



# Spring Mounts – Elliptic Leaf Type (Naval " X " Type)

www.vibrationmounts.com Phone: 516.328.3662 Fax: 516.328.3365

This type of vibration and shock isolator was designed specifically for shipboard or mobile applications. They are particularly suitable to protect delicate shipboard equipment from shock due to underwater explosions or sudden stoppage of vehicles for vehicle-mounted equipment.

All materials used are impervious to corrosion and will operate efficiently under a wide range of temperature, making the units well-suited for naval or aircraft applications. Their basic design employs two or more high tensile stainless steel "U" formed leaves, situated at each end, forming an elliptical shape when joined together in the center portion with face plates. The spaces between the "U" formed leaves are filled with a specially developed polymer or stainless steel mesh.

Nonmetallic collars backed by stainless steel washers are supplied for load attachment, while providing noise reduction. Inch size or metric size bolts may be used for fastening of the equipment to the base or foundation.

Low transmitted shock accelerations are obtained by combining large permitted static deflection in every direction with a high energy loss within the mount. The high damping efficiency is obtained by the polymer which has a very low static stiffness. The load-bearing characteristics are determined by the metal construction of the mountings. These mounts may be used in tension as well as compression.

The "X" Mount is one of that rare breed that gives both vibration isolation and shock protection. Its low frequency ensures effective vibration isolation, except where the resonant frequency of the surrounding structure may be sympathetic with the mount's natural frequency. Similarly, care must be taken during transportation of equipment supported by "X" Mounts.

The main disadvantage of the mount is that transmissibility at resonance is high. In most applications this is not critical as the "X" Mounts are placed in areas that do not coincide with its resonant frequency. This special applications mount may be of particular interest not only for its improved vibration performance at low temperature, but also its lower natural frequency at room temperatures. This may avoid the need of trying to reduce the natural frequency by means of adding a rubber washer in tandem, as this procedure also increases the transmissibility at resonance of the system.

Shock protection of the new design has the added benefit of durability under repeated shocks at low temperatures.

## INSTALLATION OF "X" MOUNTS

Due to the sophisticated nature of the "X" Mounts, it is essential that they be correctly loaded. Incorrect loading will mean inadequate shock protection (this is true even in underloaded situations).

### Bad Practice

Due to the shape and size of the "X" Mount, there is a strong tendency to use the space created as storage. Needless to say,

any such placement can render the shock protection useless.

### Preferred Systems

Mounts supporting the system underneath only, with the center of gravity in the lower third of the unit, is preferred. When this is impossible, a fully suspended method should be used. Top steadies can be used where it is difficult to choose mounts to support the weight using a fully suspended configuration.

The practice of combining units on one raft is often carried out to ensure that a suitable loading is obtained. This practice is especially important for operator-controlled equipment; the seat can be mounted on the raft as well.

### Orientation

Where possible, the horizontal roll axis should be fore and aft, to minimize equipment movement due to ship roll, but any orientation is acceptable for shock protection. It is advisable to place mounts on any one piece of equipment in the same direction.

## TYPICAL APPLICATIONS INCLUDE:

- Heavy Machine Tools
- Air Compressors
- Engine Suspension
- Machine Mounting
- Machine Craft Installations
- Laboratory Equipment
- Electric Motors
- Factory Test Gear
- Seat Suspension in Aircraft and Vehicles
- Radar Communications Equipment
- Electronic Control Equipment
- Equipment Mountings in Tanks and Other Military Vehicles
- Bomb and Other Lifting Gear
- Refrigeration Compressors
- Mobile Vehicles
- Fuel Tanks
- Blowers and Fans
- Pumps

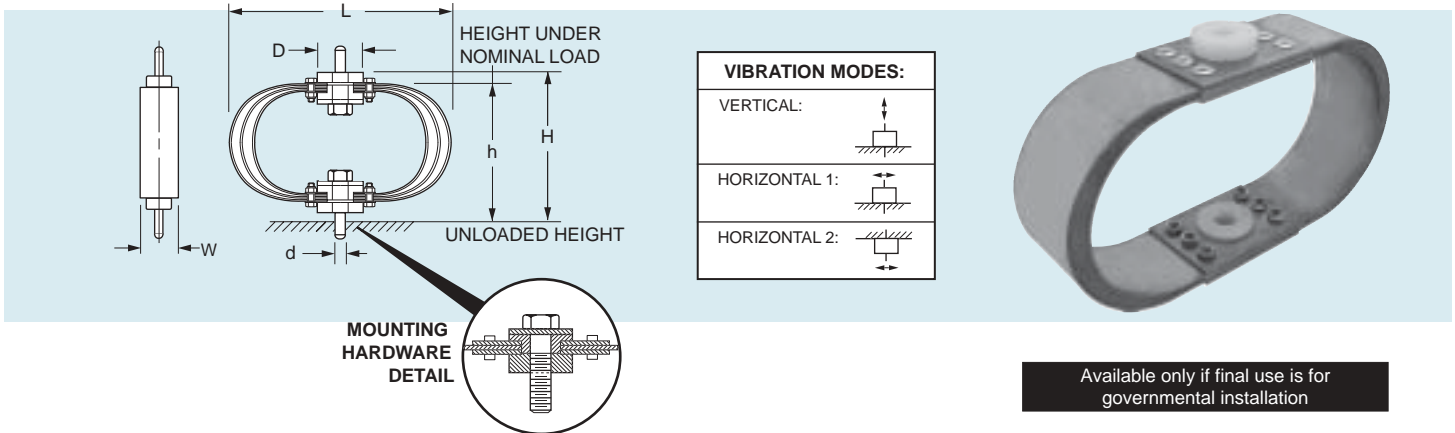


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- **MATERIAL:** Leaves – 304 Stainless Steel\*  
Washers – Nylon and Stainless Steel  
Damping Compound – Polymer

- **NATO APPROVED NAVAL "X" MOUNTS**



Available only if final use is for governmental installation

TEMPERATURE RANGE: +50°F to +86°F  
+10°C to +30°C

Shown as mounted (bolts and washers are not supplied).

Catalog Number	Nominal Load lb. (kgf)	Load Range lb. (kgf)	L Length in. (mm)	W Width in. (mm)	H Height Unloaded with Washers in. (mm)	h Height Loaded with Washers in. (mm)	D Diameter Washers in. (mm)	d Bolt Hole in. (mm)	Bolt Size UNF in. (nearest metric)	Weight lb. (kg)
V10Y15-57170025	25 (11.3)	20-40 (9-18)	8 (203)	2 (50.8)	4.5 (114)	4.17 (106)	1.25 (31.75)	.354 (9)	5/16 (8)	1.5 (0.68)
V10Y15-57180050	50 (22.7)	40-75 (18-34)				4.85 (123)				1.75 (0.8)
V10Y15-57190100	100 (45.4)	75-120 (34-54)	8.5 (216)	2 (50.8)	5.25 (133)	4.88 (124)	1.25 (31.75)	.512 (13)	1/2 (12)	2.25 (1.02)
V10Y15-57200150	150 (68)	120-200 (54-91)				7.3 (185)				2.5 (1.13)
V10Y15-57210250	250 (113.5)	200-300 (91-136)				7.25 (184)				2.75 (1.25)
V10Y15-84290400	400 (181.4)	300-550 (136-250)	11.7 (297)	4 (101.6)	7.5 (190)	7.3 (185)	2.5 (63.5)	.827 (21)	3/4 (20)	13 (5.9)
V10Y15-84280700	700 (317.5)	550-850 (250-386)				7.25 (184)				14.5 (6.57)
V10Y15-84271000	1000 (453.6)	850-1200 (386-545)				7.3 (185)				16 (7.25)

Catalog Number	Static Stiffness			Natural Frequencies - Hz		
	Vertical lb./in. (kg/cm)	Horizontal 1 lb./in. (kg/cm)	Horizontal 2 lb./in. (kg/cm)	Vertical	Horizontal 1	Horizontal 2
V10Y15-57170025	75 (13.39)	40 (7.14)	100 (17.88)	7.5	4.5	5.5
V10Y15-57180050	150 (26.79)	80 (14.29)	200 (35.72)			
V10Y15-57190100	250 (44.65)	135 (24.11)	330 (58.93)	7.5	4.5	5.5
V10Y15-57200150	400 (71.43)	220 (39.29)	520 (92.86)			
V10Y15-57210250	650 (116.08)	350 (62.5)	850 (151.8)			
V10Y15-84290400	2300 (410.74)	620 (110.72)	3070 (548.25)	10.5	4.5	5.5
V10Y15-84280700	3000 (535.75)	760 (135.72)	2700 (482.17)	7.5	4.0	5.0
V10Y15-84271000	4800 (857.2)	1100 (196.44)	4000 (714.33)			

\*NOTE: Available in natural finish or painted black (at a higher price on special order).



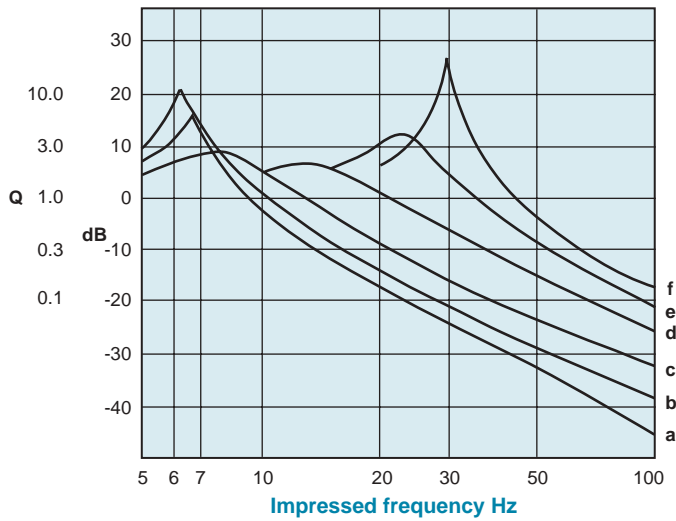




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## TRANSMISSIBILITY / TEMPERATURE / RESONANCE



	Temp °C (°F)	$f_n$ Hz	Q
<b>a</b>	41.6 (106.9)	6.2	10.2
<b>b</b>	29.9 (85.8)	6.6	6.1
<b>c</b>	19.7 (67.5)	7.6	2.8
<b>d</b>	10.2 (50.4)	13.0	2.2
<b>e</b>	0.5 (32.9)	22.0	4.0
<b>f</b>	-16.1 (3.0)	29.6	22.7

