

**SOSPENSIONI
A MOLLA**

**SPRING
HANGERS**



PER SCEGLIERE IL SUPPORTO ANTIVIBRANTE CORRETTO BISOGNA CONOSCERE:

1. **PESO STATICO** della macchina e **NUMERO DEI PUNTI DI APPOGGIO** con rispettivo carico gravante.
2. **FREQUENZA ECCITANTE** determinata dal corpo rotante con r.p.m. più bassa.
3. **LUOGO D'INSTALLAZIONE:** se la macchina viene installata in una zona sismica, in copertura, se è soggetta alle forze del vento o in una zona con elevata presenza di nebbie saline o altri agenti aggressivi.
4. **TEMPERATURA D'IMPIEGO:** bisogna tenere in considerazione le temperature alle quali saranno soggetti i supporti antivibranti.

L'INSTALLAZIONE È CORRETTA QUANDO TUTTI I SUPPORTI INSTALLATI PRESENTANO LA STESSA FRECCIA ELASTICA.

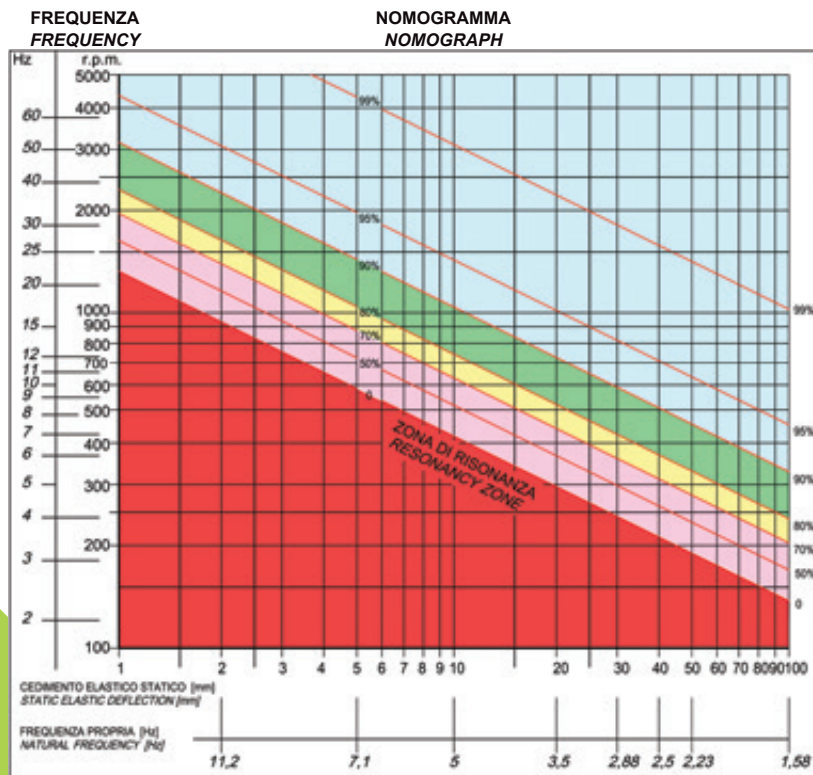
Se le basi di appoggio dei diversi supporti antivibranti non sono tra loro a livello, è necessario compensare tale mancanza utilizzando appositi registri (MARTINETTI).

TO CHOOSE THE CORRECT ANTI-VIBRATION MOUNT, YOU MUST KNOW:

1. The **STATIC WEIGHT** of the machine and the **NUMBER OF SUPPORT POINTS** with their respective loads;
2. The **EXCITATION FREQUENCY** determined by the rotating body at the lowest r.p.m..
3. **INSTALLATION SITE:** if the machine is installed in a seismic area, on the roof, if it is subject to wind forces or in an area with high presence of saline mists or other aggressive agents.
4. **WORKING TEMPERATURE:** the temperatures to which the anti-vibration mounts will be subject must be taken into consideration.

THE INSTALLATION IS CORRECT WHEN ALL THE INSTALLED MOUNTS HAVE THE SAME ELASTIC DEFLECTION.

If the support bases of the different anti-vibration mounts are not among them at level, it is necessary to compensate for this lack using special registers (JACKS).



Il diagramma degli isolamenti, riassume graficamente, le relazioni intercorrenti tra la freccia elastica espressa in mm, il regime vibrante in r.p.m. o i cicli/mm e il grado di isolamento espresso in %.

The insulation diagram shows graphically the ratios between the elastic deflections in mm, the vibration speed in r.p.m. or cycles/mm and the degree of insulation as a %.

	ottima very good
	buona good
	discreta fair
	sufficiente sufficient
	zona di risonanza resonance zone

ESEMPIO DI SCELTA DI UN SUPPORTO ANTIVIBRANTE:

Si supponga di dover isolare un gruppo frigorifero di 6234 kg con una frequenza pari a 850 r.p.m. (14 Hz).

L'unità ha 6 punti di appoggio, su ogni punto d'appoggio gravano 1039 kg (il carico è uniformemente distribuito).

Per ottenere un isolamento del 90% ca. è necessario una deflessione di ca. 15 mm.

Il carico diviso la deflessione determina la rigidità del supporto antivibrante "k" [kg/mm].

$$k = \frac{1039 \text{ kg (carico reale)}}{15 \text{ mm (deflessione)}} = 69.2 \text{ kg/mm}$$

Il Supporto Antivibrante mirato dovrà essere scelto nelle pagine a seguire, tra quelli che presentano rigidità "k" che meglio approssima il valore 69,2 [kg/mm].

Nella scelta del supporto antivibrante controllare che il carico massimo consigliato sia superiore al carico applicato.

Per la corretta installazione consultare l'apposita guida tecnica.

EXAMPLE OF CHOICE OF ANTI-VIBRATION MOUNT:

Suppose you need to isolate a 6234 kg refrigeration unit with one frequency equal to 850 r.p.m. (14 Hz).

The unit has six resting points with 1039 kg resting on each point (the load is evenly distributed).

To achieve about 90% insulation, a deflection of about 15 mm. is necessary.

The load divided by the deflection determines the stiffness of the anti-vibration mount "k" [kg/mm].

$$k = \frac{1039 \text{ kg (real load)}}{15 \text{ mm (deflection)}} = 69.2 \text{ kg/mm}$$

The best anti-vibration mount will have to be chosen in the following pages, among those with a stiffness k that best approximates the value of 69.2 [kg/mm].

When choosing the anti-vibration mount, check that the maximum recommended load is higher than the load applied.

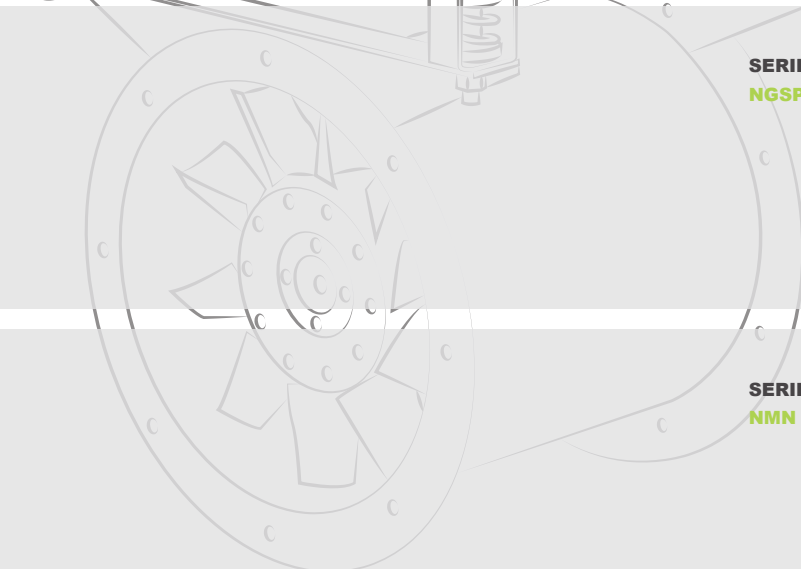
Please consult the technical guide for correct installation.



SERIE N - NG
N - NG SERIES



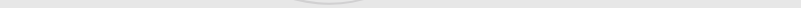
p. 3



SERIE NGSP2
NGSP2 SERIES



p. 7



SERIE NMN
NMN SERIES



p. 8

SERIE NMNa
NMNa SERIES

**IDENTIFICAZIONE
DEL K DAL COLORE
K IDENTIFICATION
THROUGH COLOUR**



p. 9

SERIE NMNT
NMNT SERIES

**ADATTO PER
ALTE FREQUENZE
SUITABLE FOR
HIGH FREQUENCIES**



p. 11

SERIE T
T SERIES



p. 12

Soleco engineering s.r.l. non si assume responsabilità nei casi dove si evidenzia l'errata installazione del supporto.

Soleco Engineering S.r.l. declines all responsibility in cases where the incorrect installation of the support is detected.

SERIE N - NG N - NG SERIES

CARATTERISTICHE COSTRUTTIVE

- Struttura in acciaio sabbiato, protetta da trattamento cataforetico, verniciata a polvere epossidica con viti in acciaio zincato.
- 1 molla in acciaio armonico UNI EN 10270-1 SH con superficie protetta da trattamento cataforetico.
- 2 placche di contenimento molla, formate da dischi in acciaio zincato rivestiti in elastomero termoplastico con elevata resistenza alla lacerazione, all'invecchiamento atmosferico, all'ozono, ai detersivi, ai raggi UV e alle temperature da -45°C a +110°C.
- Viti in acciaio zincato opportunamente dimensionate al carico in tabella.

A RICHIESTA

- Verniciatura delle molle a polvere poliesteri termoindurente, secondo la nostra tabella RAL;
- Golfare M12 - M16 - M20 per l'aggancio del tirante al punto fisso.

MANUFACTURING CHARACTERISTICS

- Sandblasted steel structure, protected by cathoretic treatment, epoxy powder coated with galvanized steel screws.
- 1 spring in harmonic steel UNI EN 10270-1 SH with surface protected by cathoretic treatment.
- 2 steel plates containing the spring, galvanized and coated in thermoplastic elastomer with high resistance to tearing, atmospheric aging, ozone, detergents, UV rays and temperatures from -45°C to +110°C.
- Galvanized steel screws suitably dimensioned to the load in the table.

ON REQUEST

- Painting of the spring with thermosetting polyester powder, according to our RAL chart;
- M12 - M16 - M20 eyebolt for hooking the tie rod to the fixed point.



SERIE N

- Boccole in materiale termoplastico, inserite di testa e alla base, per garantire continuità d'isolamento dalle vibrazioni soniche.

A RICHIESTA

Disponibile con struttura in acciaio INOX AISI 316 e molla in acciaio INOX AISI 302 nei seguenti modelli:

- NFW12: struttura metallica NF (p. 4)
- NV22 AISI 316 - NV305 AISI 316 - NV47 AISI 316 - NV510 AISI 316 - NV55 AISI 316: struttura metallica NV (p. 5)

Vedere il grafico a pagina 5 per le caratteristiche delle molle.

N SERIES

- Bushings in thermoplastic material, inserted at the head and at the base, to ensure continuity of isolation from sonic vibrations.

ON REQUEST

Available with AISI 316 STAINLESS steel structure and AISI 302 STAINLESS steel spring in the following models:

- NFW12: NF metal structure (p. 4)
- NV22 AISI 316 - NV305 AISI 316 - NV47 AISI 316 - NV510 AISI 316 - NV55 AISI 316: NV metal structure (p. 5)

See graphic on page 5 for the characteristics of the springs.

SERIE NG

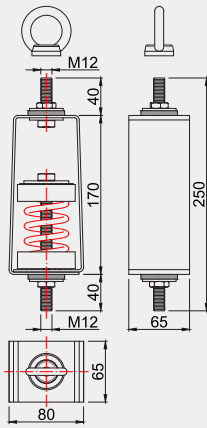
- Cuscinetto smorzatore con piastra in acciaio zincato e boccole in materiale termoplastico, inserite di testa e alla base della struttura per garantire la continuità d'isolamento dalle vibrazioni soniche anche in caso di ALTE frequenze.

NG SERIES

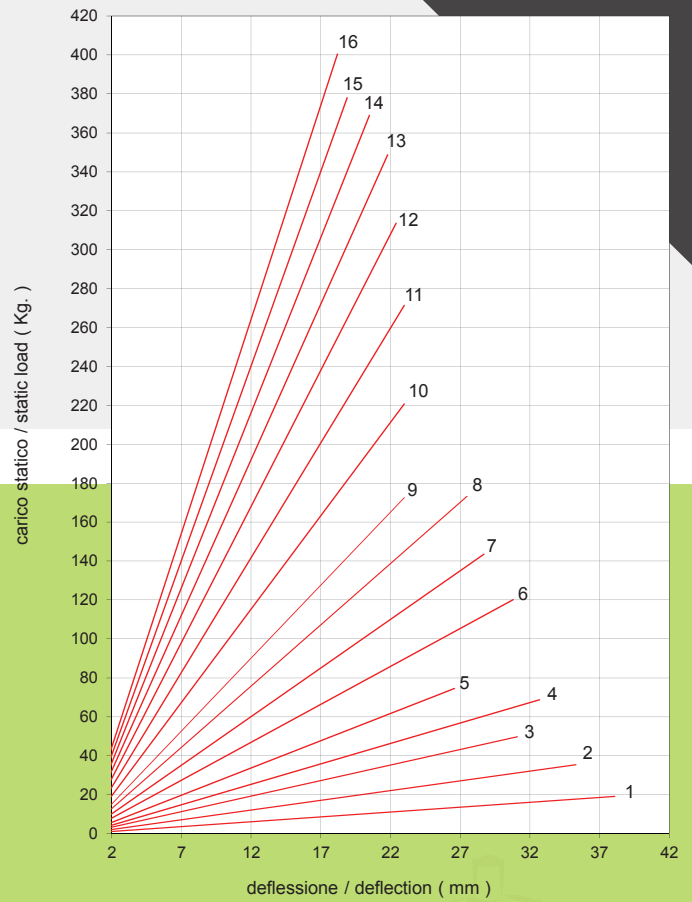
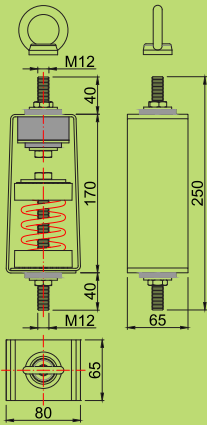
- Damper pad with galvanized steel plate and bushings made of thermoplastic material, inserted in the head and at the base of the structure to ensure the continuity of isolation from sonic vibrations even in the case of HIGH frequencies.



NF



NGF

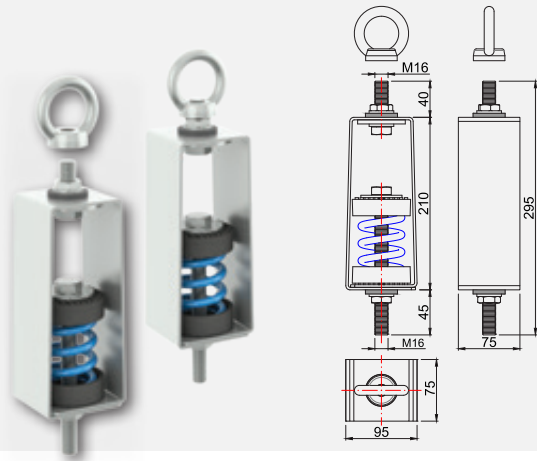


ISOLA ANCHE LE
ALTE FREQUENZE
ISOLATION OF HIGH
FREQUENCIES

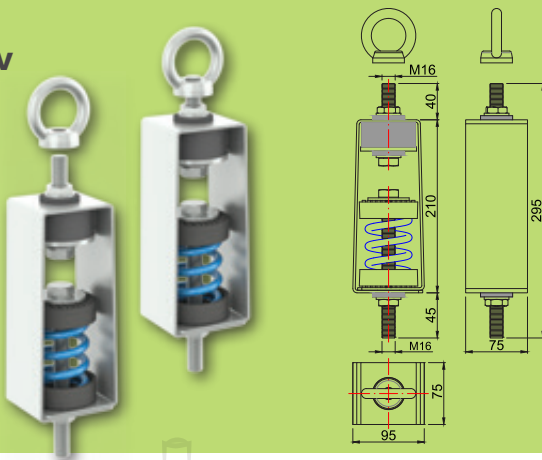
N.	MODEL	WEIGHT (kg)	k
1	NF 1	1.16	0.5
2	NF 2	1.17	1.0
3	NF 4	1.20	1.6
4	NF 5	1.24	2.1
5	NF 8	1.26	2.8
6	NF 80	1.26	3.9
7	NF 9	1.26	5.0
8	NF 90	1.28	6.3
9	NF 10	1.35	7.5
10	NF 11	1.36	9.6
11	NF 12	1.35	11.8
12	NF 13	1.39	14.0
13	NF 130	1.46	16.0
14	NF 14	1.40	18.0
15	NF 20	1.48	20.0
16	NF 22	1.47	22.0

N.	MODEL	WEIGHT (kg)	k
1	NGF 1	1.17	0.5
2	NGF 2	1.18	1.0
3	NGF 4	1.22	1.6
4	NGF 5	1.25	2.1
5	NGF 8	1.27	2.8
6	NGF 80	1.28	3.9
7	NGF 9	1.27	5.0
8	NGF 90	1.29	6.3
9	NGF 10	1.36	7.5
10	NGF 11	1.37	9.6
11	NGF 12	1.37	11.8
12	NGF 13	1.41	14.0
13	NGF 130	1.47	16.0
14	NGF 14	1.41	18.0

NW - NV



NGW - NGV

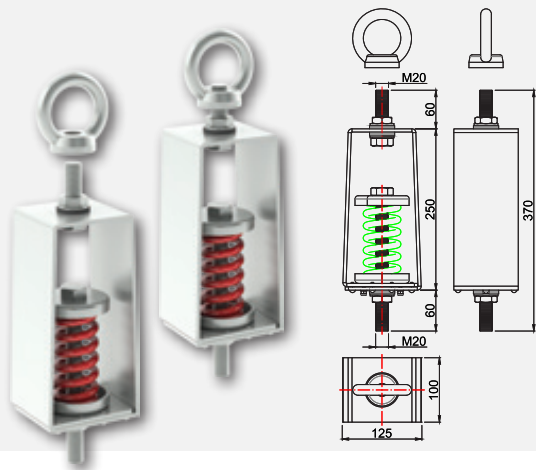


ISOLA ANCHE LE
ALTE FREQUENZE
ISOLATION OF HIGH
FREQUENCIES

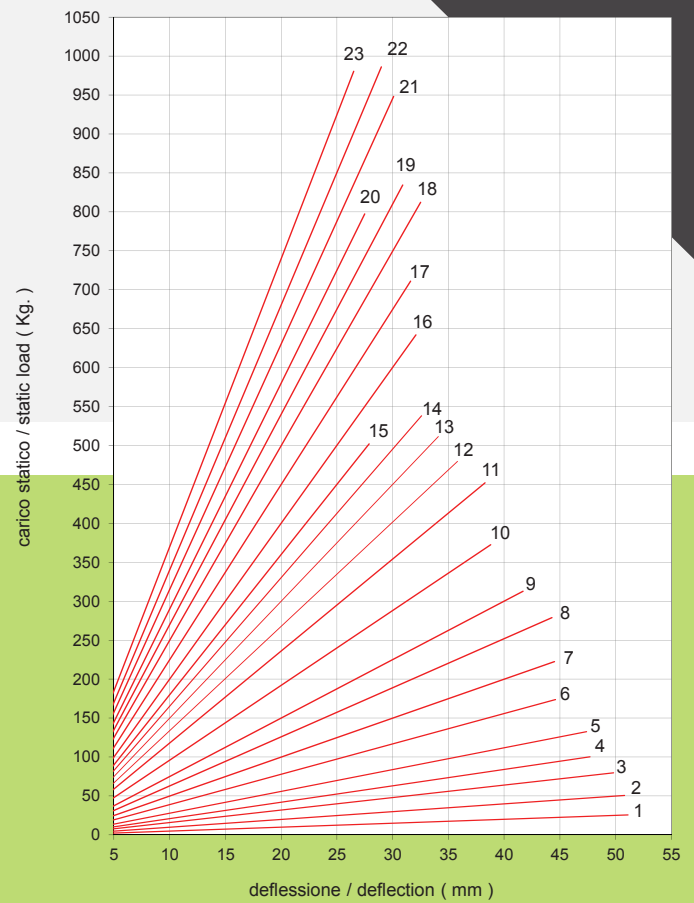
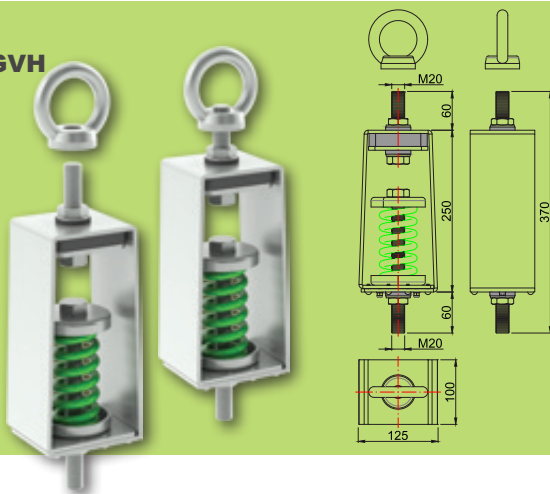
N.	MODEL	WEIGHT (kg)	k
1	NW 02	2.10	0.5
2	NW 04	2.12	1.0
3	NW 05	2.14	1.6
4	NW 06	2.17	2.1
5	NW 08	2.22	2.8
6	NW 09	2.26	3.9
7	NW 12	2.28	5.0
8	NV 14	2.33	6.3
9	NV 20	2.33	7.5
10	NV 22	2.44	9.6
11	NV 30	2.39	11.8
12	NV 300	2.44	13.4
13	NV 301	2.39	15.0
14	NV 305	2.50	16.5
15	NV 31	2.45	18.0
16	NV 33	2.53	20.0
17	NV 45	2.63	22.5
18	NV 47	2.64	25.0
19	NV 48	2.65	27.0
20	NV 50	2.57	29.0
21	NV 501	2.74	31.5
22	NV 510	2.82	34.0
23	NV 51	2.83	37.0

N.	MODEL	WEIGHT (kg)	k
1	NGW 02	2.21	0.5
2	NGW 04	2.23	1.0
3	NGW 05	2.26	1.6
4	NGW 06	2.29	2.1
5	NGW 08	2.33	2.8
6	NGW 09	2.37	3.9
7	NGW 12	2.39	5.0
8	NGV 14	2.44	6.3
9	NGV 20	2.44	7.5
10	NGV 22	2.55	9.6
11	NGV 30	2.49	11.8
12	NGV 300	2.55	13.4
13	NGV 301	2.50	15.0
14	NGV 305	2.62	16.5
15	NGV 31	2.56	18.0
16	NGV 33	2.65	20.0
17	NGV 45	2.74	22.5
18	NGV 47	2.75	25.0
19	NGV 48	2.76	27.0
20	NGV 50	2.69	29.0
21	NGV 501	2.85	31.5
22	NGV 510	2.93	34.0
23	NGV 51	2.94	37.0

NWH - NVH



NGWH - NGVH



**ISOLA ANCHE LE
ALTE FREQUENZE**
ISOLATION OF HIGH
FREQUENCIES

N.	MODEL	WEIGHT (kg)	k
1	NWH 02	4.84	0.5
2	NWH 04	4.91	1.0
3	NWH 05	4.99	1.6
4	NWH 06	5.00	2.1
5	NWH 08	5.05	2.8
6	NWH 09	5.01	3.9
7	NWH 12	5.05	5.0
8	NVH 14	5.11	6.3
9	NVH 20	5.18	7.5
10	NVH 22	5.25	9.6
11	NVH 30	5.22	11.8
12	NVH 300	5.20	13.4
13	NVH 301	5.51	15.0
14	NVH 305	5.43	16.5
15	NVH 31	5.61	18.0
16	NVH 33	5.51	20.0
17	NVH 45	5.51	22.5
18	NVH 47	5.56	25.0
19	NVH 48	5.66	27.0
20	NVH 50	5.72	29.0
21	NVH 501	5.61	31.5
22	NVH 510	5.71	34.0
23	NVH 51	5.82	37.0

N.	MODEL	WEIGHT (kg)	k
1	NGWH 02	4.12	0.5
2	NGWH 04	4.19	1.0
3	NGWH 05	4.27	1.6
4	NGWH 06	4.28	2.1
5	NGWH 08	4.33	2.8
6	NGWH 09	4.29	3.9
7	NGWH 12	4.33	5.0
8	NGVH 14	4.39	6.3
9	NGVH 20	4.46	7.5
10	NGVH 22	4.53	9.6
11	NGVH 30	4.50	11.8
12	NGVH 300	4.82	13.4
13	NGVH 301	4.79	15.0
14	NGVH 305	4.71	16.5
15	NGVH 31	4.89	18.0
16	NGVH 33	4.79	20.0
17	NGVH 45	4.79	22.5
18	NGVH 47	4.84	25.0
19	NGVH 48	4.94	27.0
20	NGVH 50	5.00	29.0
21	NGVH 501	4.89	31.5
22	NGVH 510	4.99	34.0
23	NGVH 51	5.10	37.0

SERIE NGSP2 NGSP2 SERIES

CARATTERISTICHE COSTRUTTIVE

- Struttura in acciaio sabbiato, protetta da trattamento cataforetico, verniciata a polvere epossidica con viti in acciaio zincato.
- 1 molla in acciaio armonico UNI EN 10270-1 SH con superficie protetta da trattamento cataforetico.
- 2 scodellini di contenimento e guida molla, in acciaio zincato.
- 2 guarnizioni elastiche posizionate tra la molla e gli scodellini.
- Cuscinetto smorzatore con piastra in acciaio zincato e boccole in materiale termoplastico, inserite di testa e alla base della struttura per garantire la continuità d'isolamento dalle vibrazioni sonore.
- Viti in acciaio zincato opportunamente dimensionate al carico in tabella.

A RICHIESTA

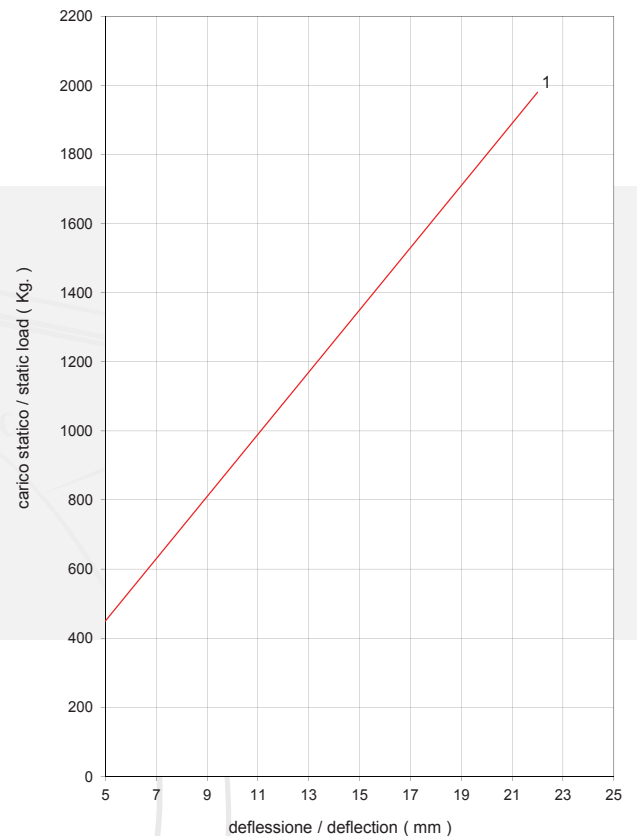
- Verniciatura delle molle a polvere poliester termoidurente, secondo la nostra tabella RAL;
- Golfare M20 per l'aggancio del tirante al punto fisso.

MANUFACTURING CHARACTERISTICS

- Sandblasted steel structure, protected by cathoretic treatment, epoxy powder coated with galvanized steel screws.
- 1 spring in harmonic steel UNI EN 10270-1 SH with surface protected by cathoretic treatment.
- 2 containment cups and spring guide, in galvanized steel.
- 2 elastic seals placed between the spring and the cups
- Damper pad with galvanized steel plate and bushings made of thermoplastic material, inserted in the head and at the base of the structure to ensure the continuity of insulation from sonic vibrations.
- Galvanized steel screws suitably dimensioned to the load in the table.

ON REQUEST

- Painting of the spring with thermosetting polyester powder, according to our RAL chart;
- M20 eyebolt for hooking the tie rod to the fixed point.



N.	MODEL	WEIGHT (kg)	k
1	NW 02	2.10	0.5

SERIE NMN NMN SERIES

CARATTERISTICHE COSTRUTTIVE

- Struttura in acciaio sabbiato, protetta da trattamento cataforetico, verniciata a polvere epossidica con viti in acciaio zincato.
- 1 molla in acciaio armonico UNI EN 10270-1 SH con superficie protetta da trattamento cataforetico.
- 2 corpi di contenimento in elastomero termoplastico con elevata resistenza alla lacerazione, all'invecchiamento atmosferico, all'ozono, ai detersivi, ai raggi UV e alle temperature da -45°C a +110°C.
- 2 viti e dadi M8 o M10 per l'ancoraggio di testa e alla base del supporto.
- Anello elastico per smorzare le frequenze soniche.

A RICHIESTA

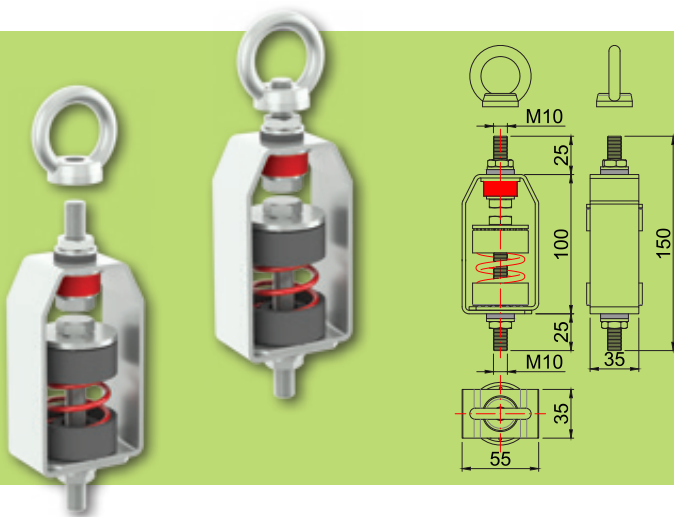
- Verniciatura delle molle a polvere poliesteri termoindurente, secondo la nostra tabella RAL;
- Golfare M8 - M10 per l'aggancio del tirante al punto fisso.

MANUFACTURING CHARACTERISTICS

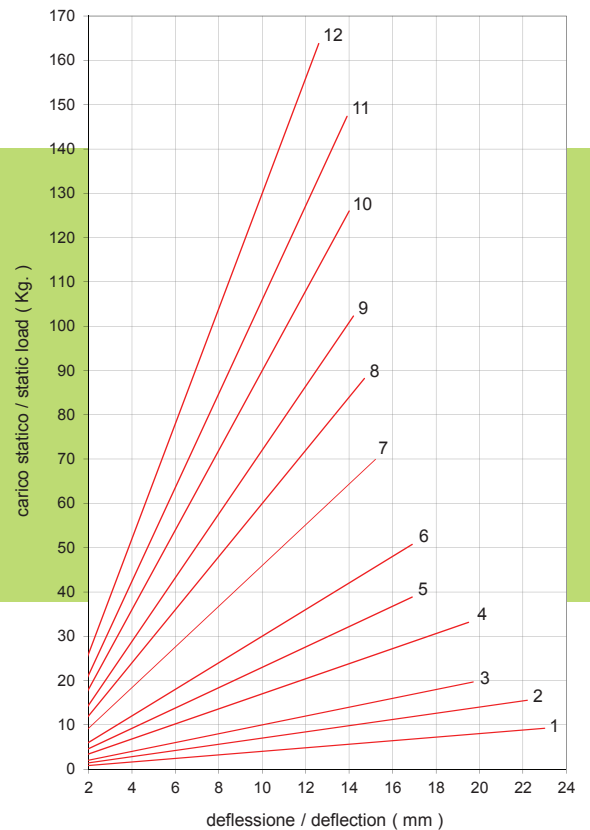
- Sandblasted steel structure, protected by cathoretic treatment, epoxy powder coated with galvanized steel screws.
- 1 spring in harmonic steel UNI EN 10270-1 SH with surface protected by cathoretic treatment.
- 2 containment bodies in thermoplastic elastomer with high resistance to tearing, atmospheric aging, ozone, detergents, UV rays and temperatures from -45°C to +110°C.
- 2 M8 or M10 screws and nuts for head anchoring and base of the support.
- Elastic ring to dampen the sonic frequencies.

ON REQUEST

- Painting of the spring with thermosetting polyester powder, according to our RAL chart;
- M8 - M10 eyebolt for hooking the tie rod to the fixed point.



N.	MODEL	WEIGHT (kg)	k
1	NMNZb 0	0.34	0.4
2	NMNZb 1	0.34	0.7
3	NMNZb 2	0.35	1.0
4	NMNZb 3	0.35	1.7
5	NMNZb 4	0.36	2.3
6	NMNZb 5	0.36	3.0
7	NMNZb 8	0.38	4.6
8	NMNxb 10	0.38	6.0
9	NMNxb 101	0.38	7.2
10	NMNxb 11	0.38	9.0
11	NMNxb 12	0.41	10.6
12	NMNxb 13	0.39	13.0



SERIE NMNa NMNa SERIES

CARATTERISTICHE COSTRUTTIVE

- Struttura in acciaio sabbiato, protetta da trattamento cataforetico, verniciata a polvere epossidica con viti in acciaio zincato.
- 1 molla in acciaio armonico UNI EN 10270-1 SH con superficie protetta da trattamento cataforetico.
- 2 corpi di contenimento in elastomero termoplastico con elevata resistenza alla lacerazione, all'invecchiamento atmosferico, all'ozono, ai detersivi, ai raggi UV e alle temperature da -45°C a +110°C.
- 2 viti e dadi M8 o M10 per l'ancoraggio di testa e alla base del supporto.
- Anello elastico per smorzare le frequenze soniche.
- Placche colorate per un'immediata identificazione del modello installato.
- Viti in acciaio zincato opportunamente dimensionate al carico in tabella.

A RICHIESTA

- Verniciatura delle molle a polvere poliestere termoindurente, secondo la nostra tabella RAL;
- Golfare M8 - M10 per l'aggancio del tirante al punto fisso.

MANUFACTURING CHARACTERISTICS

- Sandblasted steel structure, protected by cathoretic treatment, epoxy powder coated with galvanized steel screws.
- 1 spring in harmonic steel UNI EN 10270-1 SH with surface protected by cathoretic treatment.
- 2 containment bodies in thermoplastic elastomer with high resistance to tearing, atmospheric aging, ozone, detergents, UV rays and temperatures from -45°C to +110°C.
- 2 M8 or M10 screws and nuts for head anchoring and base of the support.
- Elastic ring to dampen the sonic frequencies.
- Colored plates for an immediate identification of the model installed.
- Galvanized steel screws suitably dimensioned to the load in the table.

ON REQUEST

- Painting of the spring with thermosetting polyester powder, according to our RAL chart;
- M8 - M10 eyebolt for hooking the tie rod to the fixed point.

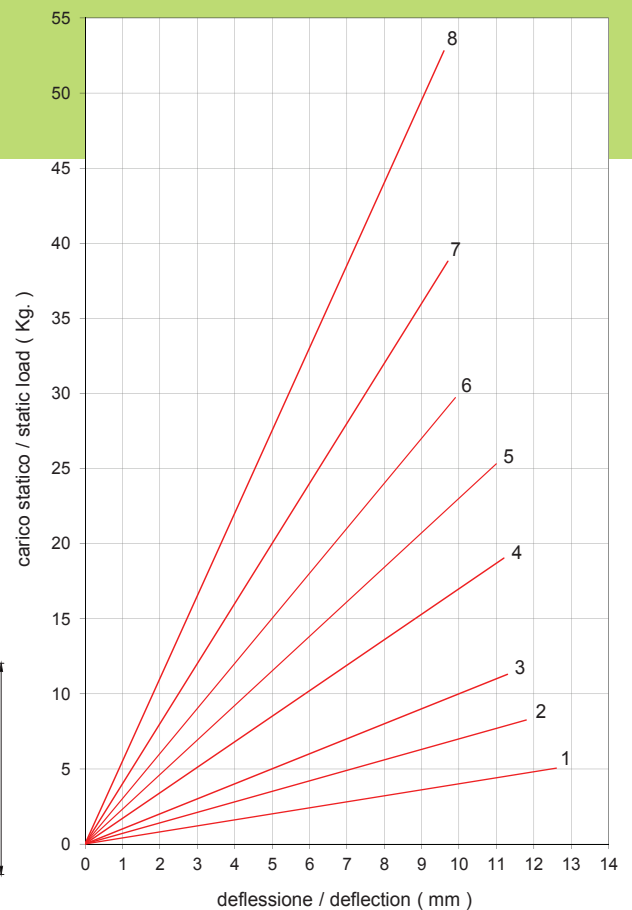
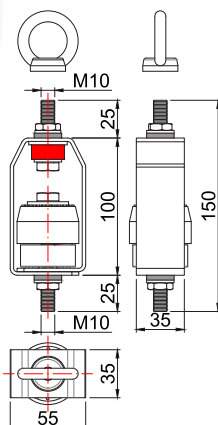
NMNaZc 0 NMNaZc 1 NMNaZc 2 NMNaZc 3

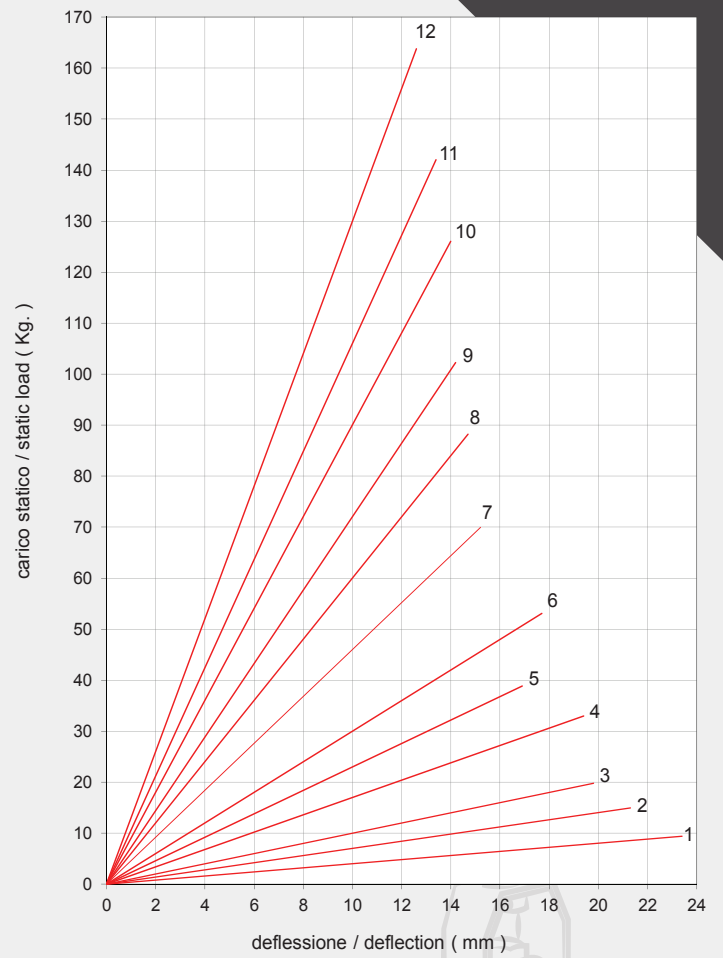


NMNaZc 4 NMNaZc 5 NMNaZc 8 NMNaXc 10

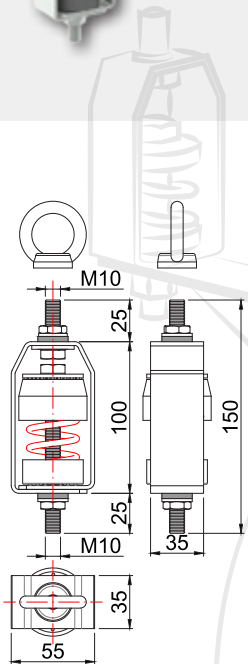


N.	MODEL	WEIGHT (kg)	k
1	NMNaZc 0	0.33	0.4
2	NMNaZc 1	0.34	0.7
3	NMNaZc 2	0.34	1.0
4	NMNaZc 3	0.34	1.7
5	NMNaZc 4	0.34	2.3
6	NMNaZc 5	0.35	3.0
7	NMNaZc 8	0.35	4.0
8	NMNaXc 10	0.35	5.5





MOLLA PROTETTA E IDENTIFICAZIONE IMMEDIATA CON IL COLORE
PROTECTED SPRING AND IDENTIFICATION THROUGH THE COLOUR



N.	MODEL	WEIGHT (kg)	k
1	NMNaZb 0	0.33	0.4
2	NMNaZb 1	0.33	0.7
3	NMNaZb 2	0.33	1.0
4	NMNaZb 3	0.35	1.7
5	NMNaZb 4	0.33	2.3
6	NMNaZb 5	0.33	3.0
7	NMNaZb 8	0.33	4.6
8	NMNaXb 10	0.33	6.0
9	NMNaXb 101	0.33	7.2
10	NMNaXb 11	0.33	9.0
11	NMNaXb 12	0.33	10.6
12	NMNaXb 13	0.33	13.0

SERIE NMNT NMNT SERIES



CARATTERISTICHE COSTRUTTIVE

- Struttura in acciaio sabbato, protetta da trattamento cataforetico, verniciata a polvere epossidica con viti in acciaio zincato.
- Placca superiore realizzata con disco in acciaio UNI EN 10111 DD13, zincato secondo UNI ISO 2081 Fe/Zn 12c1A, con vite M8 - M10.
- Le placche sono rivestite in elastomero termoplastico con elevata resistenza alla lacerazione, all'invecchiamento atmosferico, all'ozono, ai detersivi, ai raggi UV e alle temperature da -45°C a +110°C.
- 2 viti e dadi M8 o M10 per l'ancoraggio di testa e alla base del supporto.
- Anello elastico per smorzare le frequenze soniche.

A RICHIESTA

- Golfare M8 - M10 per l'aggancio del tirante al punto fisso.

MANUFACTURING CHARACTERISTICS

- Sandblasted steel structure, protected by cathoretic treatment, epoxy powder coated with galvanized steel screws.
- Upper plate made of a steel disc, galvanized according to UNI ISO 2081 Fe/Zn 12c1Awhite with M8 - M10 screw.
- The thermoplastic elastomer, used to produce the plate and the base, has high resistance to tearing, atmospheric aging, ozone, detergents, UV rays and temperatures from -45°C to +110°C.
- 2 M8 or M10 screws and nuts for head anchoring and base of the support.
- Elastic ring to dampen the sonic frequencies.

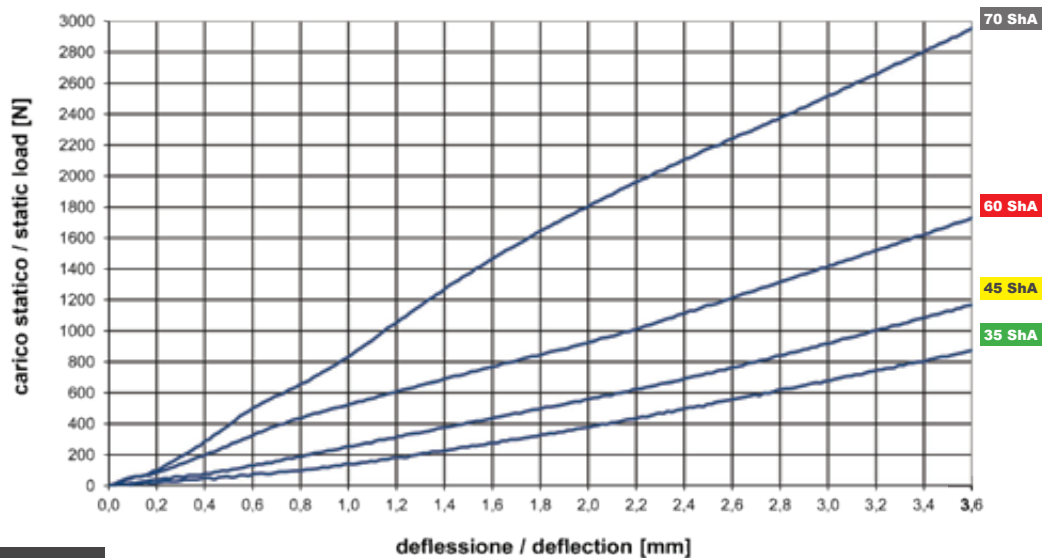
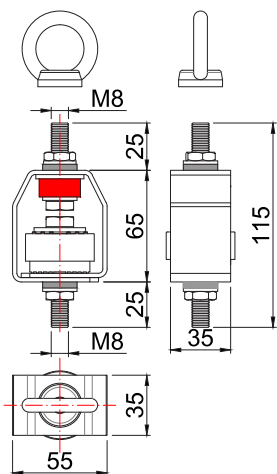
ON REQUEST

- M8 - M10 eyebolt for hooking the tie rod to the fixed point.

NMNT 35 ShA NMNT 45 ShA NMNT 60 ShA NMNT 70 ShA



ADATTO PER LE
ALTE FREQUENZE
SUITABLE FOR
HIGH FREQUENCIES



N.	MODEL	WEIGHT (kg)	k
1	NMNT 35 ShA	0.23	3.0
2	NMNT 45 ShA	0.23	3.0
3	NMNT 60 ShA	0.23	3.0
4	NMNT 70 ShA	0.23	3.0

SERIE T T SERIES

CARATTERISTICHE COSTRUTTIVE

- 1 molla in acciaio armonico UNI EN 10270-1 SH con superficie protetta da trattamento cataforetico.
- 1 vite e un cavallotto in acciaio zincato, dimensionati per i carichi in tabella, passanti all'interno della molla la quale viene bloccata tra due dischi guida in acciaio zincato.
- 2 guarnizioni elastiche, posizionate tra la molla e i dischi di contenimento.

A RICHIESTA

- Verniciatura delle molle a polvere poliesteri termoindurente, secondo la nostra tabella RAL;
- Golfare M10 - M12 per l'aggancio del tirante al punto fisso.

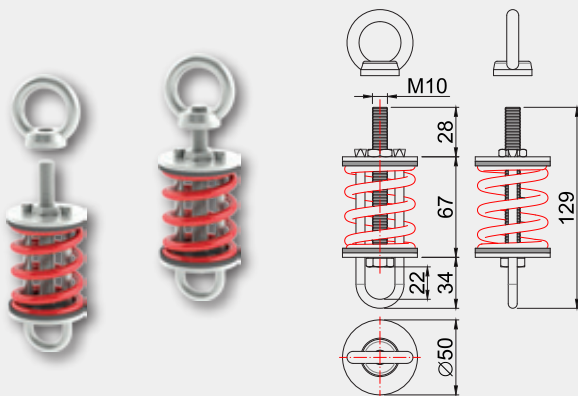
MANUFACTURING CHARACTERISTICS

- 1 spring in harmonic steel UNI EN 10270-1 SH with surface protected by cathophoretic treatment.
- 1 screw and a galvanized steel U-bolt, sized for the loads in the table, passing inside the spring which is locked between two galvanized steel guide discs.
- 2 elastic gaskets, positioned between the spring and the containment disks.

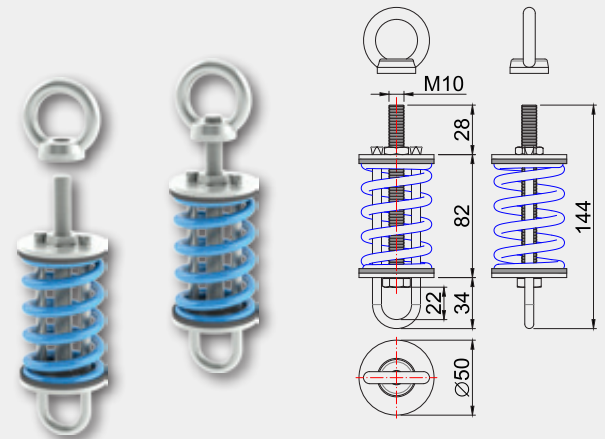
ON REQUEST

- Painting of the spring with thermosetting polyester powder, according to our RAL chart;
- M8 - M12 eyebolt for hooking the tie rod to the fixed point.

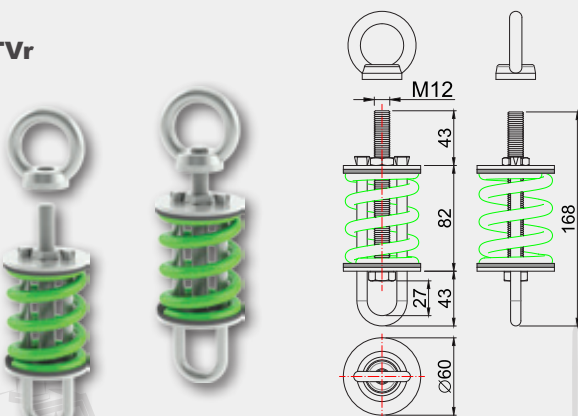
TFr



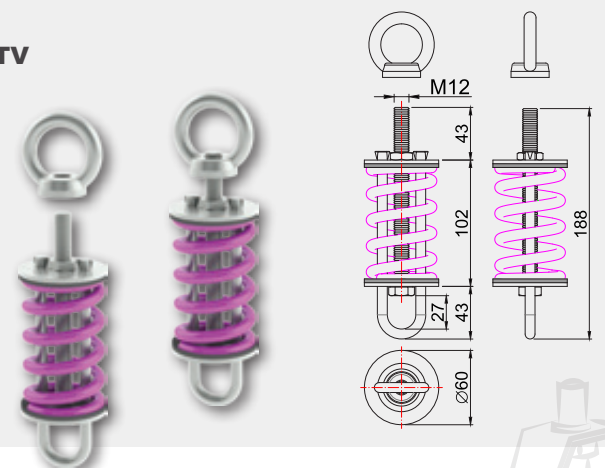
TF

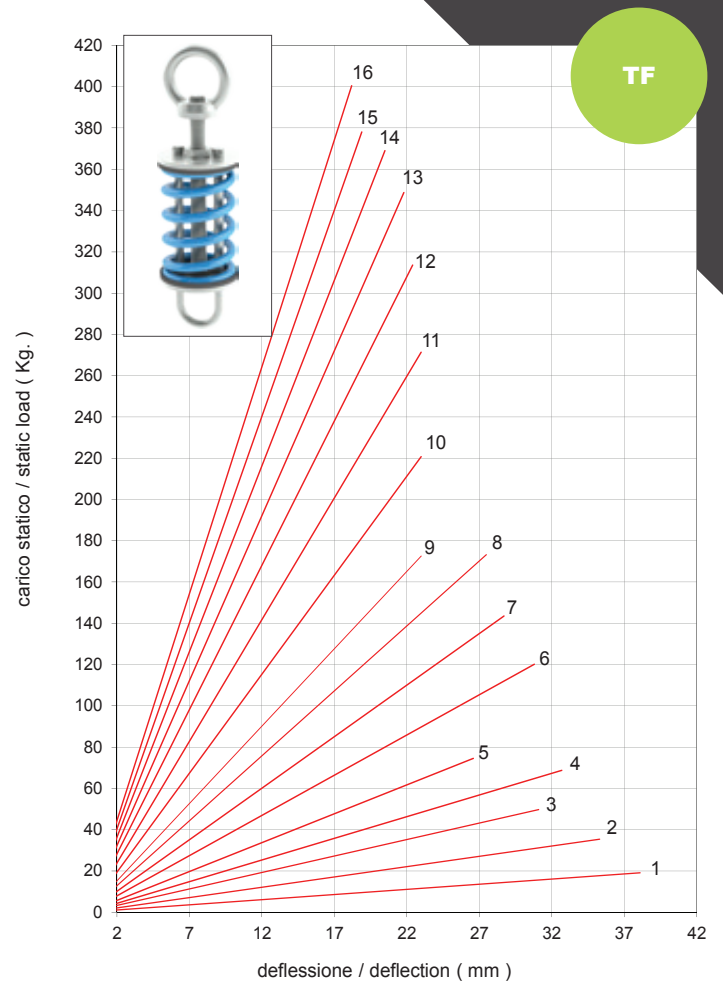
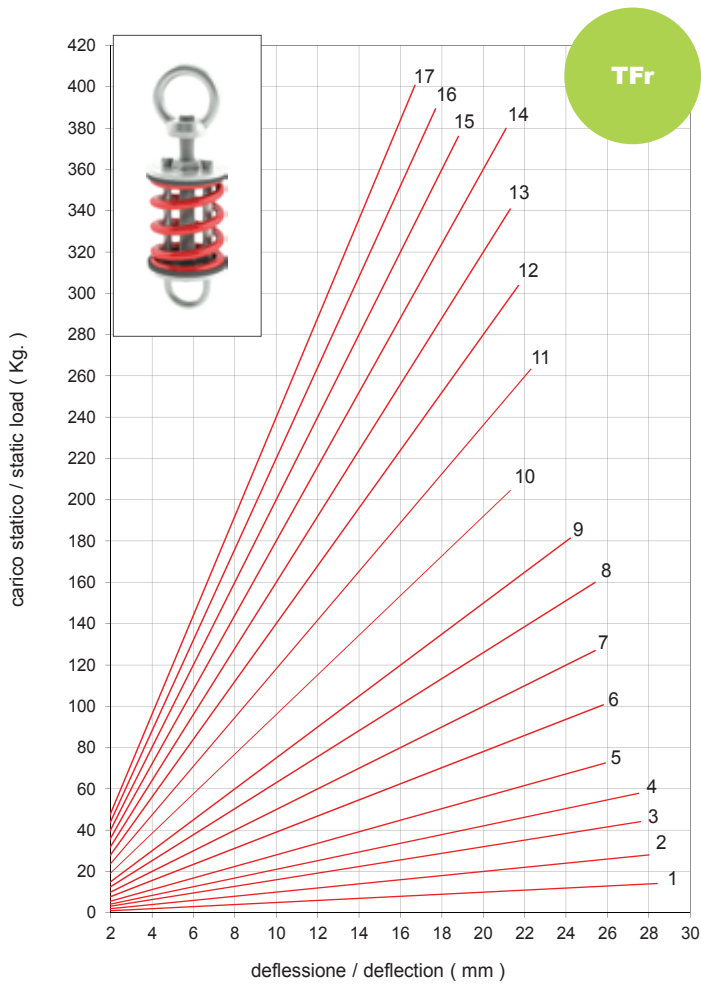


TWr - TVr



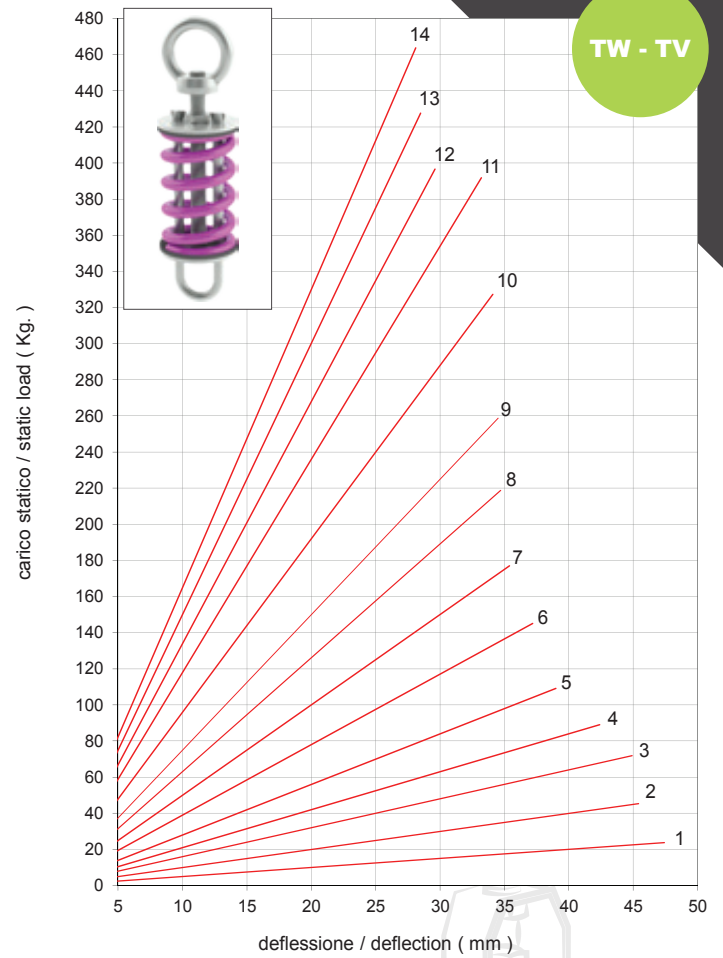
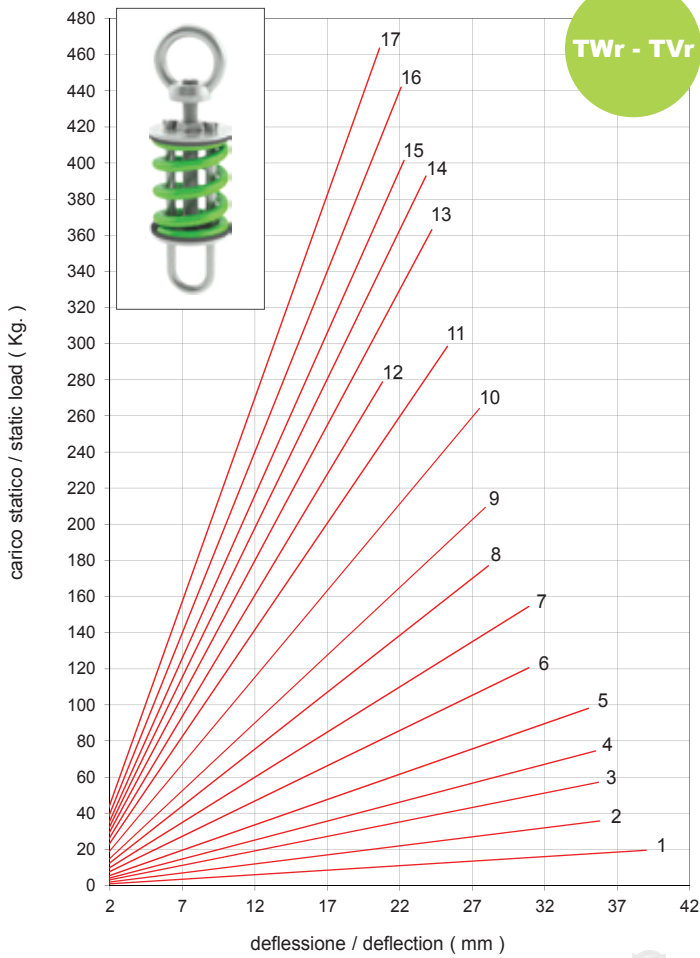
TW - TV





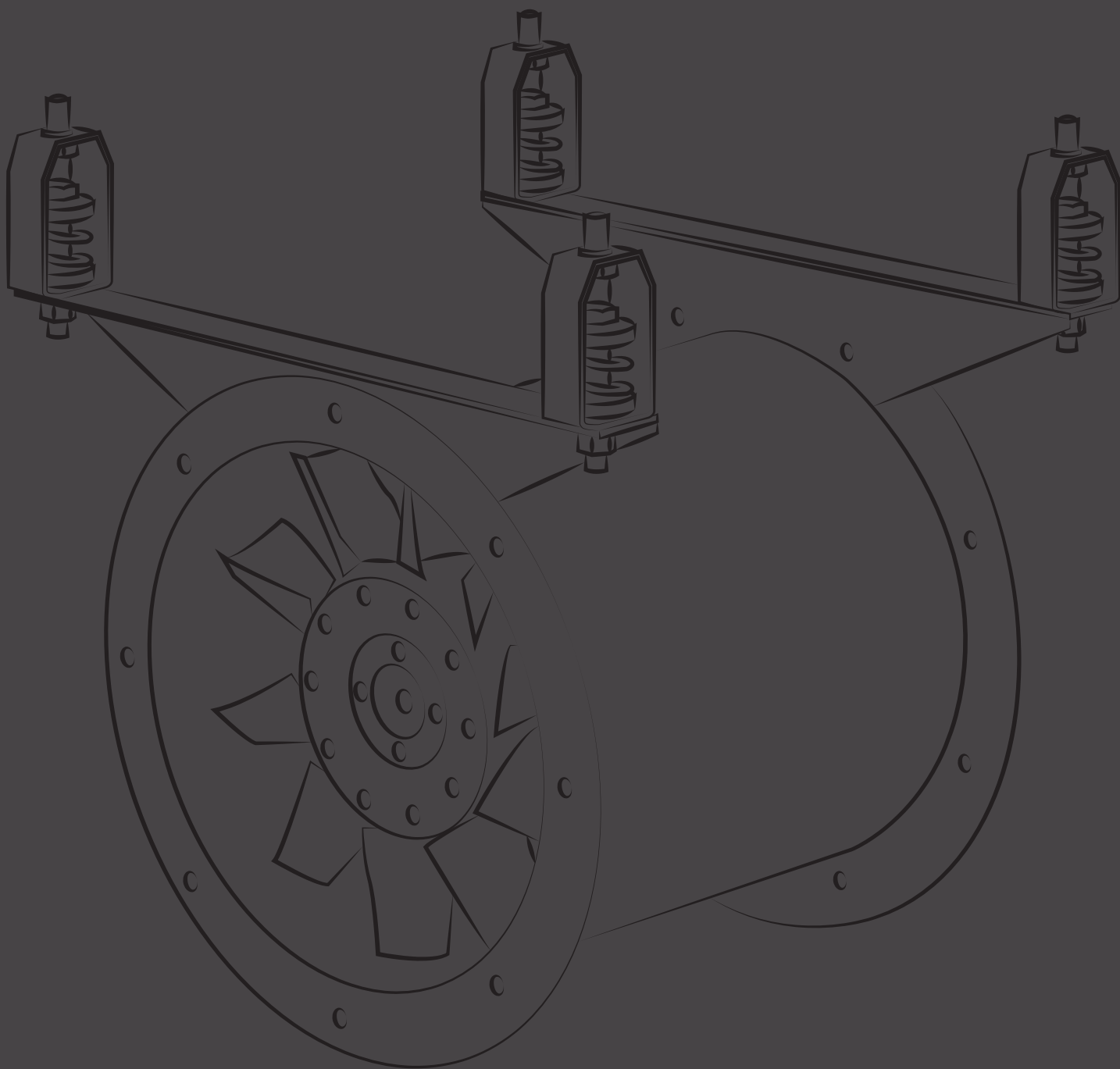
N.	MODEL	WEIGHT (kg)	k
1	TFr 1	0.20	0.5
2	TFr 2	0.21	1.0
3	TFr 4	0.23	1.6
4	TFr 5	0.23	2.1
5	TFr 8	0.26	2.8
6	TFr 80	0.26	3.9
7	TFr 9	0.28	5.0
8	TFr 90	0.28	6.3
9	TFr 10	0.29	7.5
10	TFr 11	0.31	9.6
11	TFr 12	0.32	11.8
12	TFr 13	0.32	14.0
13	TFr 130	0.35	16.0
14	TFr 14	0.34	18.0
15	TFr 20	0.39	20.0
16	TFr 22	0.38	22.0
17	TFr 30	0.34	24.0

N.	MODEL	WEIGHT (kg)	k
1	TF 1	0.22	0.5
2	TF 2	0.23	1.0
3	TF 4	0.26	1.6
4	TF 5	0.30	2.1
5	TF 8	0.32	2.8
6	TF 80	0.32	3.9
7	TF 9	0.32	5.0
8	TF 90	0.34	6.3
9	TF 10	0.41	7.5
10	TF 11	0.42	9.6
11	TF 12	0.41	11.8
12	TF 13	0.45	14.0
13	TF 130	0.52	16.0
14	TF 14	0.46	18.0
15	TF 20	0.54	20.0
16	TF 22	0.53	22.0



N.	MODEL	WEIGHT (kg)	k
1	TWr 02	0.40	0.5
2	TWr 04	0.41	1.0
3	TWr 05	0.42	1.6
4	TWr 06	0.50	2.1
5	TWr 08	0.45	2.8
6	TWr 09	0.48	3.9
7	TWr 12	0.51	5.0
8	TVr 14	0.54	6.3
9	TVr 20	0.57	7.5
10	TVr 22	0.59	9.6
11	TVr 30	0.62	11.8
12	TVr 300	0.63	13.4
13	TVr 301	0.65	15.0
14	TVr 305	0.67	16.5
15	TVr 31	0.68	18.0
16	TVr 33	0.64	20.0
17	TVr 45	0.72	22.5

N.	MODEL	WEIGHT (kg)	k
1	TW 02	0.44	0.5
2	TW 04	0.46	1.0
3	TW 05	0.49	1.6
4	TW 06	0.52	2.1
5	TW 08	0.56	2.8
6	TW 09	0.60	3.9
7	TW 12	0.62	5.0
8	TV 14	0.67	6.3
9	TV 20	0.67	7.5
10	TV 22	0.78	9.6
11	TV 30	0.72	11.8
12	TV 300	0.78	13.4
13	TV 301	0.73	15.0
14	TV 305	0.85	16.5



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