



ALLEGIS

A CUSTOMER DRIVEN COMPANY

1-866-378-7550

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Vibration and Shock Isolation Products

TECH PRODUCTS

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Vibration/Shock Terminology

Amplitude—The magnitude of a force, displacement or acceleration from some reference point.

Damping—The dissipation of energy. Two types of damping are: Coulomb or friction damping, and Hysteretic or inherent damping.

Frequency—The number of oscillations that occur in a given time period. It is measured in cycles per second (CPS) or Hertz (Hz), cycles per minute (CPM) or strokes per minute (SPM).

Natural Frequency—The frequency of vibration that occurs if a system is moved from its normal position and allowed to vibrate freely.

Resonance—A condition that occurs when the forcing frequency coincides with the natural frequency of a suspension system. Avoid this at all costs.

Shock—A transient event defined by a sudden change of motion, force or velocity.

Spring Rate—A measurement of stiffness. It is a constant defined by the ratio of force to the corresponding deflection and is expressed in pounds/ inch.

Structural Damping—Damping which reduces the vibration of resonating surfaces that radiate noise. Damping is accomplished by affixing a material directly to the vibrating surface. This material converts the mechanical vibration to a minimal amount of heat energy.

Transmissibility—A dimensionless ratio of the dynamic output to the dynamic input.

Vibration—An oscillation in a mechanical system about some reference point. Frequency and amplitude are used to define that oscillation.

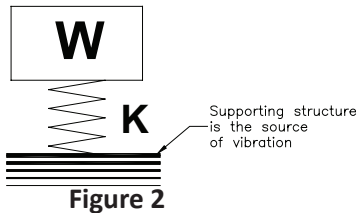
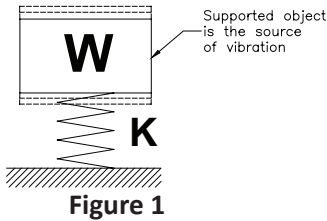
Vibration

This outline of basic vibration theory is intended to present a simplified approach to application and sizing of isolators. It will enable the design engineer to select the proper isolator to reduce the harmful effects of vibration. Obviously, real life situations are more complex than this simplified approach indicates.

Vibration is defined as a magnitude (force, displacement, or acceleration) which oscillates about a reference point. Vibration is commonly expressed in terms of frequency, cycles per second or Hertz (Hz).

Vibration problems generally fall into two classes.

- 1. Force excitation:** The isolator is used to protect the supporting structure from forces generated by the supported mass (see Figure 1). An example is the use of motor mounts in an automobile.
- 2. Motion excitation:** The isolator is used to protect the supported mass from disturbances of the supporting structure (see Figure 2). An example is the use of mounts under a coordinate measuring machine.



Natural Frequency is the frequency of vibration that will occur if a system is disturbed from its normal position and allowed to vibrate freely. For our purposes the natural frequency can be defined as a function of mass and stiffness or spring rate. If the spring rate is linear, the load vs. deflection curve is a straight line (Figure 3). For instance, a load of 100 pounds will cause a deflection of .20 inches. This spring will have a stiffness of:

$$K = \frac{W}{D} = \frac{100}{.20} = 500 \frac{lbs}{inch}$$

Where: K = Stiffness (pounds per inch)
 W = Weight of load (pounds)
 D = Deflection (inches)

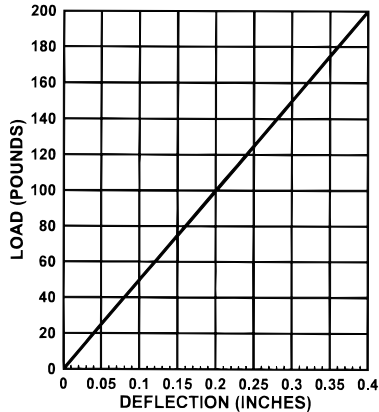
If we assume the supported item is a rigid body, the system will have a well-defined Natural Frequency (fn).

$$f_n = \frac{1}{2\pi} \sqrt{\frac{Kg}{W}}$$

or removing the constants:

$$f_n = 3.13 \sqrt{\frac{K}{W}}$$

Where: W = Weight of load (pounds)
 g = Acceleration due to gravity (386 in./sec.2)
 $\pi = 3.1416$



If the frequency of the input that we are isolating from (the forcing frequency) is defined as f_f , it can be shown that if the spring has been selected so that:

$$\frac{f_f}{f_n} > \sqrt{2}$$

the displacement of the isolated item will be less than that of the input. This is the basis for vibration isolation (Figure 4).

However, if:

$$\frac{f_f}{f_n} < \sqrt{2}$$

the displacement of the isolated item will be greater than that of the input. This is the region of amplification (Figure 4).

Since Transmissibility (T) is defined as the ratio of the output to the input:

$$T = \frac{\text{output}}{\text{input}}$$

maximum transmissibility always occurs when the forcing frequency (ff) and the natural frequency (fn) coincide. This is commonly called the resonant point.

If T is greater than one, amplification is occurring. If T is less than one, isolation is occurring.

Figure 4 depicts typical transmissibility curves for various damping conditions. Damping (d) is defined as the dissipation of energy by conversion to heat. Note that damping affects the magnitude of the response; it has little affect on the frequency of the response. Figure 5 gives damping factors for some typical materials.

Figure 4 indicates that while the maximum transmissibility varies with damping, for lower damping values the crossover point is always:

$$f_n\sqrt{2}$$

Typical Transmissibility For Viscous Damping

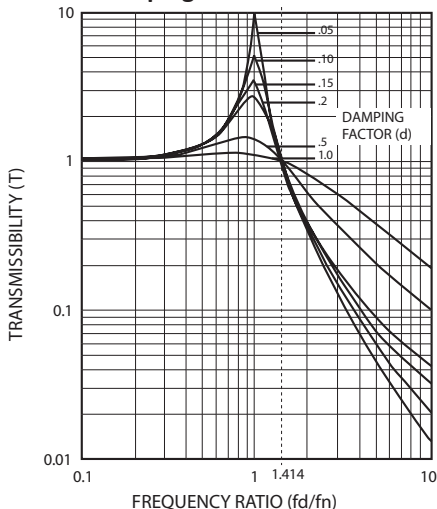


Figure 4

Typical Damping Factors

Material	d
Natural Rubber	.05
Neoprene	.05
Felt and Cork	.06
Butyl	.10
High Damped Silicone	.15+
Friction Damped Spring	.30+

Figure 5

The three types of damping usually encountered are friction (Coulomb), hysteretic and viscous.

Friction damping is characterized by sliding surfaces. Hysteretic damping is the damping that is inherent in a material. Viscous (or fluid) damping is characterized by proportional relationships between forces and velocities, e.g. an object moving through a liquid.

Transmissibility (T) is the ratio of the output to the input. If the input amplitude is .10 inches, and the output is .025 inches, the transmissibility will be:

$$T = \frac{\text{output}}{\text{input}} = \frac{.025}{.100} = .25$$

The percent of isolation can be expressed as:

$$\% \text{ Isolation} = (1 - T) \times 100$$

or in this case:

$$\% \text{ Isolation} = (1 - .25) \times 100 = 75\%$$

Quite often the magnitude of amplification at resonance is important. This point of maximum transmissibility is solely determined by the amount of damping (d) in the isolator. For isolators, d is typically .06 to .20. A simplified expression for maximum amplification (Q) for lower damping values is given by:

$$Q = \frac{1}{2d}$$

If d = .15 (typical of a high damped silicone)

$$Q = \frac{1}{2(.15)} = 3.33$$

The amplification factor at resonance for most isolators varies between 2.5 and 8.0.

While damping is desirable to control the response at resonance, it actually decreases the isolation at higher frequencies. As Figure 4 indicates, the more damping in a system, the less isolation at frequencies above $f_n \sqrt{2}$.

If the forcing frequency (f_f) and the desired transmissibility are known, the required system natural frequency is calculated by:

$$f_n = \frac{f_f}{\sqrt{\frac{1}{T} + 1}}$$

For instance, if f_f is 20 Hz and T is .25, then the maximum acceptable f_n is 8.9 Hz.

This equation is presented in nomograph form as Figure 8 on page 7.

EXAMPLE

A unit with a weight of 800 pounds is to be mounted on four isolators. The center of gravity is located at the center of the unit. The forcing frequency is 30 Hz and 80% isolation, or a transmissibility of .20 is desired.

With four isolators, the load supported by each will be 200 pounds. If the unit's center of gravity is eccentric, a load distribution analysis must be made to determine the load at each mounting point.

Loads versus natural frequency curves are available for most Tech Products isolators. Often several isolators can be selected using these curves. The load versus frequency curves for the 515 Series may result in a proper isolator selection; however, there are always other conditions to consider. These may be: shock requirements, available space, mounting orientation or environmental conditions.

First the required system natural frequency is determined:

$$f_n = \frac{f_f}{\sqrt{\frac{1}{T} + 1}} = \frac{30}{\sqrt{\frac{1}{.20} + 1}} = 12.2 \text{ Hz}$$

Next, choose a load versus natural frequency curve where the supported weight is about in the middle of the load range. If, after the calculations are made, desirable results are not obtained, go to the curves of the next larger or smaller mount and repeat the calculations.

Figures 6 and 7 show the curves for a typical mount that has been selected for this application. Draw a horizontal line across Figure 7 at 200 pounds on the load axis. Then draw a vertical line across Figure 7 from 12.2 Hz on the natural frequency axis. The intersection of the two lines is slightly to the left of curve -4 on Figure 7.

If a vertical line is drawn to the frequency axis from the point where the 200 pound line intersects curve -4, the natural frequency value is 12.5 Hz. This is slightly higher than the 12.2 Hz calculated. However, it is close enough so that the -4 could be selected.

If $f_n = 12.5$ Hz is put into the transmissibility equation

$$T = \frac{1}{\left(\frac{f_f}{f_n}\right)^2 - 1}$$

$T = .21$ or approximately 79% isolation.

One should note that the magnitude of the input would affect the system's natural frequency. The modulus of elastomeric materials is strain sensitive, so at very small inputs the natural frequency will be slightly more than calculated and slightly less at very high inputs.

"Shortcuts"

The preceding transmissibility equation is graphically produced in Figure 8.

Using the previous example, where the forcing frequency is 30 Hz and 80% isolation is desired: Draw a horizontal line across Figure 8 located at 30 Hz on the forcing frequency axis to the intersection of the 80% isolation line. Draw a vertical line down to the natural frequency axis. This point defines the required system's natural frequency to be approximately 12 Hz.

From the natural frequency equation given on page 6, it can be shown that the natural frequency is a function of the isolator static deflection (ΔS). That is:

$$\text{if } f_n = 3.13 \sqrt{\frac{K}{W}}$$

$$\text{and } K = \frac{W}{\Delta S} \text{ then } f_n = 3.13 \sqrt{\frac{1}{\Delta S}}$$

If load vs. frequency curves are not available, then Figure 9 can be used to help select an isolator. The desired natural frequency is determined as in the example previously discussed (12.2 Hz). Draw a horizontal line from 12.2 Hz on the natural frequency axis to the intersection of the dark diagonal line. Draw a vertical line down to the intersection of the static deflection axis. This point, approximately .065 inches, is the static deflection required of the isolator to produce a natural frequency of 12.2 Hz. Load deflection curves can now be used to determine what isolator will produce .065 inches deflection at the given load.

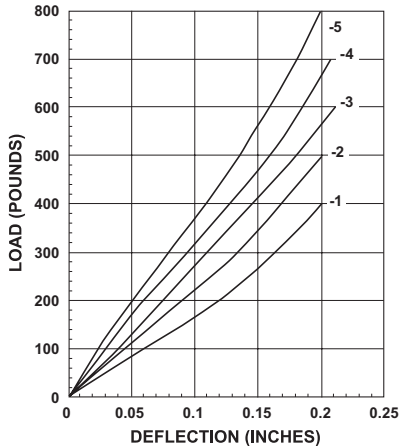


Figure 6

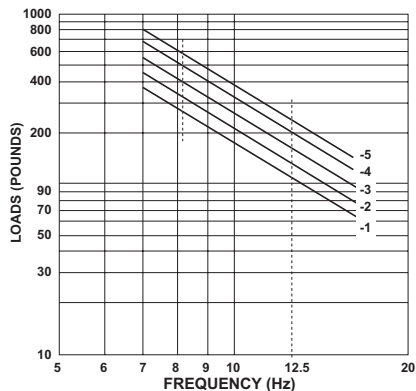


Figure 7

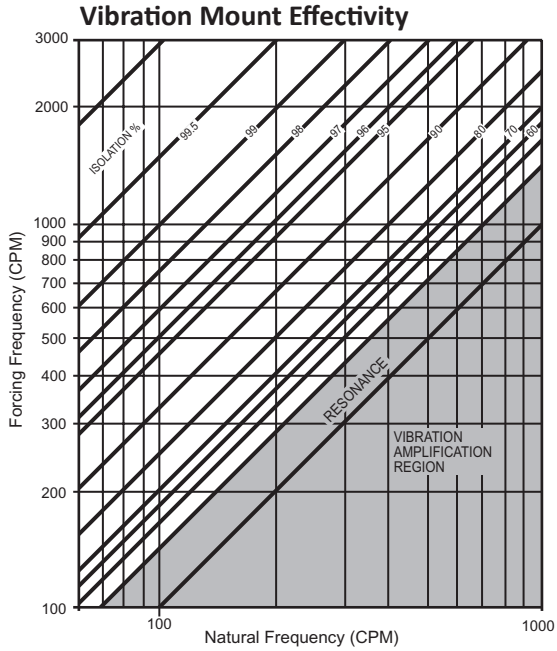


Figure 8

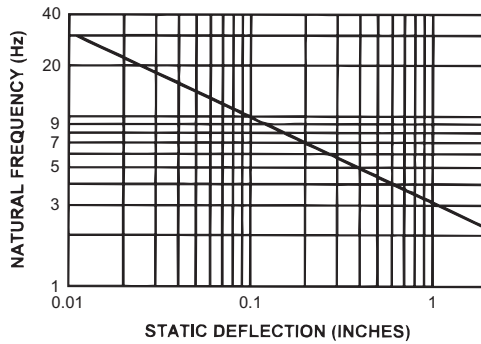


Figure 9

Shock

Shock is normally classified as a transient phenomenon in contrast to vibration that is normally a steady-state phenomenon.

Shock isolation is considerably different from vibration isolation. A shock isolator is an energy storage device that stores the input energy by deflecting and then releasing that energy over a longer period of time. The energy is released at the natural frequency of the shock isolation system.

Shock is normally defined by a pulse or a free-fall impact. Some typical pulse shapes are half-sine, triangular, rectangular and versed-sine.

A convenient way to analyze shock problems is to use the velocity change method. Figure 10 gives equations to calculate the velocity change (V) for various shock excitations.

The transmitted shock (G_t) is given by:

$$G_t = \frac{V(2\pi f_n)}{g} = \frac{V(f_n)}{61.4}$$

The associated dynamic deflection (Δd) can be determined by:

$$\Delta d = \frac{V}{2\pi f_n}$$

EXAMPLE

A piece of equipment is subjected to a 24-inch (h) free-fall drop. It is known that the equipment cannot withstand more than 25 g's, i.e. the fragility level is 25 g's. The equipment weighs 400 pounds.

Using the transmitted shock (G_t) equation and setting G_t to 25 and solving for f_n :

$$G_t = \frac{V(f_n)}{61.4}$$

$$\text{or } f_n = \frac{G_t(61.4)}{V} = \frac{25(61.4)}{V}$$

$$\text{From Figure 10, } V = \sqrt{2gh}$$

where: h = drop height in inches
g = acceleration due to gravity
(386 in/sec²)

$$\text{or } V = \sqrt{2(386)(24)} = 136 \text{ in/sec}$$

The required natural frequency is:

$$f_n = \frac{25(61.4)}{136} = 11.3 \text{ Hz}$$

The required dynamic deflection (Δd) is:

$$\Delta d = \frac{V}{2\pi f_n} = \frac{136}{2\pi(11.3)} = 1.92 \text{ inches}$$

Now calculate the required dynamic stiffness (K) for the system.

$$\text{Since } f_n = 3.13 \sqrt{\frac{K}{W}}$$

$$K = \frac{(f_n)^2 W}{(3.13)^2} = \frac{(11.3)^2 W}{(3.13)^2}$$

$$\text{or } K = 5213 \text{ lbs/inch}$$

We have now found that to protect the equipment from the 24-inch drop we need"

1. A system natural frequency of 11.3 Hz
2. A dynamic deflection of 1.92 inches
3. A dynamic system stiffness of 5213 lbs/inch.

All three of these conditions must be met to assure that no more than 25 g's is transmitted to the equipment.

Typical Shock Excitations

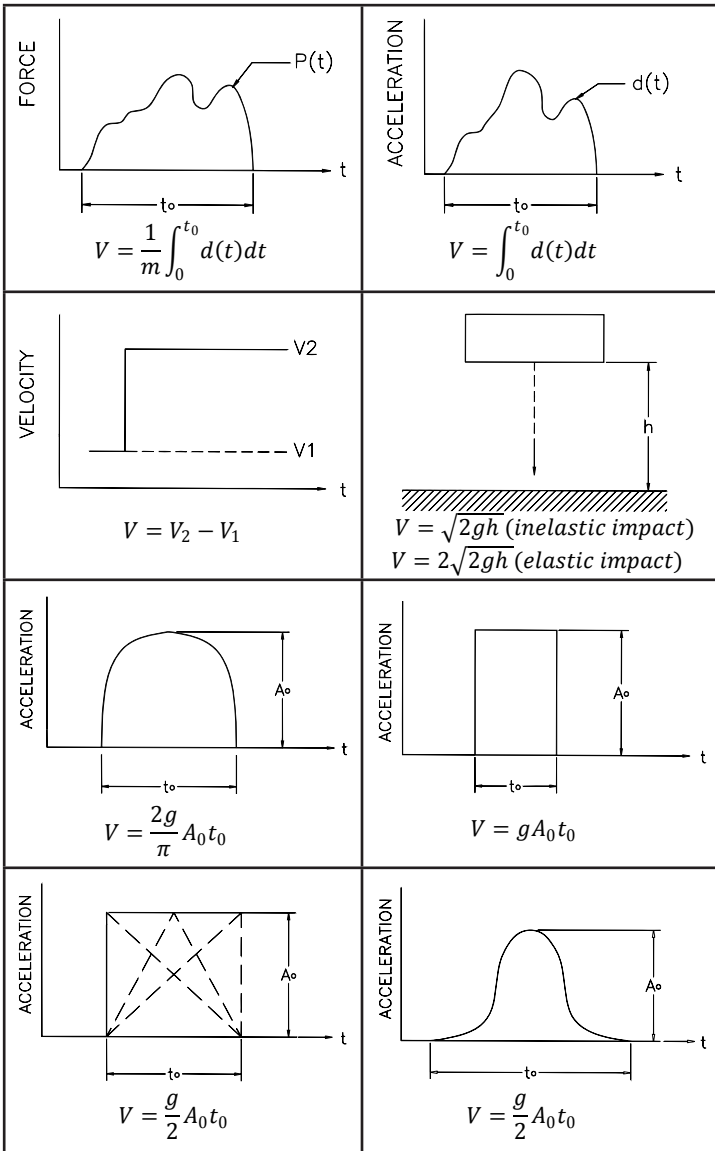


Figure 10

Elastomer Properties

The manufacture offers a variety of standard elastomers for all types of isolators. Proper selection of elastomer based on mechanical properties, temperature range, and chemical resistance is crucial to optimizing the life of the isolators. The following is basic information for standard elastomer options. Other elastomers and custom compounds are also available.

<p>Neoprene:</p> <p>Adhesion to Metal: Excellent</p> <p>Tensile Strength: Excellent</p> <p>Compression Set: Fair</p> <p>Damping Factor (C/Cc): 0.05</p> <p>Operating Temperature: -20 to 180°F</p> <p>Oil Resistance: Good</p> <p>Ozone Resistance: Good</p> <p>Weather / Sunlight Aging: Good</p> <p>Heat Aging: Good</p>	<p>Butyl:</p> <p>Adhesion to Metal: Good</p> <p>Tensile Strength: Excellent</p> <p>Compression Set: Fair</p> <p>Damping Factor (C/Cc): 0.15</p> <p>Operating Temperature: -20 to 200°F</p> <p>Oil Resistance: Fair</p> <p>Ozone Resistance: Good</p> <p>Weather / Sunlight Aging: Good</p> <p>Heat Aging: Good</p>
<p>Natural Rubber:</p> <p>Adhesion to Metal: Excellent</p> <p>Tensile Strength: Excellent</p> <p>Compression Set: Good</p> <p>Damping Factor (C/Cc): 0.05</p> <p>Operating Temperature: -20 to 180°F</p> <p>Oil Resistance: Poor</p> <p>Ozone Resistance: Poor</p> <p>Weather / Sunlight Aging: Poor</p> <p>Heat Aging: Fair</p>	<p>Silicone:</p> <p>Adhesion to Metal: Good</p> <p>Tensile Strength: Good</p> <p>Compression Set: Fair</p> <p>Damping Factor (C/Cc): 0.05 - 0.08</p> <p>Operating Temperature: -80 to 400°F</p> <p>Oil Resistance: Fair</p> <p>Ozone Resistance: Excellent</p> <p>Weather / Sunlight Aging: Excellent</p> <p>Heat Aging: Excellent</p>
<p>Nitrile:</p> <p>Adhesion to Metal: Excellent</p> <p>Tensile Strength: Excellent</p> <p>Compression Set: Good</p> <p>Damping Factor (C/Cc): 0.05</p> <p>Operating Temperature: -20 to 180°F</p> <p>Oil Resistance: Excellent</p> <p>Ozone Resistance: Fair</p> <p>Weather / Sunlight Aging: Fair</p> <p>Heat Aging: Good</p>	<p>High Damped Silicone:</p> <p>Adhesion to Metal: Good</p> <p>Tensile Strength: Good</p> <p>Compression Set: Fair</p> <p>Damping Factor (C/Cc): 0.15 - 0.20</p> <p>Operating Temperature: -80 to 350°F</p> <p>Oil Resistance: Fair</p> <p>Ozone Resistance: Excellent</p> <p>Weather / Sunlight Aging: Excellent</p> <p>Heat Aging: Excellent</p>

Allegis Corp. offers complete engineering analysis for all types of applications. The information below is required for a full six degree of freedom analysis of engine isolation applications. For other applications, please contact Sales@Allegiscorp.com

Customer Information

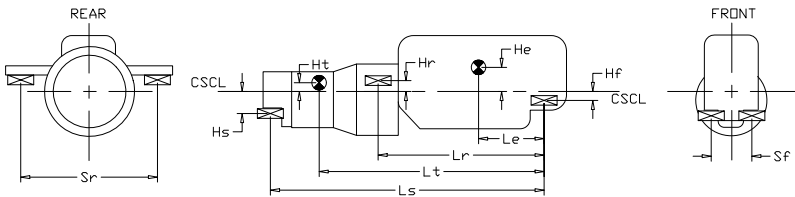
Company _____ Contact _____
Phone _____ Fax _____ Email _____
Project Name _____

Engine Data

Engine Model & Manufacturer _____
Engine Operating Speed (rpm) _____
Engine Idle Speed (rpm) _____
Engine Weight with accessories (lb or Kg) _____
Engine Rated Power (Hp or KW) _____
Number of Cylinders _____
Stroke (Two or Four) _____
Output Torque (If Available) (N-m or ft-lb) _____
Make and Model of Power Take-Off Equipment* _____
Weight of Power Take-Off Equipment* (lb or Kg) _____

Mounting Location

*Reference the following drawings to fill out remaining data - Please note units



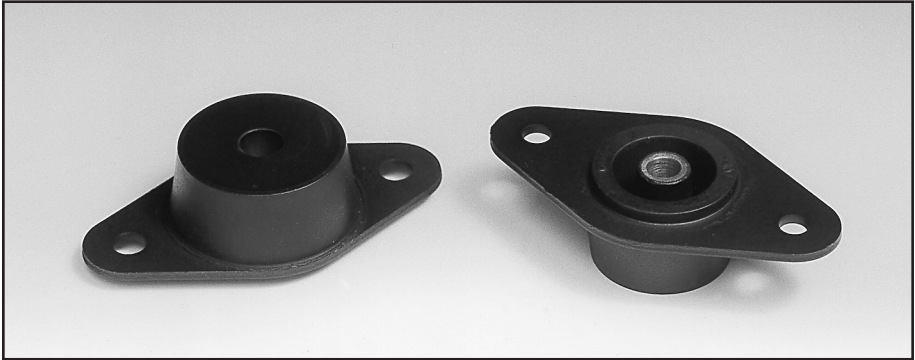
Distance from Engine C.G. to CSCL (He) _____
Distance from Engine C.G. to Front Mount (Le) _____
Distance from Front Mount to CSCL (Hf) _____
Distance from Rear Mount to CSCL (Hr) _____
Distance from Front Mount to Rear Mount (Lr) _____
Front Mounting Spread (Sf) _____
Rear Mounting Spread (Sr) _____
Distance from Power Take-Off C.G. to CSCL (Ht) _____
Distance from Power Take-Off C.G. to Front Mount (Lt) _____
Distance from Tail Support (if any) to Front Mount (Ls) _____
Distance from Tail Support to CSCL (Hs) _____

General Dimensions (Equipment Moments of Inertia may be given in place of this info.)

Height of Engine _____
Width of Engine _____
Length of Engine _____
Height of Power Take-Off Equipment* _____
Width of Power Take-Off Equipment* _____
Length of Power Take-Off Equipment* _____

*Note: Power Take-Off Equipment includes transmissions, compressors, generators etc.

Fail-Safe Compression Mounts

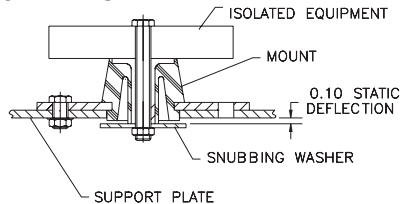


These fail-safe isolators are ideal for isolation of diesel engines and generators used in construction equipment, recreational vehicles and off-road equipment. The low natural frequency allows them to be used for computer and electronic equipment when there is a need for a “ruggedized” installation. They are also excellent isolators for compressors, motors, pumps and other machinery when skid mounted.

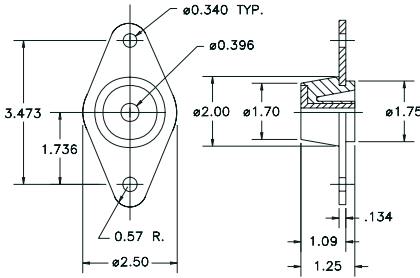
- Three sizes available for load ranges of 50 to 550 lbs.,
- High stiffness ratio of 6:1, axial-to-radial.
- Standard elastomer is neoprene,
- Resistant to ozone, fuel and oils.
- Temperature range of -20°F to $+180^{\circ}\text{F}$.
- Optional materials such as nitrile, butyl, silicone and others are available to meet your environmental conditions or military specifications.
- These mounts are fail-safe when used with snubbing washers and installed as shown. **See page 73 for snubbing washers.**

Part No.	Axial Static Load Rating: Nominal (lbs)	Color Code
51700-1	50	Yellow/Gold
51700-3	90	Red/Gold
51700-5	150	Green/Gold
51700-7	215	Blue/Gold
51700-9	300	White/Gold
51641-2	100	Yellow/Gold
51641-4	155	Red/Gold
51641-6	230	Green/Gold
51641-8	320	Blue/Gold
51641-10	420	White/Gold
51716-2	120	Yellow/Gold
51716-4	185	Red/Gold
51716-6	250	Green/Gold
51716-8	400	Blue/Gold
51716-10	550	White/Gold

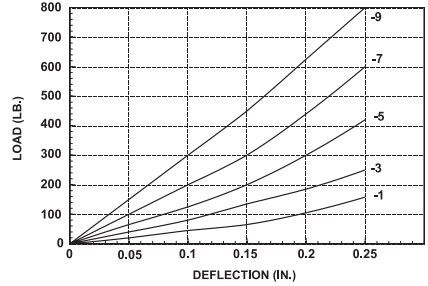
INSTALLATION



51700 Series

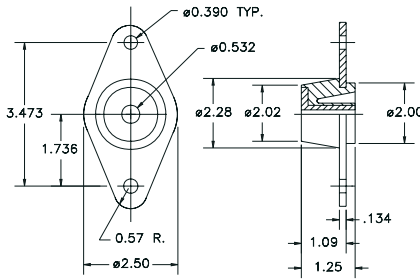


51700 SERIES AXIAL LOAD VS. DEFLECTION

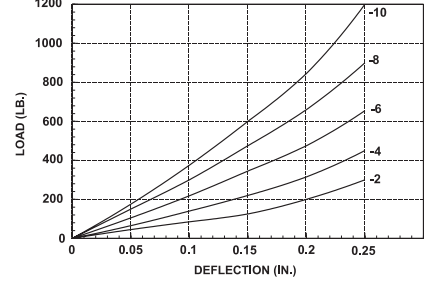


1/8" Recommended Support Structure Thickness

51641 Series

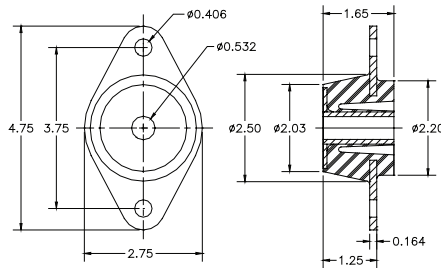


51641 SERIES AXIAL LOAD VS. DEFLECTION

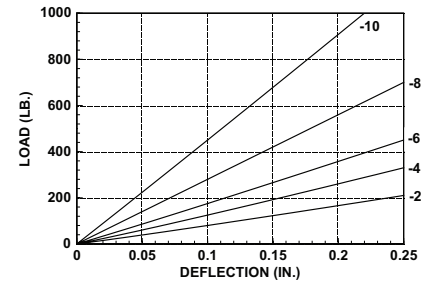


1/8" Recommended Support Structure Thickness

51716 Series

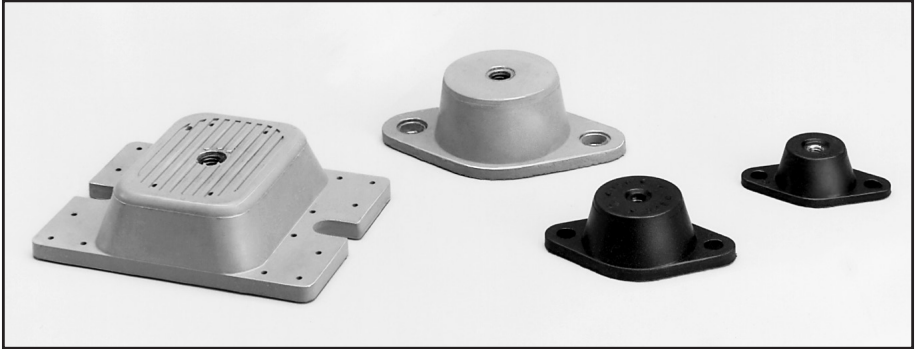


51716 SERIES AXIAL LOAD VS. DEFLECTION



1/4 to 3/8" Recommended Support Structure Thickness

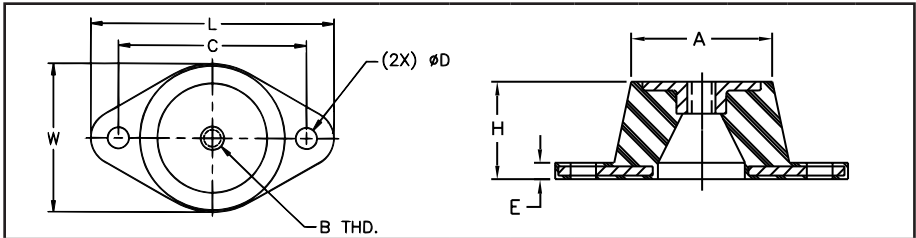
Compression Mounts



Standard Deflection

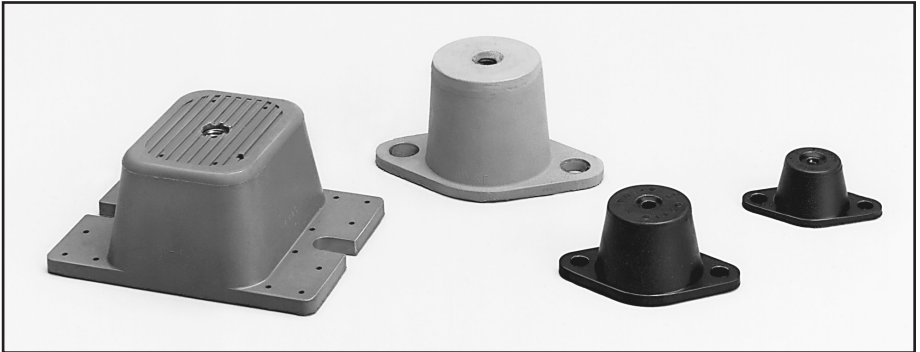
- Natural Frequencies as low as 6 Hz at maximum loads
- Constructed of Neoprene and steel
- Metric threads available

Part Numbers 52501 thru 52544 are also available in Silicone for an operating temperature range of -80° to 300°F. Add -S to part number for silicone.



Part No.	Color Code	Max. Load (lbs)	Max. Deflection (in)	L (in)	W (in)	H (in)	A (in)	B	C (in)	D (in)	E (in)
52501	Blue	35	0.20"	3 ³ / ₈	1 ³ / ₄	1	1 ¹ / ₄	5 ⁵ / ₁₆ -18	2 ³ / ₈	1 ¹ / ₃₂	3 ³ / ₁₆
52502	Black	45									
52503	Red	70									
52504	Green	120									
52521	Blue	135	0.25	3 ³ / ₈	2 ³ / ₈	1 ¹ / ₄	1 ³ / ₄	3 ³ / ₈ -16	3	1 ¹ / ₃₂	7 ⁷ / ₃₂
52522	Black	170									
52523	Red	240									
52524	Green	380									
52525	Gray	550									
52541	Black	250	0.25	5 ¹ / ₂	3 ³ / ₈	1 ³ / ₄	2 ¹ / ₂	1 ¹ / ₂ -13	4 ¹ / ₈	9 ⁹ / ₁₆	1 ¹ / ₄
52542	Red	525									
52543	Green	750									
52544	Gray	1100									
52561-2	Black	1500	0.25	6 ¹ / ₄	4 ³ / ₈	1 ⁵ / ₈	3 ³ / ₄	1 ¹ / ₂ -13	5	9 ⁹ / ₁₆	3 ³ / ₈
52562-2	Red	2250									
52563-2	Green	3000									
52564-2	Gray	4000									

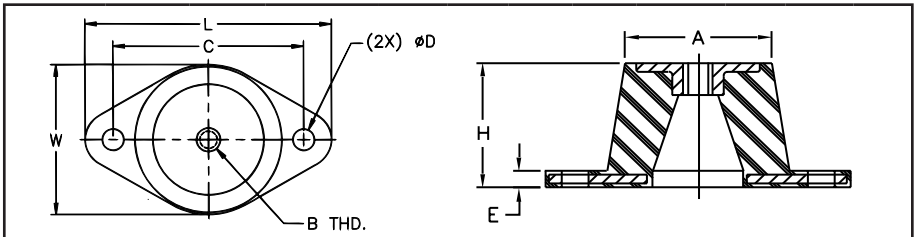
Note: 52561-2 through 52564-2 have a rectangular base



Double Deflection

- Natural Frequencies as low as 4.5 Hz at maximum loads
- Constructed of Neoprene and steel
- Metric threads available

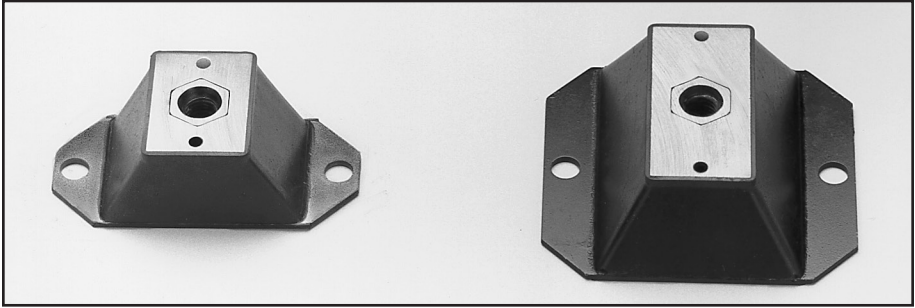
Part Numbers 52511 thru 52554 are also available in Silicone for an operating temperature range of -80° to 300°F. Add -S to part number for silicone.



Part No.	Color Code	Max. Load (lbs)	Max. Deflection (in)	L (in)	W (in)	H (in)	A (in)	B	C (in)	D (in)	E (in)
52511	Blue	35	0.40"	3 1/8	1 3/4	1 1/4	1 1/4	5/16-18	2 3/8	1 1/32	1 1/32
52512	Black	45									
52513	Red	70									
52514	Green	120									
52531	Blue	135	0.50	3 3/8	2 3/8	1 3/4	1 3/4	3/8-16	3	1 1/32	7/32
52532	Black	170									
52533	Red	240									
52534	Green	380									
52535	Gray	550									
52551	Black	250	0.50	5 1/2	3 3/8	2 7/8	2 1/2	1/2-13	4 7/8	9/16	1/4
52552	Red	525									
52553	Green	750									
52554	Gray	1100									
52571-2	Black	1500	0.50	6 1/4	4 5/8	2 3/4	3 3/4	1/2-13	5	9/16	3/8
52572-2	Red	2250									
52573-2	Green	3000									
52574-2	Gray	4000									

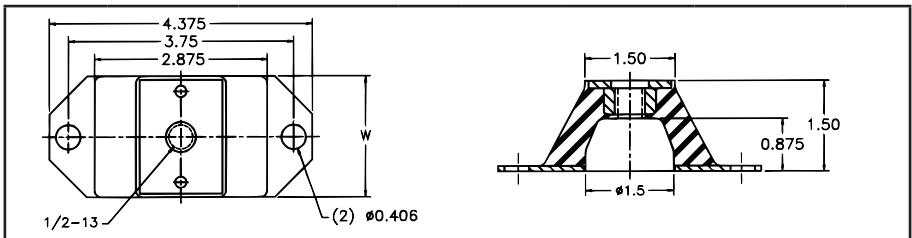
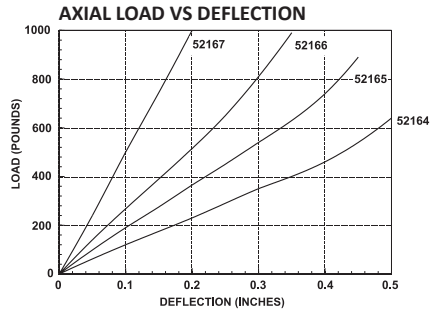
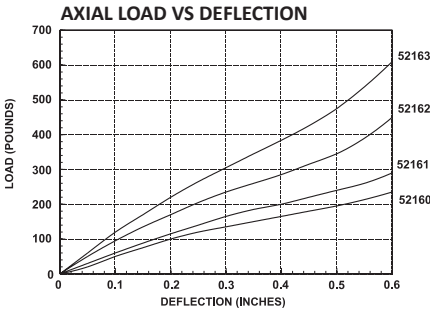
Note: 52571-2 through 52574-2 have a rectangular base

Compression Mounts

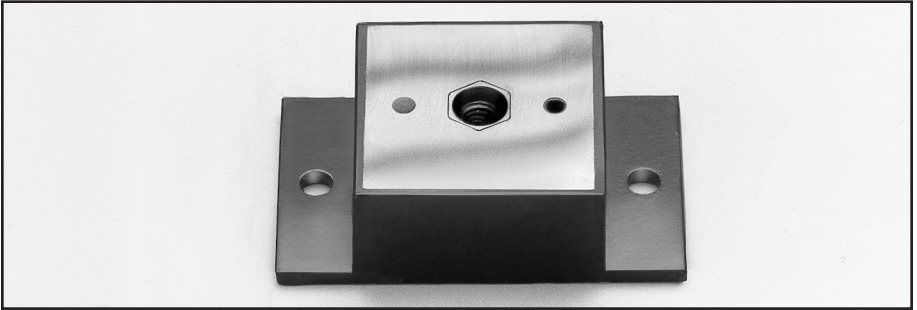


These rugged, high performance mounts are normally used for vertically applied loads to prevent the transmission of noise and vibration caused by the rotation of unbalanced equipment such as centrifuges, blowers, pumps, vibrators and air handling systems.

- Isolation of disturbing frequencies as low as 15 Hz
- Neoprene elastomer resistant to oil, fuel, and ozone
- -20° to +180°F operating temperature range



Part No.	Color Code	Load Range (lbs.)	W (in.)	Part No.	Color Code	Load Range (lbs.)	W (in.)
52160	Yellow	20-60	2	52164	Red	70-200	4
52161	Red	40-100	2	52165	Green	140-280	4
52162	Green	60-150	2	52166	Blue	240-500	4
52163	Blue	80-200	2	52167	White	450-700	4

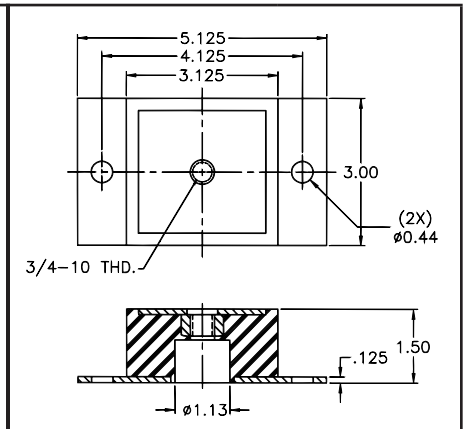
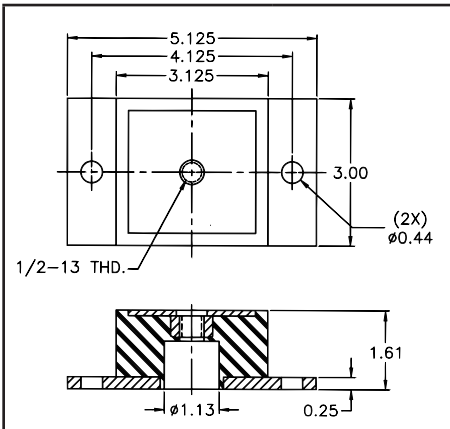
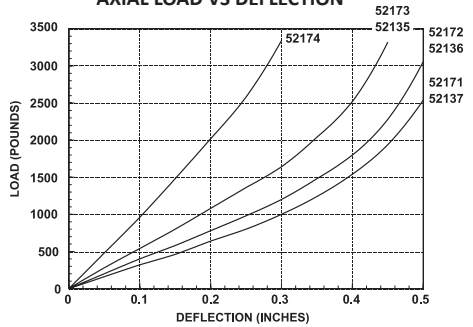


Heavy Duty

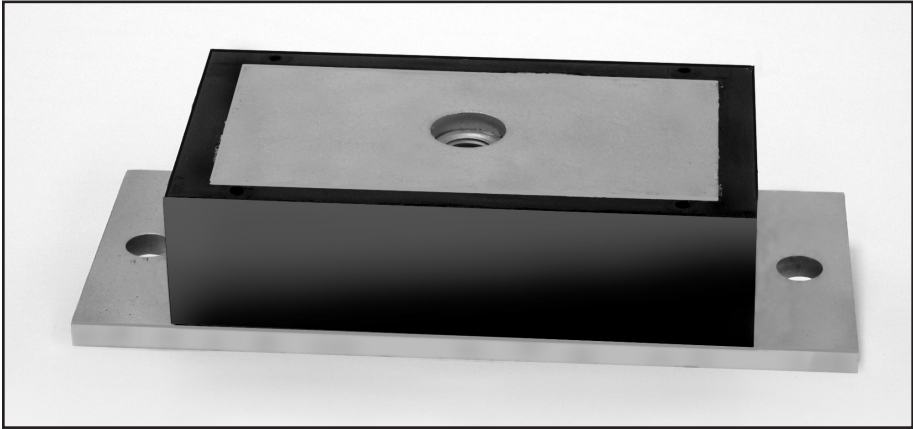
This compression mount design is for applications under heavy industrial machinery requiring efficient vibration, noise, and shock isolation. Typical applications include pumps, compressors, and generators.

- Low natural frequency of 8-15 Hz
- Can be mounted in pairs for lower natural frequencies (6-10 Hz)
- Constructed of cold-rolled steel and oil resistant neoprene

AXIAL LOAD VS DEFLECTION

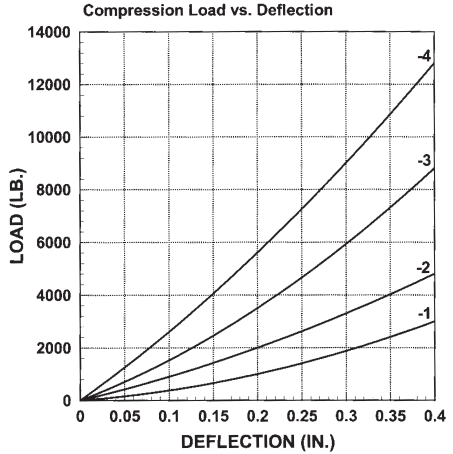
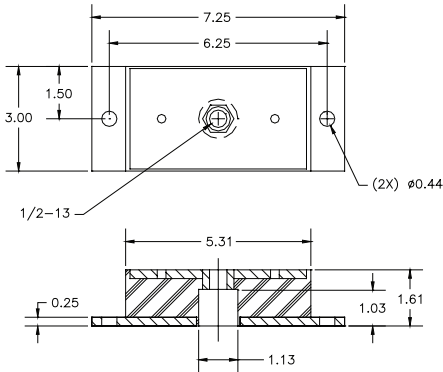


Part No.	Color Code	Max. Load (lbs.)	Part No.	Color Code	Max. Load (lbs.)
52171	Red	700	52135	White	1500
52172	Green	1000	52136	Green	1000
52173	Blue	1500	52137	Red	700
52174	White	2500			

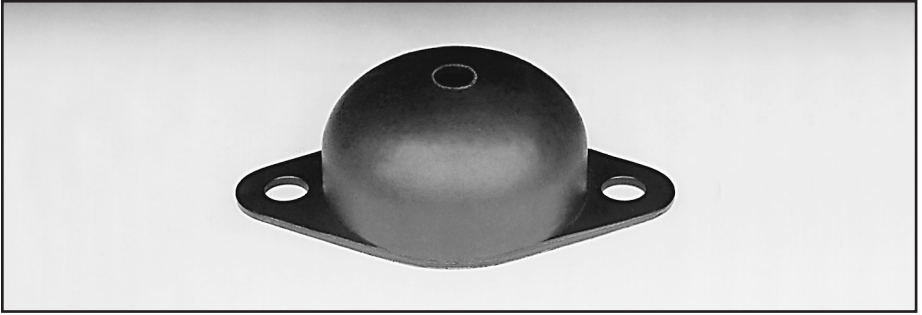


Features:

- High Load Capacity
- Approx. 8 Hz Natural Frequency at rated load
- Low Maintenance
- Constructed of steel and neoprene
- Resistant to most oils, solvents, and ozone
- 5:1 vertical to horizontal stiffness ratio

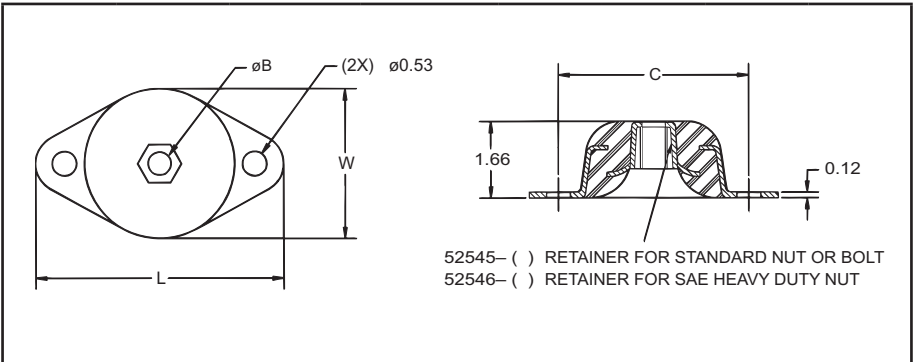


Part No.	Color Code	Max. Load (lbs.)
52054-1	Green	1500
52054-2	Blue	2000
52054-3	White	3000
52054-4	Purple	4400



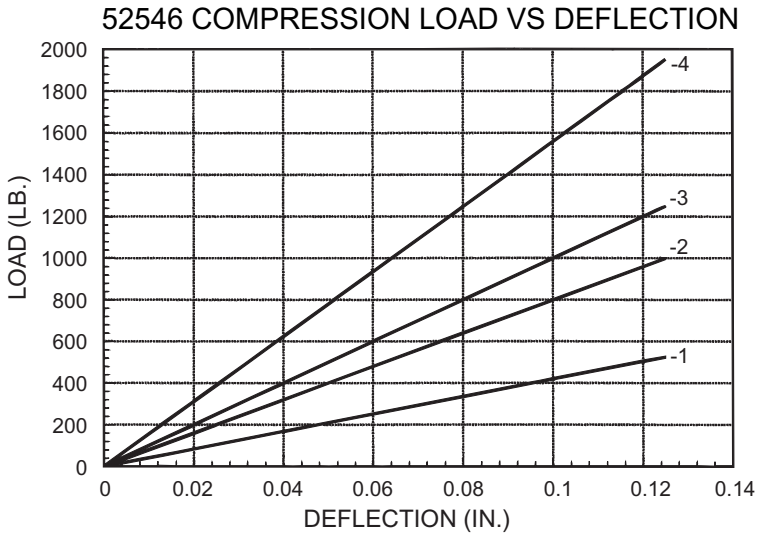
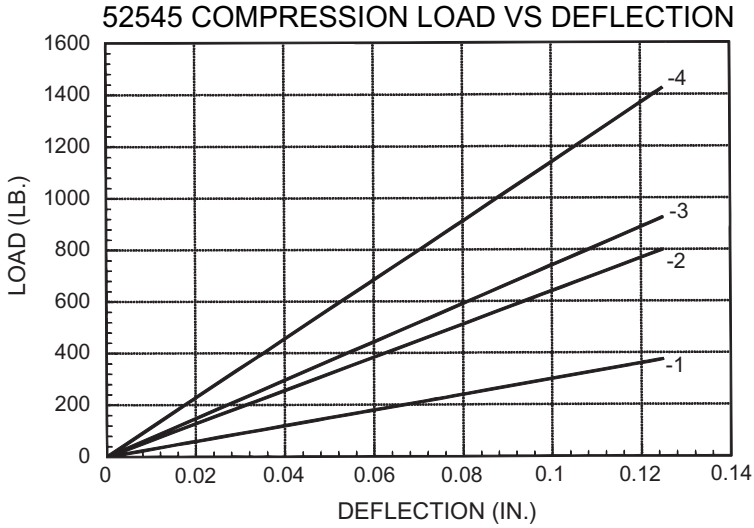
The interlocking metals of the Dome Mount series result in a fail-safe mount. This feature and low stiffness make them ideal for isolating medium to large size engines as well as fans, blowers, pumps and air handling equipment. They have an approximate natural frequency of 9Hz at maximum load.

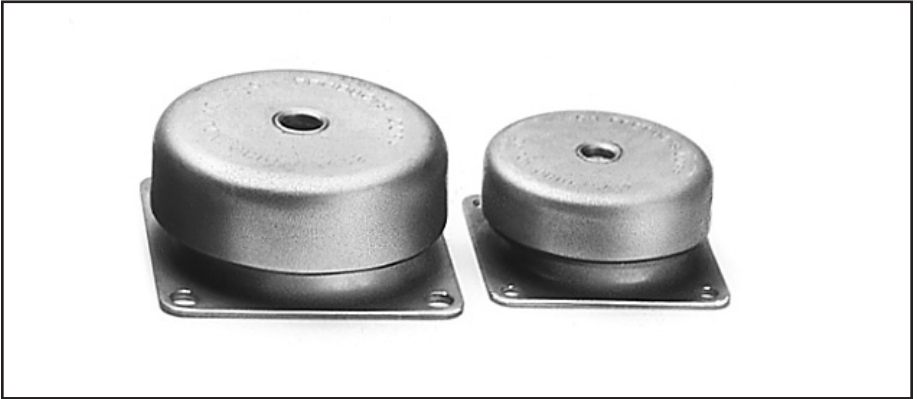
- Internal metal components provide fail-safe design
- Standard neoprene elastomer resistant to oil, fuel, and solvents
- 9 Hz natural frequency at rated loads



Part No.	Color Code	Max. Load (lbs.)	Spring Rate (lbs/in.)	L	W	C	B
52545-1	Red	375	3000	5.38	3.25	4.12	0.53
52545-2	Green	800	6400				
52545-3	Blue	925	7400				
52545-4	White	1425	11500				
52546-1	Red	525	4150	6.25	3.94	5.00	0.78
52546-2	Green	1000	8300				
52546-3	Blue	1250	10000				
52546-4	White	1950	15600				

Dome Mounts





Three Way Protection:

Help your sensitive equipment defend itself against high-impact shocks by installing Cupmounts. These rugged and versatile mounts also control vibration and interrupt structure-borne noise. Under normal loading conditions, they exhibit natural frequencies of approximately 25 Hz and isolate disturbing frequencies above 35 Hz.

Fail-safe Construction:

Available in four basic sizes, these compact, low-profile isolators have interlocking components of steel (other metals available) and standard neoprene or high damped silicone elastomers. They can be used to mount your equipment in compression, tension and shear applications. No matter how the mount is oriented or the load is directed, the elastomer is in compression.

Land, Sea and Air Uses:

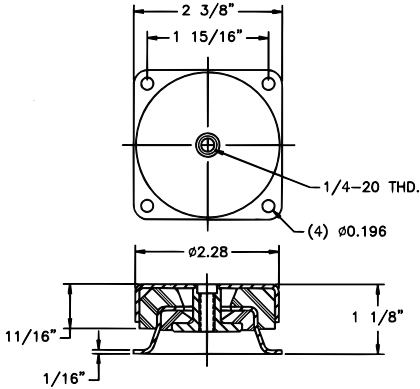
Land, Sea and Air Uses: Great resistance to severe shock makes cupmounts ideal for protecting sensitive equipment on rough-terrain vehicles or railroad cars. Factories of all types use them for everything from numerically controlled machinery or electronic control panels to blowers. And they stand guard against shock on shipboard equipment, shipping containers, and both aircraft and missile electronics.

Features:

- Compact Fail-Safe Design
- Capable of mounting in any orientation (compression, shear, tension)
- Standard Neoprene elastomer for -20°F to 180°F
- Optional High Damped Silicone elastomer for -80°F to 300°F
- Available with standard threads, metric threads, or through-hole cores
- Zinc Plated steel cap, base, and core

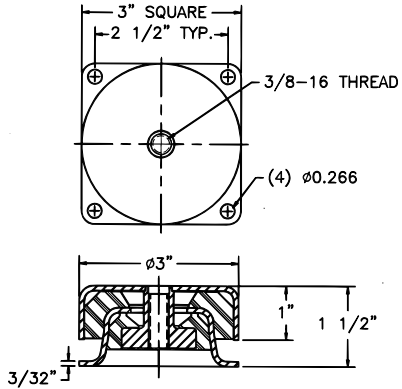
Cupmounts

Size 1

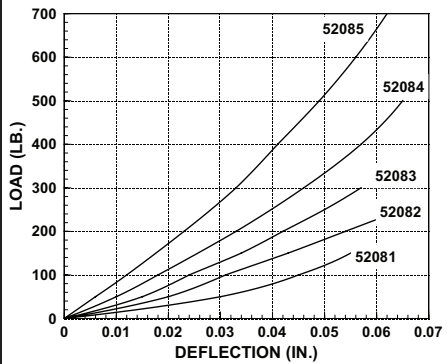
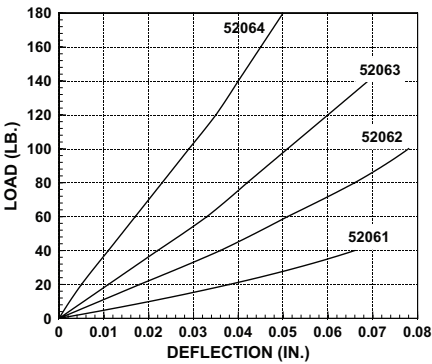


Also available with 5/16-18 threads

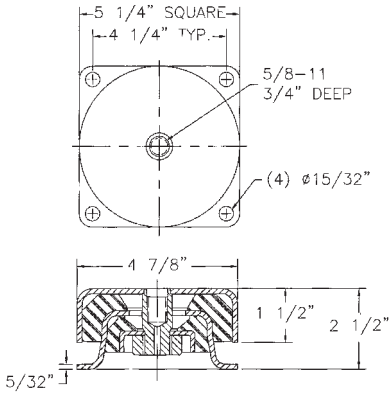
Size 2



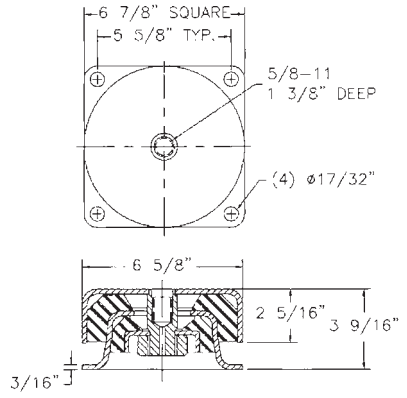
Neoprene Elastomer Part No.	High Damped Silicone Elastomer Part No.	Maximum Stationary Load (lbs)	Vehicular Load Range (lbs)	Neoprene Elastomer Part No.	High Damped Silicone Elastomer Part No.	Maximum Stationary Load (lbs)	Vehicular Load Range (lbs)
52061	52066	20	8-14	52081	52095	50	15-30
52062	52067	40	14-26	52082	52096	100	30-50
52063	52068	70	26-38	52083	52097	150	50-80
52064	52069	100	38-62	52084	52098	250	80-110
				52085	52099	400	110-160



Size 3



Size 4



Neoprene
Elastomer
Part No.

Maximum
Stationary Load
(lbs)

Vehicular
Load
Range
(lbs)

Neoprene
Elastomer
Part No.

Maximum
Stationary Load
(lbs)

Vehicular
Load Range
(lbs)

52101

250

65-100

52111

600

80-120

52102

400

100-150

52112

800

120-185

52103

650

155-200

52113

1400

185-285

52104

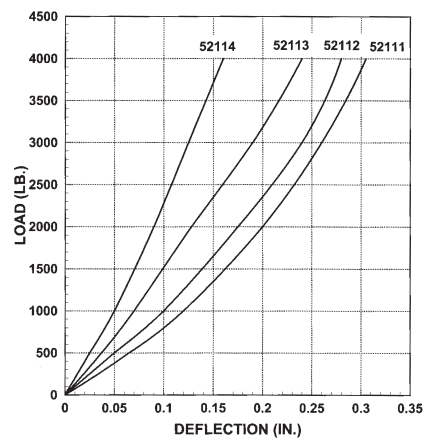
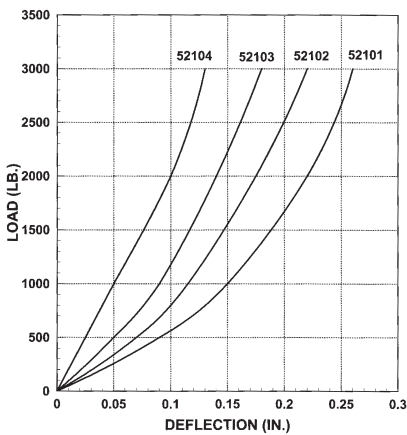
900

200-285

52114

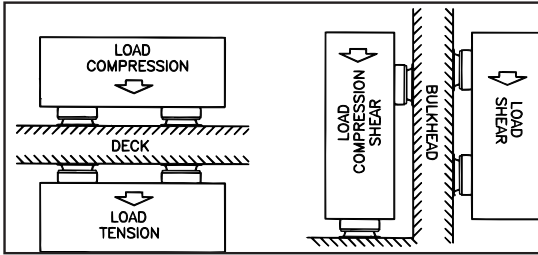
1800

285-530



Cupmounts

Mounting Configurations



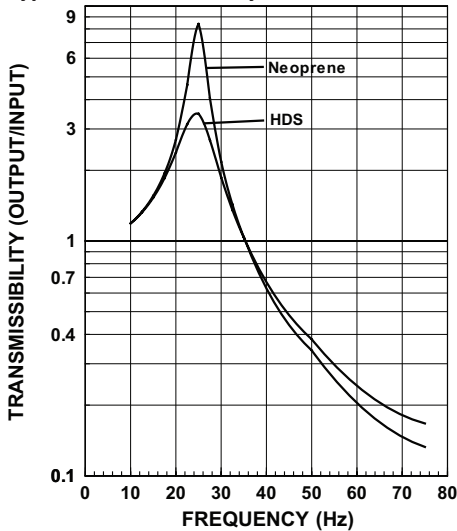
Cupmounts

Preferred for:

- Protection against vibration, shock and noise
- Multi-directional loading
- Fail-Safe construction
- Rugged, compact design
- Load range to 1800 pounds
- Choice of elastomers

Since the elastomer is always in compression, cupmounts operate with equal efficiency in upright, inverted or bulk-head mounting positions, regardless of how the mount is oriented or the load directed.

Typical Transmissibility



Elastomer Data

Environment	Neoprene	Silicone
Temperature	-20° to +180°F	-80° to +300°F
Ozone Resistance	Good	Excellent
Oil Resistance	Excellent	Good
Heat Aging	Good	Excellent



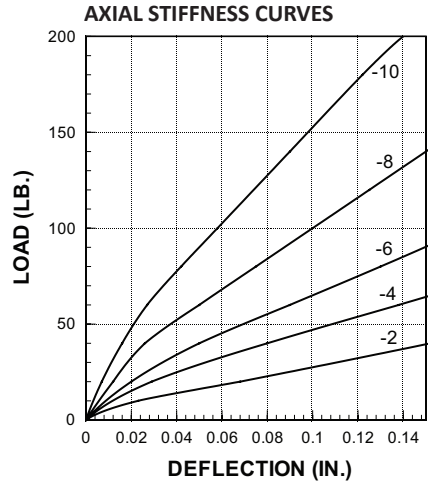
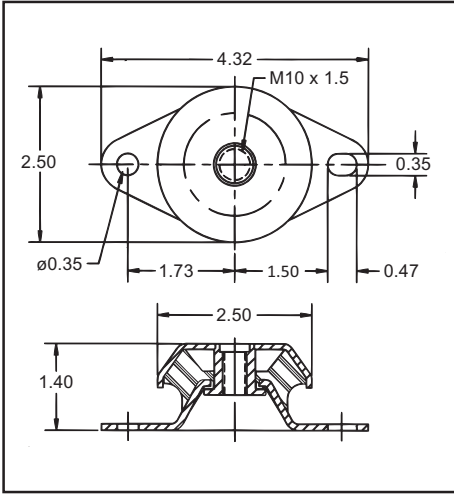
Stable Flex Mounts have been specifically engineered to isolate light weight, low speed equipment. The complex geometry of the elastomer element in the mount provides a low axial stiffness and excellent lateral stability. Common Applications include: Small Engines, Generators, Compressors, Pumps, Other Industrial Equipment, and Various Mobile Applications.

Features:

- Fail-Safe Captive Design
- 8 Hz Natural Frequency at rated loads
- Load range from 30 to 180 lbs.
- Neoprene elastomer resistant to oil, fuel, and solvents
- Standard zinc plated steel components
- Specialty elastomers available including High Damped Silicone

++++++ NEW ++++++
**Now available with Stainless Steel
components for corrosive environments.**

Stable-Flex Mounts



Zinc Plated Part No.	Stainless Steel Part No.	Rated Axial Load (lbs.)	Color Code
52045-2	52045-2SS	30	Yellow
52045-4	52045-4SS	55	Red
52045-6	52045-6SS	75	Green
52045-8	52045-8SS	120	Blue
52045-10	52045-10SS	180	White

Notes:

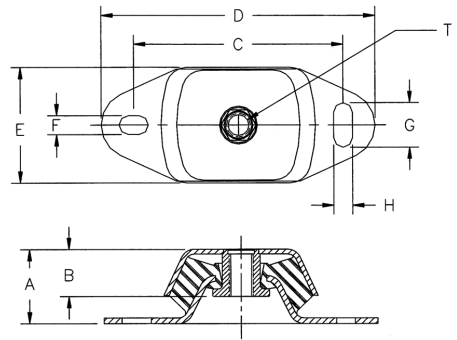
Add 'A' to part number for 3/8-16 Thread

Stainless Steel parts have two slotted base holes



The Heavy Duty Stable Flex Mounts Series includes three sizes of captive isolators for rugged applications. The mounts are constructed of zinc plated steel and neoprene. Typical applications include diesel generator sets and marine engines.

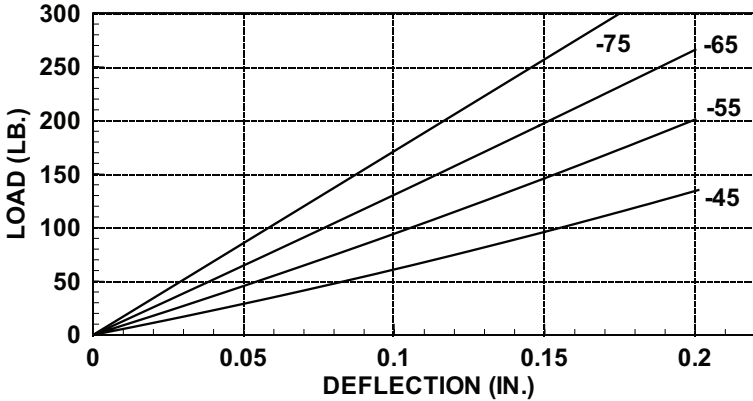
The mounts offer a low vertical natural frequency of 8 Hz at rated load. Axial stiffness curves are included on the following page. Horizontal stiffness in the long direction is 2.5 times the axial stiffness and in the short direction it is 0.75 times the axial stiffness.



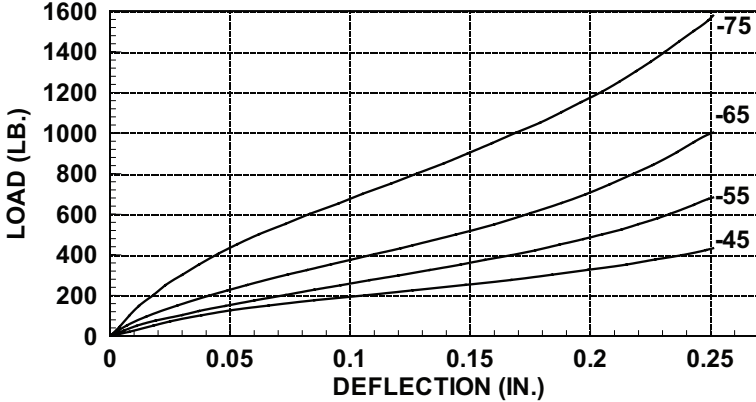
Part No.	A	B	C	D	E	F	G	H	T	Max. Load (lbs)
52010-45	1.52	0.79	3.94	4.72	2.36	0.56	0.55	0.43	M12	110
52010-55										145
52010-65										220
52010-75										265
52011-45	1.97	1.10	5.51	7.20	2.95	0.51	1.18	0.51	M16	330
52011-55										465
52011-65										660
52011-75										990
52012-45	2.86	1.65	7.17	8.98	4.41	0.71	1.34	0.71	M20	770
52012-55										1145
52012-65										1550
52012-75										2200

Heavy Duty Stable-Flex Mounts

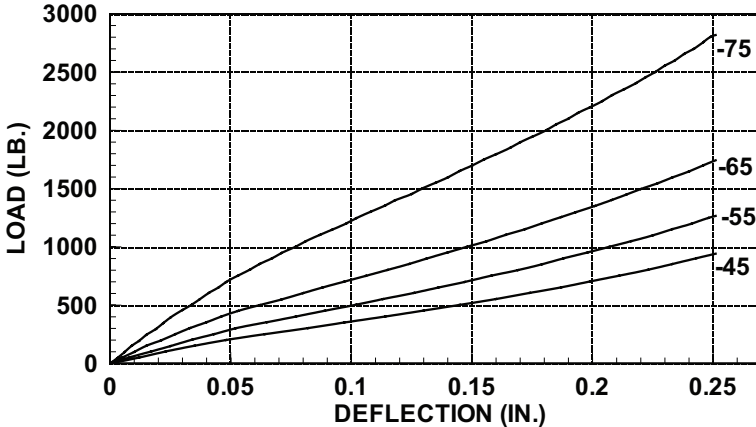
52010 SERIES AXIAL STIFFNESS

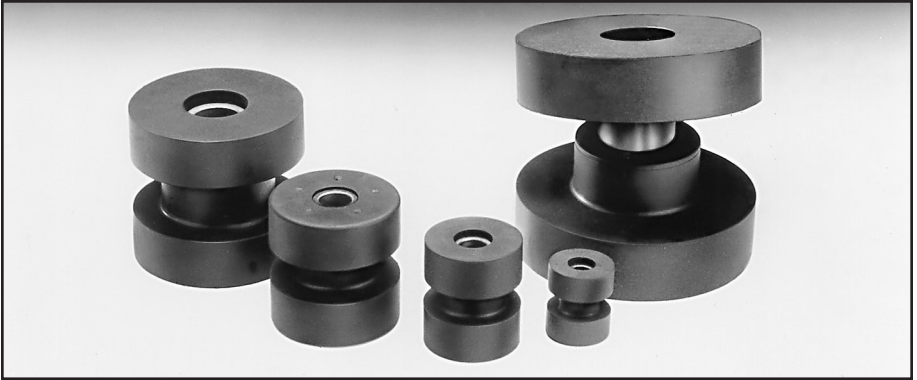


52011 SERIES AXIAL STIFFNESS



52012 SERIES AXIAL STIFFNESS



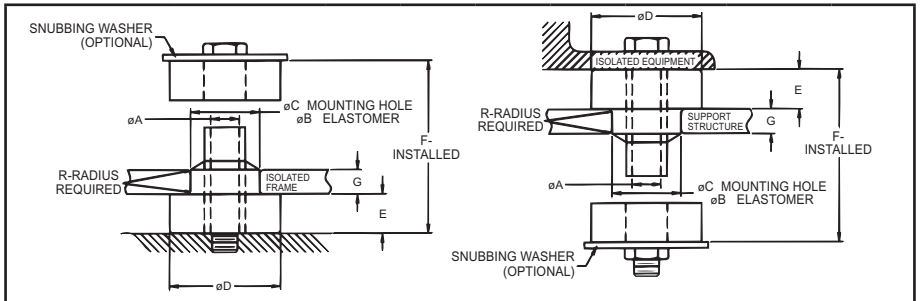


Low-cost, easy-to-install Universal Mounts provide fail-safe, all-attitude isolation for vehicle cabs, engines, transmissions and other equipment up to 4550 lbs. in mobile applications.

Consisting of two parts—an elastomeric ring and an elastomeric bushing bonded to a center metal spacer—Universal Mounts are held in place with a through bolt.

Features:

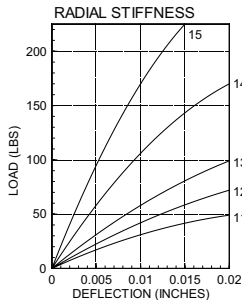
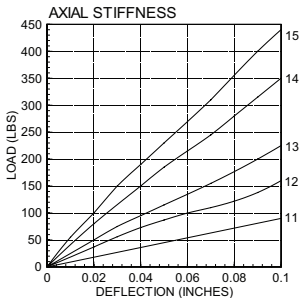
- Fail-Safe Installation when proper snubbing washers (Page 73) are used
- Capable of withstanding loads in all axes
- Excellent rebound protection
- Standard Neoprene elastomer resistant to oil, fuel, and solvents
- Optional elastomers available including High Damped Silicone



Part No.	A	B	C	D	E	F	G		R
							Thin Support	Thick Support	
60011 thru 15	0.39	0.78	0.75	1.25	0.50	1.25	0.37	N/A	0.03
60021 thru 25	0.53	1.31	1.25	1.87	0.78	1.94	0.50	0.56	0.06
60031 thru 35	0.64	1.55	1.50	2.53	0.90	2.45	0.75	0.88	0.08
60041 thru 45	0.94	2.30	2.25	3.50	1.00	2.88	1.00	1.12	0.12
60051 thru 55	1.06	2.55	2.50	4.88	1.25	3.38	1.00	1.25	0.12
60165-1 thru 5	0.64	1.55	1.50	2.53	0.90	1.83	0.25	N/A	0.08
60166-1 thru 5	0.39	0.78	0.75	1.25	0.50	1.06	0.19	N/A	0.03

Universal Mounts

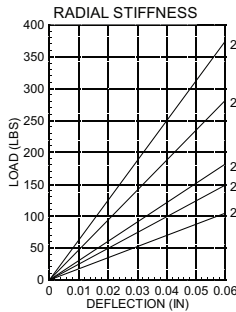
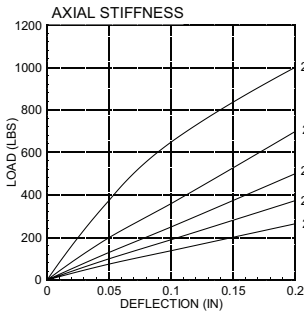
60011 thru 15 Series



Static Load Rating (lbs.)

Part No.	Color Code	Thin Support	
		Axial	Radial
60011	Yellow	35	18
60012	Red	80	27
60013	Green	130	36
60014	Blue	235	45
60015	White	280	55

60021 thru 25 Series

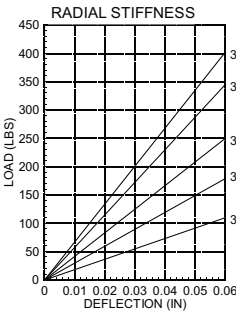
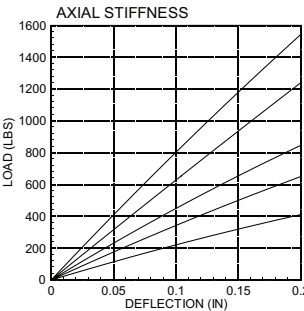


Static Load Rating (lbs.)

Part No.	Color Code	Thin Support	
		Axial	Radial
60021	Yellow	65	45
60022	Red	125	80
60023	Green	170	125
60024	Blue	275	190
60025	White	390	290
Part No.	Color Code	Thick Support	
		Axial	Radial
60021	Yellow	135	55
60022	Red	180	85
60023	Green	240	130
60024	Blue	380	190
60025	White	630	290

Curves are for recommended THICK support.
Consult Tech Products for thin support information

60031 thru 35 Series

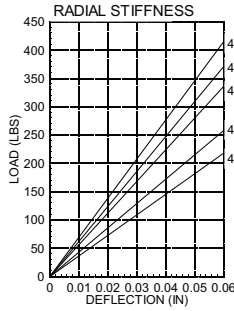
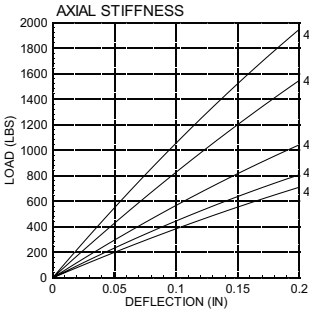


Static Load Rating (lbs.)

Part No.	Color Code	Thin Support	
		Axial	Radial
60031	Yellow	100	80
60032	Red	180	120
60033	Green	250	175
60034	Blue	350	265
60035	White	500	370
Part No.	Color Code	Thick Support	
		Axial	Radial
60031	Yellow	215	90
60032	Red	360	140
60033	Green	490	225
60034	Blue	860	385
60035	White	1330	690

Curves are for recommended THICK support.
Consult Tech Products for thin support information

60041 thru 45 Series



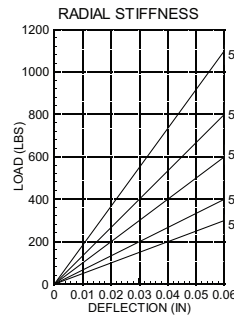
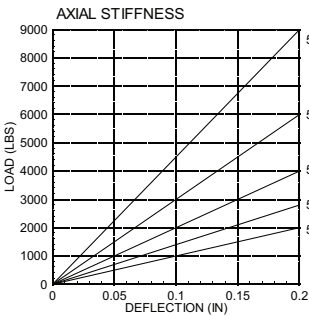
Static Load Rating (lbs.)

Part No.	Color Code	Thin Support	
		Axial	Radial
60041	Yellow	160	100
60042	Red	300	200
60043	Green	410	310
60044	Blue	520	420
60045	White	610	570
Part No.	Color Code	Thick Support	
		Axial	Radial
60041	Yellow	270	130
60042	Red	500	210
60043	Green	760	330
60044	Blue	1150	550
60045	White	2070	955

Curves are for recommended THICK support.

Consult Tech Products for thin support information

60051 thru 55 Series



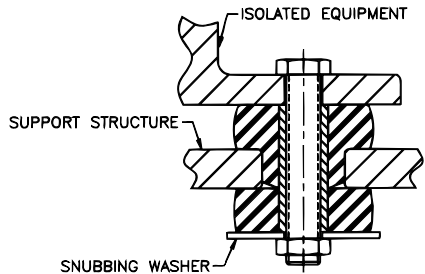
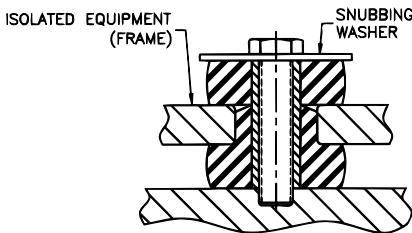
Static Load Rating (lbs.)

Part No.	Color Code	Thin Support	
		Axial	Radial
60051	Yellow	300	150
60052	Red	500	220
60053	Green	700	300
60054	Blue	900	470
60055	White	1200	660
Part No.	Color Code	Thick Support	
		Axial	Radial
60051	Yellow	1150	250
60052	Red	1925	350
60053	Green	2575	600
60054	Blue	3550	900
60055	White	4550	1400

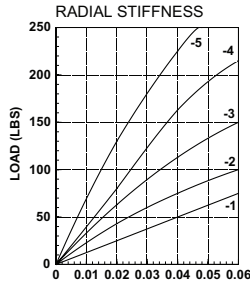
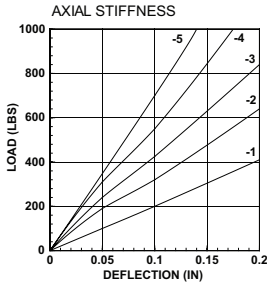
Curves are for recommended THICK support.

Consult Tech Products for thin support information

Mounting Configurations



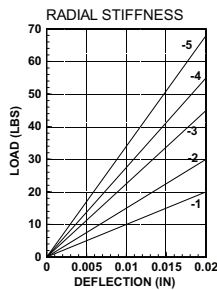
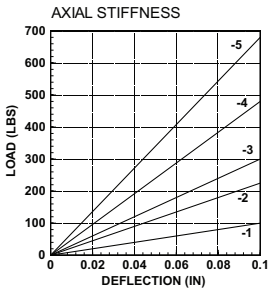
60165-1 thru -5 Series



Static Load Rating (lbs.)

Part No.	Color Code	Thin Support	
		Axial	Radial
60165-1	Yellow	215	40
60165-2	Red	360	60
60165-3	Green	490	88
60165-4	Blue	860	133
60165-5	White	1330	185

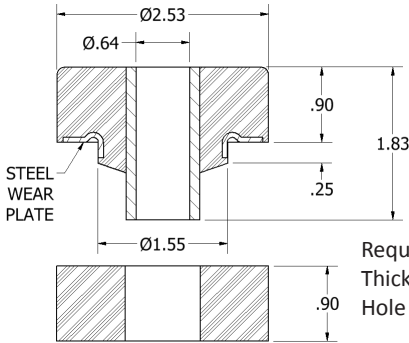
60166-1 thru -5 Series



Static Load Rating (lbs.)

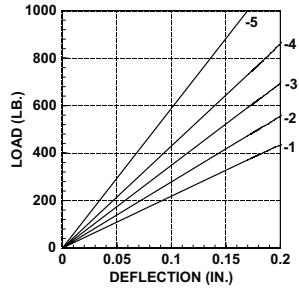
Part No.	Color Code	Thin Support	
		Axial	Radial
60166-1	Yellow	35	9
60166-2	Red	80	14
60166-3	Green	130	18
60166-4	Blue	235	23
60166-5	White	280	28

60272 Series

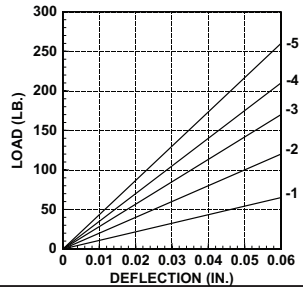


Required Support
Thickness: 0.25
Hole Dia: 1.58/1.62

AXIAL LOAD VS DEFLECTION

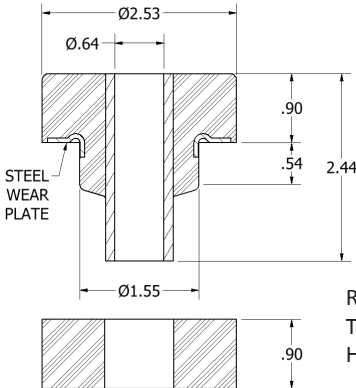


RADIAL LOAD VS DEFLECTION



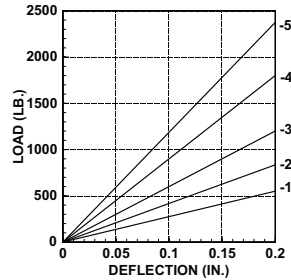
Part No.	Max. Axial Load (lbs.)	Max. Radial Load (lbs.)	Color Code
60272-1	215	40	Yellow
60272-2	360	60	Red
60272-3	490	88	Green
60272-4	860	133	Blue
60272-5	1330	185	White

60278 Series

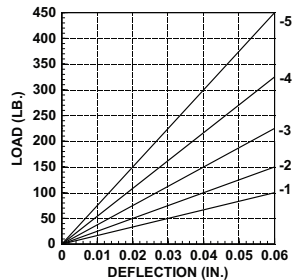


Required Support
Thickness: 0.88
Hole Dia: 1.58/1.62

AXIAL LOAD VS DEFLECTION



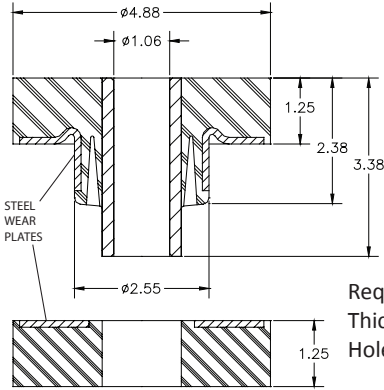
RADIAL LOAD VS DEFLECTION



Part No.	Max. Axial Load (lbs.)	Max. Radial Load (lbs.)	Color Code
60278-1	215	80	Yellow
60278-2	360	120	Red
60278-3	490	175	Green
60278-4	860	265	Blue
60278-5	1330	370	White

Wear Plate Universal Mounts

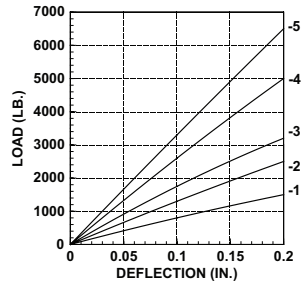
60285 Series



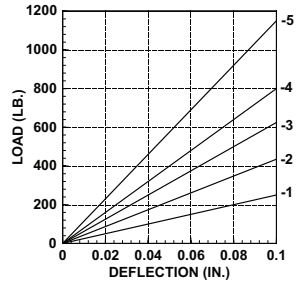
Required Support
 Thickness: 1.25
 Hole Dia: 2.58/2.62

Part No.	Max. Axial Load (lbs.)	Max. Radial Load (lbs.)	Color Code
60285-1	1000	180	Yellow
60285-2	1750	275	Red
60285-3	2250	400	Green
60285-4	3200	500	Blue
60285-5	4200	700	White

AXIAL LOAD VS DEFLECTION



RADIAL LOAD VS DEFLECTION





Compact 515 Series all-attitude mounts are a money-saving way to protect equipment from vibration and shock.

High load capacity, stability, and the ability to be installed at any mounting angle make them ideal for a wide variety of applications, including vehicle cabs; truck, bus and marine engines; generators; air conditioning units; motors and electronic equipment.

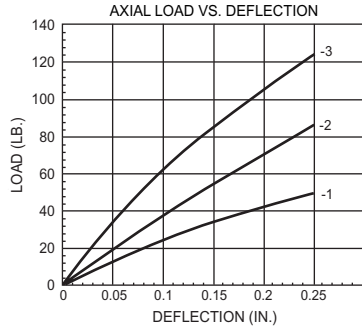
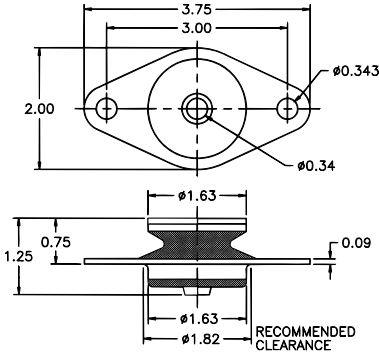
Features

- All-Attitude design allows for mounting at any angle
- Fail-Safe Installation when proper snubbing washers (Page 73) are used
- 1:1 Axial to Radial Stiffness Ratio
- 8.5 Hz Natural Frequency at maximum load
- Oil, fuel, and solvent resistant Neoprene
- Temperature Range: -20° to +180°F

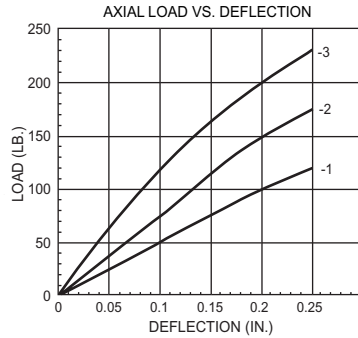
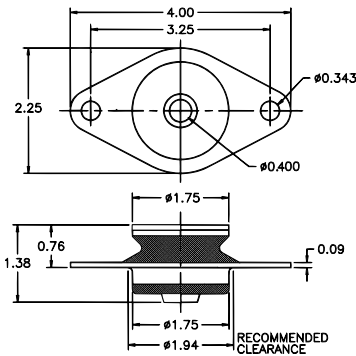
Part No.	Color Code	Max. Axial Load (lbs.)	Max Radial Load (lbs.)
51505-1	Yellow	38	N/A
51505-2	Red	60	N/A
51505-3	Green	90	N/A
51506-1	Yellow	75	N/A
51506-2	Red	105	N/A
51506-3	Green	150	N/A
51507-1	Red	150	100
51507-2	Green	200	150
51507-3	Blue	270	180
51507-4	White	330	220
51508-1	Yellow	270	180
51508-2	Red	330	220
51508-3	Green	390	260
51508-4	Blue	480	320
51508-5	White	570	380
51510-1	Yellow	480	320
51510-2	Red	570	380
51510-3	Green	690	460
51510-4	Blue	840	560
51510-5	White	1020	680
51512-1	Yellow	690	460
51512-2	Red	840	560
51512-3	Green	1020	680
51512-4	Blue	1245	830
51512-5	White	1500	1000
51516-1	Red	1350	800
51516-2	Green	1600	1000
51516-3	Blue	1900	1400
51516-4	White	2600	1800

515 Series Mounts

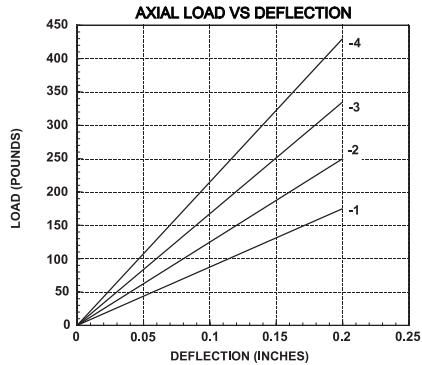
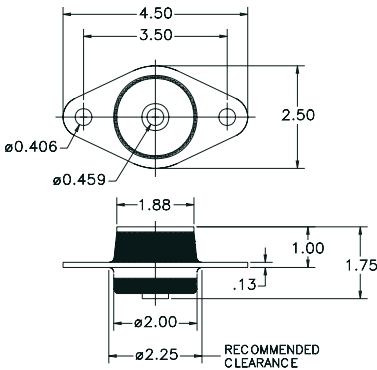
51505 Series



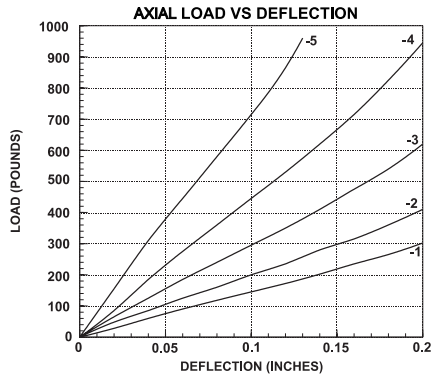
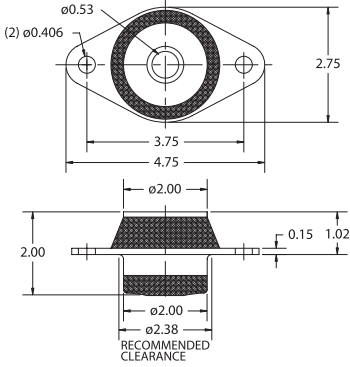
51506 Series



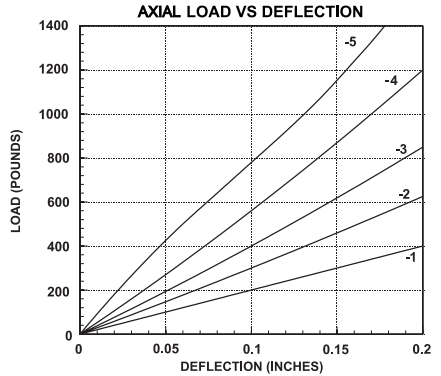
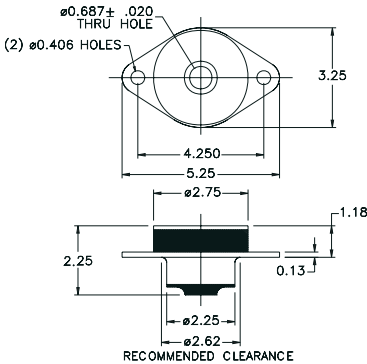
51507 Series



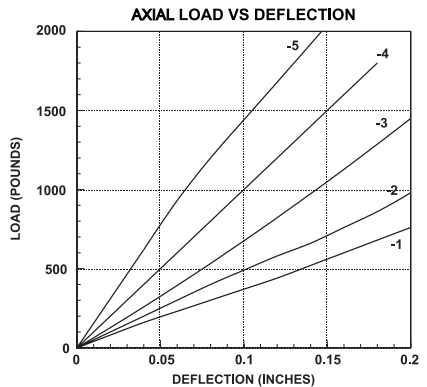
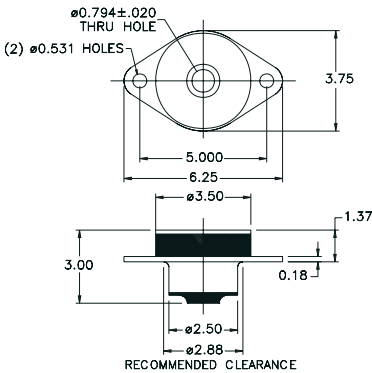
51508 Series



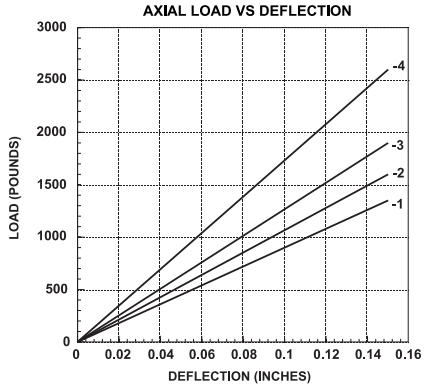
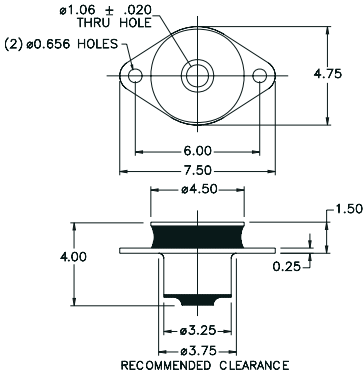
51510 Series



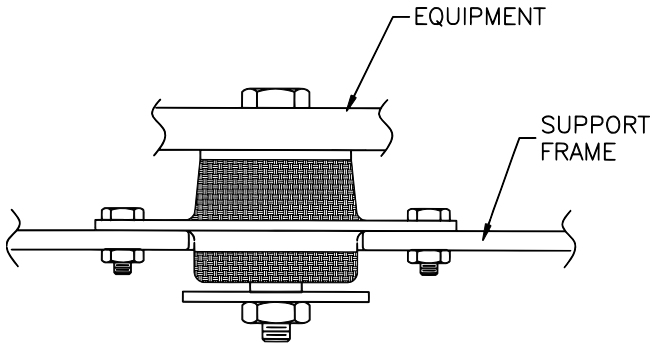
51512 Series

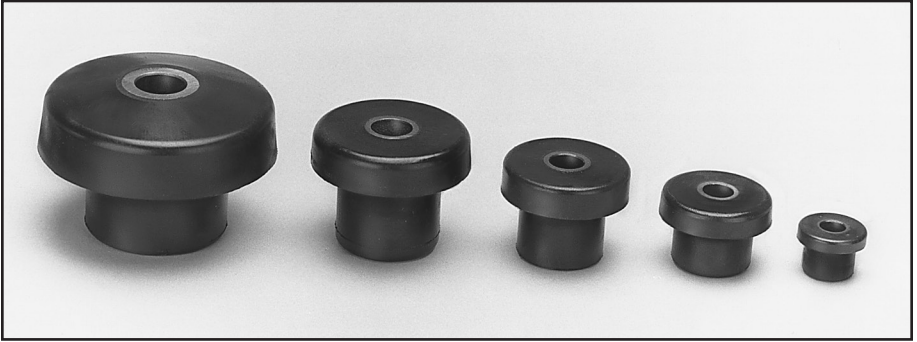


51516 Series



Typical Installation

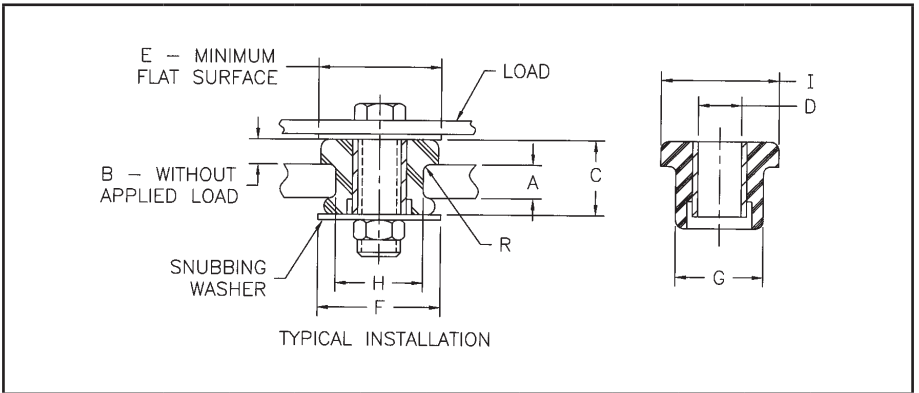




Center Bushing Mounts are fail-safe, multi-direction isolators for a variety of heavy duty applications. During Installation, a self-contained rebound is formed when the mounts resilient element spreads under compression. An internal sleeve serves as a positive spacer to control pre-loading.

Features

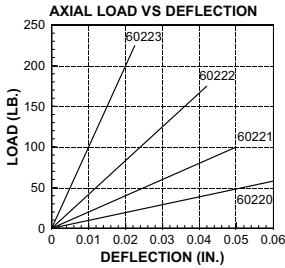
- Single piece design for easy installation
- Fail-Safe Installation when proper snubbing washers (Page 73) are used
- Oil, Fuel, and Solvent resistant neoprene elastomer
- -20°F to 180°F operating temperature range



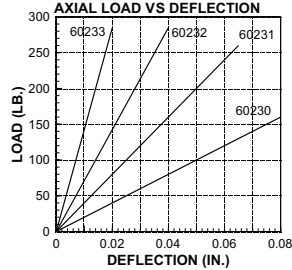
Part No.	A	B	C	D	E(min.)	F(min.)	G	H	I	R(min.)
60220 thru 23	0.31	0.23	0.69	0.40	1.25	1.10	0.81	0.75	1.09	0.06
60230 thru 33	0.38	0.41	1.00	0.47	2.00	1.50	1.24	1.12	1.75	0.06
60235 thru 38	0.62	0.53	1.38	0.53	2.25	1.70	1.35	1.25	2.00	0.06
60240 thru 43	0.62	0.53	1.38	0.64	2.25	1.70	1.35	1.25	2.00	0.06
60245 thru 48	0.75	0.62	1.75	0.64	2.85	2.20	1.61	1.50	2.50	0.06
60250 thru 53	0.93	0.80	2.00	0.64	3.50	2.50	1.96	1.81	2.97	0.12
60260 thru 63	0.75	1.13	2.12	0.77	4.25	2.70	2.20	2.00	3.68	0.12

Center Bushing Mounts

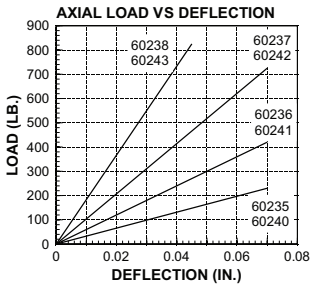
Part No.	Color Code	Max. Load (lbs.)
60220	Red	30
60221	Green	50
60222	Blue	80
60223	White	140



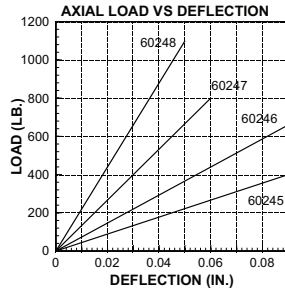
Part No.	Color Code	Max. Load (lbs.)
60230	Red	130
60231	Green	190
60232	Blue	300
60233	White	520



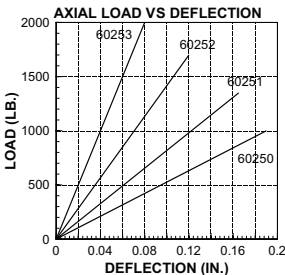
Part No.	Color Code	Max. Load (lbs.)
60235/60240	Red	230
60236/60241	Green	360
60237/60242	Blue	520
60238/60243	White	720



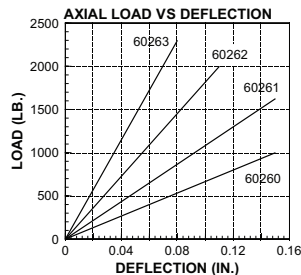
Part No.	Color Code	Max. Load (lbs.)
60245	Red	400
60246	Green	540
60247	Blue	750
60248	White	1100



Part No.	Color Code	Max. Load (lbs.)
60250	Red	600
60251	Green	800
60252	Blue	1100
60253	White	1500

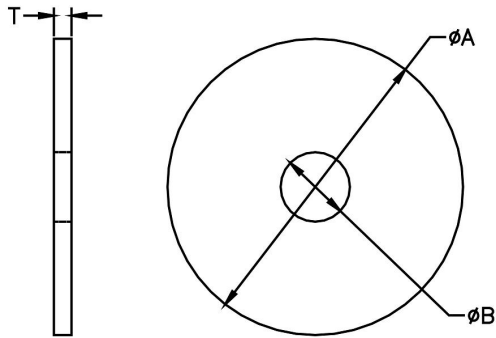


Part No.	Color Code	Max. Load (lbs.)
60260	Red	950
60261	Green	1300
60262	Blue	1850
60263	White	2400



Snubbing Washers

Material: Steel
Finish: Zinc Plating



Product	Washer P/N	A	B	T
51505-(-)	00181	1.56	0.391	.090
51506-(-)	00181-1	2.00	0.450	.125
51507-(-)	00181-1	2.00	0.450	.125
51508-(-)	00308-1	2.00	0.510	.130
51510-(-)	00308-2	2.25	0.635	.150
51512-(-)	00308-3	2.50	0.760	.190
51516-(-)	00185	5.06	1.10	.250
51641-(-)	00182	2.13	0.532	.134
51700-(-)	00181-1	2.00	0.450	.125
51716-(-)	00182	2.13	0.532	.134
60011 to 15	00181	1.56	0.391	.090
60021 to 25	00182	2.13	0.532	.134
60031 to 35	00183	2.81	0.657	.188
60041 to 45	00184	3.88	0.938	.250
60055 to 55	00185	5.06	1.10	.250
60165-(-)	00183	2.81	0.657	.188
60166-(-)	00181	1.56	0.391	.090
60220 to 23	00181	1.56	0.391	.090
60230 to 33	00182	2.13	0.532	.134
60235 to 38	00182	2.13	0.532	.134
60240 to 43	00183	2.81	0.657	.188
60245 to 48	00183	2.81	0.657	.188
60250 to 53	00183	2.81	0.657	.188
60260 to 63	00184	3.88	0.938	.250
60270-(-)	00182	2.13	0.532	.134
60272-(-)	00183	2.81	0.657	.188
60278-(-)	00183	2.81	0.657	.188
60285-(-)	00185	5.06	1.10	.250
61591-(-)	00183	2.81	0.657	.188
61592-(-)	00183	2.81	0.657	.188
61597-(-)	00181	1.56	0.391	.090

Stud/Plate Mounts



Tech Products offers one of the industry's largest selections of these multi-purpose mounts.

Stud/Plate mounts are known throughout the industry by several names including: bumpers, snubbers, feet, sandwich mounts, shockmounts, shearmounts, cylindrical mounts, isolators, levelers, and insulators.

Tech Products' offers other sizes of mounts which may not be shown. Please contact us if you cannot find a specific size needed or if you need assistance selecting the proper mount.

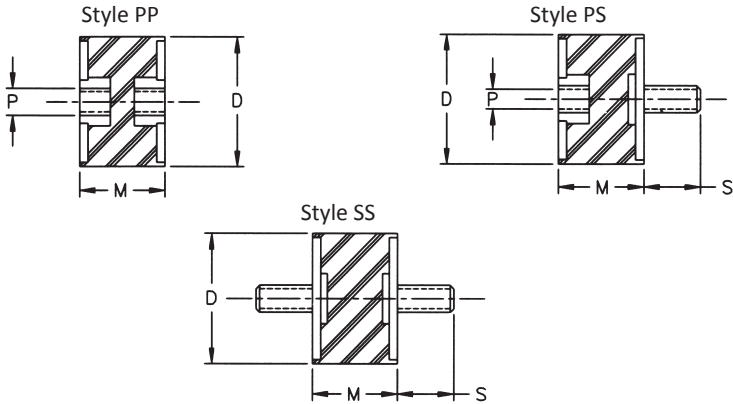
Features:

- Many sizes available from stock
- Standard and metric thread sizes available
- Elastomer options include natural rubber, neoprene, silicone and more
- Corrosion resistant zinc plated inserts
- Available in load ratings from 1 to 1200 lbs.

Visit www.novibes.com for a searchable database of Tech Products Stud/Plate Mounts.

Maximum Tightening Torque	
UNC Thread	lbs-inch
6-32	10
8-32	15
10-32	25
1/4-20	53
5/16-18	105
3/8-16	192
1/2-13	600

Note: Do not twist elastomer during installation



Style PP

Part No.	D	M	P (Depth)	Max. Shear (lbs.)	Max. Comp. (lbs.)
50908	3/8	1/2	6-32 (1/8)	3.5	4
50903*	9/16	1/2	6-32 (1/8)	4.5	9.5
50905*	9/16	1/2	6-32 (1/8)	6	18
50907*	9/16	1/2	6-32 (1/8)	9	26

Standard elastomer is Natural Rubber, (*) indicates Neoprene

Style PS

Part No.	D	M	6-32 x S	P (Depth)	Max. Shear (lbs.)	Max. Comp. (lbs.)
50168*	3/8	3/8	1/4	6-32 (5/32)#	3.4	4.4
50169*	3/8	5/16	1/4	6-32 (5/32)	3	4
50172*	3/8	5/16	3/16	6-32 (5/32)	3	4
50177*	3/8	5/16	3/8	6-32 (5/32)	4	5
50181	7/16	13/32	1/4	6-32 (1/8)	2.5	3.8
50184*	7/16	13/32	1/4	6-32 (1/8)	3.4	4.4
50194*	7/16	13/32	1/4	6-32 (1/8)	6.5	14.5
50171*	7/16	1/2	3/8	6-32 (5/32)#	3.5	4.5
50170*	7/16	1/2	3/8	6-32 (5/32)#	4.4	6
50176*	7/16	1/2	1/4	6-32 (5/32)#	4.4	6
50986*	7/16	1/2	1/4	6-32 (1/8)#	3.5	4.5
65021*	7/16	5/8	1/4	6-32 (1/8)	3	4
50838*	7/16	3/4	1/4	6-32 (1/8)	2.5	3.5

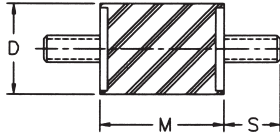
Standard elastomer is Natural Rubber, (*) indicates Neoprene

(#) indicates blind insert

Style SS

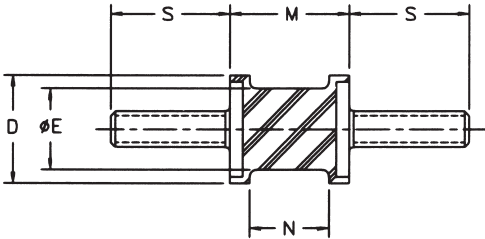
Part No.	D	M	6-32 x S	Max. Shear (lbs.)	Max. Comp. (lbs.)
50178	7/16	13/32	1/4	3	4
50179	7/16	13/32	1/4	3.2	5
50196	7/16	13/32	3/8 - 1/4	3	4

Stud/Plate Mounts (8-32)



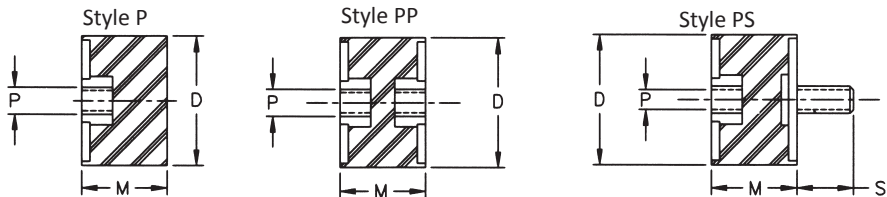
Part No.	D (Square)	M	8-32 x S	Max. Shear (lbs.)	Max. Comp. (lbs.)
51007*	3/8	5/16	3/8	4	6.2
51010	3/8	5/16	7/32	9	13
51011	3/8	5/16	7/32	3	4.5
51013	3/8	5/16	7/32	4	6.2
51014*	3/8	5/16	3/8 - 9/16	8	11.8
51015*	3/8	5/16	7/32	3	4.5
51017	3/8	5/16	3/8	3.5	5.2
51019	3/8	5/16	3/8	3	4.5
51025*	3/8	5/16	7/32	4	6.2
51026	3/8	5/16	7/32 - 9/16	8	11.8
51407	3/8	1/2	7/32	3	5
51001	3/8	1/2	3/8	3	5
51002	3/8	1/2	3/8	3.6	6.2
51003	3/8	1/2	3/8	5.7	10
51004	3/8	1/2	3/8	7	13.5

Standard elastomer is Natural Rubber, (*) indicates Neoprene



Part No.	D (Square)	E (Dia.)	M	N	8-32 x S	Max. Shear (lbs.)	Max. Comp. (lbs.)
51021	1/2	3/8	9/16	3/8	9/16	2.8	6.8
51022	1/2	3/8	9/16	3/8	9/16	3.3	8.5
51023*	1/2	3/8	9/16	3/8	9/16	5.3	12
51024*	1/2	3/8	9/16	3/8	9/16	7.5	14.5

Standard elastomer is Natural Rubber, (*) indicates Neoprene



Style P

Part No.	D	M	P	Max. Shear (lbs.)	Max. Comp. (lbs.)
51110	7/16	1/2	8-32	-	4.5
51112	7/16	1/2	8-32	-	8
51060	9/16	1/2	8-32	-	9.5
51062	9/16	1/2	8-32	-	18

P thread depth is minimum one thread diameter

Style PP

Part No.	D	M	P	Max. Shear (lbs.)	Max. Comp. (lbs.)
51100	7/16	1/2	8-32	3.3	4.5
51102	7/16	1/2	8-32	4.8	8
51050	9/16	1/2	8-32	4.5	9.5
51051	9/16	1/2	8-32	5	14
51052	9/16	1/2	8-32	6	18
51053	9/16	1/2	8-32	7	22
65024*	9/16	1/2	8-32	8	25

P thread depth is minimum one thread diameter

Style PS

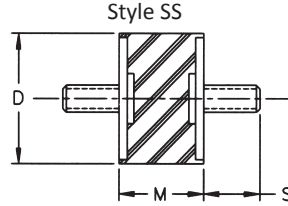
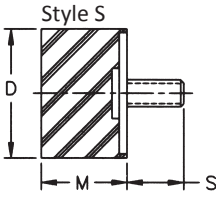
Part No.	D	M	8-32 x S	P	Max. Shear (lbs.)	Max. Comp. (lbs.)
51090	7/16	1/2	3/8	8-32	3.3	4.5
51092	7/16	1/2	3/8	8-32	4.8	8
51040	9/16	1/2	1/4	8-32	4.5	9.5
51041	9/16	1/2	1/4	8-32	5.4	14
51042	9/16	1/2	3/8	8-32	6	18
51044	9/16	1/2	3/8	8-32	4.5	9.5
51056*	9/16	1/2	3/8	8-32	6	18
51058	9/16	1/2	3/8	8-32#	4.5	9.5
51067	9/16	1/2	3/8	8-32	4.5	9.5

Standard elastomer is Natural Rubber, (*) indicates Neoprene

P thread depth is minimum one thread diameter

(#) indicates blind insert

Stud/Plate Mounts (8-32)



Style S

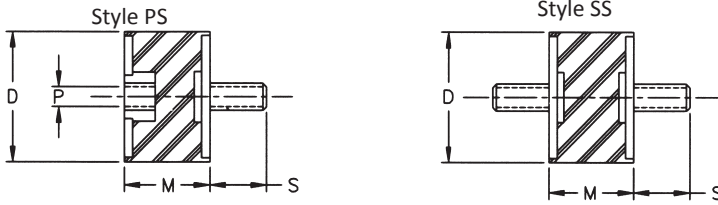
Part No.	D	M	8-32 x S	Max. Shear (lbs.)	Max. Comp. (lbs.)
51120	7/16	1/2	3/8	-	4.5
51122	7/16	1/2	3/8	-	8
51070	9/16	1/2	3/8	-	9.5
51072	9/16	1/2	3/8	-	18

Style SS

Part No.	D	M	8-32 x S	Max. Shear (lbs.)	Max. Comp. (lbs.)
50912	3/8	1/2	3/8	1.5	10
50913	3/8	1/2	3/8	3	17
50914	3/8	1/2	3/8	2	13
50915	3/8	1/2	3/8	1	7
50916*	3/8	1/2	3/8	0.5	4
50917*	3/8	1/2	3/8	1	7
50918*	3/8	1/2	3/8	1.5	10
50919*	3/8	1/2	3/8	3	17
50920*	3/8	1/2	3/8	4.5	23
51081	7/16	1/2	3/8	3.3	4.5
51082	7/16	1/2	3/8	3.9	6.4
51083*	7/16	1/2	3/8	4.8	8
51084*	7/16	1/2	3/8	3.3	4.5
51031	9/16	1/2	3/8	4.5	9.5
51032	9/16	1/2	3/8	5.2	13
51033*	9/16	1/2	3/8	6	18
51034*	9/16	1/2	3/8	13	25
51036	9/16	1/2	1/2	4.5	9.5
51055*	9/16	1/2	1/2	13	25

Standard elastomer is Natural Rubber, (*) indicates Neoprene

Stud/Plate Mounts (10-32)



Style PS

Part No.	D	M	S	P	Max. Shear (lbs.)	Max. Comp. (lbs.)
51045	9/16	1/2	8-32 x 3/8	10-32	4.5	9.5
51047	9/16	1/2	10-32 x 3/8	10-32	6	18
51059*	9/16	1/2	10-32 x 3/8	10-32	5	16
51066	9/16	1/2	10-32 x 3/8	8-32	4.5	9.5
51068	9/16	1/2	10-32 x 3/8	8-32	6	18
51136	1	3/4	10-32 x 3/8	10-32	24	55

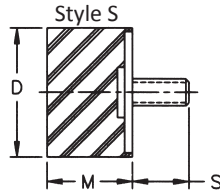
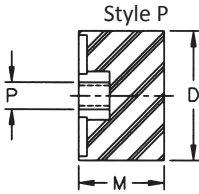
P thread depth is minimum one thread diameter

Style SS

Part No.	D	M	10-32 x S	Max. Shear (lbs.)	Max. Comp. (lbs.)
51037*	9/16	1/2	3/8	6	18
51048	9/16	1/2	3/8 - 3/16	6	18
51057	9/16	1/2	3/8	5	16
51135	1	3/4	3/8	15	44

Standard elastomer is Natural Rubber, (*) indicates Neoprene

Stud/Plate Mounts (1/4-20)



Style P

Part No.	D	M	P	Max. Shear (lbs.)	Max. Comp. (lbs.)
51205*	3/4	1/2	1/4-20	-	34
50938*	1	17/32	1/4-20	-	70
51181	1	3/4	1/4-20	-	45

P thread depth is minimum one thread diameter

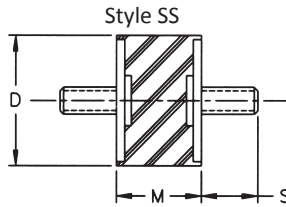
Style S

Part No.	D	M	1/4-20 x S	Max. Shear (lbs.)	Max. Comp. (lbs.)
51494*	3/4	1/2	3/4	-	30
51138	1	17/32	3/8	-	40
51139	1	17/32	3/8	-	70
51140	1	17/32	3/8	-	100
51581	1	41/64	1/2	-	35
51185	1	3/4	1/2	-	44
51187	1	3/4	1/2	-	55
51191*	1	3/4	7/8	-	55
50783*	1	27/32	3/4	-	50
51195*	1	1	1/2	-	50
51196	1	1	3/8	-	70
51197	1	1	1/4	-	70
50889*	1	1	3/4	-	70
50828*	1 1/4	3/4	5/8	-	120
51176*	1 1/4	1	1/4	-	70

Standard elastomer is Natural Rubber, (*) indicates Neoprene

Stud/Plate Mounts (1/4-20)

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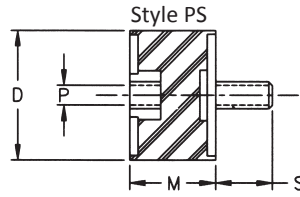
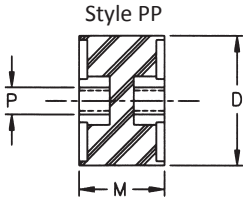
Style SS

Part No.	D	M	1/4-20 x S	Max. Shear (lbs.)	Max. Comp. (lbs.)
50820*	3/4	1/2	1/2	12	28
50859*	1	3/8	1/2	30	60
51123*	1	17/32	1/2	30	45
51127	1	17/32	3/8	30	45
51128	1	17/32	3/8	34	70
51130	1	17/32	1/2 - 1/4	32	45
51131	1	17/32	1/2	15	44
51132	1	17/32	1/2	30	45
51133	1	17/32	1/2	34	70
50965*	1	1/2	1/2	35	70
51154*	1	3/4	3/8	21	55
51186*	1	3/4	3/8	25	60
51141	1	3/4	1/2	15	44
51142	1	3/4	1/2	18	50
51143	1	3/4	1/2	21	55
51144*	1	3/4	1/2	18	50
51146*	1	3/4	1/2	21	55
50855*	1	3/4	1/2	25	60
51173*	1	3/4	1/2	15	44
51147	1	3/4	5/8	18	50
51148*	1	3/4	5/8	25	60
51150*	1	3/4	3/4	15	44
51152	1	3/4	3/4	21	55
51153*	1	3/4	3/4	21	55
51158	1	3/4	3/4	18	50
51160*	1	3/4	3/4	25	60
51155*	1	3/4	1/4 - 5/8	25	60
51289	1	3/4	3/8 - 1/2	30	70
51157*	1	3/4	1/2 - 3/4	25	60
50888*	1	3/4	1/2 - 3/4	21	55
51184*	1	3/4	1/2 - 3/4	15	44
51159	1	3/4	1/2 - 1	30	70
51164*	1	1	1/2	12	35
51290*	1 1/8	1 1/2	5/8	10	20
50773	1 1/4	1 1/4	5/8	30	80

Standard elastomer is Natural Rubber, (*) indicates Neoprene

Standard inserts are zinc plated

Stud/Plate Mounts (1/4-20)



Style PP

Part No.	D	M	P	Max. Shear (lbs.)	Max. Comp. (lbs.)
50924	1	3/4	1/4-20	25	65
51172	1	3/4	1/4-20	20	55

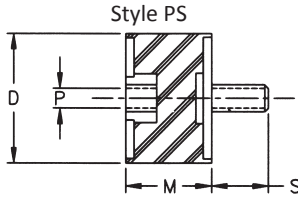
P thread depth is minimum one thread diameter

Style PS

Part No.	D	M	1/4-20 x S	P	Max. Shear (lbs.)	Max. Comp. (lbs.)
50823*	5/8	5/8	1/2	1/4-20	5	15
51201*	3/4	1/2	1/2	1/4-20	8	21
51202*	3/4	1/2	1/2	1/4-20	12	28
51203*	3/4	1/2	1/2	1/4-20	16	34
51204*	3/4	1/2	1/2	1/4-20	20	40
50839*	1	1/2	1/2	1/4-20	35	70
51129*	1	17/32	1/2	1/4-20	32	45
51145*	1	3/4	1/2	1/4-20	18	50
51151*	1	3/4	3/8	1/4-20	24	55
51156*	1	3/4	3/8	1/4-20	28	65
51161	1	3/4	1/2	1/4-20	18	45
51162	1	3/4	1/2	1/4-20	20	50
51163	1	3/4	1/2	1/4-20	21	55
51166*	1	3/4	1/2	1/4-20	35	75
51188*	1	3/4	1/2	1/4-20	30	65
51582	1	3/4	3/4	1/4-20	18	45
51137	1	1	1/2	1/4-20	10	30
51198*	1	1	1/2	1/4-20	20	50
50782*	1	1	3/4	1/4-20	15	40

Standard elastomer is Natural Rubber, (*) indicates Neoprene

P thread depth is minimum one thread diameter



Style PS

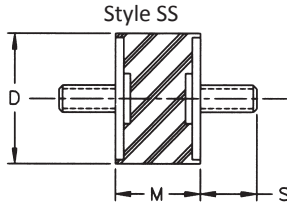
Part No.	D	M	5/16-18 x S	P	Max. Shear (lbs.)	Max. Comp. (lbs.)
51283*	1	1/2	9/16	5/16-18	16	40
51284*	1	1/2	9/16	5/16-18	22	45
51285*	1	1/2	9/16	5/16-18	35	70
51286*	1	1/2	9/16	5/16-18	40	78
50835*^	1	3/4	3/8	5/16-18	40	80
51234	1	3/4	1/2	5/16-18	16	45
51258	1	3/4	9/16	5/16-18	40	80
51276*	1	3/4	5/16	5/16-18	16	45
51277*	1	3/4	5/16	5/16-18	19	52
51278*	1	3/4	5/16	5/16-18	25	62
51279*	1	3/4	5/16	5/16-18	31	70
51313*	1 1/4	1	3/4	5/16-18	25	72
51314*	1 1/4	1	3/4	5/16-18	38	92
51327*	1 1/4	1 1/4	9/16	5/16-18	21	41
51328*	1 1/4	1 1/4	9/16	5/16-18	31	64
51329*	1 1/4	1 1/4	9/16	5/16-18	45	86
51330*	1 1/4	1 1/4	9/16	5/16-18	63	120
50780*	1 1/4	1 1/4	3/4	5/16-18	63	120
50817*	1 1/4	1 1/4	3/4	5/16-18	85	175
51352	1 3/8	1	9/16	5/16-18	66	96
65007*^	1 3/8	1	9/16	5/16-18	66	96
50928*	1 3/8	1 1/2	5/8	5/16-18	55	100
50975*	1 3/8	1 1/2	5/8	5/16-18	65	125
51376	1 1/2	1	9/16	5/16-18	30	95
51377	1 1/2	1	9/16	5/16-18	40	135
51378	1 1/2	1	9/16	5/16-18	50	185
51379	1 1/2	1	9/16	5/16-18	65	210
51400*	1 1/2	1	5/8	5/16-18	45	185
51542*	1 1/2	1	9/16	5/16-18	40	135

Standard elastomer is Natural Rubber, (*) indicates Neoprene

P thread depth is minimum one thread diameter

Standard inserts are zinc plated, (^) indicates phosphate finish

52 Stud/Plate Mounts (5/16-18)

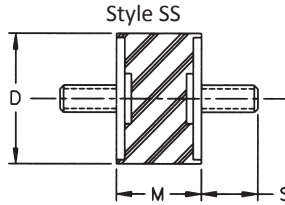


Style SS

Part No.	D	M	5/16-18 x S	Max. Shear (lbs.)	Max. Comp. (lbs.)
50852*^	1	1/2	5/8	45	90
51239	1	3/4	3/8	22	55
51240*	1	3/4	3/8	22	58
51241	1	3/4	9/16	15	44
51242	1	3/4	9/16	18	50
51243	1	3/4	9/16	22	58
51247	1	3/4	5/8	15	44
51251	1	3/4	3/4	15	44
51252	1	3/4	3/4	18	50
51253	1	3/4	3/4	22	58
51257*	1	3/4	9/16	22	58
51260*	1	3/4	1/2 - 7/8	22	50
51280*	1	3/4	1/2 - 7/8	18	50
51282*	1	3/4	1/2 - 7/8	25	60
51262*	1	1	9/16	12	35
51263	1	1	9/16	16	42
51265	1	1	3/4	35	70
51266	1	1	3/4	8	25
51267	1	1	3/4	12	35
51270	1	1	1/2 - 3/4	12	35
50825	1	1	1/2	30	70
51296	1	1 1/2	5/8	20	45
51296-1	1	1 1/2	5/8	28	60
50798*	1 1/4	3/4	9/16	25	60
51301	1 1/4	3/4	9/16	36	87
51302	1 1/4	3/4	9/16	43	98
51303	1 1/4	3/4	9/16	52	120
51304	1 1/4	3/4	9/16	45	93
51305*	1 1/4	3/4	1/2 - 3/4	45	93
51306	1 1/4	3/4	3/4	36	87
51307	1 1/4	3/4	3/4	43	98
51308	1 1/4	3/4	3/4	52	120
51310	1 1/4	3/4	5/8	43	98
51311	1 1/4	1	9/16	31	81
51312	1 1/4	1	9/16	38	92

Standard elastomer is Natural Rubber, (*) indicates Neoprene
 Standard inserts are zinc plated, (^) indicates phosphate finish

Stud/Plate Mounts (5/16-18)

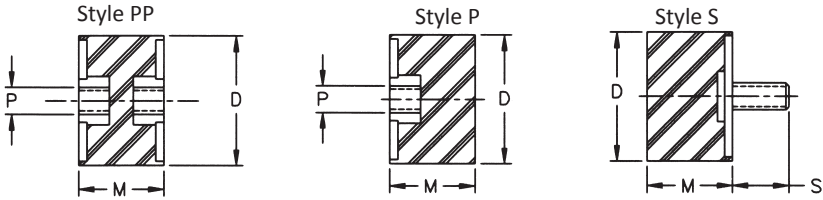


Style SS

Part No.	D	M	5/16-18 x S	Max. Shear (lbs.)	Max. Comp. (lbs.)
51315	1 ¼	1	3/4	31	81
51316	1 ¼	1	3/4	38	92
51297*	1 ¼	1 ¼	5/8	27	76
51298*	1 ¼	1 ¼	5/8	34	86
51299*	1 ¼	1 ¼	5/8	60	120
51320	1 ¼	1 ¼	9/16	21	42
51321	1 ¼	1 ¼	9/16	27	76
51322	1 ¼	1 ¼	9/16	34	86
51325	1 ¼	1 ¼	3/4	27	76
51326	1 ¼	1 ¼	3/4	34	86
51337*	1 ¼	1 ¼	9/16	60	120
51344*	1 ¼	1 ¼	7/8	27	47
51345	1 ¼	1 ¼	7/8	34	86
51349	1 ¼	1 ¼	3/4	60	120
51480*	1 ⅜	5/8	5/8	35	85
51481*	1 ⅜	5/8	5/8	45	120
51482*	1 ⅜	5/8	5/8	55	155
51483*	1 ⅜	5/8	5/8	65	185
51484*	1 ⅜	5/8	5/8	75	225
50136*	1 ⅜	1	1 1/4	87	125
51340	1 ⅜	1	9/16	27	47
51341	1 ⅜	1	9/16	41	74
51342	1 ⅜	1	9/16	66	96
51343	1 ⅜	1	9/16	76	105
51348	1 ⅜	1	7/8 - 1	66	96
51353*	1 ⅜	1	3/4	27	47
51354*	1 ⅜	1	3/4	41	74
51355*	1 ⅜	1	3/4	66	96
51356*	1 ⅜	1	3/4	76	105
51357*	1 ⅜	1	3/4	87	125
51358	1 ⅜	1	3/4	76	105
65028*^	1 ⅜	1	3/4	76	105
51401*	1 ½	1	5/8	45	185
51460*	2	1 ¼	5/8	50	150
51462*	2	1 ¼	5/8	100	250

Standard elastomer is Natural Rubber, (*) indicates Neoprene
 Standard inserts are zinc plated, (^) indicates phosphate finish

54 Stud/Plate Mounts (5/16-18)



Style PP

Part No.	D	M	P	Max. Shear (lbs.)	Max. Comp. (lbs.)
51272*	1	1	5/16-18	10	25
51275*	1	1	5/16-18	28	65
51318	1 ¼	1 ¼	5/16-18	24	42
51323	1 ¼	1 ¼	5/16-18	27	76
51324	1 ¼	1 ¼	5/16-18	34	86
50137*	1 ¾	1	5/16-18	90	125

P thread depth is minimum one thread diameter

Style P

Part No.	D	M	P	Max. Shear (lbs.)	Max. Comp. (lbs.)
51254	1	3/4	5/16-18	-	44
51335	1 ¼	3/4	5/16-18	-	120

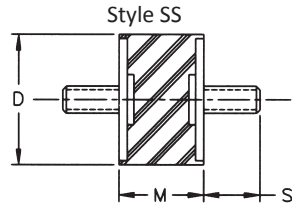
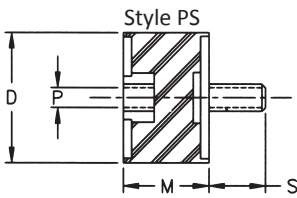
P thread depth is minimum one thread diameter

Style S

Part No.	D	M	5/16-18 x S	Max. Shear (lbs.)	Max. Comp. (lbs.)
50983^	1	3/8	1 1/4	-	50
51255	1	17/32	9/16	-	50
51244	1	3/4	5/8	-	58
50840^	1	3/4	1 1/4	-	58
50818	1	1	5/8	-	42
51331	1 ¼	3/4	3/4	-	100
51332	1 ¼	3/4	3/4	-	120
51334*	1 ¼	3/4	9/16	-	120
51336*	1 ¼	3/4	1/2	-	120
51319*	1 ¼	1	9/16	-	120
51466	2	1 ¾	3/4	-	150
51467	2	1 ¾	3/4	-	200
51468	2	1 ¾	3/4	-	250
51469	2	1 ¾	3/4	-	290
51470	2	1 ¾	3/4	-	325

Standard elastomer is Natural Rubber, (*) indicates Neoprene
Standard inserts are zinc plated, (^) indicates phosphate finish

Stud/Plate Mounts (3/8-16)



Style PS

Part No.	D	M	3/8-16 x S	P	Max. Shear (lbs.)	Max. Comp. (lbs.)
51588*	1 ½	7/8	5/8	3/8-16	70	250
51380	1 ½	1	5/8	3/8-16	30	95
51381	1 ½	1	5/8	3/8-16	40	135
51382	1 ½	1	5/8	3/8-16	50	185
51383	1 ½	1	5/8	3/8-16	65	210
51384	1 ½	1	5/8	3/8-16	80	270
50868-1*	2 ½	1	7/8	3/8-16	85	200
50868-2*	2 ½	1	7/8	3/8-16	110	250
50868-3*	2 ½	1	7/8	3/8-16	150	325
50868-4*	2 ½	1	7/8	3/8-16	190	425
50868-5*	2 ½	1	7/8	3/8-16	220	500

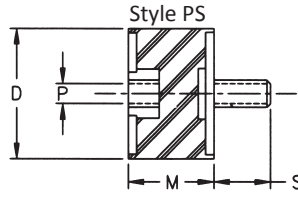
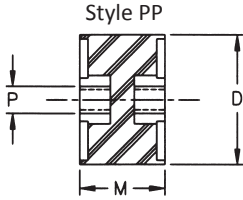
P thread depth is minimum one thread diameter

Style SS

Part No.	D	M	3/8-16 x S	Max. Shear (lbs.)	Max. Comp. (lbs.)
51390	1 ½	1	5/8	30	95
51391	1 ½	1	5/8	40	135
51392	1 ½	1	5/8	50	185
51393	1 ½	1	5/8	65	210
51394	1 ½	1	5/8	80	270
51395	1 ½	1	3/4	30	95
51396	1 ½	1	3/4	40	135
51397	1 ½	1	3/4	50	185
51398*	1 ½	1	3/4	65	210
51399*	1 ½	1	3/4	80	270
51620-1	2 ½	1	7/8	85	200
51620-2	2 ½	1	7/8	110	250
51620-3	2 ½	1	7/8	150	325
51620-4	2 ½	1	7/8	190	425
51620-5	2 ½	1	7/8	220	500

Standard elastomer is Natural Rubber, (*) indicates Neoprene

Stud/Plate Mounts (1/2-13)



Style PP

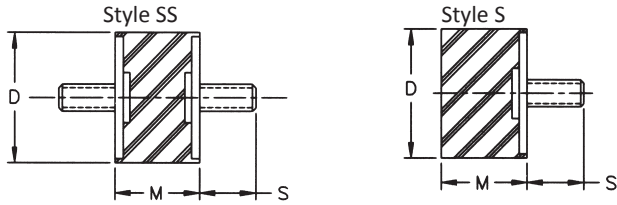
Part No.	D	M	P (Depth)	Max. Shear (lbs.)	Max. Comp. (lbs.)
51415*	2	1 ¹¹ / ₁₆	1/2-13 (1/2)#	80	180
51416*	2	1 ¹¹ / ₁₆	1/2-13 (1/2)#	100	210
51417*	2	1 ¹¹ / ₁₆	1/2-13 (1/2)#	150	275
51418*	2	1 ¹¹ / ₁₆	1/2-13 (1/2)#	200	340
51419*	2	1 ¹¹ / ₁₆	1/2-13 (1/2)#	240	420
51553-1*	3 ⁷ / ₈	1 ¹ / ₂	1/2-13 (1/2)	60	450
51553-2*	3 ⁷ / ₈	1 ¹ / ₂	1/2-13 (1/2)	90	660
51553-3*	3 ⁷ / ₈	1 ¹ / ₂	1/2-13 (1/2)	130	950
51553-4*	3 ⁷ / ₈	1 ¹ / ₂	1/2-13 (1/2)	175	1260
51553-5*	3 ⁷ / ₈	1 ¹ / ₂	1/2-13 (1/2)	220	1550
51555-1*	3 ⁷ / ₈	3	1/2-13 (1/2)	38	250
51555-2*	3 ⁷ / ₈	3	1/2-13 (1/2)	65	410
51555-3*	3 ⁷ / ₈	3	1/2-13 (1/2)	105	690
51555-4*	3 ⁷ / ₈	3	1/2-13 (1/2)	140	910
51555-5*	3 ⁷ / ₈	3	1/2-13 (1/2)	185	1190

Style PS

Part No.	D	M	1/2-13 x S	P	Max. Shear	Max. Comp.
51386*	1 ¹ / ₄	1 ¹ / ₄	3/4	1/2-13 (3/8)	38	80
51388*	1 ¹ / ₄	1 ¹ / ₄	3/4	1/2-13 (3/8)	72	130
51420*	2	1 ¹¹ / ₁₆	1 ¹ / ₈	1/2-13 (1/2)#	70	160
51421*	2	1 ¹¹ / ₁₆	1 ¹ / ₈	1/2-13 (1/2)#	90	200
51422*	2	1 ¹¹ / ₁₆	1 ¹ / ₈	1/2-13 (1/2)#	140	260
51423*	2	1 ¹¹ / ₁₆	1 ¹ / ₈	1/2-13 (1/2)#	185	340
51424*	2	1 ¹¹ / ₁₆	1 ¹ / ₈	1/2-13 (1/2)#	225	410
51551-1*	3 ⁷ / ₈	1 ¹ / ₂	1 ⁵ / ₈	1/2-13 (1/2)	80	360
51551-2*	3 ⁷ / ₈	1 ¹ / ₂	1 ⁵ / ₈	1/2-13 (1/2)	110	540
51551-3*	3 ⁷ / ₈	1 ¹ / ₂	1 ⁵ / ₈	1/2-13 (1/2)	145	760
51551-4*	3 ⁷ / ₈	1 ¹ / ₂	1 ⁵ / ₈	1/2-13 (1/2)	215	980
51551-5*	3 ⁷ / ₈	1 ¹ / ₂	1 ⁵ / ₈	1/2-13 (1/2)	285	1815
51557-1*	3 ⁷ / ₈	3	1 ⁵ / ₈	1/2-13 (1/2)	38	250
51557-2*	3 ⁷ / ₈	3	1 ⁵ / ₈	1/2-13 (1/2)	65	410
51557-3*	3 ⁷ / ₈	3	1 ⁵ / ₈	1/2-13 (1/2)	105	690
51557-4*	3 ⁷ / ₈	3	1 ⁵ / ₈	1/2-13 (1/2)	140	910
51557-5*	3 ⁷ / ₈	3	1 ⁵ / ₈	1/2-13 (1/2)	185	1190

Standard elastomer is Natural Rubber, (*) indicates Neoprene, (#) indicates blind insert

Stud/Plate Mounts (1/2-13)



Style SS

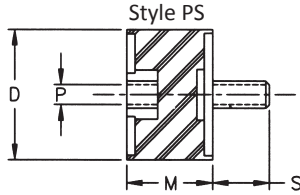
Part No.	D	M	1/2-13 x S	Max. Shear (lbs.)	Max. Comp. (lbs.)
51385	1 ¼	1 ¼	¾	29	76
51387*	1 ¼	1 ¼	¾	63	120
51410*	2	1 11/16	1 ½	60	160
51411*	2	1 11/16	1 ½	80	200
51412*	2	1 11/16	1 ½	125	260
51413*	2	1 11/16	1 ½	175	335
51414*	2	1 11/16	1 ½	210	400
51552-1*	3 ⅝	1 ½	1 ⅝	90	360
51552-2*	3 ⅝	1 ½	1 ⅝	120	540
51552-3*	3 ⅝	1 ½	1 ⅝	155	760
51552-4*	3 ⅝	1 ½	1 ⅝	225	980
51552-5*	3 ⅝	1 ½	1 ⅝	295	1815
51556-1*	3 ⅝	3	1 ⅝	38	250
51556-2*	3 ⅝	3	1 ⅝	65	410
51556-3*	3 ⅝	3	1 ⅝	105	690
51556-4*	3 ⅝	3	1 ⅝	140	910
51556-5*	3 ⅝	3	1 ⅝	185	1190

Style S

Part No.	D	M	1/2-13 x S	Max. Shear (lbs.)	Max. Comp. (lbs.)
50121*	1 ¼	¾	¾	-	90
50122*	1 ¼	¾	¾	-	150

Standard elastomer is Natural Rubber, (*) indicates Neoprene

Stud/Plate Mounts (Metric)



Style PS

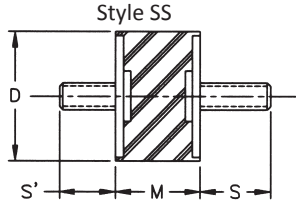
Part No.	D	M	S	P	Max. Shear (lbs.)	Max. Comp. (lbs.)
50197*	9.5	8	M3x0.5 x 4	6-32	3	4.5
50198*	9.5	9.5	M3x0.5 x 4	6-32	3	4.5
51095	11	13	M4x0.7 x 6	M4x0.7	5	8
51095-1	11	13	M4x0.7 x 4	M4x0.7	5	8
51453*	19	16	M4x0.7 x 10	M4x0.7	25	50
65026-2*	25	13	M6x1.0 x 13	M6x1.0	32	45
51447*	25	19	M6x1.0 x 13	M6x1.0	22	58
50805*	25	19	M6x1.0 x 13	M6x1.0	40	80
50926*	25	25	M6x1.0 x 11.5	M6x1.0	12	35
50842*	25	25	M6x1.0 x 19	M6x1.0	8	25
50942*	25	25	M6x1.0 x 19	M6x1.0	12	35
50952*	25	25	M6x1.0 x 11.5	M6x1.0	35	70
65011*	25	19	M8x1.25 x 16	M8x1.25	25	60
51259	25	19	M8x1.25 x 14	M8x1.25	40	80
50947-1*	32	32	M8x1.25 x 14	M8x1.25	35	70
50947-2*	32	32	M8x1.25 x 14	M8x1.25	50	92
50947-3*	32	32	M8x1.25 x 14	M8x1.25	65	125
50898*^	38	25	M8x1.25 x 14	M8x1.25	80	270
51425-1*	51	43	M12x1.75 x 28	M12x1.75	70	160
51425-2*	51	43	M12x1.75 x 28	M12x1.75	90	200
51425-3*	51	43	M12x1.75 x 28	M12x1.75	140	260
51425-4*	51	43	M12x1.75 x 28	M12x1.75	185	340
51425-5*	51	43	M12x1.75 x 28	M12x1.75	225	410
51550-1*	79	38	M12x1.75 x 41	M12x1.75	80	360
51550-2*	79	38	M12x1.75 x 41	M12x1.75	110	540
51550-3*	79	38	M12x1.75 x 41	M12x1.75	145	760
51550-4*	79	38	M12x1.75 x 41	M12x1.75	215	980
51550-5*	79	38	M12x1.75 x 41	M12x1.75	285	1815
51554-1*	79	76	M12x1.75 x 41	M12x1.75	38	250
51554-2*	79	76	M12x1.75 x 41	M12x1.75	65	410
51554-3*	79	76	M12x1.75 x 41	M12x1.75	105	690
51554-4*	79	76	M12x1.75 x 41	M12x1.75	140	910
51554-5*	79	76	M12x1.75 x 41	M12x1.75	185	1190

Standard elastomer is Natural Rubber, (*) indicates Neoprene
 P thread depth is minimum one thread diameter

Standard inserts are zinc plated, (^) indicates phosphate finish

Stud/Plate Mounts (Metric)

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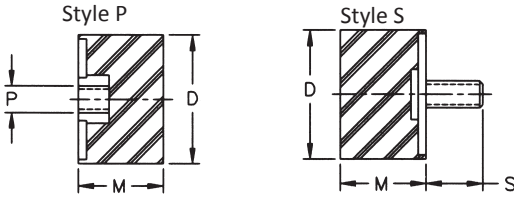


Style SS

Part No.	D	M	S	S'	Max. Shear (lbs.)	Max. Comp. (lbs.)
50957*	11	10	M3x0.5 x 6	M3x0.5 x 6	3	5
51098	11	13	M4x0.7 x 6	M4x0.7 x 6	5	8
51487**	19	13	M6x1.0 x 14	M6x1.0 x 14	12	28
50956*	25	13	M6x1.0 x 19	M6x1.0 x 19	22	45
50959-1*	25	19	M6x1.0 x 12	M6x1.0 x 12	15	44
50959-2*	25	19	M6x1.0 x 12	M6x1.0 x 12	18	50
50959-3*	25	19	M6x1.0 x 12	M6x1.0 x 12	21	55
50959-4*	25	19	M6x1.0 x 12	M6x1.0 x 12	25	60
50959-5*	25	19	M6x1.0 x 12	M6x1.0 x 12	30	70
50849*	25	19	M6x1.0 x 13	M6x1.0 x 13	15	44
50845-40*	19	13	M6x1.0 x 22	M6x1.0 x 14	18	50
50819*	25	19	M8x1.25 x 13	M8x1.25 x 13	21	55
51445*	25	19	M8x1.25 x 14	M8x1.25 x 14	40	80
51281*	25	19	M8x1.25 x 20	M8x1.25 x 20	20	54
65005*	25	19	M8x1.25 x 16	M8x1.25 x 10	25	60
50787*	25	19	M8x1.25 x 20	M8x1.25 x 10	40	80
50988*	32	32	M8x1.25 x 25	M8x1.25 x 25	27	76
50785*	35	25	M8x1.25 x 20	M8x1.25 x 20	41	74
50900*	64	25	M10x1.5 x 23	M10x1.5 x 23	110	250
51549-1*	79	38	M12x1.75 x 41	M12x1.75 x 41	90	360
51549-2*	79	38	M12x1.75 x 41	M12x1.75 x 41	120	540
51549-3*	79	38	M12x1.75 x 41	M12x1.75 x 41	155	760
51549-4*	79	38	M12x1.75 x 41	M12x1.75 x 41	225	980
51549-5*	79	38	M12x1.75 x 41	M12x1.75 x 41	295	1815
51561-1*	79	76	M12x1.75 x 41	M12x1.75 x 41	38	250
51561-2*	79	76	M12x1.75 x 41	M12x1.75 x 41	65	410
51561-3*	79	76	M12x1.75 x 41	M12x1.75 x 41	105	690
51561-4*	79	76	M12x1.75 x 41	M12x1.75 x 41	140	910
51561-5*	79	76	M12x1.75 x 41	M12x1.75 x 41	185	1190

Standard elastomer is Natural Rubber, (*) indicates Neoprene, (**) indicates Nitrile

Stud/Plate Mounts (Metric)



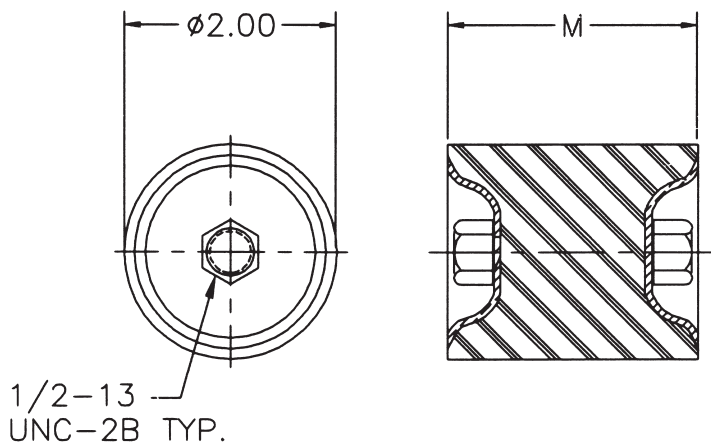
Style P

Part No.	D	M	P	Max. Shear (lbs.)	Max. Comp. (lbs.)
51075	19	13	M5 x 0.8	-	35
50955*	19	13	M6 x 1.0	-	35

Style S

Part No.	D	M	S	Max. Shear (lbs.)	Max. Comp. (lbs.)
50833*	25	9.5	M6x1.0 x 13	-	35
50841*	25	21.5	M6x1.0 x 19	-	40
50941*	25	21.5	M6x1.0 x 19	-	55
50834	38	25	M8x1.25 x 14	-	270

Standard elastomer is Natural Rubber, (*) indicates Neoprene

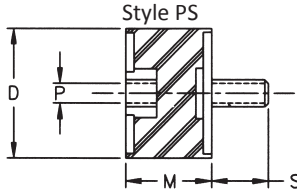


Part No.	M	Max. Shear (lbs.)	Shear Stiffness (lbs./in.)	Max. Comp. (lbs.)	Comp. Stiffness (lbs./in.)
51496-1N	1 3/4	45	210	95	1200
51496-2N	1 3/4	55	280	130	1625
51496-3N	1 3/4	85	420	190	2375
51496-4N	1 3/4	130	650	290	3625
51497-1N	2 1/8	30	150	90	735
51497-2N	2 1/8	45	220	115	960
51497-3N	2 1/8	60	290	165	1375
51497-4N	2 1/8	100	485	265	2200
51498-1N	2 5/8	20	100	85	520
51498-2N	2 5/8	27	135	110	675
51498-3N	2 5/8	37	180	170	1050
51498-4N	2 5/8	65	315	260	1625

Elastomer = Neoprene

Inserts = Low Carbon Steel (Optional Stainless Steel Available)

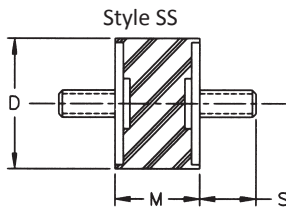
Silicone Stud/Plate Mounts



Style PS

Part No.	D	M	S	P	Max. Shear (lbs.)	Max. Comp. (lbs.)
50861-1	1	3/4	1/4-20 x 1/2	1/4-20	8	25
50861-2	1	3/4	1/4-20 x 1/2	1/4-20	12	35
50861-3	1	3/4	1/4-20 x 1/2	1/4-20	16	50
50861-4	1	3/4	1/4-20 x 1/2	1/4-20	22	65
50861-5	1	3/4	1/4-20 x 1/2	1/4-20	30	90
50862-1	1 1/4	3/4	5/16-18 x 5/8	5/16-18	12	50
50862-2	1 1/4	3/4	5/16-18 x 5/8	5/16-18	22	75
50862-3	1 1/4	3/4	5/16-18 x 5/8	5/16-18	30	100
50862-4	1 1/4	3/4	5/16-18 x 5/8	5/16-18	40	150
50862-5	1 1/4	3/4	5/16-18 x 5/8	5/16-18	55	180
50863-1	1 1/2	1	5/16-18 x 5/8	5/16-18	15	60
50863-2	1 1/2	1	5/16-18 x 5/8	5/16-18	20	90
50863-3	1 1/2	1	5/16-18 x 5/8	5/16-18	30	125
50863-4	1 1/2	1	5/16-18 x 5/8	5/16-18	45	175
50863-5	1 1/2	1	5/16-18 x 5/8	5/16-18	55	225
50860-1	1	3/4	M6x1.0 x 12mm	M6x1.0	8	25
50860-2	1	3/4	M6x1.0 x 12mm	M6x1.0	12	35
50860-3	1	3/4	M6x1.0 x 12mm	M6x1.0	16	50
50860-4	1	3/4	M6x1.0 x 12mm	M6x1.0	22	65
50860-5	1	3/4	M6x1.0 x 12mm	M6x1.0	30	90
65012-1	1 1/4	3/4	M8x1.25 x 16mm	M8x1.25	12	50
65012-2	1 1/4	3/4	M8x1.25 x 16mm	M8x1.25	22	75
65012-3	1 1/4	3/4	M8x1.25 x 16mm	M8x1.25	30	100
65012-4	1 1/4	3/4	M8x1.25 x 16mm	M8x1.25	40	150
65012-5	1 1/4	3/4	M8x1.25 x 16mm	M8x1.25	55	180
65013-1	1 1/2	1	M8x1.25 x 16mm	M8x1.25	15	60
65013-2	1 1/2	1	M8x1.25 x 16mm	M8x1.25	20	90
65013-3	1 1/2	1	M8x1.25 x 16mm	M8x1.25	30	125
65013-4	1 1/2	1	M8x1.25 x 16mm	M8x1.25	45	175
65013-5	1 1/2	1	M8x1.25 x 16mm	M8x1.25	55	225

Note: Operating temperature range for Silicone mounts is -80° to 300°F

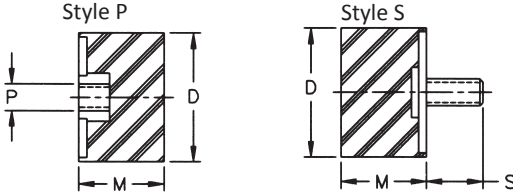


Style SS

Part No.	D	M	S	Max. Shear (lbs.)	Max. Comp. (lbs.)
50869-1	1	1/2	1/4-20 x 1/2	8	40
50869-2	1	1/2	1/4-20 x 1/2	12	60
50869-3	1	1/2	1/4-20 x 1/2	16	80
50869-4	1	1/2	1/4-20 x 1/2	20	100
50869-5	1	1/2	1/4-20 x 1/2	28	140
50870-1	1	3/4	1/4-20 x 1/2	8	25
50870-2	1	3/4	1/4-20 x 1/2	12	35
50870-3	1	3/4	1/4-20 x 1/2	16	50
50870-4	1	3/4	1/4-20 x 1/2	22	65
50870-5	1	3/4	1/4-20 x 1/2	30	90
50871-1	1 ¼	3/4	5/16-18 x 5/8	12	50
50871-2	1 ¼	3/4	5/16-18 x 5/8	22	75
50871-3	1 ¼	3/4	5/16-18 x 5/8	30	100
50871-4	1 ¼	3/4	5/16-18 x 5/8	40	150
50871-5	1 ¼	3/4	5/16-18 x 5/8	55	180
50872-1	1 ½	1	5/16-18 x 5/8	15	60
50872-2	1 ½	1	5/16-18 x 5/8	20	90
50872-3	1 ½	1	5/16-18 x 5/8	30	125
50872-4	1 ½	1	5/16-18 x 5/8	45	175
50872-5	1 ½	1	5/16-18 x 5/8	55	225
50873-1	1	3/4	M6x1.0 x 12mm	8	25
50873-2	1	3/4	M6x1.0 x 12mm	12	35
50873-3	1	3/4	M6x1.0 x 12mm	16	50
50873-4	1	3/4	M6x1.0 x 12mm	22	65
50873-5	1	3/4	M6x1.0 x 12mm	30	90
65016-1	1 ¼	3/4	M8x1.25 x 16mm	12	50
65016-2	1 ¼	3/4	M8x1.25 x 16mm	22	75
65016-3	1 ¼	3/4	M8x1.25 x 16mm	30	100
65016-4	1 ¼	3/4	M8x1.25 x 16mm	40	150
65016-5	1 ¼	3/4	M8x1.25 x 16mm	55	180
65017-1	1 ½	1	M8x1.25 x 16mm	15	60
65017-2	1 ½	1	M8x1.25 x 16mm	20	90
65017-3	1 ½	1	M8x1.25 x 16mm	30	125
65017-4	1 ½	1	M8x1.25 x 16mm	45	175
65017-5	1 ½	1	M8x1.25 x 16mm	55	225

Note: Operating temperature range for Silicone mounts is -80° to 300°F

Silicone Stud/Plate Mounts



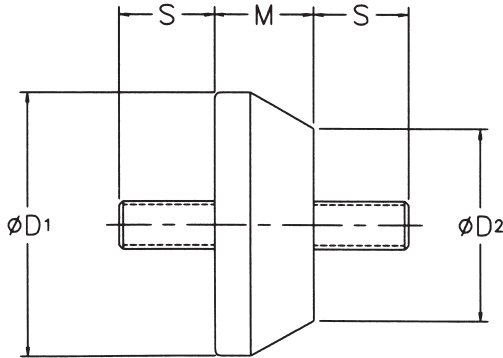
Style P

Part No.	D	M	P	Max. Shear (lbs.)	Max. Comp. (lbs.)
50790-1	1	3/4	1/4-20	-	25
50790-5	1	3/4	1/4-20	-	90
50792-1	1 ½	1	5/16-18	-	60
50792-5	1 ½	1	5/16-18	-	225

Style S

Part No.	D	M	S	Max. Shear (lbs.)	Max. Comp. (lbs.)
50789-1	1	3/4	1/4-20 x 1/2	-	25
50789-5	1	3/4	1/4-20 x 1/2	-	90
50791-1	1 ½	1	5/16-18 x 5/8	-	60
50791-5	1 ½	1	5/16-18 x 5/8	-	225

Note: Operating temperature range for Silicone mounts is -80° to 300°F



1/2-13

Part No.	D1	D2	M	S	Max. Shear (lbs.)	Max. Comp. (lbs.)
50144*	2 3/4	2	1 1/32	1 1/4	140	260
50145*				1 1/4	165	340
50146*				1 1/4	190	430
50151				1	140	260
50152				1	165	340
50153				1	190	430

Standard elastomer is Natural Rubber, (*) indicates Neoprene

1/2-20

Part No.	D1	D2	M	S	Max. Shear (lbs.)	Max. Comp. (lbs.)
50148	2 3/4	2	1 1/32	29/32	140	260
50149				29/32	165	340
50150				29/32	190	430

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