cmb |
|-------|-------|--------------|--------------|--------------|----------|-----------|-----------|-----------|----------|-----------|-----------|-----------|----------|
|       | cm    |              |              |              |          | mm        | mm        | mm        |          | cm        | cm        | cm        |          |
| 5     | 0.0   | 0.02         | 0.04         | 0.02         | 83,83,94 | 0.0       | 0.0       | 0.0       | 0,0,0    | 0.70      | 0.51      | 0.45      | 83,90,94 |
|       | 82.5  | 1.26e-03     | 2.40e-03     | 1.11e-03     | 83,83,94 | 0.0       | 0.0       | 0.0       | 0,0,0    |           |           |           |          |
|       | 165.0 | 0.02         | 0.04         | 0.02         | 83,83,94 | 0.0       | 0.0       | 0.0       | 0,0,0    |           |           |           |          |
| 6     | 0.0   | 0.15         | 0.34         | 0.15         | 83,83,94 | 0.0       | 0.0       | 0.0       | 0,0,0    | 0.29      | 0.21      | 0.18      | 83,90,94 |
|       | 55.0  | 3.56e-03     | 3.08e-03     | 2.42e-03     | 83,83,93 | 0.0       | 0.0       | 0.0       | 0,0,0    |           |           |           |          |
| 7     | 0.0   | 3.55e-03     | 1.97e-03     | 2.89e-03     | 83,83,94 | 0.0       | 0.0       | 0.0       | 0,0,0    | 0.29      | 0.21      | 0.18      | 83,90,94 |
|       | 55.0  | 0.03         | 0.05         | 0.03         | 83,83,94 | 0.0       | 0.0       | 0.0       | 0,0,0    |           |           |           |          |
| 8     | 0.0   | 0.03         | 0.07         | 0.03         | 83,83,94 | 0.0       | 0.0       | 0.0       | 0,0,0    | 0.29      | 0.21      | 0.18      | 83,90,94 |
|       | 55.0  | 1.39e-03     | 8.15e-03     | 1.85e-03     | 79,83,93 | 0.0       | 0.0       | 0.0       | 0,0,0    |           |           |           |          |
| 9     | 0.0   | 0.01         | 0.03         | 0.01         | 83,83,94 | 0.0       | 0.0       | 0.0       | 0,0,0    | 0.97      | 0.71      | 0.62      | 83,90,94 |
|       | 165.0 | 0.02         | 0.04         | 0.01         | 83,83,94 | 0.0       | 0.0       | 0.0       | 0,0,0    |           |           |           |          |
| 10    | 0.0   | 0.34         | 0.79         | 0.37         | 83,83,94 | 0.25      | 0.24      | 0.23      | 83,90,94 | -0.84     | -0.57     | -0.46     | 83,90,94 |
|       | 140.0 | 1.18e-04     | 2.13e-04     | 1.58e-04     | 79,79,93 | 0.0       | 0.0       | 0.0       | 0,0,0    |           |           |           |          |
| 11    | 0.0   | 0.08         | 0.17         | 0.09         | 83,83,94 | 0.0       | 0.0       | 0.0       | 0,0,0    | -0.44     | -0.36     | -0.34     | 83,90,94 |
|       | 140.0 | 1.39e-05     | 8.14e-04     | 1.85e-05     | 79,83,93 | 0.0       | 0.0       | 0.0       | 0,0,0    |           |           |           |          |
| Trave |       | <b>rRfck</b> | <b>rRfyk</b> | <b>rPfck</b> |          | <b>wR</b> | <b>wF</b> | <b>wP</b> |          | <b>dR</b> | <b>dF</b> | <b>dP</b> |          |
|       |       | 0.34         | 0.79         | 0.37         |          | 0.25      | 0.24      | 0.23      |          | 0.97      | 0.71      | 0.62      |          |

# APERTURA VANI NELLA PARETE AL SECONDO PIANO INTERRATO

## MATERIALI

### Muratura a blocchi lapidei squadriati

Parametri muratura Tab.C8A.2.1 Circ.n.617/CSLLPP del 2/2/2009

$f_m$  - resistenza compressione [daN/cm<sup>2</sup>]: 60 (min.), 80 (max.)

$\tau_o$  - resistenza a taglio [daN/cm<sup>2</sup>]: 0.90 (min.), 1.20 (max.)

E - modulo elastico [daN/cm<sup>2</sup>]: 24000 (min.), 32000 (max.)

G - modulo el. tang. [daN/cm<sup>2</sup>]: 7800 (min.), 9400 (max.)

### Valori di riferimento:

Essendo il livello di conoscenza LC1 (Limitata), come specificato dalla Tab. C8A.1.1 Circ.n.617, si utilizzano i valori medi per i moduli elastici e i valori minimi per la resistenza.

$f_m$  - resistenza compressione = 60 daN/cm<sup>2</sup>

$\tau_o$  - resistenza a taglio = 0.90 daN/cm<sup>2</sup>

E - modulo elastico = 28000 daN/cm<sup>2</sup>

G - modulo el. tang. = 8600 daN/cm<sup>2</sup>

$\mu$  = fattore duttilità = 1.50 (da valori sperimentali secondo gli studi di Turnsek e Cacovic)

$\gamma_m$  = peso specifico = 2200 daN/mc

### Valori di progetto:

Fattore confidenza FC = 1.35 (C8A.1.A.4 Circ.n.617/2009)

Coef. parz. sic.  $\gamma_M$  = 2 (4.5.6.1 DM 2008)

$f_m$  = 22.22 daN/cm<sup>2</sup>

$\tau_o$  = 0.33 daN/cm<sup>2</sup>

Coef. rid. moduli elastici per fessurazione = 2 (7.8.1.5.2 DM 2008)

E = 14000 daN/cm<sup>2</sup>

G = 4300 daN/cm<sup>2</sup>

### Struttura in CLS: calcestruzzo classe C25/30

$R_{ck}$  = 300 daN/cm<sup>2</sup>

$f_{ck}$  = 249 daN/cm<sup>2</sup>

E = modulo di elasticità normale = 314470 daN/cm<sup>2</sup>

G = modulo di elasticità tangenziale = 140388 daN/cm<sup>2</sup>

$\gamma_a$  = peso specifico = 2500 daN/mc

### Armature in acciaio in barre ad aderenza migliorata: B450C

$f_{yk}$  = tensione caratteristica di snervamento = 4500 daN/cm<sup>2</sup>

$f_{kt}$  = tensione caratteristica di rottura = 5400 daN/cm<sup>2</sup>

### DATI DELLE SEZIONI UTILIZZATE

Montanti (  $\square$  x H ): 90.0 x 30.0 cm

Armatura: 4 $\phi$ 14 per lato  $\square$ ; copriferro = 2.5 cm

Staffe: 1 $\phi$ 8 / 15.0

Architrave (  $\square$  x H ): 90.0 x 30.0 cm

Armatura: 4 $\phi$ 14 per lato □; copriferro = 2.5 cm

Staffe: 1 $\phi$ 8 / 15.0

Trave inferiore ( □ x H ): 30.0 x 25.0 cm

Armatura: 2 $\phi$ 14 per lato □; copriferro = 2.5 cm

Staffe: 1 $\phi$ 8 / 15.0

## **NORMATIVA DI RIFERIMENTO**

1. D.M. Infrastrutture Min. Interni e Prot. Civile 14 Gennaio 2008 e allegate 'Norme tecniche per le costruzioni'.

2. Circolare 02/02/2009 n. 617/CSLLPP Istruzioni per l'applicazione delle 'Nuove norme tecniche per le costruzioni' di cui al decreto ministeriale 14 gennaio 2008

## **METODOLOGIA DI VERIFICA**

L'apertura di un vano in una parete muraria accompagnata da opportuni rinforzi è previsto, come 'intervento locale', nella Circolare n. 617/CSLLPP del 2/2/2009 al punto C8.4.3.

Le verifiche possono essere eseguite limitandosi a valutazioni numeriche relative alla sola parete interessata dall'intervento solo a condizione che si dimostri che la rigidezza dell'elemento variato non cambi significativamente e che la resistenza non peggiori ai fini del comportamento rispetto alle azioni orizzontali.

Una mutazione significativa della rigidezza delle pareti muterebbe il comportamento globale della struttura e pertanto non risulterebbe sufficiente la verifica locale.

La verifica risulta positiva quando la rigidezza K e resistenza alle forze orizzontali V post-operam risultano maggiori o uguali a quelle ante-operam, con incrementi di rigidezza non sostanziali.

Ritenendo valido lo schema di doppio incastro alle estremità, nel caso di muratura non armata in cui la rottura del pannello è di tipo fragile e caratterizzata da lesioni diagonali a 45° l'azione tagliente ultima è determinabile, come specificato nella Circolare n. 617/CSLLPP al punto C8.7.1.5, con la seguente relazione:

$$V_t = ( L T f_{td} / b ) ( 1 + \sigma_o / f_{td} )^{1/2}$$

dove i simboli hanno il seguente significato:

L = Lunghezza del pannello murario

T = Spessore del pannello murario

$f_{td}$  = Resistenza di calcolo a trazione per fessurazione diagonale della muratura = 1,5  $\tau_o$

$\sigma_o$  = Tensione normale media riferita all'area totale della base del setto

b = Coefficiente correttivo legato alla distribuzione degli sforzi sulla sezione, dipendente dalla snellezza della parete. Si può assumere  $b = H / L$ , comunque non superiore a 1,5 e non inferiore a 1, dove H è l'altezza del pannello

La rigidezza del singolo pannello murario K viene valutata con la seguente relazione:

$$K = ( G E T L^3 ) / ( G H^3 + 1,2 H E L^2 )$$

dove i simboli hanno il seguente significato:

E = modulo di elasticità normale  
G = modulo di elasticità tangenziale

La rigidezza complessiva risulterà dalla sommatoria dei contributi dei singoli maschi murari che formano la parete.

La resistenza ultima a taglio verrà calcolate in base alla curva caratteristica del diagramma V- $\delta$

## TELAIO DI CERCHIATURA DELLE APERTURE

Definendo:

$\Delta K = K_{sa} - K_{pr}$  (carenza di rigidezza della muratura a seguito dell'intervento)

il telaio, per poter sopperire a tale carenza dovrà avere una rigidezza  $K_t$  maggiore o uguale a  $\Delta K$

La rigidezza del telaio è data dalla sommatoria delle rigidezze dei singoli montanti costituenti la cerchiatura.

Considerando come incastrata la base del telaio, la rigidezza per il singolo montante vale:

$$K_i = 12 E \square / H^3$$

La rigidezza totale del telaio sarà:  $K_t = \sum K_i$

La resistenza a taglio del telaio sarà data dal contributo di tutti i montanti:

dato  $M_u$  (momento ultimo di ogni montante) e considerando lo schema incastro-incastro:  $F_o = 2 M_u / H$

La resistenza complessiva del telaio sarà:  $V_t = \sum F_o$

## CARICHI

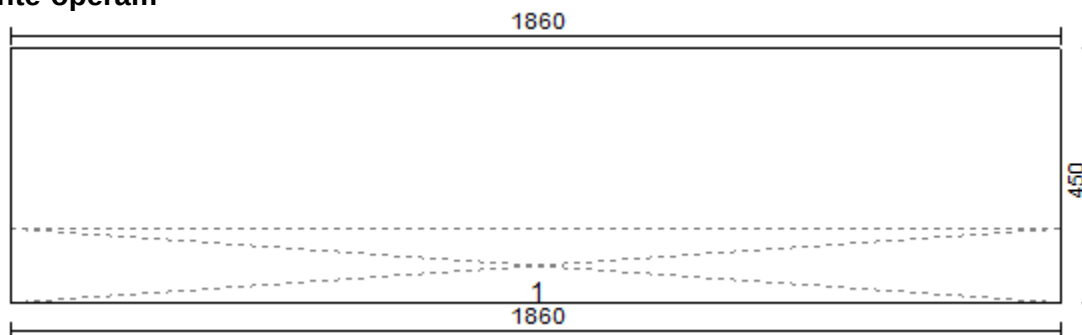
In sommità della parete sono applicati i seguenti carichi distribuiti:

Carico permanente  $g_1 = 10000 \text{ daN/m}$

Carico variabile  $q_1 = 0 \text{ daN/m}$

Per la determinazione della tensione media verticale, verranno inoltre considerati i contributi dovuti al peso proprio di metà maschio murario e delle semifascie superiori gravanti sul maschio stesso.

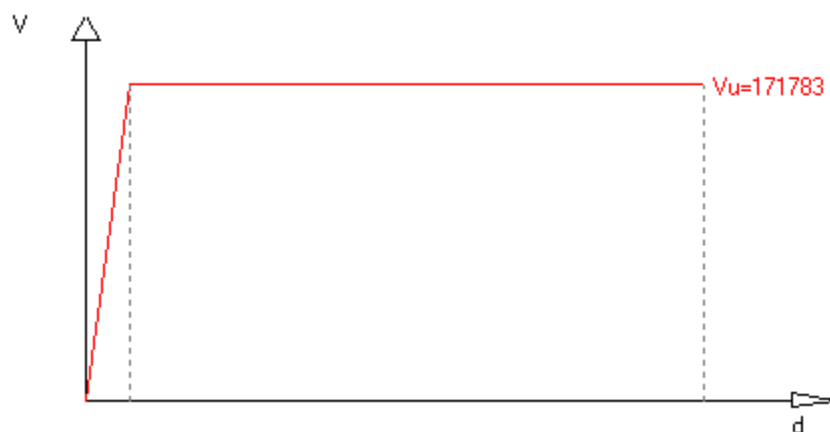
## Ante-operam



T (sp. parete) = 90 cm

| Maschio | Lungh. | H calc. | Coef. b | $\sigma_o$ | $K_o$     | $V_u$    | $\delta_e$ | $\delta_u$ |
|---------|--------|---------|---------|------------|-----------|----------|------------|------------|
| 1       | 1860   | 130     | 1       | 1.606      | 4608469.0 | 171783.4 | 0.037      | 0.520      |

Curva caratteristica ante-operam:

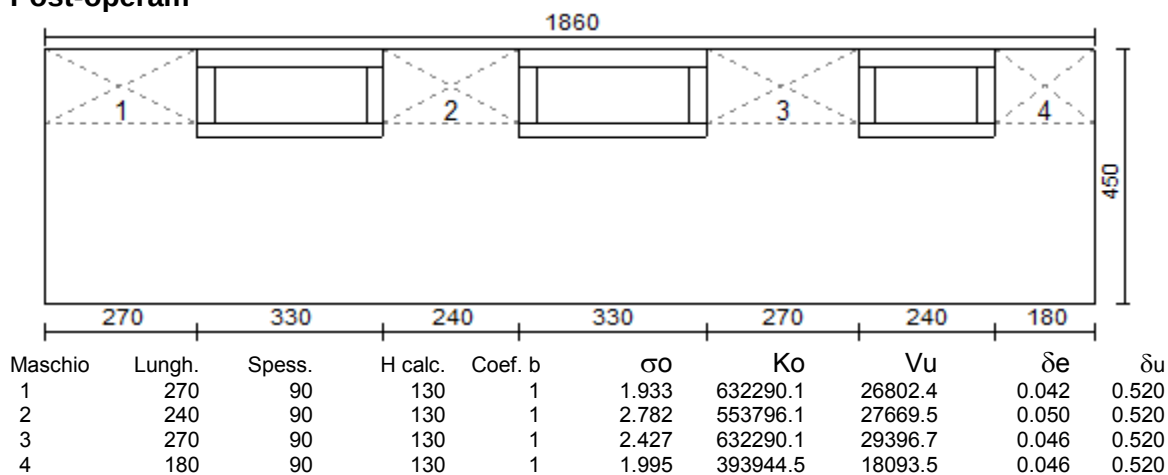


Rigidezza complessiva della parete:  $K_{sa} = 4608469.0$  daN/cm

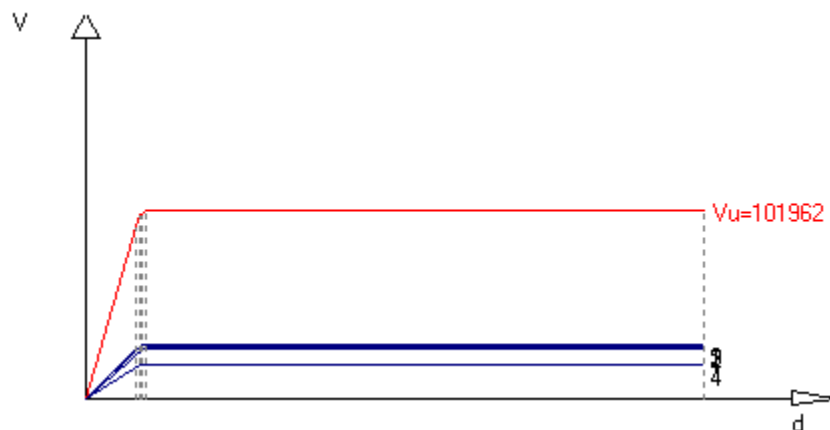
Taglio ultimo della parete:  $V_{sa} = 171783.4$  daN

Spostamento ultimo:  $\delta u_{sa} = 0.520$  cm

**Post-operam**



Curva caratteristica post-operam:



Rigidezza complessiva della parete:  $K_{pr} = 2212321$  daN/cm

Taglio ultimo della parete:  $V_{pr} = 101962$  daN

Spostamento ultimo:  $\delta u_{pr} = 0.520$  cm

## VERIFICA

Rigidezza e resistenza della muratura:

$$\Delta K_{\text{mur}} = K_{\text{pr}} - K_{\text{sa}} = 2212321 - 4608469 = -2396148 \text{ daN/cm} \quad (\text{riduzione rigidezza} = -52\%)$$

$$\Delta V_{\text{mur}} = V_{\text{pr}} - V_{\text{sa}} = 101962 - 171783 = -69821 \text{ daN} \quad (\text{riduzione resistenza} = -40.6\%)$$

Rigidezza e resistenza dei telai in CLS:

$$\text{Telaio apertura n. 1: } K = 1528324 \text{ daN/cm}$$

$$F_o = 25580 \text{ daN}$$

$$\text{Telaio apertura n. 2: } K = 1528324 \text{ daN/cm}$$

$$F_o = 25580 \text{ daN}$$

$$\text{Telaio apertura n. 3: } K = 1528324 \text{ daN/cm}$$

$$F_o = 25580 \text{ daN}$$

$$K_t = \sum (12 E \square / H_i^3) = 4584973 \text{ daN/cm}$$

$$V_t = \sum (2 \text{ Mu} / H_i) = 76741 \text{ daN}$$

Variazione di rigidezza e resistenza dopo l'intervento:

$$\Delta K_{\text{tot}} = K_{\text{pr}} + K_t - K_{\text{sa}} = 2188826 \text{ daN/cm}$$

$$\text{aumento rigidezza} = 47.5\%; \quad \Delta K_{\text{tot}} > 0 \quad (\text{Ok})$$

$$\Delta V_{\text{tot}} = V_{\text{pr}} + V_t - V_{\text{sa}} = 6920 \text{ daN}$$

$$\text{aumento resistenza} = 4\%; \quad \Delta V_{\text{tot}} > 0 \quad (\text{Ok})$$

## VERIFICHE SOLETTA SCALA IN C.A.

### Dati generali:

Normativa di riferimento: NTC 2008

Calcestruzzo classe: C25/30 ( $E = 314470 \text{ daN/cm}^2$ ; peso spec.= 2500 daN/mc)

Acciaio in barre:  $\square 450C$

Ambiente ordinario

Categoria carichi variabili: C - Ambienti suscettibili di affollamento

### Carichi:

Carichi permanenti compiutamente definiti  $g_1$ :

- pavimento+rivestimento = 45.0 daN/mq

- peso proprio struttura in c.a. (calcolato in automatico in base al peso spec. e l'area della sezione)

Carichi variabili  $Q_k$ :

- sovraccarico scala = 500.0 daN/mq

### Combinazioni di carico:

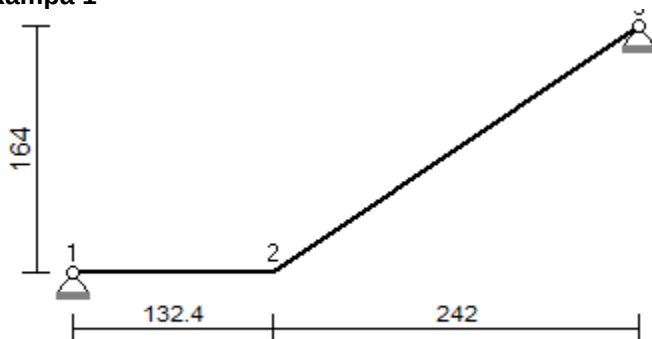
Cmb.1 - SLU:  $Q = G_1 \gamma_{g1} + Q_k \gamma_{qi}$  ( $\gamma_{g1} = 1.30$ ;  $\gamma_{qi} = 1.50$ )

Cmb.2 - SLE c.c. rare:  $Q = G_1 + Q_k$

Cmb.3 - SLE c.c. frequenti:  $Q = G_1 + Q_k \psi_{11}$  ( $\psi_{11} = 0.70$ )

Cmb.4 - SLE c.c. quasi permanenti:  $Q = G_1 + Q_k \psi_{21}$  ( $\psi_{21} = 0.60$ )

### Rampa 1



| Tratto | L (cm) | Spes.(cm) | A (cm <sup>2</sup> ) | $\square$ (cm <sup>4</sup> ) | $g_1$ (daN/m) | $q_k$ (daN/m) |
|--------|--------|-----------|----------------------|------------------------------|---------------|---------------|
| 1-2    | 132.4  | 18.0      | 2430.0               | 65610.0                      | 668.3         | 675.0         |
| 2-3    | 292.3  | 12.0      | 1620.0               | 19440.0                      | 734.6         | 558.7         |

Larghezza soletta c.a. = 135.0 cm

Armatura:

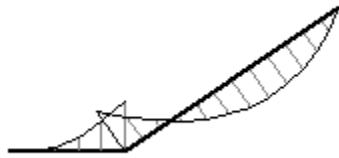
Tratto 1-2 - 6 $\phi$ 14 sup. (9.24 cm<sup>2</sup>) + 6 $\phi$ 14 inf. (9.24 cm<sup>2</sup>); Staffe  $\phi$ 14/ 15

Tratto 2-3 - 6 $\phi$ 14 sup. (9.24 cm<sup>2</sup>) + 6 $\phi$ 14 inf. (9.24 cm<sup>2</sup>); Staffe  $\phi$ 8/ 15

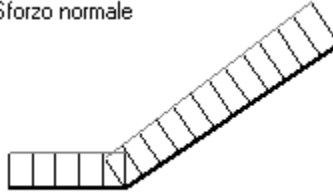
Sollecitazioni rampa

1

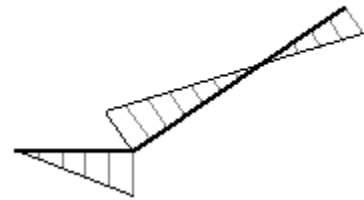
Momento flettente



Sforzo normale



Taglio



#### Cmb.1 - SLU

Verifica a presso-flessione:

Risultato più gravoso nel tratto 2-3,  $x = 0.0$  cm,  $M = -137762.1$  daNcm,  $N = -7968.2$  daN

$M_u$  (per  $N$  costante) =  $-265771.4$  daNcm,  $M / M_u = 0.518$  ( $M / M_u < 1$  Ok)

Verifica taglio:

Risultato più gravoso nel tratto 2-3,  $x = 0.0$  cm,  $M = -137762.1$  daNcm,  $N = -7968.2$  daN,  $V = 2640.5$  daN

$V_{ed} = 2640.5$  daN,  $V_{rd} = 5605.7$  daN  $V_{ed} / V_{rd} = 0.471$  ( $V_{ed} / V_{rd} < 1$  Ok)

#### Cmb.2 - SLE c.c. rare

Verifica cls:

Risultato più gravoso nel tratto 2-3,  $x = 0.0$  cm,  $M = -99343.6$  daNcm,  $N = -5730.9$  daN

$\sigma_c = 56.1$  daN/cm<sup>2</sup>;  $\sigma_{cL} = 149.4$  daN/cm<sup>2</sup>;  $\sigma_c / \sigma_{cL} = 0.38$  ( $\sigma_c / \sigma_{cL} < 1$  Ok)

Verifica acciaio:

Risultato più gravoso nel tratto 2-3,  $x = 0.0$  cm,  $M = -99343.6$  daNcm,  $N = -5730.9$  daN

$\sigma_a = 1083.8$  daN/cm<sup>2</sup>;  $\sigma_{aL} = 3600.0$  daN/cm<sup>2</sup>;  $\sigma_a / \sigma_{aL} = 0.30$  ( $\sigma_a / \sigma_{aL} < 1$  Ok)

#### Cmb.3 - SLE c.c. frequenti

Verifica fessurazione:

Risultato più gravoso nel tratto 2-3,  $x = 0.0$  cm,  $M = -86420.3$  daNcm,  $N = -4953.7$  daN

$W_k = 0.05$  mm;  $W_{kL} = 0.40$  mm;  $W_k / W_{kL} = 0.13$  ( $W_k / W_{kL} < 1$  Ok)

#### Cmb.4 - SLE c.c. quasi permanenti

Verifica cls:

Risultato più gravoso nel tratto 2-3,  $x = 0.0$  cm,  $M = -82112.6$  daNcm,  $N = -4694.7$  daN

$\sigma_c = 46.3$  daN/cm<sup>2</sup>;  $\sigma_{cL} = 112.1$  daN/cm<sup>2</sup>;  $\sigma_c / \sigma_{cL} = 0.41$  ( $\sigma_c / \sigma_{cL} < 1$  Ok)

Verifica fessurazione:

Risultato più gravoso nel tratto 2-3,  $x = 0.0$  cm,  $M = -82112.6$  daNcm,  $N = -4694.7$  daN

$W_k = 0.05$  mm;  $W_{kL} = 0.30$  mm;  $W_k / W_{kL} = 0.16$  ( $W_k / W_{kL} < 1$  Ok)

**Commenti del progettista:**
**1 Dati da inserire**
**Tipo e dimensione dell'ancorante:** HDA-TR M12x125/30

**Set Dinamico o qualunque soluzione idonea per il riempimento degli spazi anulari**

Profondità di posa effettiva:  $h_{ef} = 125 \text{ mm}$ ,  $h_{nom} = 133 \text{ mm}$ 

Materiale: 1.4401, 1.4404, 1.4571

Certificazione No.: Dati Tecnici Hilti

Emesso / Valido: - / -

Prova: Valutazione ingegneristica SOFA – basata sui test ETAG

Fissaggio distanziato:  $e_b = 0 \text{ mm}$  (Senza distanziamento);  $t = 11 \text{ mm}$ 

Piastra d'ancoraggio:  $l_x \times l_y \times t = 200 \text{ mm} \times 800 \text{ mm} \times 11 \text{ mm}$ ; (Spessore della piastra raccomandato: non calcolato)

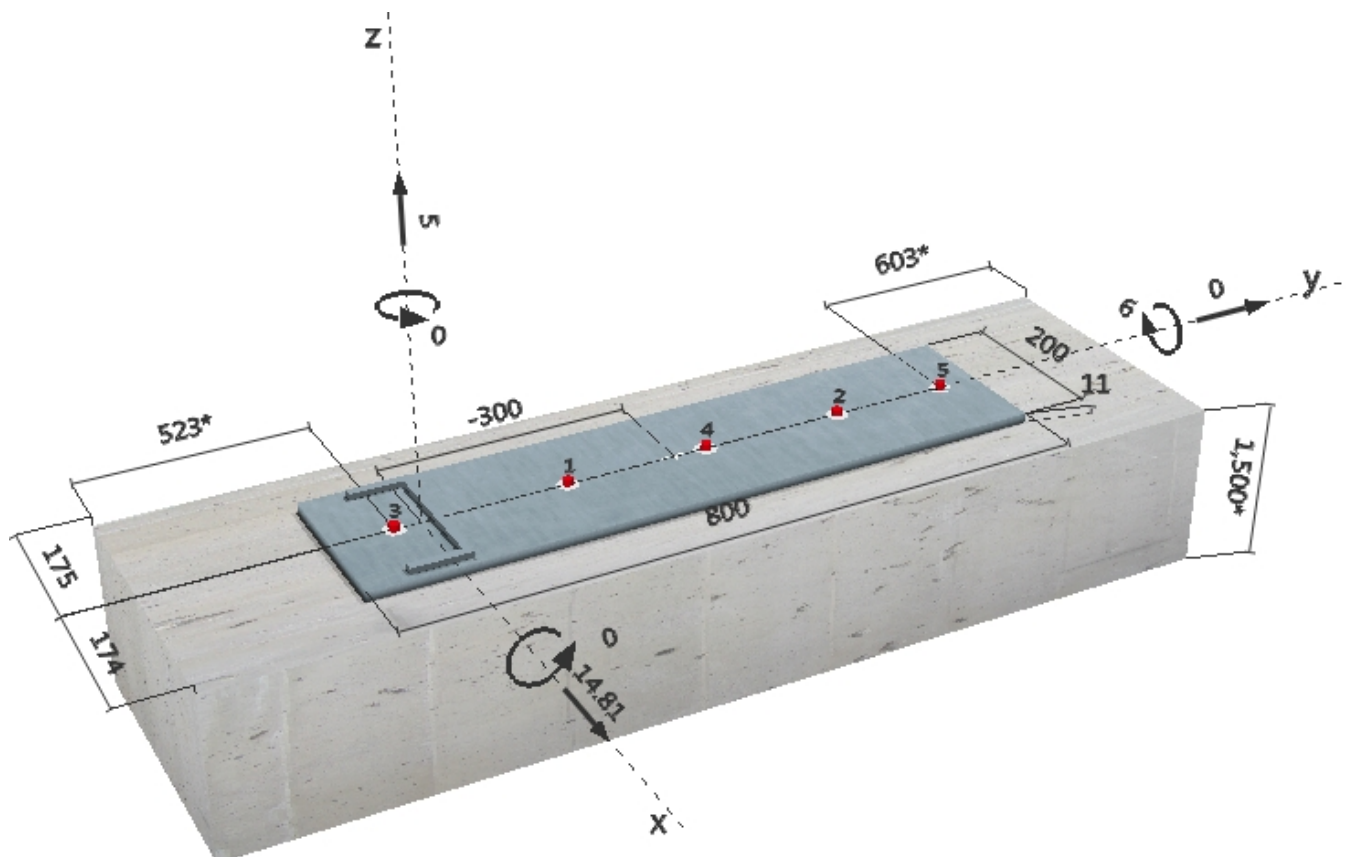
Profilo: Profilo a U;  $(L \times W \times T \times FT) = 180 \text{ mm} \times 70 \text{ mm} \times 8 \text{ mm} \times 11 \text{ mm}$ 

Materiale base: fessurato calcestruzzo, C20/25,  $f_c = 25.00 \text{ N/mm}^2$ ;  $h = 1500 \text{ mm}$ 

Armatura: interasse delle armature  $< 150 \text{ mm}$  (qualunque  $\emptyset$ ) o  $< 100 \text{ mm}$  ( $\emptyset \leq 10 \text{ mm}$ )

con armatura di bordo longitudinale  $d \geq 12$  + maglia chiusa (staffe)  $s \leq$ 

L'armatura per il controllo della fessurazione deve essere presente in accordo a quanto previsto da ETAG001, Allegato C, paragrafo 5.2.2.6.

**Geometria [mm] & Carichi [kN, kNm]**


Impresa:  
Progettista:  
Indirizzo:  
Telefono / Fax:  
E-mail:

Pagina: 2  
Progetto:  
Contratto N°:  
Data: 04/04/2017

## 2 Condizione di carico/Carichi risultanti sull'ancorante

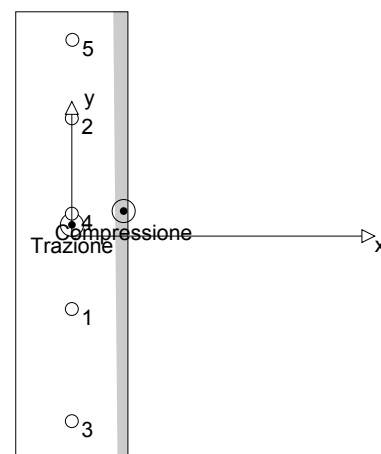
Condizione di carico: Carichi di progetto

### Carichi sull'ancorante [kN]

Trazione: (+ Trazione, - Compressione)

| Ancorante | Trazione | Taglio | Taglio in dir. x | Taglio in dir. y |
|-----------|----------|--------|------------------|------------------|
| 1         | 14.321   | 5.608  | 5.608            | -0.003           |
| 2         | 13.738   | 0.086  | -0.086           | -0.003           |
| 3         | 14.664   | 8.957  | 8.957            | -0.003           |
| 4         | 14.030   | 2.761  | 2.761            | -0.003           |
| 5         | 13.317   | 2.430  | -2.430           | 0.013            |

Compressione max. nel calcestruzzo: 0.28 [%]  
Max. sforzo di compressione nel calcestruzzo: 8.43 [N/mm<sup>2</sup>]  
risultante delle forze di trazione nel (x/y)=(0/20): 70.069 [kN]  
risultante delle forze di compressione (x/y)=(92/45): 65.069 [kN]



## 3 Carico di trazione (ETAG, Allegato C, Sezione 5.2.2)

|                                   | Carico [kN] | Resistenza [kN] | Utilizzo $\beta_N$ [%] | Stato |
|-----------------------------------|-------------|-----------------|------------------------|-------|
| Rottura dell'acciaio*             | 14.664      | 41.875          | 36                     | OK    |
| Rottura per sfilamento*           | 14.664      | 23.333          | 63                     | OK    |
| Rottura conica del calcestruzzo** | 70.069      | 94.941          | 74                     | OK    |
| Fessurazione**                    | N/A         | N/A             | N/A                    | N/A   |

\*ancorante più sollecitato \*\*gruppo di ancoranti (ancoranti sollecitati)

### 3.1 Rottura dell'acciaio

| $N_{Rk,s}$ [kN] | $\gamma_{M,s}$ | $N_{Rd,s}$ [kN] | $N_{Sd}$ [kN] |
|-----------------|----------------|-----------------|---------------|
| 67.000          | 1.600          | 41.875          | 14.664        |

### 3.2 Rottura per sfilamento

| $N_{Rk,p}$ [kN] | $\psi_c$ | $\gamma_{M,p}$ | $N_{Rd,p}$ [kN] | $N_{Sd}$ [kN] |
|-----------------|----------|----------------|-----------------|---------------|
| 35.000          | 1.000    | 1.500          | 23.333          | 14.664        |

### 3.3 Rottura conica del calcestruzzo

| $A_{c,N}$ [mm <sup>2</sup> ] | $A_{c,N}^0$ [mm <sup>2</sup> ] | $c_{cr,N}$ [mm] | $s_{cr,N}$ [mm] |              |               |       |
|------------------------------|--------------------------------|-----------------|-----------------|--------------|---------------|-------|
| 369250                       | 140625                         | 190             | 375             |              |               |       |
| $e_{c1,N}$ [mm]              | $\psi_{ec1,N}$                 | $e_{c2,N}$ [mm] | $\psi_{ec2,N}$  | $\psi_{s,N}$ | $\psi_{re,N}$ | $k_1$ |
| 0                            | 1.000                          | 8               | 0.959           | 0.975        | 1.000         | 8.300 |
| $N_{Rk,c}^0$ [kN]            | $\gamma_{M,c}$                 | $N_{Rd,c}$ [kN] | $N_{Sd}$ [kN]   |              |               |       |
| 57.998                       | 1.500                          | 94.941          | 70.069          |              |               |       |

Impresa:  
 Progettista:  
 Indirizzo:  
 Telefono / Fax:  
 E-mail:

Pagina: 3  
 Progetto:  
 Contratto N°:  
 Data: 04/04/2017

## 4 Carico di taglio (ETAG, Allegato C, Sezione 5.2.3)

|                                                      | Carico [kN] | Resistenza [kN] | Utilizzo $\beta_v$ [%] | Stato |
|------------------------------------------------------|-------------|-----------------|------------------------|-------|
| Rottura dell'acciaio (senza braccio di leva)*        | 8.957       | 65.414          | 14                     | OK    |
| Rottura dell'acciaio (con braccio di leva)*          | N/A         | N/A             | N/A                    | N/A   |
| Rottura per pryout**                                 | 14.810      | 71.990          | 21                     | OK    |
| Rottura del bordo del calcestruzzo in direzione x+** | 17.326      | 36.788          | 48                     | OK    |

\*ancorante più sollecitato \*\*gruppo di ancoranti (ancoranti specifici)

### 4.1 Rottura dell'acciaio (senza braccio di leva)

| $V_{Rk,s}$ [kN] | $\gamma_{M,s}$ | $V_{Rd,s}$ [kN] | $V_{Sd}$ [kN] |
|-----------------|----------------|-----------------|---------------|
| 87.000          | 1.330          | 65.414          | 8.957         |

### 4.2 Rottura per pryout

|                                     |                                                  |                         |                        |                  |                   |
|-------------------------------------|--------------------------------------------------|-------------------------|------------------------|------------------|-------------------|
| A <sub>c,N</sub> [mm <sup>2</sup> ] | A <sub>c,N</sub> <sup>0</sup> [mm <sup>2</sup> ] | c <sub>cr,N</sub> [mm]  | s <sub>cr,N</sub> [mm] | k-factor         |                   |
| 369250                              | 140625                                           | 190                     | 375                    | 2.000            |                   |
| e <sub>c1,V</sub> [mm]              | ψ <sub>ec1,N</sub>                               | e <sub>c2,V</sub> [mm]  | ψ <sub>ec2,N</sub>     | ψ <sub>s,N</sub> | ψ <sub>re,N</sub> |
| 0                                   | 1.000                                            | 328                     | 0.364                  | 0.975            | 1.000             |
| N <sub>Rk,c</sub> <sup>0</sup> [kN] | γ <sub>M,c,p</sub>                               | V <sub>Rd,c1</sub> [kN] | V <sub>Sd</sub> [kN]   |                  |                   |
| 57.998                              | 1.500                                            | 71.990                  | 14.810                 |                  |                   |

### 4.3 Rottura del bordo del calcestruzzo in direzione x+

|                   |                              |                                |                |               |               |
|-------------------|------------------------------|--------------------------------|----------------|---------------|---------------|
| $l_f$ [mm]        | $d_{nom}$ [mm]               | $k_1$                          | $\alpha$       | $\beta$       |               |
| 88                | 21.0                         | 1.700                          | 0.071          | 0.066         |               |
| $c_1$ [mm]        | $A_{c,V}$ [mm <sup>2</sup> ] | $A_{c,V}^0$ [mm <sup>2</sup> ] |                |               |               |
| 174               | 313722                       | 136242                         |                |               |               |
| $\psi_{s,V}$      | $\psi_{h,V}$                 | $\psi_{a,V}$                   | $e_{c,V}$ [mm] | $\psi_{ec,V}$ | $\psi_{re,V}$ |
| 1.000             | 1.000                        | 1.000                          | 234            | 0.527         | 1.400         |
| $V_{Rk,c}^0$ [kN] | $\gamma_{M,c}$               | $V_{Rd,c}$ [kN]                | $V_{Sd}$ [kN]  |               |               |
| 32.484            | 1.500                        | 36.788                         | 17.326         |               |               |

## 5 Carichi combinati di trazione e di taglio (ETAG, Allegato C, Sezione 5.2.4)

| $\beta_N$ | $\beta_v$ | $\alpha$ | Utilizzo $\beta_{N,v}$ [%] | Stato |
|-----------|-----------|----------|----------------------------|-------|
| 0.738     | 0.471     | 1.500    | 96                         | OK    |

$$\beta_N^{\alpha} + \beta_v^{\alpha} \leq 1$$

## 6 Spostamenti (ancorante più sollecitato)

Carichi a breve termine:

|          |   |             |               |   |            |
|----------|---|-------------|---------------|---|------------|
| $N_{Sk}$ | = | 10.862 [kN] | $\delta_N$    | = | 0.585 [mm] |
| $V_{Sk}$ | = | 6.635 [kN]  | $\delta_v$    | = | 0.424 [mm] |
|          |   |             | $\delta_{NV}$ | = | 0.723 [mm] |

Carichi a lungo termine:

|          |   |             |               |   |            |
|----------|---|-------------|---------------|---|------------|
| $N_{Sk}$ | = | 10.862 [kN] | $\delta_N$    | = | 0.846 [mm] |
| $V_{Sk}$ | = | 6.635 [kN]  | $\delta_v$    | = | 0.637 [mm] |
|          |   |             | $\delta_{NV}$ | = | 1.058 [mm] |

Commenti: Gli spostamenti a trazione risultano validi con metà del valore della coppia di serraggio richiesta per non fessurato calcestruzzo!  
 Gli spostamenti a taglio sono validi trascurando l'attrito tra il calcestruzzo e la piastra d'ancoraggio! Lo spazio derivante dal foro eseguito con perforatore e dalle tolleranze dei fori non viene considerato in questo calcolo!

Gli spostamenti ammissibili dell'ancorante dipendono dalla struttura fissata e devono essere definiti dal progettista!

Impresa:  
Progettista:  
Indirizzo:  
Telefono / Fax:  
E-mail:

Pagina: 4  
Progetto:  
Contratto N°:  
Data: 04/04/2017

## 7 Attenzione

- Tramite PROFIS Anchor è possibile calcolare lo spessore della piastra necessario per evitare la rottura della piastra stessa. Fenomeni di ridistribuzione dei carichi sugli ancoranti derivanti da eventuali deformazioni elastiche della piastra non sono presi in considerazione. Si assume una piastra di ancoraggio sufficientemente rigida in modo che non risulti deformabile sotto l'azione di carichi.
- Questo ancorante necessita di rondella di centraggio!
- La verifica del trasferimento dei carichi nel materiale base è necessaria in accordo all'ETAG (2010) sezione 7!
- Il calcolo è valido solo se le dimensioni dei fori sulla piastra non superano i valori indicati nella tabella 4.1 dell'ETAG 001, Annex C! Per diametri dei fori superiori vedere il capitolo 1.1 dell'ETAG 001, Annex C!
- Il metodo di calcolo ETAG (fori riempiti) presuppone che non ci sia spazio anulare libero tra ancorante e foro nella piastra. Questa condizione può essere ottenuta riempiendo tale spazio con una malta avente sufficiente resistenza a compressione (per es. utilizzando il Set Dinamico Hilti) o ricorrendo ad altre soluzioni idonee.
- La lista accessori inclusa in questo report di calcolo è da ritenersi solo come informativa dell'utente. In ogni caso, le istruzioni d'uso fornite con il prodotto dovranno essere rispettate per garantire una corretta installazione.
- Il metodo di calcolo SOFA presuppone che non ci sia spazio anulare libero tra ancorante e foro nella piastra. Questa condizione può essere ottenuta riempiendo tale spazio con una malta avente sufficiente resistenza a compressione (per es. utilizzando il Set Dinamico Hilti) o ricorrendo ad altre soluzioni idonee.
- L'utente è responsabile della conformità alle norme correnti (e.g. EC3)
- Una verifica agli Stati Limite d'Esercizio non è eseguita da SOFA e deve essere effettuata dall'utente!

**L'ancoraggio risulta verificato!**

Impresa:  
Progettista:  
Indirizzo:  
Telefono I Fax: |  
E-mail:

Pagina: 5  
Progetto:  
Contratto N°:  
Data: 04/04/2017

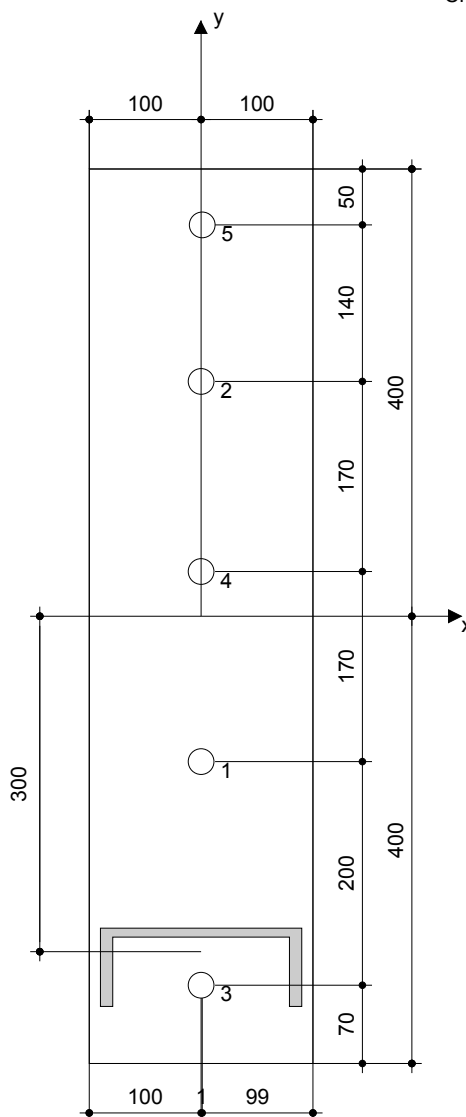
## 8 Dati relativi all'installazione

Piastra d'ancoraggio, acciaio: -  
Profilo: Profilo a U; 180 x 70 x 8 x 11 mm  
Diametro del foro nella piastra:  $d_f = 23$  mm  
Spessore della piastra (input): 11 mm  
Spessore della piastra raccomandato: non calcolato  
Pulizia: E' necessaria la pulizia manuale del foro in conformità alle istruzioni di posa.

Tipo e dimensione dell'ancorante: HDA-TR M12x125/30  
Coppia di serraggio: 0.080 kNm  
Diametro del foro nel materiale base: 22 mm  
Profondità del foro nel materiale base: 133 mm  
Spessore minimo del materiale base: 214 mm

### 8.1 Accessori richiesti

| Perforazione                                                                                                                                                           | Pulizia                                                                      | Posa                                                                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Idoneo per rotopercolazione</li> <li>Dimensione appropriata del perno di arresto per particolari profondità foratura</li> </ul> | <ul style="list-style-type: none"> <li>Pompetta soffiante manuale</li> </ul> | <ul style="list-style-type: none"> <li>Attrezzo di posa HDA-ST</li> <li>Set Dinamico</li> <li>Chiave dinamometrica</li> </ul> |



### Coordinate dell'ancorante [mm]

| Ancorante | x | y    | C <sub>x</sub> | C <sub>+x</sub> | C <sub>y</sub> | C <sub>+y</sub> |
|-----------|---|------|----------------|-----------------|----------------|-----------------|
| 1         | 0 | -130 | 175            | 175             | 723            | 1083            |
| 2         | 0 | 210  | 175            | 175             | 1063           | 743             |
| 3         | 0 | -330 | 175            | 175             | 523            | 1283            |

| Ancorante | x | y   | C <sub>x</sub> | C <sub>+x</sub> | C <sub>y</sub> | C <sub>+y</sub> |
|-----------|---|-----|----------------|-----------------|----------------|-----------------|
| 4         | 0 | 40  | 175            | 175             | 893            | 913             |
| 5         | 1 | 350 | 176            | 174             | 1203           | 603             |

Impresa:  
Progettista:  
Indirizzo:  
Telefono / Fax:  
E-mail:

Pagina: 6  
Progetto:  
Contratto N°:  
Data: 04/04/2017

## 9 Osservazioni; doveri del cliente

- Tutte le informazioni e i dati contenuti nel Software riguardano solamente l'uso di prodotti Hilti e si basano su principi, formule e norme di sicurezza in conformità con le indicazioni tecniche, di funzionamento, montaggio e assemblaggio, ecc. della Hilti che devono essere rigorosamente rispettate da parte dell'utente. Tutti i valori in esso contenuti sono valori medi, quindi vanno effettuati test specifici prima di utilizzare il prodotto Hilti in questione. I risultati dei calcoli effettuati mediante il software si basano essenzialmente sui dati che l'utente ha inserito. Di conseguenza l'utente è l'unico responsabile per l'assenza di errori, la completezza e la pertinenza dei dati che vanno immessi. Inoltre, l'utente ha la responsabilità di far controllare e correggere i risultati dei calcoli da parte di un esperto, con particolare riguardo al rispetto di norme e autorizzazioni, prima di utilizzarli per uno scopo specifico. Il software serve solo come un compendio per interpretare le norme e i permessi, senza alcuna garanzia circa l'assenza di errori, la correttezza e la pertinenza dei risultati o di idoneità per una specifica applicazione.
- L'utente deve applicare tutti gli accorgimenti necessari e ragionevoli per prevenire o limitare i danni causati dal software. In particolare, l'utente deve organizzare un backup periodico dei programmi e dei dati e, se necessario, effettuare gli aggiornamenti del software offerti da Hilti in maniera regolare. Se non si utilizza la funzione di aggiornamento automatico del software, l'utente deve assicurarsi di utilizzare l'ultima versione e quindi di mantenere aggiornato il Software effettuando aggiornamenti manuali dal sito web Hilti. Hilti non è responsabile per le conseguenze derivanti da una violazione colposa di responsabilità da parte dell'utente, come il recupero di dati o programmi persi o danneggiati.