CATALOG

DUNLOP
DRIVING TO THE FUTURE

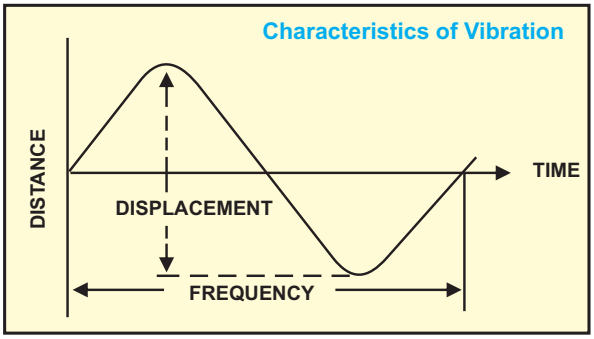
VIBRATION ISOLATORS

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

DUNLOP
DRIVING TO THE FUTURE

CUSHYFOOT MOUNTING

Dunlop Cushyfoot Mountings employ the well proven inclined rubber element design to achieve much higher deflections compared to simple rubber in compression devices and therefore providing superior isolation of low frequency vibration.

The pure rubber design offers excellent performance in the audible frequency range which cannot be achieved with helical steel springs even with so called "noise stop pads".

Natural rubber also offers inherent damping to control transient motion resulting from machine start up, run down and fault conditions.

TYPICAL APPLICATIONS

- Marine Propulsion Engines.
- Diesel Generating Sets.
- Engine Test Beds.
- Lift Motor Gear.
- Chillers and Cooling Towers.
- Large Fans and AHU's.
- Pumps and Compressors.
- Vibrating Screens and Hoppers.
- Hammer Mills
- Hydraulic & Milling Machines
- Printing & Polishing Machines
- Presses (Metal Forming)
- Crushers
- Food Processing & Textile Machinery
- Shearing Machines
- Centrifugals

DESIGN FEATURES

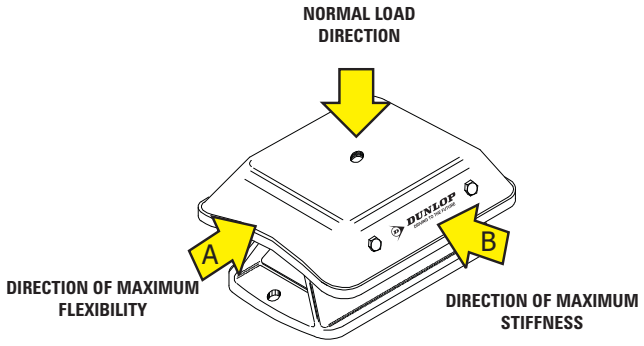
- First grade natural rubber to metal bonded rectangular elements inclined to achieve maximum load and deflection using a combination of compression and shear loading.
- Rubber elements effectively protected against oil contamination by the extended top skirt design of the to casting.
- Two different horizontal stiffness axes enable optimum system characteristics and vibration isolation to be achieved using careful orientation of the mountings.
- By using rubber elements of different stiffnesses, deflections of upto 6mm can be provided with the A&B series & up to 16mm with the HD series.
- These Mounts can also be anchored to the floor through the holes provided in the base for machines producing high unbalance forces .
- An Anti Skid plate is provided in the base of the mount to prevent machine walking

VIBRATION ISOLATORS

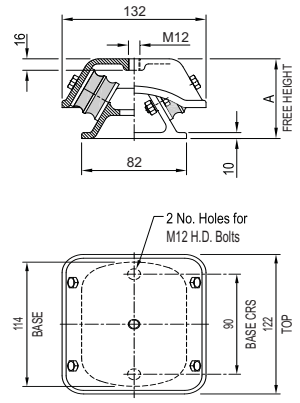
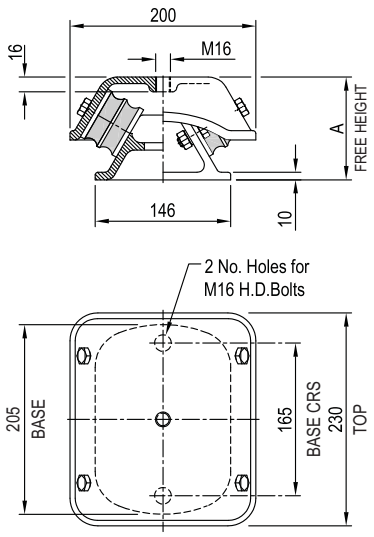
DUNLOP
DRIVING TO THE FUTURE

THREE DEGREES OF FLEXIBILITY

In Direction A the mounting is more flexible than in B because loads in direction A are taken by the rubber elements in shear while in direction B they are taken largely in compression.



TYPE CUSHYFOOT INDUSTRIAL ISOLATORS

Dimensional Drawing		Mounting Ref. No.	Part No.	Max. Load Capacity (kg)	Deflection (mm)	Free Height "A" (mm)	Top Fixing Hole Dimension Plain	Top Fixing Hole Dimension Tapped
	SERIES A	A4	17/290 IMN 35	77	5.6	71.5	10	M12
		A3	17/290 IMN 45	118	5.8			
		A2	17/290 IMN 55	153	6.1			
		A1	17/290 IMN 60	235	5.8			
		A0	17/290 IMN 70	317	5.3			
	SERIES B	B4	17/213 IMN 35	272	6.3	110	13	M16
		B3	17/213 IMN 45	544	5.6			
		B2	17/213 IMN 55	850	5.6			
		B1	17/213 IMN 60	1040	5.6			
		B0	17/213 IMN 70	1580	5.6			
	SERIES HD	HD3	17/346 IMN 45	631	14	119	13	M16
		HD2	17/346 IMN 55	833	14			
		HD1	17/346 IMN 60	1280	14			

The Dimensions of High Deflection (HD) mountings are same as those of B series except that the free (un laden) height of the HD is 119 mm due to the different bonded Rubber elements employed.

In the interest of continual development, the company reserves the right to make modifications to these details without notice.

VIBRATION ISOLATORS

DUNLOP
DRIVING TO THE FUTURE

The Chart and Table

The Chart and table provide a guide to the selection of mountings shown in this leaflet. The table gives the minimum deflections required for approximately 70% vibration isolation against disturbing frequencies of 400 to 2000 cpm (6.6 - 33.3 Hz). 70% isolation will be found adequate for most applications.
The maximum deflections shown in the chart should not be exceeded for continuous operation. For frequencies over 2000 cpm i.e. Minimum deflection of 1mm is to be considered for flexibility

Minimum Deflection to Give Adequate Insulation

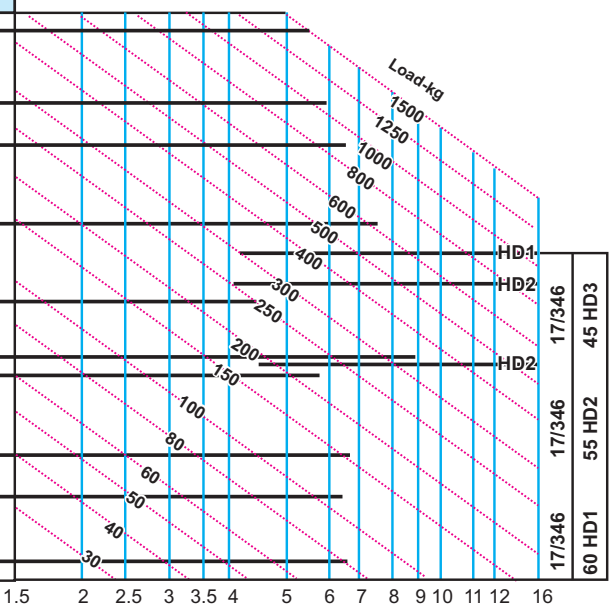
Disturbing Frequency c.p.m	Hz	Deflection mm
400	6.6	25*
500	8.3	16
600	10	11
700	11.7	9
800	13.3	6.5
900	15	5
1000	16.7	3.8
1200	20	2.8
1400	23.3	2.0
1600	26.7	1.5
1800	30	1.3
2000	33.3	1.0

* Maximum deflection of double HD arrangement must not exceed 25 mm.

Selection Chart

Mounting Reference & Rubber Mix

Part No.	Mounting Reference No.
17/213 IMN 70	B0
17/213 IMN 60	B1
17/213 IMN 55	B2
17/213 IMN 45	B3
17/290 IMN 70	A0
17/213 IMN 45 17/290 IMN 60	B4 A1
17/290 IMN 50	A2
17/290 IMN 45	A3
17/290 IMN 35	A4



How to use Selection Charts

1. Consider each mounting point separately.
2. Draw a vertical line upwards from the minimum deflection needed (on the horizontal base scale) to give good insulation. This vertical line should be projected upwards until it intersects the diagonal load line corresponding to or slightly in excess of the load under consideration
3. From the intersection follow the load line downwards to the nearest suitable mounting line (horizontal heavy black) to select the required mounting and rubber mix.
4. The actual static deflection is given by projecting a line from the intersection of the load line and mounting line downwards to the horizontal deflection scale.
5. Repeat this procedure for each mounting point if the total load is not evenly distributed over the mounting points.
   It should be noted that the end of each mounting line indicates, on the diagonal load scale, the maximum static load capacity of the mounting and on the vertical line, the maximum static deflection that can be permitted.Only under occasional shock load conditions can larger forces be allowed.

HOSEXPERTS

www.hosexperts.com

One Stop Solution For Flexible Hoses

Vibration Isolators For :-

- Marine Propulsion Engines
- Diesel Generating Sets
- Engine Test Beds
- Lift Motor Gear
- Chillers & Cooling Towers
- Large Fans & Ahu`s
- Pumps & Compressors
- Vibrating Screen & Hoppers
- Hammer Mills
- Hydraulic & Mining Machinery
- Printing & Polishing Machinery
- Presses (Metal Forming)
- Crushers
- Food Processing & Textile Machinery
- Shearing Machines
- Centrifuges
- Control Cabinets

Authorised Distributors

DUNLOP
DRIVING TO THE FUTURE

INDO-MAKSSON
(An ISO 9001-2000 Certified)

TORNADO

DUPLON
NYLON BRAIDED PVC HOSE

DUTRON

SEL HOSES

LALIT MACHINERY STORE

64-65, Ajmeri Gate, Delhi-110006
☎ : 91-11-2323 6856, 2323 7692, 2323 9229
E-mail : Lms@hosexperts.com
Website : www.hosexperts.com