

Seismic Spring Mount Type XWM-2/4

25mm Nominal Static Deflection

APPLICATION

Where equipment requires the use of a spring type mount for a high degree of isolation under normal operating conditions, but with the facility to restrain the equipment from excessive motion in any direction due to displacement inputs imparted by the foundation through earthquake activity.

DESCRIPTION

An integrated, stand-alone six direction restrained spring mount with cup located springs and internal adjustment. XWM-2/4 mounts are rated to the static force restraint requirements of:

- AS 1170.4 for Australian seismic zones
- NZS 4219 for New Zealand seismic zones
- Most international seismic codes

FEATURES

- Heavy duty stable steel springs
- Acoustically isolating location cups
- Internal leveling bolts
- Single adjustable central vertical restraint bolt
- Replaceable shock absorbing rubber snubbers

CONSTRUCTION

Hot dipped galvanised steel housing, oil-resistant high-frequency isolation spring base cup. All other components including spring are zinc plated.

RESTRAINT CAPACITY

Restraint capacity is given as a maximum static force. The following can be applied simultaneously in one lateral direction and vertically up or down:

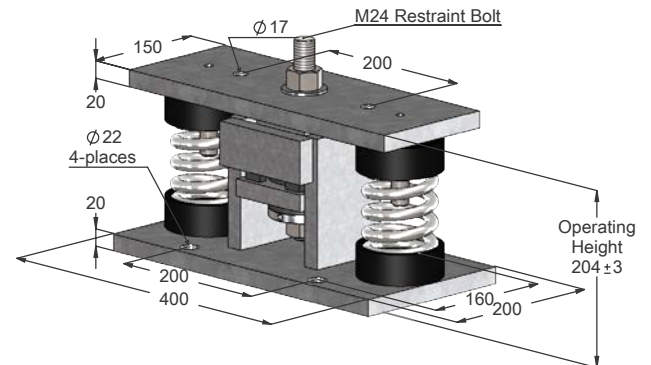
Vertical: 55kN

Lateral: 35kN

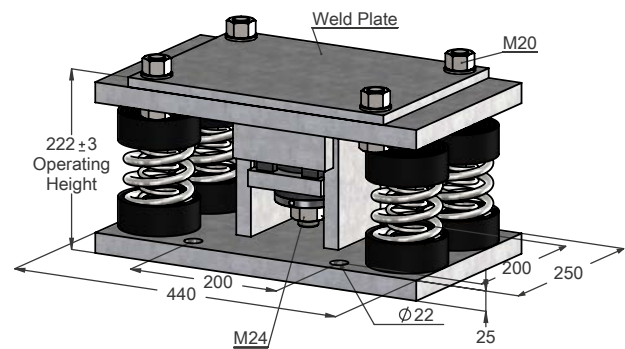
At maximum restraint loads, the displacement from normal operating position is approximately 10mm.

DESIGN

XWM-2/4 Mounts are designed with spring horizontal to vertical stiffness ratios between 0.9 and 1.1 at rated loads; ratio of spring diameter to loaded height minimum 0.8; and a rated maximum static operating deflection 2/3 deflection to solid.



XWM-2



XWM-4

XWM-2/4

Type	Max Load kg	Static Deflection mm	Spring Constant kg/mm	Spring Colours	
				Outer	Inner
XWM-2-400	400	33	12,2	Black	-
XWM-2-421	508	33	15.4	Black	Black
XWM-2-423	600	33	18.2	Black	Yellow
XWM-2-600	600	30	20.0	Red	-
XWM-2-621	696	30	23.4	Red	Black
XWM-2-623	800	30	26.6	Red	Yellow
XWM-2-1000	900	25	36.0	Green	-
XWM-2-1023	1,020	25	40.8	Green	Yellow
XWM-2-1025	1,160	25	47.4	Green	Red
XWM-2-1026	1,380	25	55.2	Green	White
XWM-2-1600	1,550	25	62.0	Grey	-
XWM-2-1624	1,750	25	70.0	Grey	Green
XWM-2-1626	2,000	25	80.0	Grey	White
XWM-2-1628	2,300	24	95.8	Grey	Grey
XWM-2-1731	2,550	20	127.5	Orange	Grey/Yellow
XWM-4-1000	1,800	25	72	Green	-
XWM-4-1021	1,920	25	77	Green	Black
XWM-4-1023	2,040	25	82	Green	Yellow
XWM-4-1024	2,200	25	88	Green	Green
XWM-4-1025	2,320	25	93	Green	Red
XWM-4-1026	2,760	25	110	Green	White
XWM-4-1600	3,100	25	124	Grey	-
XWM-4-1622	3,280	25	131	Grey	Blue
XWM-4-1624	3,500	25	140	Grey	Green
XWM-4-1626	4,000	25	160	Grey	White
XWM-4-1627	4,400	25	176	Grey	Orange
XWM-4-1628	4,600	24	192	Grey	Grey
XWM-4-1731	5,100	20	255	Orange	Grey/Yellow

ACOUSTICAL ISOLATION

Although steel spring mounts provide particularly effective isolation of mechanical vibration, the spring itself, depending on its physical geometry, may transmit certain audible level frequencies.

To minimise these audible level transmissions, all mounts are fitted with a resilient rubber base cup. For type XWM-2/4 mounts, the standard cup has a theoretical effectiveness of over 95% in isolating such transmissions.

MOUNT SELECTION

When selecting mounts, it is recommended that a safety factor of 10-20% is applied to the calculated mass of equipment to avoid overloading of any mounts. If maximum rated deflections are required, then equipment should be weighed and an accurate assessment of point loads made.

For equipment using more than four mounts, endeavour to distribute them so that each mount has equal loading. If this cannot be done, mount selection must be made on the basis of matching static deflections as closely as possible.

RESTRAINT SYSTEM

These mounts incorporate replaceable resilient rubber snubbers for both vertical and lateral restraint. Vertical restraints have a normal design clearance of 3mm (gaps X and Y) in both directions and are adjustable ± 3 mm in conjunction with level adjustments. Lateral restraints have a fixed clearance of nominal 3mm.

INSTALLATION

1. LEVELING

- Check mount positions on foundation are all level to within 3mm. If not then shim low mounts (shim can be inserted between top steel washer and equipment).

2. HORIZONTAL ALIGNMENT

- The geometric centre of the housing hold down bolts must be aligned ± 1 mm with respect to the central restraining bolt i.e. the attachment point to the equipment, on all mounts.

3. BOLTING DOWN

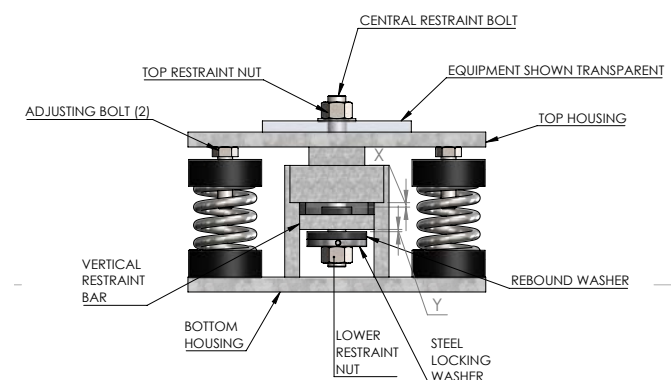
- Foundation: Place housings in position and drill through housing base holes for fastening.
- The XWM-2/4 mount is designed to take M20 fastenings.
- Housing fastenings should be torqued to the maximum value recommended by the manufacturer.
- Equipment XWM-2: A clearance hole for the central restraint bolt must be provided for the equipment base. The base must be designed to withstand the maximum restraint forces generated.
- Equipment XWM-4: Mount is supplied with a weld plate for welding to the equipment base. This enables the spring to be removed if necessary.
- For XWM-2, the equipment base must be at least 100mm wide and deep. For XWM-4, the equipment base must be a maximum of 150mm wide.

4. PLACING EQUIPMENT

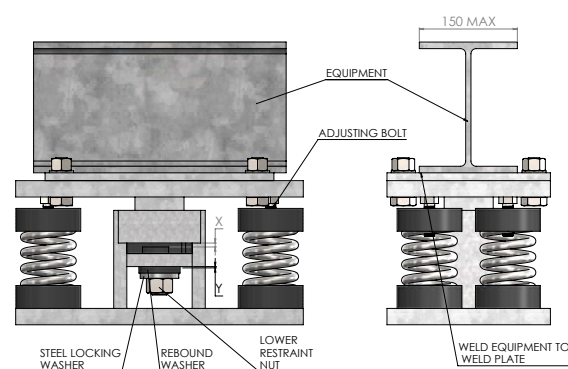
- For XWM-2, fasten down the spring base plate.
- Assemble the rest of the mount with restraint nut removed.
- Place equipment on mounts. Equipment load maybe temporarily taken on the top of the vertical restraint bar via the upper pad.

5. ADJUSTMENT AND LOCKING

- Fit the restraint nut but leave loose. For the XWM-4, loosen rebound washer and lower nut.
- Load the springs alternately by winding the adjusting nut anticlockwise a maximum of two turns until the equipment is floating on the springs. Hold the compression plate stationary while winding.
- Check for level and adjust if necessary.
- Lift further until gap $X=3\text{mm} \pm 2\text{mm}$ on all mounts.
- Adjust rebound washer so that gap $Y=3\text{mm} \pm 1\text{mm}$.
- Set hole in edge of rebound washer to the front. Insert pin punch in hole to hold it in position.
- If gap Y is outside tolerance, hold rebound washer stationary and rotate the restraining bolt to adjust.
- Lock steel washer and lower restraint nut together tightly.
- Tighten the restraint nut hard against the equipment.



XWM-2 PARTS & INSTALLATION



XWM-4 PARTS & INSTALLATION

TECHNICAL ASSISTANCE

All Embelton offices can provide detailed technical assistance on the use of this product in specific applications.

CONDITIONS OF SALE

These products are sold subject to the published Embelton General Conditions of Sale, copies of which may be inspected on request.

SPECIFICATION

Spring mounts shall permit freedom of equipment motion at normal operating conditions, but restrain the equipment from excessive motion when subjected to foundation displacement in any direction. A single central vertical restraint bolt shall be used, which also locks the equipment to the mount. Springs shall be free standing and laterally stable with an acoustically isolating base cup. They shall have a minimum additional travel of 50% rated deflection to solid and a diameter not less than 0.8 of loaded height; they shall be type XWM-2/4 as supplied by Embelton.