

CATALOG



DUNLOP
DRIVING TO THE FUTURE

VIBRATION ISOLATORS



CIRCULAR | CUSHYFOOT | CUP MOUNT | UU SHEAR
SANDWICH MOUNTS | BOBBINS & BUFFERS | RUBBER MATS



What is Vibration ?

Basically, it is the effect of imbalance or out of balance in any rotating or reciprocating equipment that repeats itself cyclically. Out-of-balance forces occur in the operation of almost any machine. Whilst designers of most modern machines try to reduce this to as low a level as possible, it is very often physically impossible to eliminate these out of balance forces altogether. Further, it has been found that with wear & tear of equipment over long period of time, the out of balance forces and consequently the level of vibration tend to increase substantially.

Vibration in its simplest form may be considered as the motion of a machine or part of a machine, back & forth, from its position of rest. The total distance of movement is the peak to peak displacement of the vibration. The number of cycles of this movement for a given period of time is known as the frequency of the vibration.

Vibration Isolation

In discussing vibration isolation, it is useful to identify the three basic elements of all vibrating systems :

- ▶ The object to be isolated (equipment unit, machine, motor, instrument, etc.)
- ▶ The isolation system (resilient isolation mounts or isolators)
- ▶ Base (floor, base plate, concrete foundation, etc)

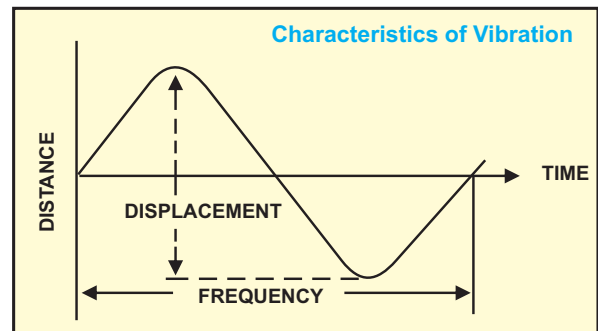
The isolators (rubber pads, springs, etc.), are interposed between the object and the base.

If the object is the source of vibration, the purpose of vibration isolation is to reduce the force transmitted from the object to the base.

If the base is the source of vibration, the purpose of isolation is to reduce the vibratory motion transmitted from the base to the object.

In both cases, the principle of vibration isolation is the same. The isolators are resilient elements. They act as a time delay and as a source of temporary energy storage, which evens out the force or motion disturbance on one side of the vibration mounts and transmits, if properly selected, a lesser disturbance to the other end (to the base in case of force isolation, to the object in case of motion isolation).

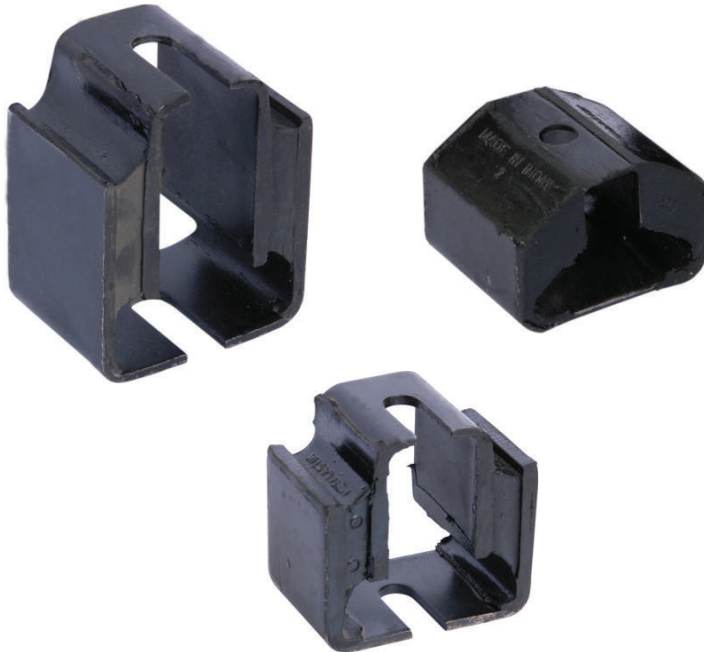
A judicious design of the vibration isolation system insures that this effect is achieved. Conversely, a **poorly designed isolation system**, not having proper frequency characteristics, **can be worse than no isolation at all.**



VIBRATION ISOLATORS



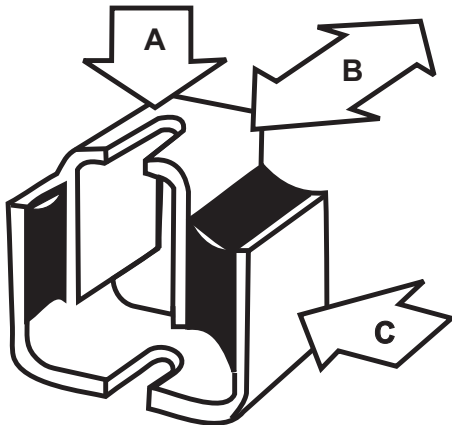
UU Shear



UU Shear are suitable for isolating vibrations from low speed machines and equipment. Protects sensitive and lightweight units from external shocks and vibrations. UU Shear are easy to install.

DESIGN FEATURE

- ▶ UU Shear mountings utilise bonded rubber in shear to permit relatively high deflections.
- ▶ Provides excellent isolation of low frequencies.
- ▶ On rotating equipment applications the soft axis should be at right angles to the shaft. On mobile applications the stiff axis should be aligned in the direction of travel.

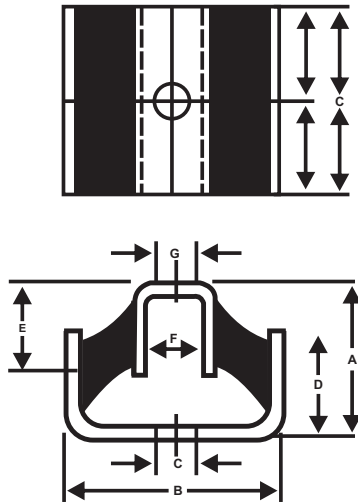


UU Shear mountings are most flexible and provide the best insulation when the rubber is working in shear i.e. in directions A & B. They are comparatively stiff in direction C as the rubber is in compression. Stiffness in this direction is a useful characteristic for applications where limitation of movement in one direction is required.

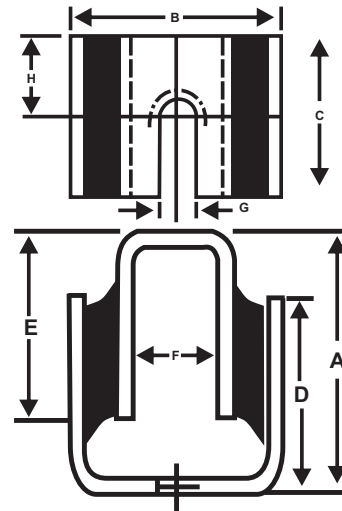
TYPICAL APPLICATIONS

- ▶ Transit cases.
- ▶ Light fans and compressors
- ▶ Gauging equipment
- ▶ Portable gensets and pumps
- ▶ Computers and electronic units
- ▶ Measuring and test instruments

UU Shear Mounting Series



Part No. 17 / 1225



Part No. 17 / 355 17 / 354

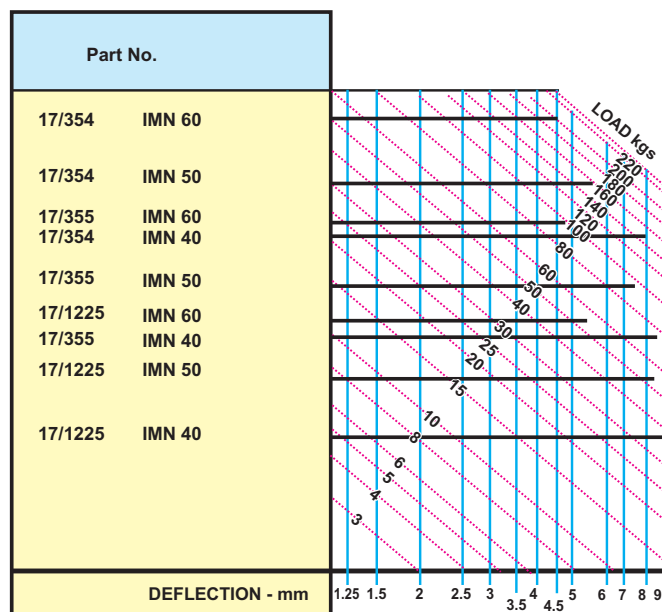
Part No.		A	B	C	D	E	F	G	H
17/1225	mm	42	60.3	51	28.6	-	16.6	10	-
17/355	mm	78	80	51	56	51	32	13.5	25
17/354	mm	108	86	64	82	76	38	16.5	32

Minimum deflection to give adequate insulation

DISTURBING FREQUENCY	c.p.m.	700	800	900	1000	1200	1400	1600	1800	2000
DEFLECTION	mm	9	6.5	5.0	3.8	2.8	2.0	1.5	1.3	1.0

How to use Selection Charts

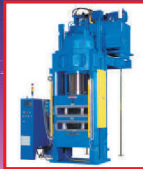
1. Consider each mounting point separately.
2. Draw a vertical line upwards from the minimum deflection needed to give good insulation, until it meets the requisite diagonal load line.
3. From the intersection follow the load line downwards to the nearest suitable mounting line.
4. This will give the required mounting and rubber mix and the actual deflection is given by a vertical line downwards from this point to the deflection scale.
5. Repeat this procedure for each mounting point if the total load is not evenly distributed. It should be noted that the end of each mounting line gives on the diagonal lines the maximum load and on the vertical line, the maximum deflection that can be permitted. Under occasional shock load conditions larger forces can still be allowed.



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