

# METALLIC CUSHIONS

Natural frequency : (1)  
12 to 25 Hz



## DESCRIPTION

Metallic cushions are made from drawn, woven stainless steel wire that is compressed into a geometric shape.

The Vibrachoc range has more than 1000 standard metallic cushions of various sizes and characteristics.

As metallic cushions are easy to create, custom shapes and characteristics can be developed and produced on request.

## APPLICATIONS

Standard or custom metallic cushions can be used for many industrial applications because they are naturally resistant to grease, oil, water, etc and withstand temperatures from - 70°C to + 300°C.

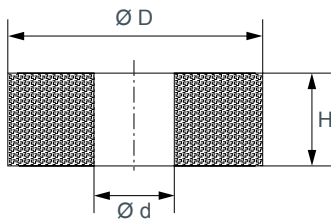
The static stiffness of the metallic cushion ensures progressive stiffening and maintains a constant natural frequency for a very wide range of loads within a small space.

Their natural frequency of between 12 and 25 Hz and damping of 15 to 20% make them suitable for mounting rotating machines with a rotation speed over 2000 rpm.

(1) Natural frequencies with max/min loads, see : OPERATING CHARACTERISTICS.

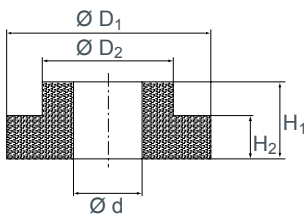
## DIMENSIONS

### SIMPLE CYLINDRICAL SHAPE



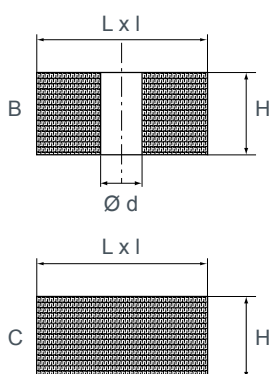
Reference	Ø Ext. D (mm)	Ø Int. d (mm)	Height H (mm)	Load range (daN)	Dynam. force (daN)	Natural frequency (Hz)
V3CNVI653-A02	33	14	19	75 to 300	900	15 to 22
CH440-A02	72	50	21	50 to 350	1 000	15 to 20
CH438-A02	72	51	10	50 to 350	1 000	15 to 25
VI168-B	53	16,5	14	20 to 250	1 250	15 to 22
VI771-A02	40	15	20	150 to 550	1 700	15 to 20
MC345-A02	72	34	21	300 to 1 300	5 000	15 to 20
CH265-A02	70	34	10,5	300 to 1 300	5 000	15 to 25
CH264-A02	116	36	11	700 to 2 700	8 000	15 to 25
VI771-B02	40	15	11,5	750 to 3 000	9 000	15 to 25
CH281-A02	119	34	21,5	700 to 2 700	12 500	15 to 20
CH472-A02	156	72	10,5	2 000 to 7 000	21 000	15 to 25
CH283-A02	159	70	21,5	250 to 7 000	22 500	15 to 20
VI996-A02	203	121	21	250 to 7 000	22 500	15 to 20

### CYLINDRICAL SHOULDERED SHAPE



Reference	Ø D1 (mm)	Ø D2 (mm)	Ø int. d (mm)	H <sub>1</sub> (mm)	H <sub>2</sub> (mm)	Load range (daN)	Dynam. force (daN)	Natural frequency (Hz)
VJ148-A05	72	48	33	25	21	50 to 350	1 050	15 to 20
V3CNCH682-A05	69,5	52	34	30	23,5	50 to 300	900	15 to 20
V3CNVJ044-A05	52,6	26,5	16	21,5	14	25 to 200	600	15 to 22
V3CNVJ102-A05	49	27,5	18	30	24,5	20 to 100	300	15 to 20
VJ164-A05	34,5	20,5	12,5	14	10	15 à 100	300	20 to 25

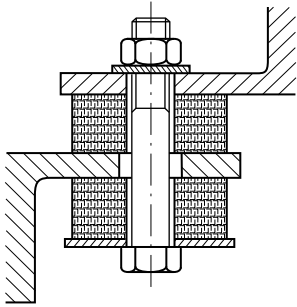
### RECTANGULAR SHAPE



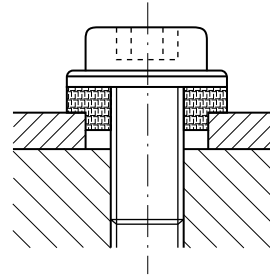
Reference	Shape	Dim. L x l (mm)	Ø int. d (mm)	H (mm)	Load range (daN)	Dynam. force (daN)	Natural frequency (Hz)
VI786-A06*	B	53 x 49	8	25	30 to 200	800	12 to 18
VI830-B06	C	28 x 28	-	15	50 to 300	1 000	17 to 22
VI700-A06*	C	50 x 47	-	25	75 to 400	1 200	12 to 18
VI700-B06*	C	50 x 47	-	16	75 to 400	1 600	17 to 22
CH422-A06	C	45 x 36	-	16	400 to 1 500	5 000	20 to 25
V3CNVJ034-A06	B	100 x 100	20	34	2 000 to 7 000	20 000	12 to 18
VJ149-A06	B	28 x 28	10,5	10	25 to 150	450	20 to 25
V3CNVJ006-A06	B	157 x 157	30	25	500 to 5 000	15 000	13 to 18

\* : References detailed in the following pages

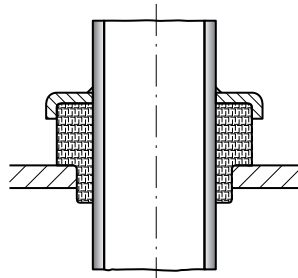
## ASSEMBLY EXAMPLES



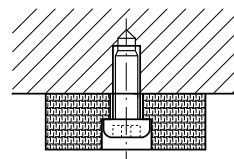
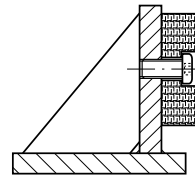
Suspension of gearboxes, motors, fans, pumps, axial load only.  
A gap is necessary around the fixing screw



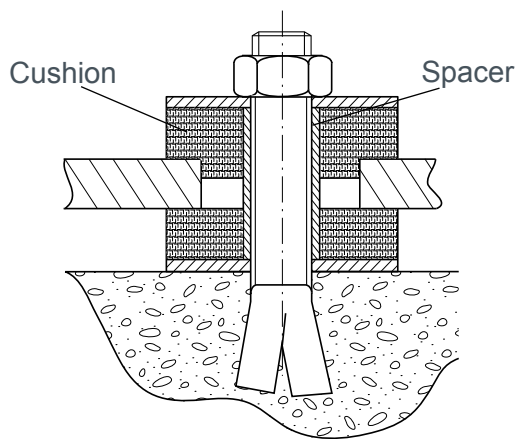
Absorbs expansion and isolates screws under dynamic load.



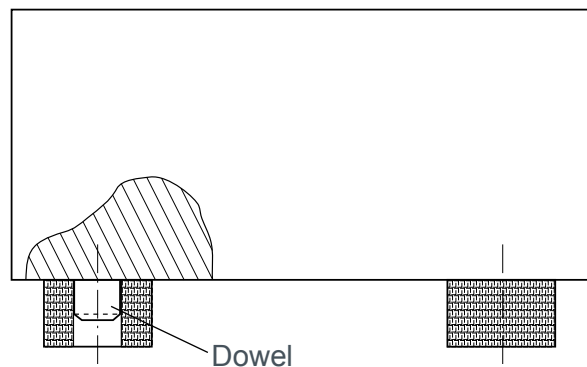
Pipe isolation



Suspension of motors, fans, etc



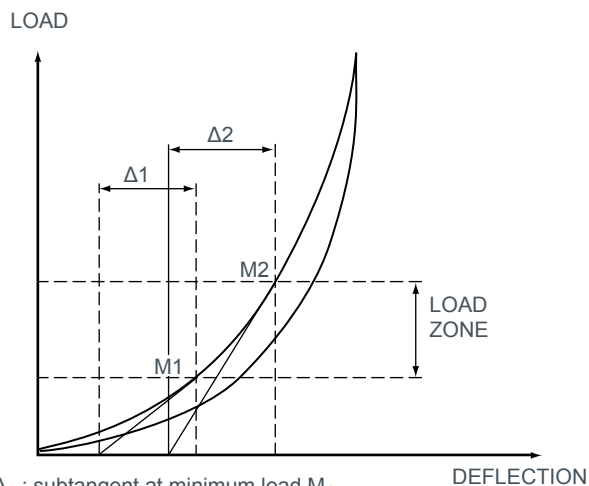
Scheme showing a cushion mounting with uplift snubber



Machine mounted on cushions located on dowels

## OPERATING CHARACTERISTICS

### TYPICAL STIFFNESS CURVE FOR A METALLIC CUSHION



$\Delta_1$  : subtangent at minimum load  $M_1$ .  
 $\Delta_2$  : subtangent at maximum load  $M_2$ .  
 $\Delta_1 = \Delta_2$

Natural frequency of the mounting remains constant in the load zone.

The elastic limit of the metallic cushion under compression is 3 to 5 times greater than the maximum static load shown in the data sheets.

- 1 - Excellent resistance to oil, grease, solvents, water, dust, chemical agents.
- 2 - Withstands temperatures from - 70°C to + 300°C and in certain applications - 150°C to + 400°C.
- 3 - Highly resistant to ageing : characteristics are stable.
- 4 - High damping from 15 to 20%, i.e.  $\tan \delta$  from 0.3 to 0.4 corresponding to an amplification factor at resonance < 4.
- 5 - Loading up to 150 kg/cm<sup>2</sup> under compression and 500 kg/cm<sup>2</sup> for isolating shocks.
- 6 - Natural frequency between 15 and 25 Hz.