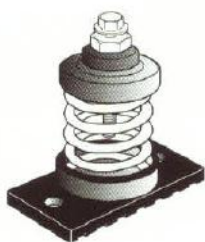


TOZEN NOISE & VIBRATION CONTROL PRODUCTS

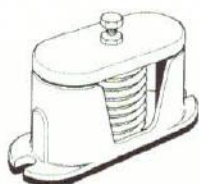
GENERAL SPECIFICATIONS

Unless otherwise noted on the equipment schedule, all mechanical equipments shall be mounted on vibration isolators to prevent the transmission of vibration and mechanical transmitted sound to the building structure. Vibration isolators shall be selected in accordance with the weight distribution so as to produce reasonably uniform deflection. Deflections shall be as noted on the equipment schedule. The design of the spring elements shall comply to JIS B2704 for a semi-permanent use. To assure stability, outside diameter of the springs shall not less than 80% of the compressed height of the spring at rated load and shall have a minimum of 50% overload capacity.



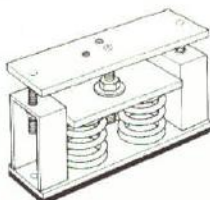
SPECIFICATION - FLOOR MOUNTING SPRING ISOLATORS

Spring vibration isolator shall be free standing, laterally stable without any house, snubbers or guides and complete with steel cup reinforced rubber cups at the top and bottom. All mountings shall be provided with adjusting bolt, cap screw and washer in top cup for levelling and attachment to equipment. Floor mount spring vibration isolators shall be Model PTM-AP as manufactured by Tozen.



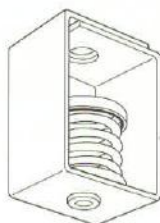
SPECIFICATION - HOUSED SPRING ISOLATORS

Spring vibration isolators shall be housed spring type consist of a steel spring and load cap housed in a cast iron assembly, with rubber sponge snubbers designed to stabilize the isolator and prevent metal to metal connection. The top loading plate shall complete with levelling bolt and lock nut or otherwise, internal levelling device shall be featured. The housing bottom shall be bonded to a 8mm thick non-skid noise isolation rubber pad and shall be slot holed to allow bolting to the supporting structure. Housed spring vibration isolators shall be Model PTM-C, as manufactured by Tozen.



SPECIFICATION - RESTRAINED SPRING ISOLATORS

Restrained isolator shall consist of laterally stable steel spring assembled into a welded steel housing assembly designed to limit vertical movement of the supported equipment. Housing assembly shall be of fabricated steel members and consist of a load transfer plate at the top complete with tapped holes, adjusting and levelling bolts, vertical restraints, isolation washers and a bottom plate with non-skid noise isolation rubber pad and holes provided for anchoring to supporting structure. Vibration isolators shall be Model PTM-D, as manufactured by Tozen.



SPECIFICATION - SPRING HANGERS

Vibration isolators for suspended equipment shall be hangers consist of a free standing, laterally stable steel spring with load transfer steel cup with rubber washer in series, assembled in a welded rectangular steel box. Vibration isolating hangers shall be Model PTH-S, as manufactured by Tozen.



SPECIFICATION - SPRING AND RUBBER COMBINATION HANGERS

Vibration isolators for suspended equipment where both high and low frequency vibrations are to be isolated, shall be hangers consisting of a laterally stable steel spring in series with a moulded noise absorbing rubber insert, assembled in a welded rectangular steel box. The combination vibration isolating hangers shall be Model PTH-SG, as manufactured by Tozen.

SELECTION GUIDE FOR TOZEN VIBRATION ISOLATOR

Equipment Type - Category & Capacity	Grade Supported Slab			6 Meter Floor Span		
	Base Type	Isolator Type	Minimum Deflection	Base Type	Isolator Type	Minimum Deflection
Refrigeration Machines						
• Reciprocating Chillers	A	2	6	A	4	20
• Centrifugal Chillers	A	1	6	A	4	20
• Open Centrifugal Chillers	C	1	6	C	4	20
• Absorption Chillers	A	1	6	A	4	20
Air Compressors						
• Tank Mounted	A	3	20	A	3	20
• Base Mounted	C	3	20	C	3	20
Pumps						
– Close Coupled						
• Up to 6 kW	B/C	2	6	C	3	20
• 7.5 kW & over						
– Flexible Coupled						
• Up to 30 kW	C	3	20	C	3	20
• 37 to 93 kW	C	3	20	C	3	20
• 110 kW & over	C	3	20	C	3	20
Cooling Towers						
• Up to 300 rpm	A	1 / 2	6	A	4	65
• 301 to 500 rpm	A	1 / 2	6	A	4	65
• 501 rpm & over	A	1 / 2	6	A	4	20
Axial, Tubular & Fan Heads						
– Up to 550mm dia.	A/B	2	6	A/B	3	20
– 600mm wheel dia. & over						
• Up to 300 rpm	B/C	3	65	C	3	90
• 301 to 500 rpm	B/C	3	20	C	3	40
• 501 rpm & over	B/C	3	20	C	3	40
Centrifugal Fans & Vent Sets						
– Up to 550mm wheel dia.	A/B	2	6	A/B	3	20
– 600mm wheel dia. & over						
• Up to 37 kW						
• Up to 300 rpm	B	3	65	B	3	90
• 301 to 500 rpm	B	3	40	B	3	40
• 501 rpm & over	B	3	20	B	3	20
45 kW & up						
• Up to 300 rpm	B/C	3	65	C	3	90
• 301 to 500 rpm	B/C	3	20	C	3	40
• 501 rpm & over	B/C	3	20	C	3	40
Packaged Air Handling Equipments						
– Up to 7.5 kW	A	2	6	A	3	20
– 11 kW & over						
• Up to 500 rpm	A	2	6	A	3	20
• 501 rpm & over	A	2	6	A	3	20

Base Types:

- A. No base, isolators attached directly to equipment
- B. Structural steel rails or base
- C. Concrete inertia base

Isolator Types:

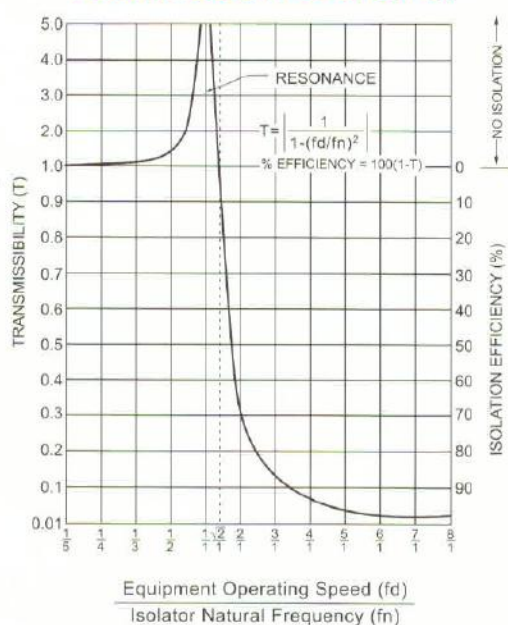
- 1. Rubber pad
- 2. Rubber floor isolator and hanger
- 3. Unhoused floor isolator or hanger
- 4. Restrained spring isolator

(mm)

9 Meter Floor Span			12 Meter Floor Span			15 Meter Floor Span		
Base Type	Isolator Type	Minimum Deflection	Base Type	Isolator Type	Minimum Deflection	Base Type	Isolator Type	Minimum Deflection
A	4	40	A	4	65	A	4	65
A	4	40	A	4	65	A	4	65
C	4	40	C	4	65	C	4	65
A	4	40	A	4	65	A	4	65
A	3	40	A	3	65	A	3	65
C	3	40	C	3	40	C	3	65
C	3	20	C	3	20	C	3	20
C	3	40	C	3	40	C	3	40
C	3	40	C	3	65	C	3	65
C	3	40	C	3	65	C	3	90
A	4	90	A	4	90	A	4	90
A	4	65	A	4	65	A	4	90
A	4	40	A	4	40	A	4	65
A/B	3	20	A/C	3	20	A/C	3	40
C	3	90	C	3	90	C	3	90
C	3	65	C	3	65	C	3	65
C	3	40	C	3	40	C	3	65
A/B	3	20	A/C	3	20	A/C	3	20
B	3	90	B	3	90	B	3	90
B	3	40	B	3	65	B	3	65
B	3	20	B	3	40	B	3	65
C	3	90	C	3	90	C	3	90
C	3	65	C	3	65	C	3	90
C	3	40	C	3	90	C	3	90
A	3	20	A	3	20	A	3	40
A	3	40	A	3	40	A	3	65
A	3	40	A	3	40	A	3	65

Today, most of sophisticated buildings are provided with air conditioning systems and other equipments to create a comfortable working or living environment. However, these mechanical equipments generate vibration and vibration induced noise, which has become a major source of occupant complaint in modern buildings. The noise and vibration problem is compounded by increasing uses of lighter weight construction and equipments located in penthouses or intermediate level mechanical rooms. It increased structureborne vibration and noise transmission. Not only is the physical vibration in the structural disturbing, but noise which is regenerated by the structural movement may be heard in other remote sections of the building structure.

VIBRATION TRANSMISSIBILITY CURVE FOR AN ISOLATED SYSTEM



(Fig. 1)

TOZEN vibration and noise control products are designed to isolate or reduce the damaging structure vibration and annoying noise produced by the mechanical equipments. Owing to continuous research and development program, Tozen vibration and noise control products are recognized as a best solution to every day problems and for complex applications requiring optimum vibration and noise control.

Effectiveness of the vibration control, or vibration isolating efficiency is a function of the ratio of the equipment operating frequency, f_d , to isolator natural frequency, f_n . Figure 1 shown a typical vibration transmissibility curve for vibrating equipments supported on isolators. When the $f_d = f_n$, the system resonance occurs, the exciting forces will be amplified rather than reduced. As isolator natural frequency, f_n , becomes lower than distributing frequency, f_d , the isolation range is entered when the ratio of f_d/f_n becomes higher than $\sqrt{2}$. In Figure2, the formula

expressed the natural frequency of the isolator is a function of isolator deflection. Theoretically, it is desirable to select isolators with a natural frequency as far below the equipment operating speed as possible to achieve the highest degree of vibration control. However, when the ratio approaches 6:1, it takes very large increases in static deflection to reduce isolator natural frequency and further reduce transmission.

$$f_n = 947 \sqrt{\frac{1}{\text{deflection in mm}}}$$

(Fig.2)

Theoretical isolation efficiency shown on the transmissibility curve (Fig. 1) assumes the isolators are located on a rigid floor. This rigidity, seldom occurs in above grade applications. In practice, considerable building deflection can occur, which may reduce the effectiveness of the vibration isolators. Vibration isolators must be selected to compensate for the floor deflection. Longer spans also allow the structure to be more flexible, permitting the building to be more easily set in operating speeds, equipment horsepower, damping and other factors have been taken into consideration.

By specifying Tozen vibration isolator by type and deflection rather than isolation efficiency, transmissibility, or other theoretical parameters. The consulting engineer can compensate for floor deflection and building resonances by selecting isolators which are satisfactory to provide minimum vibration transmission and which have more deflection than the supporting floor.

When the specifier permits equipment suppliers to provide "appropriate" isolators, which are not manufactured under Tozen or equivalent high standards, a satisfactory job is not ensured, since different brands of isolators may be furnished and there is no supplier except Tozen can carry the full responsibility for a building free of vibration and noise as specified.

To apply the information from the Selection Guide, base type, isolator type, minimum deflection and columns are added to the equipment schedule, and the isolator specifications are incorporated into mechanical specifications for the project. Then, for each piece of mechanical equipment, base type, isolator type and minimum deflection are entered, as tabulated in the Selection Guide.

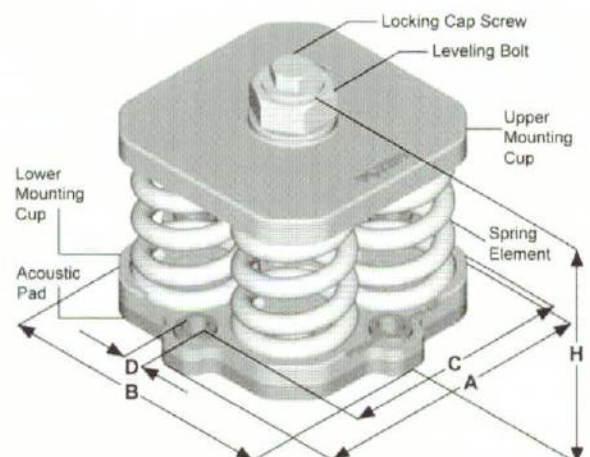
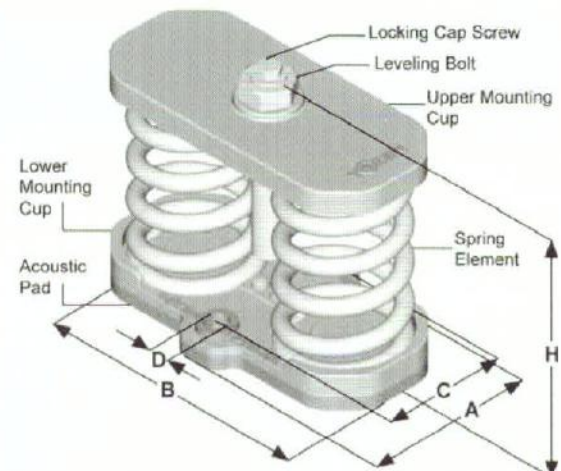
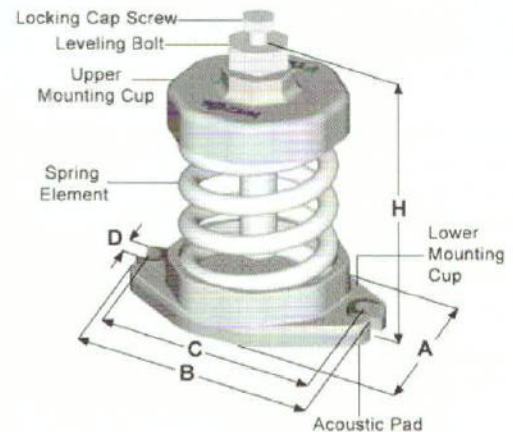
PTM-A • FLOOR MOUNTING SINGLE SPRING ISOLATOR PTM-AM • HEAVY LOADING MULTIPLE SPRING ISOLATOR

DESCRIPTION : TOZEN Model PTM-A & PTM-AM series isolators are unhusd, spring, vibration isolators, designed for high deflection. The PTM-A employs the use of a single spring element, while the PTM-AM employs multiple spring elements for heavier applications. These laterally stable steel spring isolators are constructed with a leveling device at the top of the isolator and a non-skid acoustical pad at the bottom. Both models are constructed with upper and lower ductile cast iron holding cups to hold the spring element. In addition, PTM-A & PTM-AM have a mounting base plate to allow the isolator to be bolted to a structure and a resilient washer as part of the non-skid acoustical pad. The resilient washer helps prevent the transmission of noise and vibration from the base plate and mounting bolt to the structure.

The design of the spring elements, within the isolators, complies with established standard JIS B2704, for semi-permanent use. To assure lateral stability, the outside diameter of the spring element is greater than 80% of the height of the compressed spring element when at rated load. All the spring elements are designed to provide a minimum of overloading capacity of 50%.

PTM-A & PTM-AM series vibration isolator are available in the standard deflections at 25 mm, and also available in deflections of 50 and 75 mm. Load capacity of the PTM-A isolators range from 25 to 1,400 Kgs (55 to 3080 lbs) and up to 5,600 Kgs (12320 lbs.) for PTM-AM isolators.

Tozen PTM-A & PTM-AM series of spring isolators are highly effective in the control of both high and low frequency vibrations produced by mechanical equipment, such as Reciprocating Air or Refrigeration Compressors, Pumps, Air Conditioning and Air Handling Equipment, Centrifugal and Axial Fans, Internal Combustion Engines and similar types of equipment.



APPLICATION : PTM-A & PTM-AM series spring isolators are recommended for use in isolating floor mounted sources of noise and vibration located near critical quiet areas.

PTM-A series spring isolators are typically used to reduce the transmission of noise and vibration from low speed mechanical equipment into a building structure.

PTM-A & AM series spring isolators can be used in a wide range of applications involving the isolation of mechanical equipment, such as Reciprocating Air or Refrigeration Compressors, Close Coupled and Base Mounted Pumps, Package Air Handling and Refrigeration Equipment, Centrifugal Fans, Internal Combustion Engines and similar equipment.

SPECIFICATION :

The vibration isolators shall be free standing, with laterally stable steel spring elements, without housings, snubbers or guides. The isolators shall be constructed with the ductile cast iron upper mounting cup and the ductile cast iron lower mounting cup to hold the spring element, and a non-skid acoustical pad is attached under the lower cup. The isolators shall be provided with an adjusting bolt, cap screw and washer in top of the isolator for leveling and attachment to the equipment. The spring elements of the isolator shall have an outside diameter greater than 80% of the height of the compressed spring element at rated load. All spring elements shall be designed to provide a minimum overloading capacity of 50%.

The isolators shall be selected to provide operating static deflection shown on the Vibration Isolation Schedule or as indicated by the project specifications. Isolators shall be color coded or otherwise identified to indicate load capacity.

PTM-A, AM TYPE

25 mm DEFLECTION SINGLE & MULTIPLE SPRING VIBRATION ISOLATOR

(mm)

Model	Rated Capacity		Spring Constant (Kg/mm)	Spring Element			Operating Height (H)	Dimension				Locking Cap Screw (LS)	Leveling Bolt (LB)
	(Kgs)	(Lbs)		Spring Color	OD	Free Height		A	B	C	D		
PTM-A-10S	10	22	0.4	GREEN									
PTM-A-15S	15	33	0.6	BLUE									
PTM-A-25S	25	55	1.0	WHITE									
PTM-A-35S	35	77	1.4	YELLOW									
PTM-A-50S	50	110	2.0	ORANGE	50	80	120	61	107	89	10	M10x32	M16x70
PTM-A-80S	80	176	3.2	VIOLET									
PTM-A-120S	120	264	4.8	RED									
PTM-A-175ES	175	385	7.0	SILVER									
PTM-A-225ES	225	495	9.0	BROWN									
PTM-A-150M	150	330	6.0	ORANGE									
PTM-A-200M	200	440	8.0	VIOLET									
PTM-A-300M	300	660	12.0	RED									
PTM-A-450M	450	990	18.0	GREEN									
PTM-A-600EM	600	1320	24.0	SILVER	75	100	150	88	136	117	13	M12x43	M22x80
PTM-A-825EM	825	1815	33.0	BROWN									
PTM-A-975EM	975	2145	39.0	BROWN+WHITE									
PTM-A-1100EM	1100	2420	44.0	BLUE									
PTM-A-1250EM	1250	2750	50.0	BLUE+WHITE									
PTM-A-1400EM	1400	3080	56.0	BLUE+BROWN									
PTM-AM-1652EM	1650	3630	66.0	BROWN	75	100	144	112	198	75	14x18	M12x43	M22x80
PTM-AM-1952EM	1950	4290	78.0	BROWN+WHITE									
PTM-AM-2202EM	2200	4840	88.0	BLUE									
PTM-AM-2502EM	2500	5500	100.0	BLUE+WHITE									
PTM-AM-2802EM	2800	6160	112.0	BLUE+BROWN									
PTM-AM-3304EM	3300	7260	132.0	BROWN	75	100	152	197	197	161	14x18	M16x45	M30x90
PTM-AM-3904EM	3900	8580	156.0	BROWN+WHITE									
PTM-AM-4404EM	4400	9680	176.0	BLUE									
PTM-AM-5004EM	5000	11000	200.0	BROWN+WHITE									
PTM-AM-5604EM	5600	12320	224.0	BLUE+BROWN									

NOTE-1: All springs are laterally stable and suitable for free standing application. (Outside diameter > 80% of deflection height)

NOTE-2: All springs are designed with additional travel to solid at least 50% of rated load.

NOTE-3: Please refer to relevant brochure or our technical division for greater deflection and loading.

PTM-A2, AM2 TYPE

50 mm DEFLECTION SINGLE & MULTIPLE SPRING VIBRATION ISOLATOR

(mm)

Model	Rated Capacity		Spring Constant (Kg/mm)	Spring Element			Operating Height (H)	Dimension				Locking Cap Screw (LS)	Leveling Bolt (LB)
	(kgs)	(Lbs)		Spring Color	OD	Free Height		A	B	C	D		
PTM-A2-25S	25	55	0.5	WHITE	75	120	170	88	136	117	13	M12x43	M22x80
PTM-A2-35S	35	77	0.7	YELLOW									
PTM-A2-50S	50	110	1.0	ORANGE									
PTM-A2-80ES	80	176	1.6	VIOLET									
PTM-A2-125ES	125	275	2.5	RED									
PTM-A2-175ES	175	385	3.5	SILVER									
PTM-A2-250ES	250	550	5.0	BROWN									
PTM-A2-175EM	175	385	3.5	ORANGE	90	145	195	101	155	130	13	M12x43	M22x115
PTM-A2-245EM	245	539	4.9	VIOLET									
PTM-A2-350EM	350	770	7.0	RED									
PTM-A2-525EM	525	1155	10.5	GREEN									
PTM-A2-750EM	750	1650	15.0	SILVER									
PTM-A2-1050EM	1050	2310	21.0	SILVER+BROWN									
PTM-AM2-1502EM	1500	3300	30.0	SILVER									
PTM-AM2-2102EM	2100	4620	42.0	SILVER+BROWN	196	244	244	203	14x18	M16x45	M30x90		
PTM-AM2-3004EM	3000	6600	60.0	SILVER									
PTM-AM2-4204EM	4200	9240	84.0	SILVER+BROWN									

NOTE-1: All springs are laterally stable and suitable for free standing application. (Outside diameter > 80% of deflection height)

NOTE-2: All springs are designed with additional travel to solid at least 50% of rated load.

NOTE-3: Please refer to relevant brochure or our technical division for greater deflection and loading.

PTM-A3 TYPE

75 mm DEFLECTION SINGLE & MULTIPLE SPRING VIBRATION ISOLATOR

(mm)

Model	Rated Capacity		Spring Constant (Kg/mm)	Spring Element			Operating Height (H)	Dimension				Locking Cap Screw (LS)	Leveling Bolt (LB)
	(Kgs)	(Lbs)		Spring Color	OD	Free Height		A	B	C	D		
PTM-A3-180S	180	396	2.4	ORANGE	90	170	220	101	155	130	13	M12x43	M22x115
PTM-A3-255S	255	561	3.4	VIOLET									
PTM-A3-375S	375	825	5.0	RED									
PTM-A3-555L	555	1221	7.4	SILVER	110	190	242	121	181	149	13	M12x43	M22x115
PTM-A3-810L	810	1782	10.8	YELLOW									
PTM-A3-1065L	1065	2343	14.2	YELLOW+BROWN									

NOTE-1: All springs are laterally stable and suitable for free standing application. (Outside diameter > 80% of deflection height)

NOTE-2: All springs are designed with additional travel to solid at least 50% of rated load.

NOTE-3: Please refer to relevant brochure or our technical division for greater deflection and loading

NOTE-4: PTM-AMS is multi spring of carbon steel type

INSTALLATION INSTRUCTION :

- 1) Block or lift up the equipment to a level so that the equipment's leg or base is 5 mm higher than isolator's operating height (see catalogue). If common base & height saving isolator bracket is used, keep 50-mm clearance between the base and floor. Maintain this height until piping installation is completed.
- 2) Locate the spring isolator under the hole in equipment's leg or isolator's bracket. Connect locking cap screw and washer, but do not tighten.
- 3) Transfer the equipment weight to the spring by taking two counter-clockwise turns on each leveling bolt around the unit until springs are compressed just enough to remove the blocks.
- 4) Tighten the locking cap screw to lock the assembly.

REMARKS :

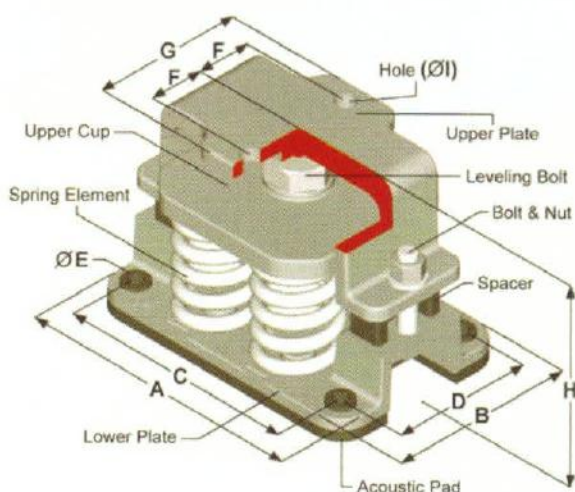
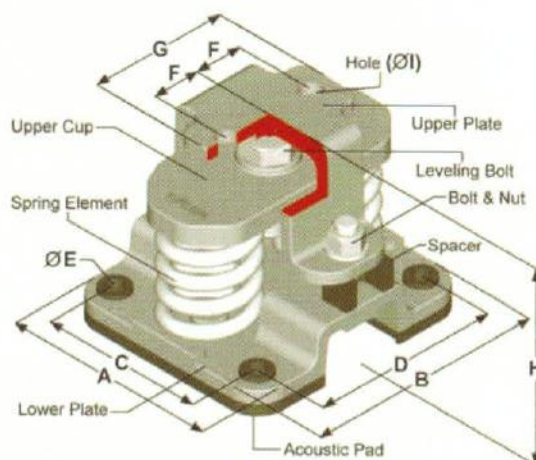
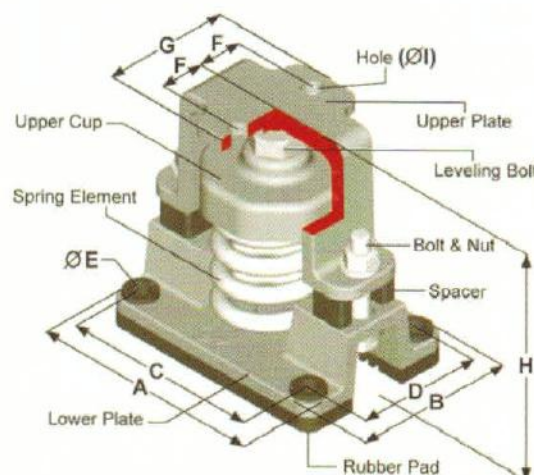
- a) DO NOT install the equipment on the support of a free spring. This will cause an insufficient operating height for the spring isolator when the installation is completed.
- b) Weight of vertical piping and valves must be supported by the suspension hangers or supports.
- c) Install the flexible joint at the end of the installation, following the pre-extension instruction which may be specified or suggested by the flexible joint manufacturer.
- d) Bolting down the isolator to the floor, in most cases, is not necessary as the non-slip rubber pad or mounting cup will prevent movement. Where bolting is required, avoid a direct metal contact between bolt and mounting, to prevent transmission of noise; the bolt shank shall be clear in the hole and a rubber washer used under the bolt head. Bolts shall only be tightened a half turn more than hand tight.

PTM-D • RESTRAINED SPRING ISOLATOR

DESCRIPTION : TOZEN PTM-D series vibration isolators consist of free standing laterally stable steel springs assembled into ductile iron housing assemblies fabricated to limit vertical movement of the isolated equipments when if equipment loads are reduced or if the equipments are subjected to large external forces. Spring elements are complete with an internal adjusting and leveling bolt. Holes are provided at the upper plate for bolting to supported equipment. A 10mm thick non-skid noise absorbing rubber pad is bonded at the bottom plate with holes for bolting to the structure. All the spring elements are comply to JIS 2704 for semi-permanent use. To assure lateral stability, outside diameter of the spring elements do not less than 0.8 times of the compressed height of the spring at rated load. All the spring are designed to provide a minimum of 50% overload capacity.

PTM-D series vibration isolator are shipped with standard deflections of 25 and 50 mm, and available up to 50mm, with load capacities from 450 Kgs to 5,600 Kgs. Model PTM-D spring isolators are recommended for the isolation of vibration produced by equipment carrying a large fluid load which may be drained, such as boilers and chillers, and for the isolation of cooling towers, air cooled condensers, etc, where motion due to wind loads must be minimized.

APPLICATION : Type PTM-D mounts are typically used to reduce the transmission of noise and vibration into supporting structures from equipments carrying a large fluid load that may be drained, such as boilers and for cooling towers, which also require hold down for wind loads.



SPECIFICATION : Vibration isolators for equipment which is subject to load vibrations and large external or torquing forces shall consist of laterally stable steel springs assembled into a ductile iron housing assembly designed to limit vertical movement of the supported equipment.

Housing assembly shall be of ductile iron members and consist of a load transfer plate at the top complete with holes, adjusting and leveling bolts, vertical restraints, isolation washers and a bottom plate with non-skid noise isolation pad and holes provided for anchoring to supporting structure.

Spring elements shall have a outside diameter not less than 0.8 times to the compressed height of the spring rated load. All springs shall be designed to provide a minimum of 50% overload capacity.

* These images are sectioned for better appearance.

PTM-D TYPE 25mm DEFLECTION RESTRAINED SPRING ISOLATOR

(mm)

Model	Rated Capacity		Mount Constant (kg/mm)	Spring Color	Operating Height (H)	Dimension							
	(kgs)	(Lbs)				A	B	C	D	E	F	G	I
PTM-D-151M	150	330	6	ORANGE	170								
PTM-D-201M	200	440	8	PURPLE (PINK)									
PTM-D-301M	300	660	12	RED									
PTM-D-451M	450	990	18	GREEN									
PTM-D-601M	600	1320	24	SILVER		172	121	137	86	16	30	88	14
PTM-D-826M	825	1815	33	BROWN									
PTM-D-976M	975	2145	39	BROWN+WHITE									
PTM-D-1101M	1100	2420	44	BLUE									
PTM-D-1251M	1250	2750	50	BLUE+WHITE									
PTM-D-1401M	1400	3080	56	BLUE+BROWN									
PTM-D-602M	600	1320	24	RED	170								
PTM-D-902M	900	1980	36	GREEN									
PTM-D-1202M	1200	2640	48	SILVER									
PTM-D-1652M	1650	3630	66	BROWN		180	200	136	156	20	40	118	18
PTM-D-1952M	1950	4290	78	BROWN+WHITE									
PTM-D-2202M	2200	4840	88	BLUE									
PTM-D-2502M	2500	5500	100	BLUE+WHITE									
PTM-D-2802M	2800	6160	112	BLUE+BROWN									
PTM-D-3304M	3300	7260	132	BROWN	185								
PTM-D-3904M	3900	8580	156	BROWN+WHITE									
PTM-D-4404M	4400	9680	176	BLUE		255	167	211	123	20	48.5	135	18
PTM-D-5004M	5000	11000	200	BLUE+WHITE									
PTM-D-5604M	5600	12320	224	BLUE+BROWN									

NOTE-1: All springs are free standing and laterally stable. (Outside diameter do not less 0.8 times of compressed height)

NOTE-2: All springs are designed to provide additional travel to solid of at least 50% rated load.

NOTE-3: Please refer to relevant brochure or factory for greater deflection and loading

NOTE-4: PTM-DS is carbon steel type.

PTM-D2 TYPE 50mm DEFLECTION RESTRAINED SPRING ISOLATOR

(mm)

Model	Rated Capacity		Mount Constant (kg/mm)	Spring Color	Operating Height (H)	Dimension							
	(kgs)	(Lbs)				A	B	C	D	E	F	G	I
PTM-D2-176M	175	385	3.5	ORANGE	210								
PTM-D2-246M	245	539	4.9	VIOLET									
PTM-D2-351M	350	770	7	RED		190	130	152	95	16	38	106	16
PTM-D2-526M	525	1155	10.5	GREEN									
PTM-D2-751M	750	1650	15	SILVER									
PTM-D2-1051M	1050	2310	21	SILVER+BROWN	210								
PTM-D2-1502M	1500	3300	30	SILVER		232	196	187	152	20	42	120	16
PTM-D2-2102M	2100	4620	42	SILVER+BROWN									
PTM-D2-3004M	3000	6600	60	SILVER	220	300	200	260	162	20	66.5	170	20
PTM-D2-4204M	4200	9240	84	SILVER+BROWN									

NOTE-1: All springs are free standing and laterally stable.

NOTE-2: All springs are designed to provide additional travel to solid of at least 50% rated load.

NOTE-3: Please consult the representatives for a complete vibration control design

NOTE-4: PTM-DS2 is carbon steel type.

INSTALLATION INSTRUCTION :

- 1) Check that the internal leveling nut is adjusted up to underside of the upper plate.
- 2) Lift or block up the equipment to 5mm higher than isolator's operating height (see catalogue) and slide the isolators into position and adjust the leveling nut until the upper plate is in contact with equipment base. Insert fastening screws (if used) through the equipment base into top of the mounting and tighten.
- 3) Check alignment of the base so that restraining bolts are central with clearance holes in the restraining bracket.
- 4) Transfer the equipment weight to the spring by taking two counter-clockwise turns on each leveling bolt around the unit until springs are compressed just enough to remove blocks.
- 5) Adjust restraining nuts to give 2-3mm clearance between the restrain washer and the underside of the restraining bracket. Check the leveling again after the system is filled with water.
- 6) Tighten the lock nut to lock the assembly.

REMARKS :

- a) When the equipment are not subject to raise to the required height, height saving bracket may be attached to the equipment. The height of bracket connection from the bottom of the base shall be 50mm less than the isolator's operating height or to keep a 50mm clearance between the ground and equipment.
 - b) DON'T install the equipment on the support of free spring, it would cause an insufficient operating height for the spring isolator when the installation is completed.
 - c) Weight of vertical piping and valves shall be taken over by the suspension hangers or support.
 - d) Install the flexible joint at final, follow the pre-extension instruction which may specified or suggested by the flexible joint manufacturer.
 - e) Where bolting is required, avoid a direct metal contact between bolt and mounting, to prevent transmission of acoustical frequencies; the bolt shank shall be clear in the hole and a rubber washer used under the bolt head. Bolts shall only be tightened a half turn more than hand tight.
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