

RS PRO Wire Rope Isolators are composed of two pairs of bars, joined together by a connecting cable with a helical winding (loop).

They are generally used for isolating vibrations and shock absorption, where axial holding force, resistance to compression and shear force is required.

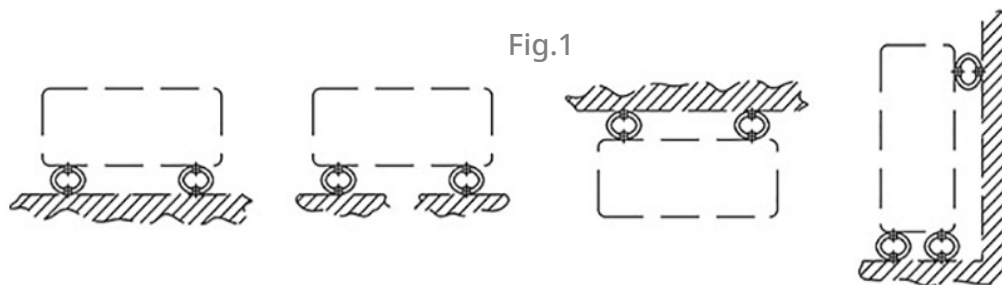
Vibration can cause:

- Malfunctioning and reduction of the machine lifespan and/or of the adjacent one;
- damage to health;
- noise.

They are particularly suitable for use with HVAC, pumps, purification and desalination plants, instrumentation panels, rail, naval and military industry. Some examples of application are shown in Fig.1.



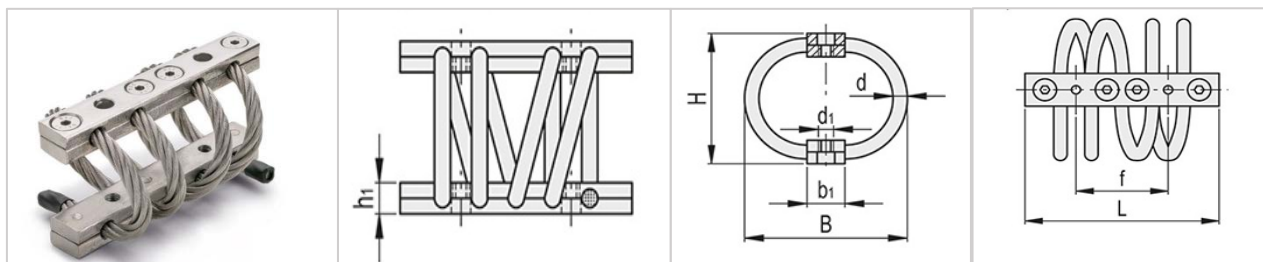
Fig.1



Product code	Compression resistance				Axial holding force				Shear resistance			
	Min load (N)	Max load (N)	Min deflection (mm)	Max. deflection (mm)	Min load (N)	Max load (N)	Min deflection (mm)	Max. deflection (mm)	Min load (N)	Max load (N)	Min deflection (mm)	Max. deflection (mm)
629654	200	300	2	4	200	300	2	3	70	150	3	7
629655	70	140	2	7	70	140	3	6	30	70	5	13
629656	80	180	2	9	80	180	2	8	30	90	5	17
629657	850	1500	2	5	850	1500	1	3	400	900	4	11
629658	300	630	2	7	300	630	2	6	150	300	5	14
629659	1000	2500	2	8	1000	2500	2	5	500	1000	5	13
629660	200	450	2	6	200	450	2	5	100	230	3	11
629661	600	1000	2	4	600	1000	2	3	300	600	3	8
629662	1500	2500	2	5	1500	2500	1	3	750	1400	5	11
629663	850	1500	4	11	850	1500	4	11	300	800	6	21
629664	1500	3000	4	11	1500	3000	3	7	600	1500	7	19

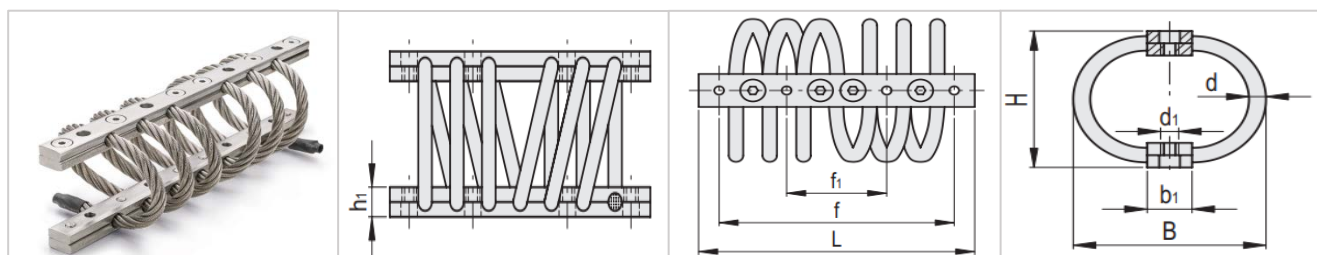
The min. load is the value below which the vibration damper is not able to isolate the vibrations as it would be too rigid.
The max. load is the value beyond which some type of failure may occur compromising the functionality of the vibration damper.
The min. deflection is the compression of the vibration-damping support corresponding to the min. load.
The max. deflection is the compression of the vibration-damping support corresponding to the max. load.

Four Coils



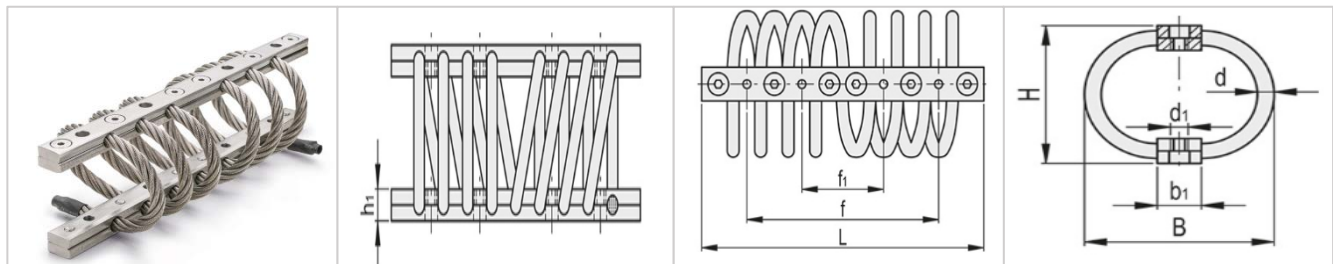
Product code	B	L	H	D	d1	b1	h1	f	Weight (g)
629654	61 ±3	91	51 ±3	6	M6	15	12	46	370
629655	90 ±4	91	65 ±4	6	M6	15	12	46	420
629656	110 ±4	91	79 ±4	7	M6	15	12	46	500
629657	80 ±4	155	68 ±4	10	M8	25	16	83	1280
629658	108 ±4	155	89 ±4	10	M8	25	16	83	1430
629659	101 ±4	155	80 ±4	13	M8	25	20	83	1760

Six Coils



Product code	B	L	H	D	d1	b1	h1	f	f1	Weight (g)
629660	82 ±4	200	60 ±4	7	M6	15	12	155	66	870
629661	67 ±4	200	53 ±4	8	M6	15	12	155	66	870
629662	80 ±4	169	68 ±4	10	M6	25	16	155	66	1490
629663	135 ±5	178	110 ±5	13	M6	25	10	155,5	66,6	2610

Eight Coils



Product code	B	L	H	D	d1	b1	h1	f	f1	Weight (g)
629664	118 ±4	222	95 ±4	13	M6	25	20	66	155	3040

High performance vibration dampers - Features and guidelines for the choice

General information

High performance vibration dampers are used in compliance with safety regulations on vibrations and noise (DL 81/2008). The use of this product range allows: to prevent damage to structures, to preserve the correct operation of sensitive equipment, to reduce noise.

Features

- High static deflection, low resonance frequency and high vibration isolation.
- High damping, also suitable for machines with imbalances.
- Suitable for use with compression, traction and shear.
- Suitable for applications where impacts and shocks may occur.
- Structure fully made out of stainless steel, resistant to flames, high temperatures and corrosion.

Guidelines for the choice

Analysis of the static tests to select the appropriate vibration damper.

Basic data required:

- The static load applied to each vibration damping element (acting on each support point).
- Disturbing frequency to be reduced and the desired isolation percentage.

How to choose the vibration-damping element:

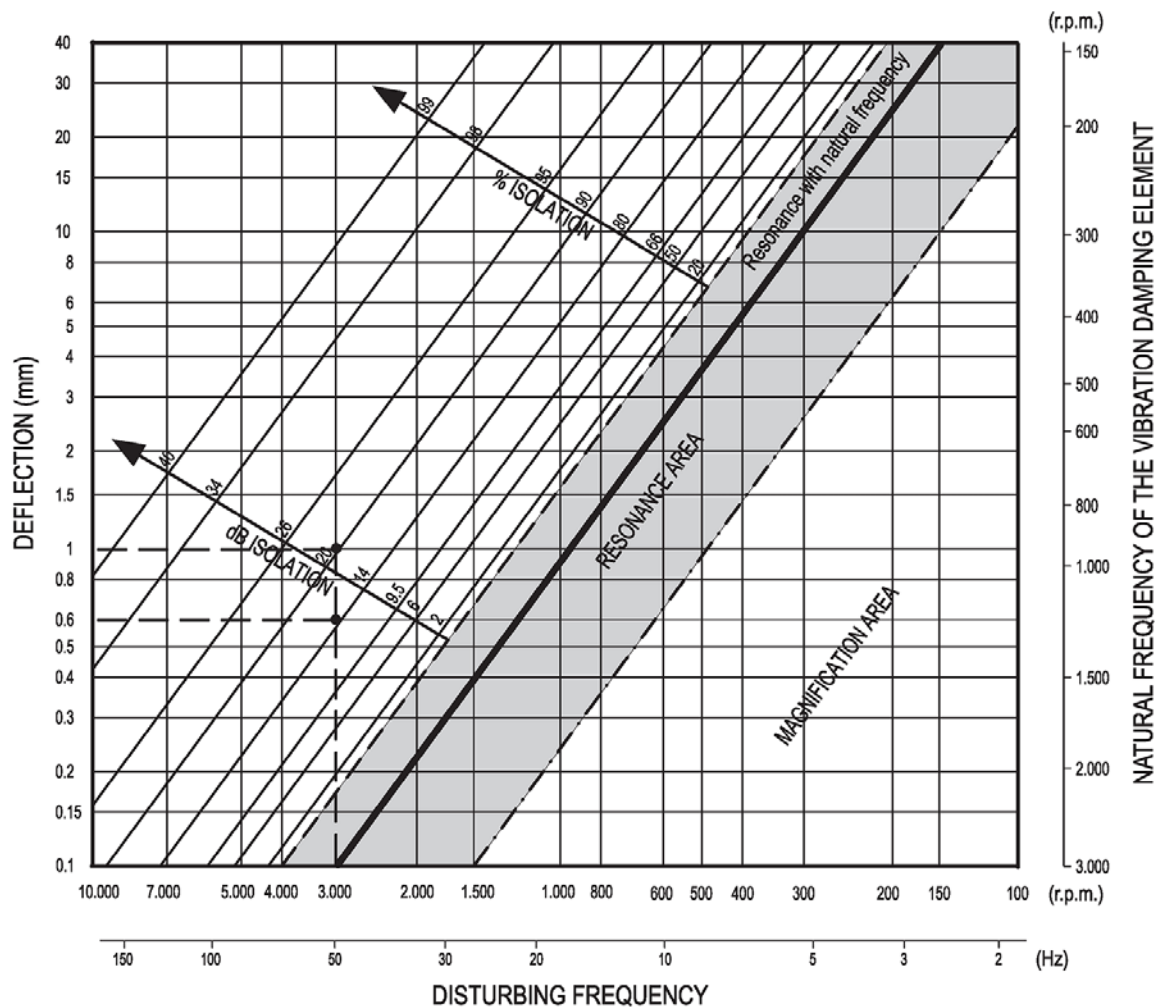
- With reference to the diagram for the check of the isolation degree, locate the corresponding static deflection required to obtain the desired isolation.
- Select the product with the required static deflection depending on acting load.

Example:

Consider an application with the following features:

- Static load on each support: 1400 N
- Frequency to be isolated: 1.200 rpm = 20 Hz
- Required isolation: 90% at 20 Hz

Diagram for checking the isolation degree of the vibration-damping element



Purpose of the Diagram

- To evaluate the isolation performance of vibration-damping elements across a range of disturbing frequencies.
- Helps identify regions of resonance, magnification, and effective isolation.

Axes

- X-axis: Disturbing frequency in Hz (and r.p.m.), logarithmic scale from 10 to 10,000 Hz.
- Y-axis: Deflection in mm and natural frequency of the damping element in Hz (and r.p.m.), logarithmic scale from 0.1 to 30 mm.

Key Regions and Lines

- Resonance Peak: Central thick line indicating the point where the system resonates—amplification of vibrations occurs here.
- Magnification Peak: Shaded area around the resonance peak where vibration magnification is significant.
- Isolation Zones: Diagonal lines labelled with isolation percentages (e.g., 80%, 90%) show where the damping element effectively reduces vibration.
- % Isolation Arrow: Points toward higher frequencies, indicating improved isolation performance at higher disturbing frequencies.

Interpretation

- Below resonance: System may amplify vibrations (magnification zone).
- At resonance: Maximum amplification—avoid operating in this range.
- Above resonance: Effective vibration isolation—higher % isolation achieved.

Simplified diagram for checking the isolation degree of a vibration damper

Deflec. [mm]	f0v [Hz]	Isolation %																			
1	15.9	-1%	-5%	-11%	-21%	-38%	-65%	-116%	-235%	-795%	-935%	-73%	32%	70%	89%	94%	96%				
1.5	13.0	-2%	-7%	-17%	-36%	-70%	-145%	-416%	-1795%	-201%	-55%	27%	63%	82%	93%	96%	98%				
2	11.3	-2%	-10%	-25%	-54%	-121%	-375%	-1239%	-148%	-29%	16%	54%	75%	87%	95%	97%	98%				
2.5	10.1	-3%	-12%	-33%	-78%	-218%	-756%	-191%	-33%	18%	43%	66%	81%	90%	96%	98%	99%				
3	9.2	-3%	-15%	-42%	-111%	-463%	-442%	-63%	10%	40%	56%	73%	84%	92%	97%	98%	99%				
4	8.0	-5%	-21%	-65%	-235%	-935%	-73%	13%	45%	61%	70%	81%	89%	94%	97%	99%	99%				
5	7.1	-6%	-28%	-97%	-715%	-170%	-3%	41%	60%	71%	78%	85%	91%	95%	98%	99%	99%				
6	6.5	-7%	-36%	-145%	-1795%	-55%	27%	55%	69%	77%	82%	88%	93%	96%	98%	99%	99%				
7	6.0	-8%	-44%	-223%	-338%	-9%	43%	64%	74%	81%	85%	90%	94%	97%	99%	99%	99%				
8	5.6	-10%	-54%	-375%	-148%	16%	54%	70%	78%	84%	87%	91%	95%	97%	99%	99%	99%	Max			
10	5.0	-12%	-78%	-756%	-33%	43%	66%	77%	83%	87%	90%	93%	96%	98%	99%	99%	99%	Max			
12	4.6	-15%	-111%	-442%	10%	56%	73%	82%	87%	90%	92%	94%	97%	98%	99%	99%	Max	Max			
14	4.3	-18%	-159%	-162%	31%	65%	78%	85%	89%	91%	93%	95%	97%	98%	99%	99%	Max	Max			
16	4.0	-21%	-235%	-73%	45%	70%	81%	87%	90%	92%	94%	96%	97%	99%	99%	99%	Max	Max			
18	3.8	-25%	-375%	-29%	54%	75%	84%	88%	91%	93%	95%	96%	98%	99%	99%	99%	Max	Max			
20	3.6	-28%	-715%	-3%	60%	78%	85%	90%	92%	94%	95%	97%	98%	99%	99%	99%	Max	Max			
22	3.4	-32%	-275%	15%	65%	80%	87%	91%	93%	95%	96%	97%	98%	99%	99%	99%	Max	Max			
25	3.2	-38%	-935%	32%	70%	83%	89%	92%	94%	95%	96%	97%	98%	99%	99%	99%	Max	Max	Max		
30	2.9	-49%	-217%	49%	77%	86%	91%	93%	95%	96%	97%	98%	99%	99%	99%	99%	Max	Max	Max		
32	2.8	-54%	-148%	54%	78%	87%	91%	94%	95%	96%	97%	98%	99%	99%	99%	99%	Max	Max	Max		
35	2.7	-62%	-87%	59%	81%	88%	92%	94%	96%	97%	97%	98%	99%	99%	99%	99%	Max	Max	Max		
40	2.5	-78%	-33%	66%	83%	90%	93%	95%	96%	97%	98%	98%	99%	99%	99%	99%	Max	Max	Max		
45	2.4	-97%	-3%	71%	85%	91%	94%	96%	97%	97%	98%	99%	99%	99%	99%	99%	Max	Max	Max		
50	2.3	-121%	16%	75%	87%	92%	95%	96%	97%	98%	98%	99%	99%	99%	99%	99%	Max	Max	Max		
55	2.1	-152%	29%	77%	88%	93%	95%	96%	97%	98%	98%	99%	99%	99%	99%	99%	Max	Max	Max		
60	2.1	-192%	39%	80%	90%	94%	96%	97%	98%	98%	98%	99%	99%	99%	99%	99%	Max	Max	Max		
70	1.9	-330%	52%	83%	91%	95%	96%	97%	98%	98%	99%	99%	99%	99%	99%	99%	Max	Max	Max		
80	1.8	-715%	60%	85%	92%	95%	97%	98%	98%	99%	99%	99%	99%	99%	99%	99%	Max	Max	Max		
90	1.7	-756%	66%	87%	93%	96%	97%	98%	98%	99%	99%	99%	99%	99%	99%	99%	Max	Max	Max		
100	1.6	-935%	70%	89%	94%	96%	97%	98%	99%	99%	99%	99%	99%	99%	99%	99%	Max	Max	Max		
150	1.3	-55%	82%	93%	96%	98%	98%	99%	99%	99%	99%	99%	99%	99%	99%	99%	Max	Max	Max		
200	1.1	16%	87%	95%	97%	98%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	Max	Max	Max		
RPM	100	200	300	400	500	600	700	800	900	1000	1200	1500	2000	3000	4000	5000					
[Hz]	1.7	3.3	5.0	6.7	8.3	10.0	11.7	13.3	15.0	16.7	20.0	25.0	33.3	50.0	66.7	83.3					

No isolation	Minimum isolation	Average isolation
Resonance	Modest isolation	High isolation