Seismic Spring Mount Type XTM-4

75mm 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 four spring mount with cup located springs and internal adjustment. XTM-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 spring
- Springs supplied partially pre-compressed
- Acoustically isolating location cup
- Internal leveling bolts
- Single adjustable central vertical restraint bolt
- Replaceable shock absorbing rubber snubbers

CONSTRUCTION

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

RESTRAINT CAPACITY

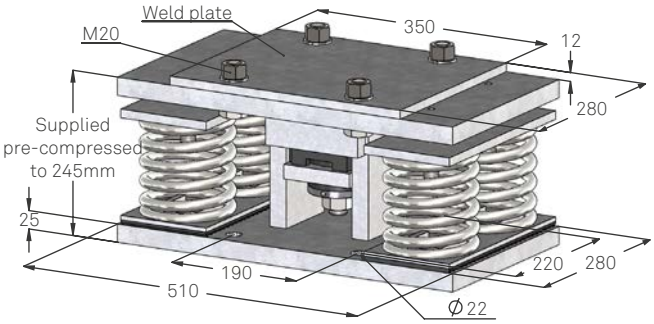
Restraint capacity is given as a maximum static force. The following can be applied simultaneously in one lateral direction and vertically up or down:

Vertical: 48kN
Lateral: 30kN

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

DESIGN

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



XTM-4 DIMENSIONS

XTM-4 PRODUCT GUIDE

Type	Max Load kg	Static Deflection mm	Spring Constant kg/mm	Spring Colour
XTM-4-562	600	75	8.0	Black
XTM-4-563	840	75	11.2	Red
XTM-4-564	1,200	75	16.0	Green
XTM-4-565	1,680	75	22.4	Grey
XTM-4-566	2,400	75	32.0	Orange

EXAMPLE OF SEISMIC ISOLATION

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 if present.

To minimise these audible level transmissions, all mounts are fitted with a resilient rubber base cup. For type XTM-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 ± 3mm in conjunction with level adjustments. Lateral restraints have a fixed clearance of nominal 3mm.

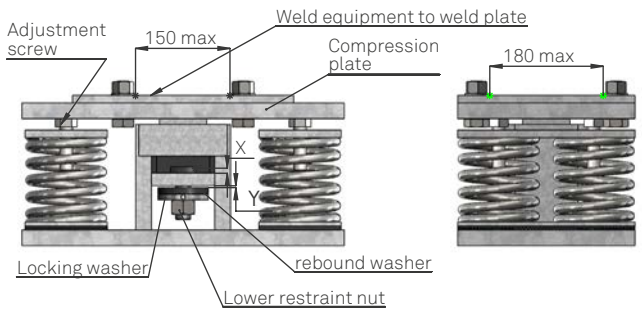
INSTALLATION

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

2. BOLTING DOWN
- Foundation: Place housings in position and drill through housing base holes for fastening.
- The XTM-4 mount is designed to take a maximum of M20 fastenings.
- Housing fastenings should be torqued to the maximum value recommended by the fastener manufacturer.
- Equipment: The XTM-4 is supplied with a welding plate for welding to the equipment to be isolated.

3. PLACING EQUIPMENT
- 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.

4. ADJUSTMENT AND LOCKING
- Fit the restraint nut but leave loose. Loosen steel 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=3mm ± 2mm on all mounts.
- Adjust rebound washer so that gap Y=3mm ± 1mm.
- 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.



XTM-4 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 maybe 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 XTM-4 as supplied by Embelton.