





Anti-vibration products to keep your business running smoothly





# helping your business run smoothly

# Contact us

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#### History & Heritage

There is no substitute for experience.

Robush has delivered high quality vibration solutions for more than two decades.

The specialist brand names that we represent include Trelleborg, Metalastik, Novibra and Aegis, who have a combined wealth of knowledge and a century of pioneering history and innovation behind them.

#### **Technical Support**

Our technical support team are probably the best in the world. They have advised on everything from rebuilding the Kings Cross bomb damaged trains to floating a theatre and love getting their hands dirty. So if you have an on-site vibration issue and you need the best possible advice, we'll be there.

#### Sales & Service

No-one knows more about solving vibration.
In 2004 we were appointed UK distributors for Trelleborg and as a result of our commitment to quality, attained ISO 9001 accreditation.
We love what we do and really care about our customer relationships. It's part of the Robush difference (Well that's what our customers tell us).

#### Supply & Stock

Our National Distribution Centre carries a vast range of stock which can be with you next day (Useful when you have a machine down).

We get to know our customers' needs and do our best to have products ready to go.

For further peace of mind, we are happy to hold stock on your behalf for call off as required.

#### Quality & Reliability

We don't compromise when it comes to quality, reliability and safety - we value our reputation and our customers expect no less.

Our products are tested to meet your most demanding requirements and give you long life service, security and optimum performance.

#### Bespoke Solutions

We are well known for bespoke products. If it's not in stock, we'll source it. If it doesn't exist, we can design, prototype and manufacture a tailor-made solution and partner you from concept to installation. From faded drawings and archive part numbers, our bespoke service has enabled hundreds of projects to reach completion.



# We provide anti-vibration mountings to virtually from delicate and failsafe applications to

#### contents

#### 6-8 Choosing the right mount

An overview of our range and a specification sheet to help you to help us to select the right product.

#### 9 Bespoke Solutions

The unique, unusual or obsolete can be created or recreated with our design, prototype and manufacturing services.

#### 10-19 Bushes

Designed to reduce shock loads and noise. An alternative to roller bearings where small movement is required. Ideal for vehicle suspension, pivot arms and all mechanical linkage.

#### 20-27 Bobbins & Buffers

One of the most versatile of all vibration isolators due to their simplicity and application. Used for compression or shear loading, they can provide progressive stiffening under increasing load.

#### 28-29 RA & Fail Safe EF

For effective isolation of vibration and noise on machines with rotating movements.

#### 30-31 RAEM

For effective isolation of vibration and noise on machines with rotating movements.

#### 32-33 Cushyfloat Mountings

A general purpose unit designed to provide effective isolation of vibration and noise arising from both static and mobile equipment. Ideal for marine engine suspension.

#### 34-35 SIM

A marine and mobile applications mount. The strong metal parts and soft vertical stiffness combined with high stiffness in axial direction makes it suitable for suspension of marine and industrial engines.

#### 36-37 Cushyfoot

Suitable for many types of applications such as diesel engines, gen-sets, fans, hydraulic units and lift machinery.

#### 38-39 Vee Mountings

A high load capacity mounting with large rubber volume providing a high degree of vibration and noise isolation. Ideally suited for suspending engines installed in public service and goods vehicles.

#### 40-41 RAB

For effective isolation of vibration and noise on machinery with rotating movements. Especially suitable for 1, 2, or 3 cylinder engines.

#### 42-43 M type

Ideal for low frequency vibration isolation.

#### 44-45 Equi-frequency Mountings

General purpose, low profile mount for use where space is restricted. Ideal for stationary, delicate applications.

#### 46-47 Fanflex

A simple low cost mounting designed predominately for the suspension of heating, ventilating and air conditioning equipment.

#### 48-49 BA & Double U-Shear

Equally suitable for isolating vibrations from low speed machines and equipment while also protecting sensitive and lightweight units from external shocks and vibrations.

#### 50-53 Metacone and HK

A range of mountings designed for high load capacity with relatively large static deflections. Suitable for both engine and cab suspension in mobile applications.



# every industry sector and for every conceivable use, high performance and heavy duty machinery

#### contents

54-55 Cab Mountings

Specially profiled rubber section together with bump and rebound control washers provide optimum suspension characteristics for cabs on commercial vehicles, tractors and off road vehicles etc.

56-57 EH

Designed to achieve effective vibration isolation on engines, operator cabs and other ancillary units.

58-59 UH

Particularly suitable for the suspension of both mobile and static cabs as well as platforms on agricultural vehicles.

60 U Type

Particularly suitable for the vibration isolation of heavier machinery with relatively high interfering frequencies.

61-63 SAW

Heavy-duty mountings for high vertical static and shock loads in compression. Provides high isolation in the horizontal shear direction.

64-66 Rectangular SAW Mountings

Widely used for suspending engines on road vehicles and may also be used as springs for vibratory equipment.

67-69 Circular SAW Mountings

Used in a variety of industrial applications including vibratory rollers and small screens for the suspension of smaller type I.C engines.

70 SE

Suitable for the isolation of high frequency disturbances and also provides reduction of structure –borne noise.

71 HA

A height adjuster to facilitate precise coupling alignment for engine installations and boat building tolerances.

72-73 GK

Specifically designed for isolation of heavy machinery with low interfering frequencies and widely used under concrete foundations supporting heavy machinery.

74-75 Novibra AV Plate

The Anti-Vibration Plate is intended, primarily, for applications with low demands on vibration isolation.

76-77 TF

Type TF with level adjuster is a modern machine mounting suitable for a wide range of free standing workshop machines.

78-79 Hanged Instrumountings

Protects sensitive equipment from external vibration or shock forces.

80-82 ANB

The shock buffer type ANB is used to effectively limit movement of equipment or machine components which need to be slowed down or stopped.

83-85 Two Bolt Instrumountings

These provide a convenient and effective means of isolating vibration generated by lightweight machinery.

86-87 VT

Protects wall—mounted instrument cabinets from vibrations and shocks generated by nearby machinery.

88 Metacone & HKWashers

Overload and rebound washers (top and bottom) are necessary to limit maximum movement in the event of shock loading.

89-90 Installation Guidelines

# Fitting the correct anti-vibration mount means

- Lower maintenance costs Less wear & tear
- Increased machine life Improved performance
  - A safer and quieter working environment

All machinery vibrates, causing noise and structure-borne sound. We have been providing anti-vibration solutions for 20 years and we can help, whatever your application or industry and no matter how complicated the problem.

To ensure effective vibration isolation, an antivibration mount needs to be carefully selected. We can often recommend the correct product over the phone by talking to you about the type of machinery, running speed and loading. If your request is more complex or unusual, one of our technicians will be happy to visit to look at the application.

Our in-depth knowledge of vibration technology guarantees you the best solution, we can measure, analyse, test and recommend, and in most cases, vibration can be practically eliminated.

How to use this catalogue

The information you will need to know is;

- The weight of the machinery.
- The load per mounting.
- The number of mounting points.
- The operating speed (Interfering Frequency, Hz).

Each product is accompanied by calculation charts.

Select the correct Loading in Diagram 1. Select the correct Interfering Frequency in Diagram 3.

With a ruler, connect the two intersection points vertically down.

The line will intersect with the required type of mounting.

Alternatively, you can call our sales team on 01473 738569 or email sales@robush.co.uk





## Product Questionnaire

If you have purchased from us before, simply call us with a part number or product reference.

If you have a new or bespoke enquiry, the technical information below will help us identify the right product.

Photocopy this page and fax it to us. If possible please attach a simple sketch.

Your name — Company — Company —	
Contact No Fax No	
Your email	
The type of equipment. e.g. generator set / stationary / mobile / vehicle	
The type of environment. e.g factory / hospital / food / are oil or chemicals present?	
Running speed (rpm) Total weight	
Number of mounts required Direction of vibration: Vertical Horizontal	Rotating
Additional comments	

Please photocopy this page and fax to 01473 738751 or call Sales on 01473 738569 email sales@robush.co.uk

# A selection from our product range



We can source virtually any anti-vibration product.

If you don't see what you're looking for, please call us.



# Bespoke Solutions

We supply companies who are at the leading edge of innovation and specialists in their field. Many of them have come to rely on us for sourcing and producing the rare and unusual and we work dosely together to develop and provide the perfect solution to their anti-vibration needs.

If we don't already have what you're looking for on the shelf at our Distribution Centre, we'll locate it for you. We have extensive archives and often surprise customers by finding a product they thought was no longer available.

If it doesn't exist, we can design, prototype and manufacture a bespoke solution for you. Whatever the vibration issue, whether it's recreating an obsolete product or creating an entirely new one, we can partner you from concept to installation.

Our Bespoke Solution Service includes:

One-off, bespoke engineering production.

Best fit solutions requiring unique design or unusual manufacturing methods.

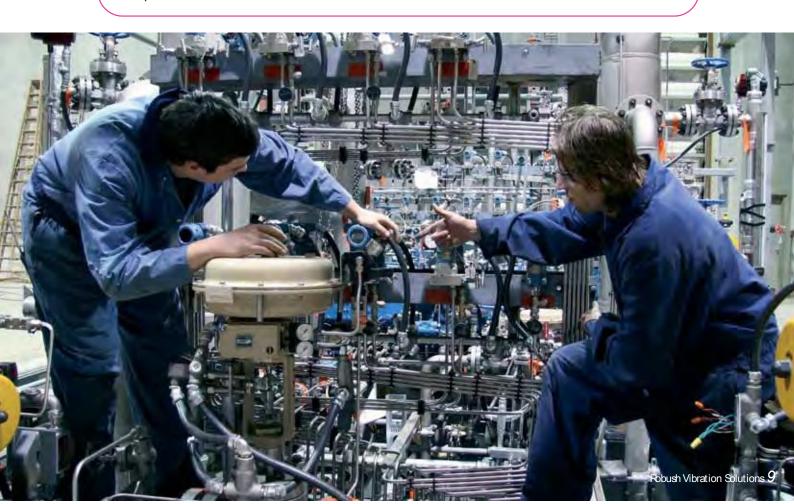
Replacing standard materials on catalogue parts with less used options to overcome environmental extremes.

Applying tried and tested solutions to new applications.

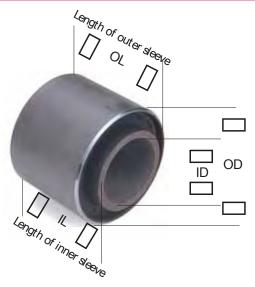
Re-engineering or reverse engineering of obsolete or non-serial parts.

If you would like to discuss a project or require technical help, our Bespoke Solutions Team would be delighted to visit you.

Please call 01473 738569



#### Bushes - VP, UD, Spherilastik & Metaxentric



- ID Inner Diameter
- OD Outer Diameter
  - IL Inner Length
- OL Outer Length
- SH Shore (Rubber Hardness)

Bushes consist of rubber sandwiched between concentric steel sleeves and we have a wide range of versions available providing unique characteristics to suit different applications. They can be fully bonded or semi bonded.

Bushes provide smooth and predictable movement without the wear associated with solid metal bushes and require no lubrication. They offer vibration isolation and reduce road noise in automotive applications by absorbing impact.

They allow a linkage freedom of movement and absorb deflection and load which would otherwise be transferred to mechanical components.

A bush can absorb deflection without affecting alignment, allowing for vibration isolation whilst maintaining the steering geometry.



#### VP and UD Bushes

Designed to accommodate torsional movement and axial and radial loads. The rubber is pre-stressed to give maximum dynamic strength and durability. Excellent sound and vibration isolation characteristics.

Ideal for vehicle suspension, pivot arms and all types of mechanical linkage.



#### Spherilastik Bushes

A heavy duty, compact, flexible bearing which combines high load capacity and the ability to accommodate torsional and angular movement.

Available as centre bore or trunnion types depending on fixing requirements.

Typical uses include traction and torque rods for rail and off-road vehicles, hydraulic dampers and applications where a high radial load bearing with low rotational stiffness is required. Available in various lengths and fitted with extra strong inner sleeve bushes.



#### Metaxentric Bushes

These bushes have a large rubber section with the centre pin offset. Designed to provide large radial deflection with excellent motion control. Simple to fit and ideal for robust structures.

If you don't see what you're looking for, please ask us.

Call the Sales Team on 01473 738569 • fax 01473 738751 • sales@robush.co.uk



## Standard Bushes

Ultra Duty (UD) Vehicle Pivot (VP)

Inner Diameter (ID) Outer Diameter (OD) Inner Length (IL) Outer Length (OL) Rubber Hardness (SH) All bushes are 60 shore unless otherwise specified. All measurements shown are in mm. Measurements +/- .05mm

UD & VP Bushes Stock Reference	ID	OD	IL	OL	SH	Special
13-1459-01 / 10-00671-01	7.92	25.40	33.32	25.40	50	UD
17-1459-05 / 10-03934-01	7.92	25.40	33.32	25.40	70	UD
13-1232-60 / 20-01612-01	8.00	20.00	17.00	15.00	60	UD
13-1027-01 / 10-03042-01	9.53	20.63	11.69	8.64	70	UD
13-2370-00 / 10-00681-01	9.58	21.90	21.02	17.85	60	UD
13-2309-01 / 10-03074-01	10.00	22.00	33.00	30.00	70	UD
13-1230-00 / 10-00249-01	10.00	24.00	18.00	15.00	55	UD
VP 10/2525 / 10-00021-01	10.00	25.00	25.00	20.00	60	VP
VP 10/2540 / 10-00022-01	10.00	25.00	40.00	35.00	60	VP
13-1353-01 / 10-02467-01	12.70	25.40	16.51	13.84	60	UD
13-1460-00 / 10-00998-02	12.70	28.80	28.58	25.40	60	UD
13-1657-00 / 10-00271-01	12.70	38.10	50.80	44.45	60	UD
13-2291-00 / 10-03293-01	12.80	38.10	77.77	73.02	35	UD
13-2291-01 / 10-03073-01	12.80	38.10	77.77	73.02	45	UD
13-2291-02 / 10-00679-01	12.80	38.10	77.77	73.02	55	UD
13-2291-03 / 10-02896-01	12.80	38.10	77.77	73.02	60	UD
VP 15/3530 / 10-00023-01	15.00	35.00	30.00	25.00	60	VP
VP 15/3550 / 10-00024-01	15.00	35.00	50.00	45.00	60	VP
13-0797-04 / 10-00217-00	15.88	33.32	65.07	60.32	60	UD
13-0797-00 / 10-00218-01	15.88	33.32	65.07	60.32	70	UD
13-1004-01 / 10-00235-01	15.88	47.63	50.80	44.45	60	UD
13-0917-00 / 20-01651-01	16.00	30.15	31.80	28.66	60	UD
13-0754-13 / 10-02744-02	17.54	35.00	39.80	35.05	75	UD
13-0927-01 / 10-00227-01	19.05	38.10	61.85	57.15	60	UD
VP 20/4540 / 10-00025-01	20.00	45.00	40.00	35.00	60	VP
VP 20/4575 / 10-00026-01	20.00	45.00	75.00	70.00	60	VP
VP 25/5045 / 10-00027-01	25.00	50.00	45.00	40.00	60	VP
VP 25/5085 / 10-00028-01	25.00	50.00	85.00	80.00	60	VP
13-0922-02 / 10-02943-01	28.57	54.61	57.15	50.80	45	UD
13-0989-00 / 10-03170-01	28.57	57.15	89.00	85.73	60	UD
VP 30/6055 / 10-00029-01	30.00	60.00	55.00	45.00	60	VP
VP 30/60100 / 10-00030-01	30.00	60.00	100.00	90.00	60	VP
13-2017-00 / 10-03255-01	31.75	50.80	27.17	24.13	60	UD
13-1698-03 / 10-00276-01	34.93	71.12	44.95	41.15	60	UD
13-0728-01 / 10-00213-01	34.93	71.12	120.65	111.10	60	UD
VP40/7065 / 10-00033-01	40.00	70.00	65.00	55.00	60	VP
13-0803-00 / 10-03219-01	44.45	88.90	101.60	79.38	60	UD
VP 50/8075 / 10-00037-01	50.00	80.00	75.00	65.00	60	VP
13-1317-01 / 10-02826-01	50.80	100.78	158.75	146.00	75	UD
13-0900-01 / 10-00225-01	55.39	81.50	81.28	76.20	60	UD
13-0907-00 / 10-00234-01	55.39	81.50	90.42	70.20 77.47	60	UD
13-1414-01 / 10-03050-01	76.25	142.85	193.69	190.50	70	UD
13-1414-01/10-03030-01	10.20	142.00	193.09	190.00	10	טט

#### Bushes



#### Standard Bushes

Inner Diameter (ID) Outer Diameter (OD) Inner Length (IL) Outer Length (OL) Rubber Hardness (SH) Oil Resistant Nitrile (N)

All bushes are 60 shore unless otherwise specified. All measurements shown are in mm. Measurements +/- .05mm

Stock Reference	ID	OD	IL	OL	SH	Special
RB3849	4.76	11.11	7.94	6.35		(N)
RB3699	6.35	14.29	19.05	17.00		
E2000	6.35	14.29	20.64	19.05		
RB3886	6.35	14.40	12.70	9.53		
E1000	6.35	17.46	22.23	19.05		
RB3677	6.35	19.06	15.60	12.90		
RB3707	6.35	19.06	25.40	22.23		
RB2189	7.92	25.40	33.32	25.40	50	
RB3713	7.94	14.29	20.64	19.05		
RB2486	7.94	14.29	11.11	9.53		
RB3736	7.94	15.88	24.61	22.23		
RB3714	7.94	17.46	27.78	25.40		
RB3732	7.94	22.23	31.75	28.58		
RB3881	8.00	19.98	16.99	15.01		
RB2403	8.00	20.00	17.00	15.00		
RB2453	8.00	20.00	21.00	14.00		
P**BE9000	8.00	22.00	16.00	10.00		
RB3628	8.00	32.00	23.25	18.00		
RB2142	8.20	20.00	21.00	14.00		
RB3715	9.52	19.05	20.64	22.30		
RB3594	9.53	20.63	11.68	8.64	70	
RB3716	9.53	20.64	22.23	19.05	70	
RB3752	9.53	20.64	22.23	19.05		
E2040	9.53	20.64	34.93	31.75		
RB3702	9.53	20.64	41.28	31.75		
E1072	9.53	23.81	26.99	23.81		
E1066	9.53	23.81	30.16	32.15		
RB3733	9.53	23.81	32.15	30.16		
E1060	9.53	23.81	42.86	38.10		
RB3701	9.53	25.40	36.51	31.75		
RB3708	9.53	25.40	52.39	47.63		
CAFB2030	9.60	19.10	31.00	28.90		
RB3631	10.00	19.05	31.00	28.90		
RB2208	10.00	20.00	24.00	20.00		
RB2260	10.00	22.00	17.00	15.00		
RB2328	10.00	22.00	19.00	15.00		
RB2109	10.00	22.00	23.00	20.00		
RB3508	10.00	22.00	33.00	30.00		
RB2339	10.00	22.00	33.00	30.00	70	



#### Standard Bushes

Inner Diameter (ID) Outer Diameter (OD) Inner Length (IL) Outer Length (OL) Rubber Hardness (SH) Extended Rubber (EXT)

All bushes are 60 shore unless otherwise specified. All measurements shown are in mm. Measurements +/- .05mm

Stock Reference	ID	OD	IL	OL	SH	Special
RB1092	10.00	22.00	33.00	30.00		
P**BE9010	10.00	24.00	17.00	14.00		
RB1103	10.00	24.00	22.00	18.00		
RB1001	10.00	24.00	41.00	34.00		
RB2263	10.00	25.00	24.00	20.00		
RB3895	10.00	25.00	24.00	20.00		
RB1055	10.00	28.00	27.00	20.00		
RB2255	10.00	30.00	49.00	45.00		
7000203	10.20	47.50	63.20	54.00		
EX40737	11.10	25.40	42.80	38.10		(EXT)
RB3866	11.10	25.40	44.45	38.10		,
RB3717	11.11	22.23	38.10	34.93		
E2051	11.11	22.23	47.63	44.45		
RB3700	11.11	23.81	22.23	19.05		
RB3738	11.11	23.81	41.28	38.10		
RB3739	11.11	25.40	36.50	28.60		
EX40739	11.11	25.40	50.80	42.86		(EXT)
RB3743	11.11	25.40	53.98	50.80		, ,
EX40742	11.11	25.40	53.98	50.80		(EXT)
RB3709	11.11	26.99	28.58	25.40		, ,
E20550	11.18	22.64	22.20	19.05		
RB2299	11.40	25.00	54.00	51.00		
RB2153	12.00	22.00	28.00	24.00		
RB3518	12.00	24.00	38.00	35.00		
RB3542	12.00	25.00	28.00	25.00		
RB2522	12.00	25.00	45.00	40.00		
RB1061	12.00	25.00	54.00	50.00		
RB2028	12.00	26.00	24.00	20.00		
RB2321	12.00	26.00	34.00	32.00		
RB3512	12.00	26.00	34.00	32.00		
P**BE9020	12.00	26.05	24.05	17.66		
RB3632	12.00	27.00	35.00	32.00		
RB1089	12.00	27.00	68.00	60.00		
RB1039/1	12.00	28.00	32.00	32.00		
RB2090	12.00	28.00	38.00	32.00		
RB3524	12.00	29.00	28.00	25.00		
RB2117	12.00	30.00	44.00	34.00		
RB3558	12.00	32.00	40.00	34.00		
RB2525	12.00	32.00	59.00	55.00		

#### Bushes



#### Standard Bushes

Inner Diameter (ID) Outer Diameter (OD) Inner Length (IL) Outer Length (OL) Rubber Hardness (SH)

All bushes are 60 shore unless otherwise specified. All measurements shown are in mm. Measurements +/- .05mm

Stock Reference	ID	OD	IL	OL	SH	Special
RB2283	12.00	40.00	66.00	58.00		
7002569	12.10	34.05	39.75	31.00		
RB3848	12.20	35.10	45.00	25.00		
RB2460	12.25	25.27	25.00	21.00		
RB3718	12.70	23.80	25.40	25.40		
RB3721	12.70	26.99	41.28	38.10		
RB3720	12.70	26.99	60.33	50.80		
RB2110	12.70	27.00	34.70	31.60		
RB3871	12.70	27.00	66.00	44.50		
RB2130	12.70	27.00	66.10	44.70		
RB2219	12.70	27.03	43.00	31.75		
RB3719	12.70	27.03	47.63	44.45		
RB3838	12.70	27.38	50.80	44.45		
RB3822	12.70	28.58	28.58	25.40		
RB3710	12.70	28.58	33.34	28.58		
RB2286	12.70	30.22	57.15	50.80		
RB3734	12.70	31.75	46.04	44.45		
RB3909	12.70	31.75	57.15	50.80		
RB2050	12.70	31.75	58.74	50.80		
RB3737	12.70	31.75	63.50	57.15		
E11413	12.70	33.33	33.65	25.40		
RB3735	12.70	33.34	28.58	25.40		
E1158	12.70	34.39	44.45	41.28		
RB3832	12.70	38.10	31.75	25.40		
7000202	12.70	52.00	63.20	54.00		
CAFB2111	12.75	27.00	35.00	32.00		
RB3823	12.75	27.05	26.05	22.30		
RB2074	12.80	28.58	50.67	44.35		
RB2132	12.80	38.10	77.77	73.02		
RB3876	12.90	27.40	50.80	44.45		
RB3857	12.98	26.61	25.9.4	21.11		
RB1080	14.00	27.00	56.00	50.00		
RB2170	14.00	28.00	44.00	40.00		
P**BE9040	14.00	30.00	76.00	67.00		
RB1090	14.00	32.00	54.00	50.00		
RB2553	14.00	32.00	62.00	58.00		
RB2567	14.00	40.00	70.00	60.00		
RB2284	14.00	40.00	72.00	60.00		



#### Standard Bushes

Inner Diameter (ID) Outer Diameter (OD) Inner Length (IL) Outer Length (OL) Rubber Hardness (SH) Oil Resistant Nitrile (N)

All bushes are 60 shore unless otherwise specified. All measurements shown are in mm. Measurements +/- .05mm

Stock Reference	ID	OD	IL	OL	SH	Special
RB3618	14.28	31.75	95.25	88.27		
E1164	14.29	28.58	40.80	36.51		
RB2249	14.29	30.16	44.00	33.00		
RB3722	14.29	31.75	53.80	50.79		
RB3753	14.29	31.75	61.91	57.15		
RB1098	14.30	30.00	49.00	45.00		
RB2157	14.30	30.20	69.90	63.50		
RB3488	14.30	30.20	91.60	85.90		
RB3613	14.33	30.15	69.85	63.50		
RB2570	14.50	44.10	59.00	50.00		(N)
RB9000	15.75	41.30	104.00	79.23		
RB9013	15.88	28.58	30.10	28.50		
RB3723	15.88	31.75	61.91	57.15		
E2133	15.88	33.34	53.98	50.80		
EX41316	15.88	33.34	57.15	50.80		
RB3744	15.88	34.93	38.10	34.93		
RB3748	15.88	34.93	68.26	63.50		
E1175	15.88	38.10	53.98	50.78		
E21828	15.88	38.10	53.98	44.45		
E11799	15.88	38.10	63.50	71.37		
RB3711	15.88	38.10	79.38	73.03		
RB3679	15.88	38.86	34.93	31.75		
RB2442	15.88	47.63	50.80	44.45		
RB9002	16.00	32.00	26.00	20.00		
RB2154	16.00	32.00	32.00	28.00		
RB2158	16.00	32.00	54.00	50.00		
RB2293	16.00	33.00	66.00	60.00		
RB3725	16.00	34.93	68.26	63.50		
RB2021	16.00	35.00	62.00	58.00		
RB2588	16.00	37.00	42.00	37.00		
RB2435	16.00	38.00	72.00	64.00		
RB3501	16.00	40.00	40.00	33.00		
RB1009	16.00	46.00	67.00	60.00		
RB1069	16.00	46.00	82.00	60.00		
RB2461	16.50	38.10	34.80	37.10		
RB2450	16.51	45.00	82.00	75.00		
RB2051	17.45	34.93	39.67	38.10		
RB3498	17.50	34.90	25.40	22.20		

#### Bushes



#### Standard Bushes

Inner Diameter (ID) Outer Diameter (OD) Inner Length (IL) Outer Length (OL)
Rubber Hardness (SH) Stainless Steel (SS)

All bushes are 60 shore unless otherwise specified. All measurements shown are in mm. Measurements +/- .05mm

Stock Reference	ID	OD	IL	OL	SH	Special
RB2485	18.00	34.00	23.00	23.00		
RB1006	18.00	34.00	36.00	32.00		
RB3846	18.00	34.00	66.00	60.00		
RB2162	18.00	34.00	71.00	65.00		
RB2448	19.00	37.90	47.50	45.10		
RB3748	19.00	38.10	77.79	73.03		
E21355	19.05	31.83	39.50	31.75		
RB3541	19.05	34.00	36.00	32.00		
RB1049	19.05	38.10	38.10	34.93		
RB3726	19.05	38.10	41.28	38.10		
E2174	19.05	38.10	53.98	50.80		
RB3727	19.05	38.10	61.94	57.15		
RB3748	19.05	38.10	77.79	73.03		
RB9010	19.05	42.86	41.80	44.45		
E12391	19.05	42.86	53.80	47.63		
RB3698	19.05	44.45	60.03	50.80		
RB3676	19.10	47.70	69.90	63.60		
RB2509	20.00	38.00	46.00	40.00		
RB2337	20.00	44.00	42.00	38.00		
RB3878	20.00	45.00	40.00	35.00		
P**BE9060	20.00	45.00	59.50	62.50		
RB2112	20.00	45.00	70.00	64.00		
RB3851	20.00	45.00	75.00	70.00		(SS)
RB2601	20.00	45.00	92.00	80.00		
RB1071	20.00	46.00	67.00	60.00		
RB2013	20.00	50.00	76.00	73.00		
RB2144	20.00	50.00	95.00	90.00		
RB2220	22.00	42.80	63.50	57.00		
RB3874	22.23	42.86	34.93	31.75		
E22324	22.23	42.86	35.00	31.75		
RB3847	22.23	42.86	63.50	57.15		
E12568	22.23	46.04	63.50	57.15		
E1271M	22.23	49.21	54.00	54.00		
RB3712	22.23	49.21	88.90	76.20		
RB3712/1	22.23	49.21	88.90	76.20		(SS)
RB2185	24.00	42.00	50.00	45.00		
RB2265	24.00	44.00	79.00	77.00		
RB1004	24.00	50.00	71.00	65.00		



#### Standard Bushes

Inner Diameter (ID) Outer Diameter (OD) Inner Length (IL) Outer Length (OL) Rubber Hardness (SH)

All bushes are 60 shore unless otherwise specified. All measurements shown are in mm. Measurements +/- .05mm

Stock Reference	ID	OD	IL	OL	SH	Special
RB2297	24.00	50.00	95.00	90.00		
RB2270	24.00	50.00	115.00	102.00		
RB3663	24.00	60.00	82.00	76.00		
RB3655	25.00	40.00	30.00	30.00		
RB2439	25.00	40.00	40.00	40.00		
RB2467	25.00	40.00	56.00	50.00		
RB3869	25.00	50.00	45.00	40.00		
RB3890	25.00	50.00	56.00	50.00		
P**BE9070	25.00	50.00	67.50	65.50		
RB1067	25.40	42.85	38.10	31.60		
RB3759	25.40	42.85	69.85	50.80		
RB2049	25.40	44.45	41.28	38.10		
RB2073	25.40	44.45	69.80	63.50		
RB2449	25.40	46.00	69.20	65.00		
RB3515	25.40	46.04	41.27	38.10		
RB3894	25.40	46.04	68.26	63.50		
RB3740	25.40	46.04	104.78	98.43		
E22778	25.40	47.63	103.19	95.25		
RB3745	25.40	53.98	73.03	63.50		
RB3624	25.40	63.50	117.48	101.60		
RB3692	26.99	47.24	107.95	80.95		
RB9015	28.20	76.00	83.00	51.10		
RB3746	28.57	54.61	123.83	114.30		
RB3494	28.57	57.15	88.90	85.73		
RB2329	30.00	50.00	66.00	60.00		
RB3660	30.00	60.00	68.00	60.00		
RB2088	30.00	65.00	70.00	70.00		
DE8531	30.00	90.00	82.50	80.00		
E2360	30.24	50.88	130.80	120.66		
RB9006	31.00	51.00	78.60	76.20		
RB3645	31.75	53.98	165.10	63.00		
RB9011	31.75	57.15	38.10	37.30		
E1438	31.75	63.50	57.15	50.80		
E14325	31.75	63.50	103.90	63.50		
E24356	31.75	65.07	80.60	69.85		
E24310	31.75	65.08	79.30	69.85		
RB2305	32.00	55.00	72.00	64.00		
RB2167	32.00	70.00	95.00	90.00		
RB3730	34.93	58.74	74.61	69.85		
RB2581	34.93	71.12	44.95	41.15	45	

#### Bushes



#### Standard Bushes

Inner Diameter (ID) Outer Diameter (OD) Inner Length (IL) Outer Length (OL) Rubber Hardness (SH) Extended Rubber (EXT)

All bushes are 60 shore unless otherwise specified. All measurements shown are in mm. Measurements +/- .05mm

Stock Reference	ID	OD	IL	OL	SH	Special
RB2582	34.93	71.12	44.95	41.15	50	
RB3908	34.93	71.17	120.65	111.10		
RB9003	37.75	64.10	76.20	64.50		
RB3839	38.00	64.00	88.00	80.00		
E2434	38.10	65.09	76.20	73.03		
E2432	38.10	65.09	133.35	127.00		
E24552	38.10	70.00	76.20	63.35		
RB3603	38.10	94.74	88.90	79.38		
RB2482	40.00	65.00	88.00	80.00		
RB3640	40.00	75.00	70.00	57.00		
RB3901	40.00	75.00	70.00	57.00		
RB3619	42.85	63.50	63.00	57.15		
RB3760	43.97	101.60	95.25	95.25		
RB13/2048	44.45	75.86	133.35	127.00		
RB3567	44.45	76.20	133.00	127.00		
E2477	44.45	76.20	139.70	127.00		
<b>⊞</b> 24617	44.45	78.49	133.35	129.49		(EXT)
RB2569	45.00	75.00	36.00	32.00		, ,
RB2568	45.00	80.00	49.00	45.00		
RB2202	50.00	70.00	60.00	60.00		
P**BE9090	50.00	80.00	100.00	95.00		
RB3644	50.00	80.00	100.00	95.00		
RB2133	50.00	80.00	110.00	100.00		
RB3904	50.00	80.00	110.00	100.00		
RB3903	50.80	85.72	82.55	76.20		
E2526	50.80	85.72	82.55	76.20		
E25264	50.80	85.72	107.80	101.50		
RB3629	50.80	85.73	101.60	101.60		
RB3853	53.12	100.12	95.25	88.90		
RB9001	53.80	95.10	90.20	95.10		
E25310	53.98	88.90	92.08	88.90		
RB3872	55.18	81.65	77.50	77.50		
E2603	57.15	92.08	82.55	76.20		
E2632	63.50	104.78	107.95	101.60		
E26361	63.50	104.78	165.10	152.40		
RB9012	76.20	120.60	157.10	139.70		
E2808	76.20	120.65	174.63	165.10		
E2846R	76.30	139.65	149.00	140.00		
E2847	88.90	139.70	139.70	127.00		
RB3688	152.40	228.60	241.20	203.30		





All bushes are 60 shore unless otherwise specified. All measurements shown are in mm. Measurements +/- .05mm

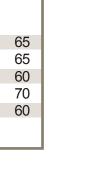
Stock Reference	ID	OD	IL	OL	SH
Centre Bore Type					
13-2106-00 / 10-00291-01	9.06	28.58	76.20	70.00	60
13-1316-01 / 10-00257-01	25.40	66.67	53.98	47.63	60
13-2201-00 / 10-01116-01	25.44	63.65	53.98	45.00	65
13-1006-00 / 10-00237-02	28.60	90.50	76.20	69.90	60
Trunnion Type					
13/2202-00 / 10-00302-01		66.79	47.60	47.60	65
13-2202-01 / 10-03029-01		66.79	47.60	47.60	65
13-2033-00 / 10-00283-01		85.75	65.00	65.00	60
13-2568-00 / 10-02512-02		106.60	76.20	76.20	70
13-2400-00 / 10-03615-01		106.75	76.20	76.20	60
OD measurement as supplied					

#### Metaxentric Bushes

Inner Diameter (ID) Outer Diameter (OD) Inner Length (IL) Outer Length (OL) Rubber Hardness (SH)

All bushes are 60 shore unless otherwise specified. All measurements shown are in mm. Measurements +/- .05

Stock Reference	ID	OD	IL	OL	SH
13-2174-01 / 10-00297-03	24.12	75.31	69.85	50.80	60
13-2063-01 / 10-03260-01	25.00	101.36	72.50	63.50	50
13-1165-02 / 10-00245-01	25.40	88.08	79.25	66.68	65
13-1165-11 / 10-00246-01	25.40	88.08	79.25	66.68	70
13-1355-01 / 10-00263-01	44.45	101.13	72.39	25.50	60



#### Bobbins & Buffers

# Visit our on-line shop for the widest range of bobbins at the best possible prices - www.robush.co.uk

The Bobbin Mount (or cylindrical mount) is one of the most versatile of all vibration isolators due to its simplicity and application.

Used for compression or shear loading, they provide optimum stability, resilience and isolation efficiency and we stock a wide range of shapes and sizes with various rubber hardnesses.

#### Type A - Male/Male

Features threaded bolts in various lengths and thicknesses on both sides of the bobbin.

#### Type B- Male/Female

Features a threaded bolt in various lengths and thicknesses one side and an internal thread the other side.

#### Type C- Female/Female

Features internal threads in various thicknesses on both sides.

#### **Buffers**

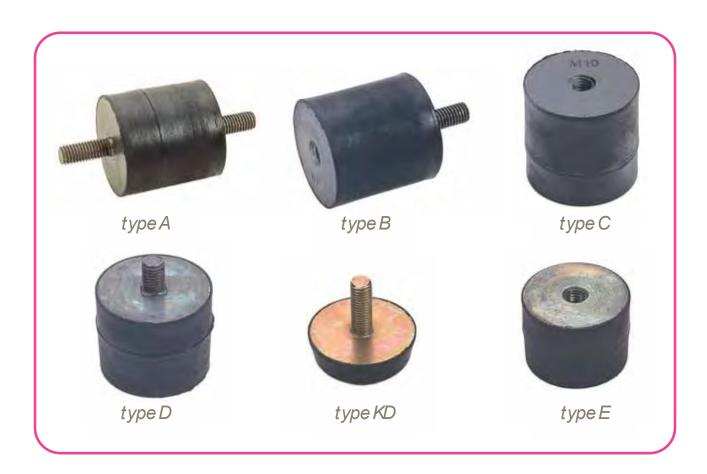
Buffers are usually fitted as non-metallic stops or incorporated in vehicle suspension systems to provide progressive stiffening under increasing load.

#### Type D - Male

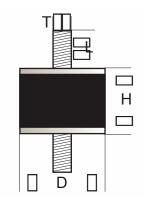
Features a threaded bolt in various lengths and thicknesses one side and a flat plate the other side.

#### Type E- Female Buffer

Features and internal thread one side and a flat rubber face the other.



# A-type Male/Male Bobbin





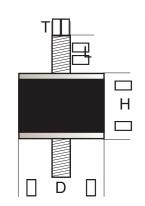
#### Stainless Steel is indicated (SS)

				AIT II 000 CL C
Туре	Diameter/Height	Thread	Length	Shore
Α	9.5 / 11	M4	10	60
Α	10 / 8	M4	10	40
Α	10 / 10	M4	10	43
A A A	10 / 10	M4	10	60
Α	10 / 15	M4	10	60
A A A A	15 / 10	M4	10	60
Α	15 / 15	M4	10	40
Α	15 / 15	M4	10	60
Α	15 / 15	M5	12	50
	15 / 25	M4	10	60
Α	16 / 15	M4	10	45
Α	18 / 8.5	M6	16	60
Α	20 / 10	M6	15	40
Α	20 / 10	M6	15	60
A	20 / 15	M6	15	40
Α	20 / 15	M6	18	60
Α	20 / 15	M6	18	70
Α	( <del>SS</del> ) 20 / 20	M6	15	40
A A A	20 / 20	M6	15	40
Α	20 / 20	M6	15	60
Α	20 / 20	M6	15	70
Α	20 / 25	M6	15	40
Α	20 / 25	M6	15	60
A	20 / 30	M6	15	40
Α	20 / 30	M6	15	60
Α	25 / 10	M6	18	40
A A A A A	25 / 10	M6	15	60
Α	25 / 15	M6	15	40
Α	25 / 15	M6	15	60

Туре	Diameter/Height	Thread	Length	Shore
Α	25 / 20	M6	15	40
Α	25 / 25	M6	15	40
Α	25 / 25	M6	15	60
Α	25 / 25	M8	20	40
Α	25 / 30	M6	15	40
Α	25 / 30	M6	15	60
Α	25 / 30	M8	20	35
Α	30 / 15	M8	20	40
Α	30 / 15	M8	20	60
Α	30 / 20	M8	20	40
Α	30 / 20	M8	20	45
Α	30 / 20	M8	20	60
Α	30 / 25	M8	20	40
Α	30 / 25	M8	20	60
Α	30 / 30	M8	20	40
Α	30 / 30	M8	20	60
Α	30 / 35	M8	20	40
Α	30 / 40	M8	20	40
Α	30 / 40	M8	20	60
Α	32 / 25	M8	20	50
Α	40 / 20	M8	20	40
Α	40 / 20	M10	25	60
Α	40 / 20	M10	25	70
Α	40 / 30	M8	20	40
Α	40 / 30	M8	23	60
Α	40 / 30	M10	25	40
Α	40 / 30	M10	20	60
Α	40 / 30	M10	30	60
Α	40 / 35	M8	23	60
Α	40 / 35	M10	25	40
Α	40 / 35	M10	26	60

# A-type Male/Male Bobbin



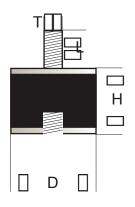


Oil resistant Nitrile is indicated (N) Waisted Bobbins are indicated (W)

Туре	Diameter/Height	Thread	Length	Shore
Α	40 / 40	M8	23	40
A	40 / 40	M8	20	60
A	40 / 40	M8	28+15	60
A	40 / 40	M10	10	60
A	40 / 40	M10	27	60
Α	46 / 25.4	M10	25	60
Α	50 / 20	M10	25	40
A	50 / 20	M10	28	60
A	(N) 50 / 20	M10	28	70
A	50 / 25	M10	25	40
A	50 / 25	M10	25	60
A	50 / 30	M10	25	40
Α	50 / 30	M10	25	60
A	50 / 35	M10	25	40
A	50 / 35	M10	25	60
A	50 / 40	M10	25	40
A	50 / 40	M10	20	60
A	50 / 40	M10	25	60
A	50 / 40	M10	28	70
Α	50 / 45	M10	25	40
Α	50 / 45	M10	25	60

Туре	Diameter/Height	Thread	Length	Shore
Α	50 / 45	M10	28	70
Α	50 / 50	M10	25	40
Α	50 / 50	M10	26	40
Α	50 / 50	M10	25	60
A	(W) 50 / 36	M10	25	50
Α	60 / 25	M10	25	45
Α	60 / 30	M10	25	70
Α	60 / 36	M10	25	60
Α	60 / 45	M12	37	60
Α	60 / 60	M10	28	60
Α	75 / 25	M12	35	60
Α	75 / 40	M12	35	40
Α	75 / 40	M12	35	60
Α	75 / 45	M10	28	60
Α	75 / 50	M12	35	40
Α	75 / 50	M12	35	60
Α	75 / 55	M12	35	40
Α	75 / 55	M12	35	60
Α	100 / 40	M16	45	40
Α	100 / 55	M16	45	40
Α	100 / 55	M16	41	60

# B-type Male/Female Bobbin





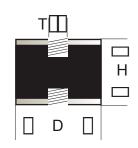
#### Oil resistant Nitrile is indicated (N)

Туре	Diameter/Height	Thread	Length	Shore
В	10 / 8	M4	10	40
В	10 / 10	M4	10	60
В	10 / 15	M4	10	60
В	15 / 15	M4	10	40
В	15 / 15	M4	10	60
В	20 / 15	M6	18	40
В	20 / 15	M6	15	60
В	20 / 15	M6	18	60
В	20 / 20	M6	18	40
В	20 / 20	M6	15	60
В	20 / 25	M6	18	40
В	20 / 25	M6	15	60
В	20 / 30	M6	15	60
В	25 / 15	M6	18	40
В	25 / 15	M6	15	60
В	25 / 20	M6	15	40
В	25 / 20	M6	15	60
В	25 / 25	M6	15	60
В	30 / 15	M8	20	40
В	30 / 15	M8	20	60
В	30 / 20	M8	20	60
В	30 / 25	M8	20	45
В	30 / 25	M8	20	60
В	30 / 30	M8	8	40
В	30 / 30	M8	20	60
В	30 / 40	M8	20	60
В	40 / 30	M8	23	40
В	40 / 30	M8	20	60

Туре	Diameter/Height	Thread	Length	Shore
В	40 / 30	M8	22	60
В	40 / 30	M8	16	70
В	40 / 35	M10	25	45
В	40 / 40	M8	23	60
В (	N)40 / 40	M10	28	60
В	40 / 40	M10	27	70
В	50 / 20	M10	25	55
В	50 / 20	M10	28	60
В	50 / 30	M10	28	40
В (	N)50 / 30	M10	28	40
В	50 / 30	M10	25	60
В (	N)50 / 30	M10	28	60
В	50 / 40	M10	25	60
В	50 / 45	M10	25	40
В	50 / 45	M10	27	60
В	50 / 45	M10	28	60
В	50 / 50	M10	28	40
В	50 / 50	M10	25	60
В (	N)60 / 30	M10	28	60
В	70 / 40	M12	37	60
В	70 / 45	M10	28	60
В	75 / 15	M12	37	60
В	75 / 50	M12	35	60
В	75 / 55	M12	37	40
В	75 / 55	M12	35	60
В	75 / 55	M16	37	70
В	80 / 50	M12	37	60
В	80 / 50	M12	37	70
В	100 / 40	M16	45	60
В	100 / 55	M16	38	40
В	100 / 55	M16	45	60

# C-type Female/Female Bobbin

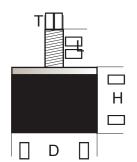




Туре	Diameter/Height	Thread	Shore
С	15 / 15	M4	60
С	20 / 20	M6	40
С	20 / 20	M6	45
С	20 / 20	M6	60
С	20 / 25	M6	45
C C C C	20 / 25	M6	60
С	20 / 30	M6	60
С	25 / 20	M6	60
С	25 / 30	M6	40
C C C C C C C C C	30 / 20	M8	45
С	30 / 20	M6	60
С	30 / 25	M8	60
С	30 / 30	M8	43
С	30 / 30	M8	45
С	30 / 30	M8	60
С	30 / 35	M8	60
С	30 / 36	M8	40
С	30 / 40	M8	60
С	40 / 30	M8	45
С	40 / 30	M8	60
С	40 / 30	M8	70
С	40 / 40	M8	60
C C C C	50 / 30	M8	45
С	50 / 30	M10	45
С	50 / 35	M10	60

Type	Diameter/Height	Thread	Shore
С	50 / 40	M10	45
С	50 / 40	M10	70
С	50 / 45	M10	40
С	50 / 45	M10	60
С	50 / 45	M10	70
С	50 / 50	M10	60
С	70 / 50	M12	50
С	75 / 36	M12	60
С	75 / 40	M12	60
С	75 / 45	M12	60
С	75 / 50	M12	43
С	75 / 50	M12	45
С	75 / 50	M12	60
С	75 / 55	M12	60
С	75 / 55	M16	60
С	100 / 40	M16	60
С	100 / 45	M16	60
С	100 / 50	M16	60
С	100 / 55	M16	60
	100 / 60	M16	45
С	100 / 60	M16	60
С	100 / 75	M16	60
С	100 / 75	M16	70
С	150 / 55	M16	60

# D-type Male Buffer



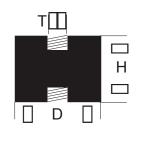


D       10 / 10       M4       10       6         D       15 / 15       M4       10       6         D       20 / 10       M6       15       6         D       20 / 15       M6       15       4	
D       15 / 15       M4       10       6         D       20 / 10       M6       15       6         D       20 / 15       M6       15       4	ore
D 20 / 10 M6 15 6 D 20 / 15 M6 15 4	60
D 20 / 15 M6 15 4	60
	60
D 20 / 15 M6 15 6	40
B 207 10 1010 10 0	60
D 20 / 20 M6 15 6	60
D 20 / 25 M6 15 6	60
D 25 / 10 M6 15 6	60
D 25 / 15 M6 15 6	60
D 25 / 20 M6 15 6	60
D 30 / 15 M8 20 6	60
D 30 / 17 M8 20 4	40
D 30 / 20 M8 20 6	60
D 30 / 25 M8 20 6	60
D 30 / 30 M8 20 4	45

Туре	Diameter/Height	Thread	Length	Shore
D	30 / 30	M8	20	60
D	30 / 30	M8	25	60
D	30 / 40	M8	20	60
D	40 / 25	M8	20	60
D	40 / 30	M8	20	60
D	50 / 17	M10	28	60
D	50 / 20	M10	25	60
D	50 / 20	M10	28	70
D	50 / 30	M10	25	60
D	50 / 40	M10	28	40
D	50 / 40	M10	25	60
D	50 / 45	M10	25	60
D	75 / 25	M12	35	60
D	100 / 50	M16	41	70
D	110 / 122	M12	45	60







Туре	Diameter/Height	Thread	Shore	
E	30 / 17	M8	40	
E	30 / 17	M8	60	
E	50 / 20	M10	40	
E	50 / 36	M10	40	
E	50 / 36	M10	60	
Ε	50 / 40	M10	60	
E	50 / 45	M10	60	

Natur	al rubber 55 -	60 shore	9	
Туре	Dimensions	Thread	Bolt Len	gth Reference
TA	25 / 20	M6	12/18	20-01610-01
TA	40 / 30	M8	20	20-01647-01
  KD	25 / 12	M6		10-00087-01
KD	25 / 13	M6	16	20-00013-01
KD	25 / 17	M6	18	20-01611-01
KD	50 / 17	M10	28	20-00595-01
KD	50 / 50	M8	20	20-01469-01
l				
KPD	30 / 30	M8	20	20-00686-01
KPD	30 / 36	M8	20	20-00929-01

## **Buffers**



#### **Features**

Circular and rectangular types are easily fitted. Reduction of transmitted shock loads enables equipment to be designed more economically.

The rising stiffness properties enable vehicle suspension characteristics to be optimised.

ANB - R is made in oil and chemical resistant Nitrile Rubber.

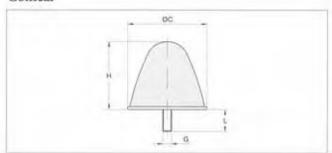
#### Metalastik® type Buffers

Buffers are designed to protect structures and equipment from impact forces. They are usually fitted as non-metallic stops or incorporated in vehicle suspension systems to provide progressive stiffening under increasing load.

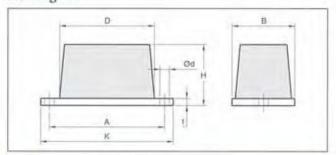
#### Typical applications:

- · Dump trucks
- · Off-road vehicles
- · Cranes
- · Handling equipment
- Vehicle suspensions

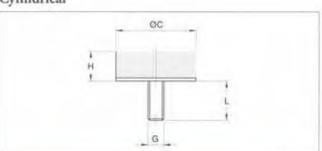
#### Conical



#### Rectangular



#### Cylindrical

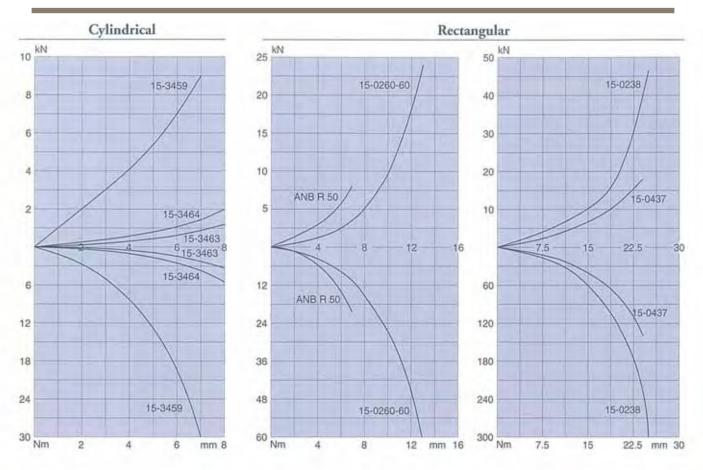


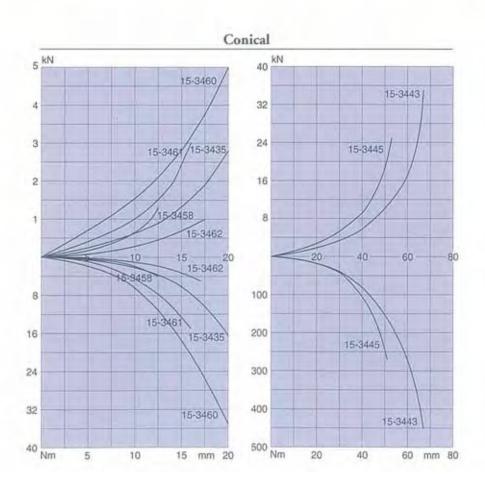
			Dimensions in mm			Weight
Type	Art.No	C	H	G	L	(kg)
Cylindrical	15-3463-60 (60° II	(H) 21	19	M6	15	0.02
buffers	15-3464-60 (60" 11	RH) 32	21	M8	20	0.05
	15-3459-60 (60"11	(H) 51	19	M10	25	0.1
Conical	15-3462-60 (60° II	RH) 28.5	37	M6	15	0.03
buffers	15-3458-60 (60" H	tH) 32	28.5	M8	20	0.04
	15-3461-60 (60"11	(H) 38	38	M8	20	0.06
	15-3435-60 (60° II	(H) 48	51	M10	25	0.12
	15-3460-60 (60° II	(H) 70	46	M12	30	0.27
	15-3445-60 (60" H	tH) 108	95	M12	30	0.79
	15-3443-60 (60° II	(H) 108	121	M12	30	0.99

			Weight						
Type	Art.No	K	A	В	H	D	d	t	(kg)
Rectangular	15-0437-60 (60° IRH)	121	105	48	56	86	8.6	6.3	0.48
buffers	15-0238-60 (60° IRH)	121	105	57	56	86	8.6	6.3	0.55
	15-0260-60 (60° IRH)	156	127	64	37	89	13.5	6.3	0.57
ANB R-50*	318510	84	68.5	32	22	51	6.7	3	0.06

<sup>\*</sup> Manufactured in 70° IRH Nitrile Rubber

# **Buffers**





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# RA & Fail Safe EF



#### Novibra® type RA and Metalastik® type Fail Safe EF

For effective isolation of vibration and noise on machines with rotating movements, e.g.

- Compressors
- Combustion engines
- Generators
- Converters

- · Pumps
- Industrial and marine gen-sets
- · Fans

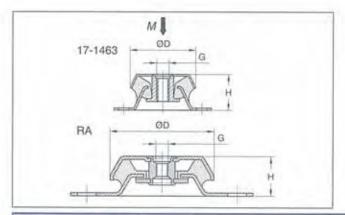
Also suitable for use with presses, punches and other workshop machines.

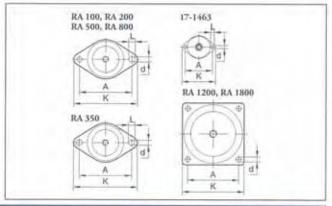
#### Features

RA and EF uses the rubber profile in shear and compression, obtaining good vertical flexibility with the advantage of horizontal stability. For normal speeds of approx. 1500 rpm, the RA and EF type provides a degree of isolation of 75-85%. For better isolation, the alternative RAEM or M can be chosen.

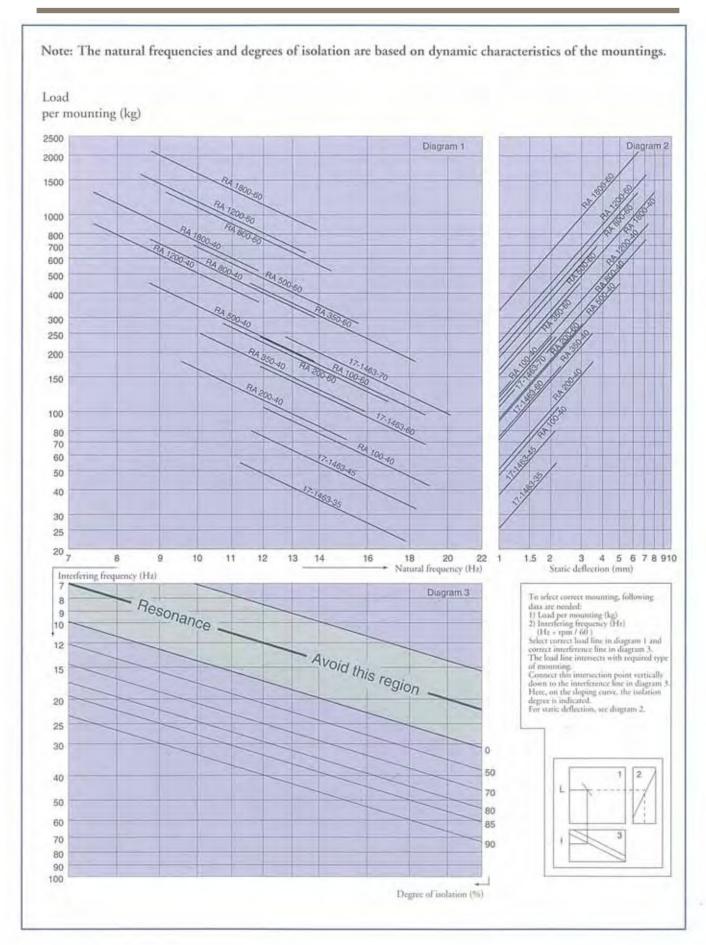
Its unique construction and the latest production methods make Novibra® type RA and EF a high performance mounting having a number of advantages:

- Rubber features are utilised effectively combining compression and shear.
- Wide load rating options, 40-2100 kg.
- Corrosion protected to cope with arduous environments on land or marine applications (Fe/Zn8C as per ISO 2081).
- Fitted as standard with an integral fail-safe design device with resilient stop, making RA and EF ideal for use in mobile or marine applications. The RA/EF-mounts can accommodate occasional shock loads to 5 g reference to the weight in hardness 60° IRH. The mount will withstand shock loads up to 2 g without plastic deformation.
- Clear and durable product marking so that mountings can be identified even after several years in operation.
- Domed shape cover to protect against oil contamination.

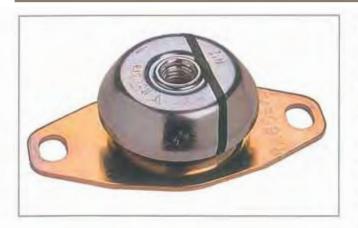




	Art.No.	Art.No.		Dimensions in mm						Weight	M-M	ax (lcg)
Турс	40° IRH	60° IRH	D	A	H	K	d	L	G	(kg)	40° IRH	60° IRH
RA 100/M10	1861700	18617.10	79	110	30	130	.9	12	M10	0.33	105	240
RA 100/M12	2256120	2256130	79	110	30	130	9	12	MIZ	0.33	105	240
RA 200/M10	1861740	1861750	94	124	35	150	10	15	M10	0.47	180	280
RA 200/M12	2255720	1860350	94	124	35	150	10	15	M12	0.47	180	280
RA 350/M12	2256370	2256380	101	140-148	38	175	14	18	M12	0.74	250	450
RA 350/M16	1861760	1861770	101	140-148	38	175	14	18	M16	0.74	250	450
RA 500	1861800	1861810	123	158	42	192	14	18	M16	1.02	450	700
RA 800	1861820	1861830	144	182	48	216	14	18	M16	1.59	750	1300
RA 1200	2255360	2255370	161	140	58	170	14.		M20	2.19	900	1600
RA 1800	2255380	2255390	181	160	66.5	190	14		M20	2.33	1300	2100
Fail Safe EF	17-146	3-35 (35° IRH)								0.22		55
	17-146:	5-45 (45° IRH)	65	76.2	35	94	8.5	10	M12	0.22		80
	17-1463-60 (60° IRH)									0.22		70
	17-146.	5-70 (70° IRH)								0.22		240



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#### Novibra® type RAEM

For effective isolation of vibration and noise on machines with rotating movements, e.g.

- Compressors
- · AC units
- · Industrial fans
- Generators
- Combustion engines
- Emergency power sets
- Large milling machinery
- Industrial and marine gen sets
- · Refiners
- Defibrators

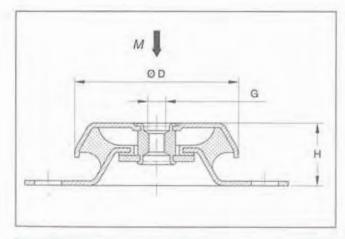
#### **Features**

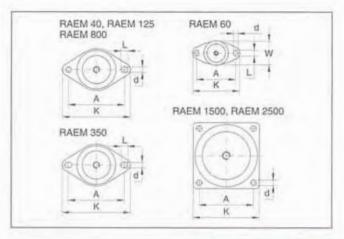
RAEM is a universal mounting for applications demanding maximum isolation. It is a further development of RA, where EM stands for "extra soft". Suitable for both light and heavy machines.

For normal speeds of approx. 1500 rpm the RAEM type provides a degree of isolation of 85-95%, and gives good isolation with low frequency machines.

Its unique construction and the latest production methods make Novibra type RAEM a high performance mounting having a number of advantages:

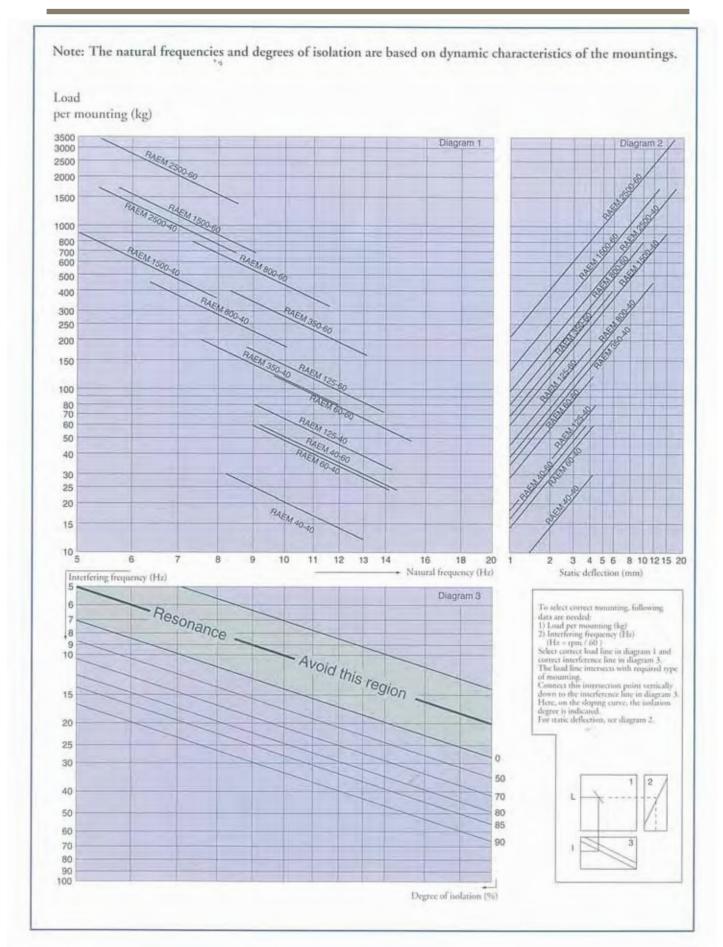
- Rubber features are utilised effectively combining compression and shear.
- · Wide load rating options, 10-3400 kg.
- Corrosion protected to cope with arduous environments on land or marine applications (Fe/Zn8C as per ISO 2081).
- Fitted as standard with an integral fail-safe design with resilient stop, making RAEM ideal for use on mobile or marine applications. The RAEM mounts can accomodate occasional shock loads to 5 g reference to the weight in hardness 60° IRH. The mount will withstand shock loads up to 2 g without plastic deformation.
- Clear and durable product marking so that mountings can be identified even after several years in operation.
- Domed shape cover to protect against oil contamination.





	Art.No.	Art.No.		Dimensions in mm							Weight	M-M:	M-Max(kg)	
Type	40° IRH	60° IRH	D	A	W	H	K	d	L	G	(kg)	40° IRH	60° IRH	
RAEM 40	1861860	1861870	64.	88		35.5	110	9	12	M10	0.26	30	60	
RAEM 60	2256760	2256770	63	100	61	35.5	120	11	15	M12	0.30	60	120	
RAEM 125 M10	1861720	1861730	84	110		35.5	135	11	15	M10	0.37	80	180	
RAEM 125 M12	2256140	2256150	84	110		35.5	135	11	15	M12	0.37	80	180	
RAEM 350 M12	2256440	2256450	110	140-148		42	175	14	18	M12	0.80	200	400	
RAEM 350 M16	1861780	1861790	110	140-148		42	175	14	18	M16	0.80	200	400	
RAEM 800	1861840	1861850	155	182		54	216	14	18	M16	1.8	450	800	
RAEM 1500	2255400	2255410	182	146		85	180	14		M20	3.0	900	1700	
RAEM 2500	2255420	2255430	224	180		105.5	220	17.5		M24	4.6	1700	3400	





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# Cushyfloat Mountings



#### Metalastik® type Cushyfloat™

The Cushyfloat mounting is an ideal general purpose unit designed to provide effective isolation of vibration and noise arising from many types of static and mobile equipment including:

- · Marine, industrial and vehicle engines
- · Generator sets
- · Pumps
- Compressors

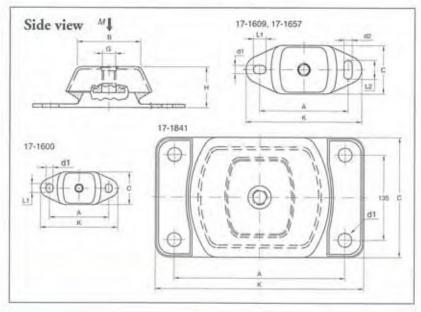
#### **Features**

Originally designed for use with marine engines, this compact low profile mounting is easy to install. It combines 3 way control of the suspended equipment with relatively large static deflections where the rubber is loaded in shear and compression.

The design incorporates bump and rebound control features which limit excessive movements under shock loading. Top metal cover gives protection against oil contamination.

Protective finish resists corrosion attack. Propeller thrust on marine applications is accommodated. There are four sizes in the standard range which with varying degrees of rubber hardness cater for point loads from 32 kg to 3000 kg. Natural frequencies as low as 8 Hz are possible.

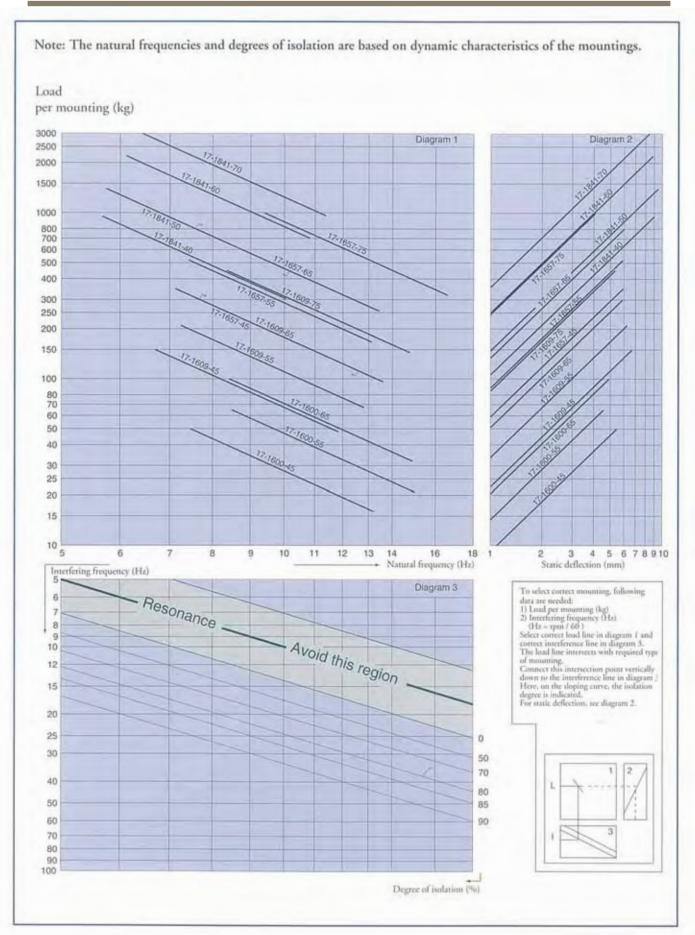
N.B. When used in marine engine applications with thrust forces involved, the maximum load capacity is substantially reduced, see table below!



Cushyfloat		Dimensions in mm											Akmas
Art.no.	В	C	A	K	H	dl	LI	d2	1.2	G	(kg)	(kg)	(feet):
17-1600-45 17-1600-55 17-1600-65	60	60	100	120	38	11	14			M12	0,3	50 65 100	(55 (65 (60)
17-1609-45 17-1609-55 17-1609-65 17-1609-75	75	75	140	183	50	13	20	13	30	M16	0.9	150 210 300 450	905 1010. 270 370
17-1657-45 17-1657-55 17-1657-65 17-1657-75	80	112	182	230	70	18	26	18	34	M20	2,4	350 520 800 1000	250 470 500 700
17-1841-40 17-1841-50 17-1841-60 17-1841-70	221	190	270	330	110	Ø22				M24	9.6	950 1400 2200 3000	650 881 1576 2100

\*Marin engine applications with

# Cushyfloat Mountings



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#### Novibra® type SIM™

Type SIM™ is used for vibration isolation of small to medium sized machines:

- · Fans
- · Pumps
- Compressors
- · Refrigeration and air-conditioning
- · Engines
- · Measurement equipment

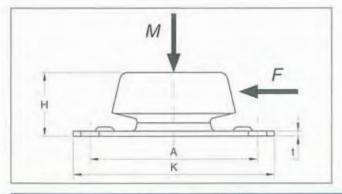
#### **Features**

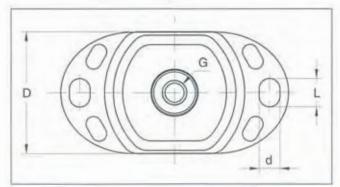
SIM is a mounting for mobile applications. The strong metal parts and the soft vertical stiffness combined with high stiffness in the longitudinal direction makes it suitable for suspension of marine engines both with and without thrust bearing.

Its unique construction and the latest production methods make Novibra type SIM a high performance mounting having a number of advantages.

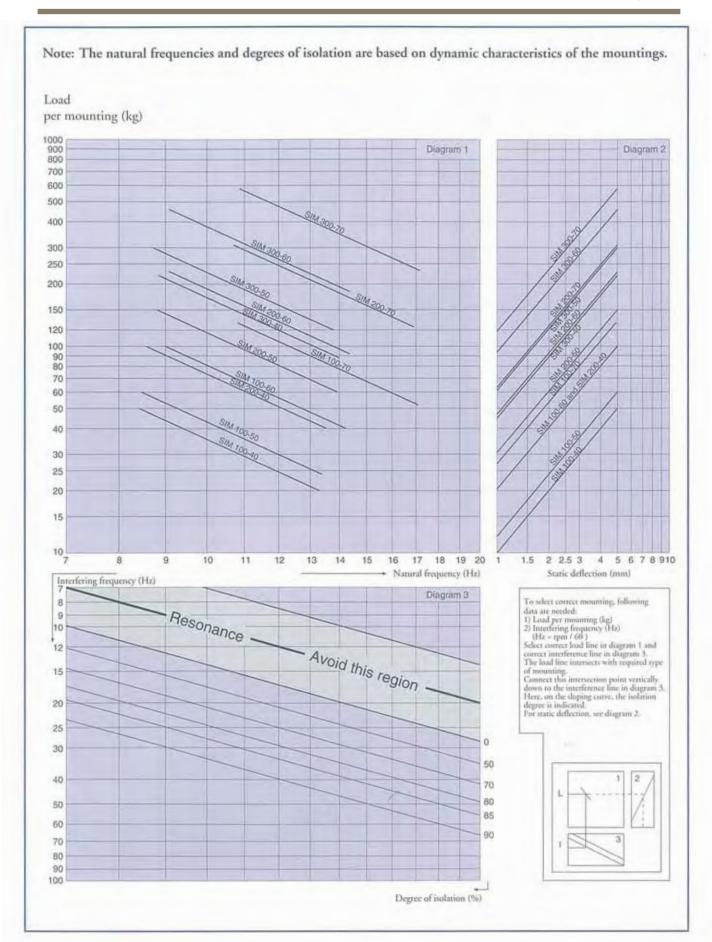
- Low vertical natural frequency 8-9 Hz combined with high longitudinal stiffness, ratio approx kl/kv=3.5-5.5.
- Special designed stronger bottom plate and top cover to withstand high shock loads from tough mobile applications.
- Load range from 50-580 kg.
- Fitted as standard with a shock proof device (up to 5 g) with resilient stop.
- Corrosion protected to cope with arduous environments with treatment Fe/Zn8C as per ISO 2081.
- SIM can be delivered with two types of height adjusters, one standard type HA and one special for higher load requirements.
- Clear and durable product marking. Mountings can be identified after several years in operation.
- Domed shape top cover to protect against oil contamination.

#### Protected and registered design





			Max load	Max longitudinal force			Din	ension	in mm				Weight
Type Art.No. A		M (kg)	F (N)	D	A	K	H	d	L	-1	G	(kg)	
SIM 100-40	(40° IRH)	318100	50	750									
SIM 100-50	(50° IRH)	318130	60	1000	64	100	120	38	11	15	3	M12	0,35
SIM 100-60	(60° IRH)	318110	100	1400									
SIM 100-70	(70° IRH)	318120	130	2000									
SIM 200-40	(40° IRH)	318140	100	2000									
SIM 200-50	(50° IRH)	318170	150	3000	75	140	175	50	13	20	4	M16	0.75
SIM 200-60	(60° IRH)	318150	230	4500									20,00
SIM 200-70	(70° IRH)	318160	310	5000									
SIM 300-40	(40° IRH)	318180	220	5000									
SIM 300-50	(50° IRH)	318210	300	6500	112	182	216	70	18	26	5	M20	2,03
SIM-300-60	(60° IRH)	318190	460	9000									
SIM 300-70	(70° IRH)	318200	580	12000									



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# Cushyfoot



#### Metalastik® type Cushyfoot™

Cushyfoot™ mountings are suitable for many different types of machinery, e.g. diesel engines, generator sets, compressors, fans, hydraulic units and lift machinery.

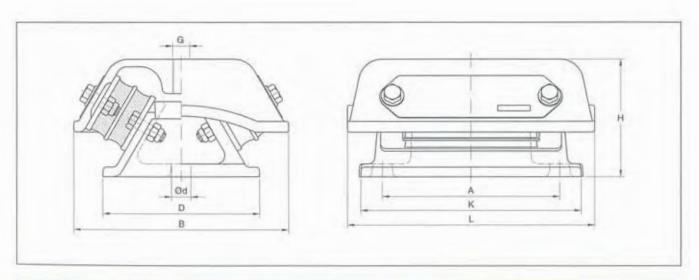
#### **Features**

Cushyfoot<sup>70</sup> mountings have two rubber elements, used in shear and compression, to provide excellent stiffness characteristics for the isolation of a wide range of vibration frequencies.

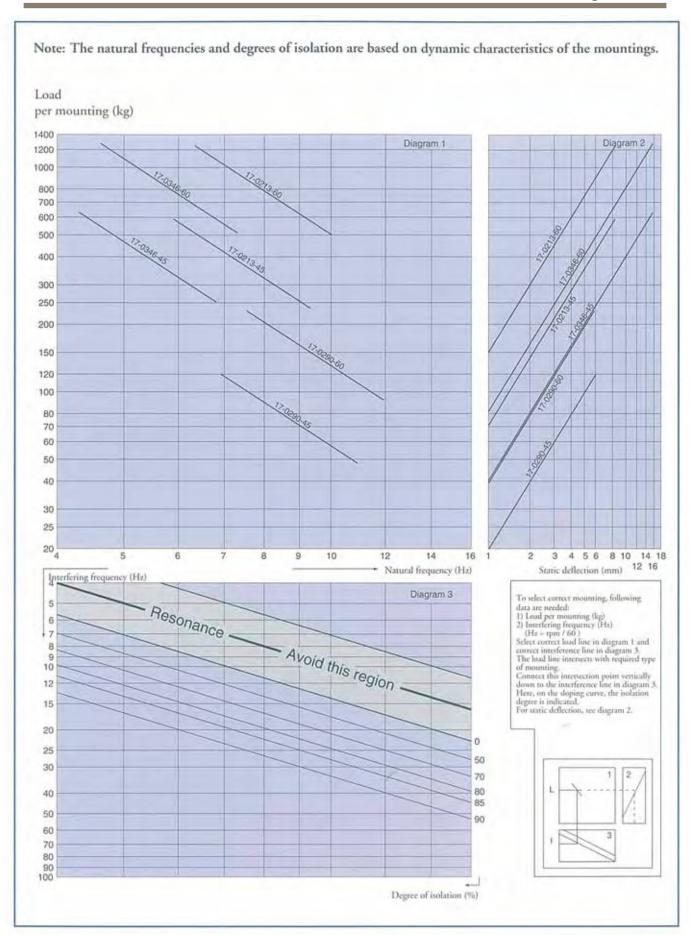
There are three sizes, 17-0290 for loads up to 230 kg per mounting, 17-0213 for loads up to 1250 kg and 17-0346, which will carry up to 1280 kg per mounting, but will provide up to 16 mm static deflection.

The Cushyfoot™ mounting has the following features:

- . A wide load range from 50 to 1280 kg.
- · Stamped identification plates for product identification.
- . Strong castings for safety and reliability.
- Dissimilar horizontal stiffnesses give optimum vibration isolation and motion control.



			Dimensions in mm								Max vertical	Weight
Type	Art.No		L	В	A	K	H	D	d	G	load (kg)	(kg)
Cushyfoot"	17-0290-45	(45° IRH)	122	132	90	114	72	82	13	M16	120	2.3
mountings	17-0290-60	(60° IRH)	122	132	90	114	72	82	13	M16	230	2.3
	17-0213-45	(45° IRH)	230	204	165	205	110	148	18	M16	590	1.0
	17-0213-60	(60° IRH)	230	204	165	205	110	148	18	M16	1250	10
	17-0346-45	(45° IRH)	230	204	165	205	123	148	18	M16	630	9.5
	17-0346-60	(60° IRH)	230	204	165	205	123	148	18	M16	1280	9.5



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## Vee Mountings



## Metalastik® type Vee Mountings

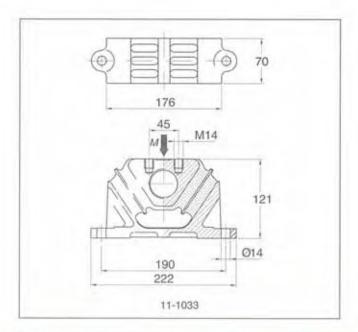
A high load capacity mounting with relatively large rubber volume providing a high degree of vibration and noise isolation and makes it ideally suited for suspending engines installed in public service and goods vehicles.

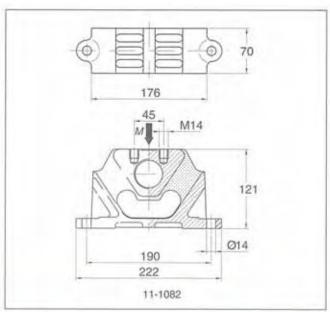
#### Features

Vee mountings have ideal stiffness characteristics for rail vehicle engine suspensions. The vertical stiffness rate ensures that when the mounting is properly loaded, the vertical natural frequency doesn't coincide with the body bending frequency. The high longitudinal stiffness controls shunting shock motion. The mounting is usually connected to the sole bars via the base casting, and a buffer is attached to the Vee section casting to limit tensile loades.

The Vee mounting has the following features:

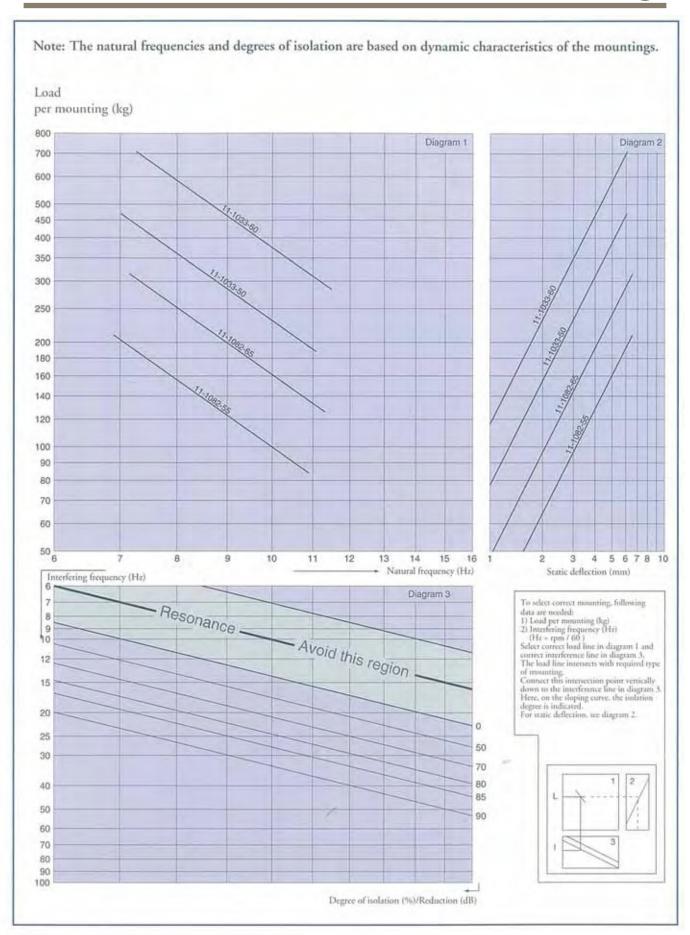
- Three dissimilar translational stiffnesses for the best vibration isolation and motion control.
- · Strong castings for safety and reliability.





Туре	Art.No.	M-Max (kg)	Weight (kg)
Vee mountings	11-1082-55 (55° IRH)	210	4.2
	11-1082-65 (65° IRH)	315	4.2
	11-1033-50 (50° IRH)	470	4.5
	11-1033-60 (60° IRH)	710	4.5

# Vee Mountings



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### Novibra® type RAB

Effective isolation of vibration and noise on different machinery with rotating movements, e.g.

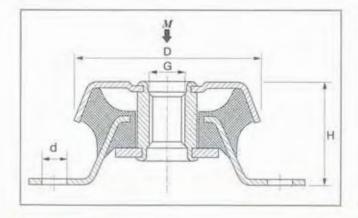
- · Diesel engines
- Combustion engines
- Emergency power packs
- · Pumps
- · Industrial gensets
- · Marine gensets

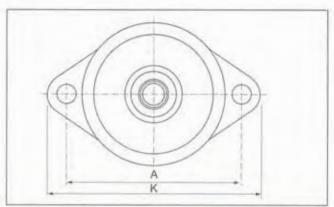
#### **Features**

Similar in design to the RA/RAEM range, type RAB uses rubber in shear and compression for optimum stiffness characteristics and horizontal stability. Especially effective on small 1, 2 and 3 cylinder diesel engines where the special compound employed provides effective isolation of vibration while eliminating much of the excessive movement normally associated with 1–3 cylinder engines.

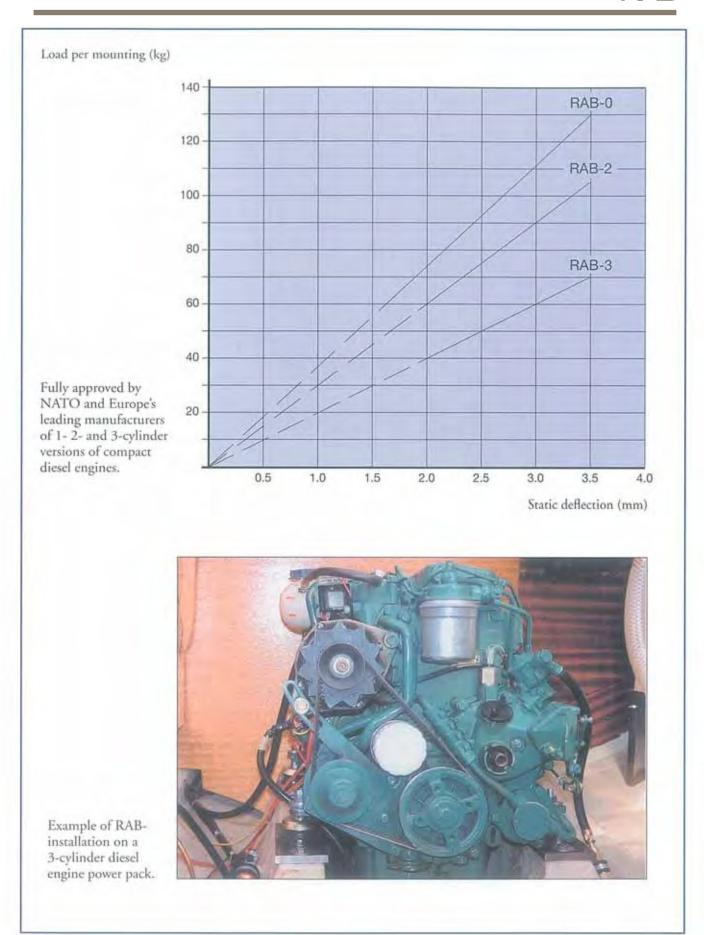
Its unique construction and the latest production methods make Novibra® type RAB a high performance mounting having a number of advantages:

- Rubber features are utilised effectively combining compression and shear.
- Tight tolerances on dynamic stiffness rate for accurate vibration calculations.
- · Load rating options, 10-130 kg.
- Corrosion protected to cope with arduous environments on land or marine applications (Fe/Zn8C as per ISO 2081).
- Fitted as standard with a shock-proof device with resilient stop, ideal for mobile or marine use. The RAB-mounts can accommodate occasional shock loads to 5g reference to the weight. The mount will withstand shock loads up to 2 g without plastic deformation.
- Clear and durable product marking so that mountings can be identified even after several years in operation.
- Domed shape cover to protect against oil contamination.





	Art.No.		Di	mensions m	m			Weight	
Туре	55° IRH	D	A	H	K	d	G	kg	M-Max (kg)
RAB-0	2256600	63	76	35	93.5	8.5	M12	0.22	130
RAB -2	2256610	63	76	35	93.5	8.5	M12	0.22	105
RAB -3	2256620	63	76	35	93.5	8.5	M12	0.22	70





#### Novibra® type M

Type M is ideal for applications involving isolation of low frequency vibrations in all planes. Also suitable for shock attenuation due to the designed ability to offer large deflection. Provides passive vibration isolation on electronic instruments, measuring equipment and test cells.

Specific fields of application are:

- Compressors
- Refrigerators
- · AC-units
- Ventilators
- · Fans
- · Powder handling machinery
- Vibratory screens
- · Packaging applications

- · Electric motors
- · Weighing scales
- · Test cell equipment
- · Noise control units
- · Pumps
- Food processing equipment

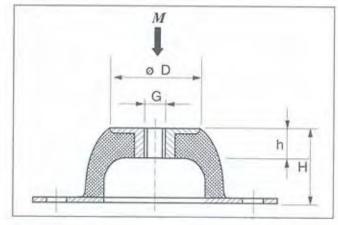
#### Features

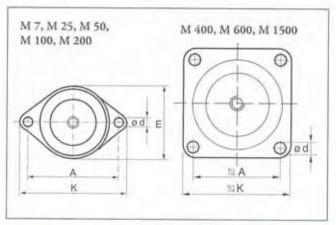
Novibra® type M is specifically designed to give large deflection at low loads. Although the mount design allows high deflection, the mountings are compact in weight and easy to install,

Its unique construction and the latest production methods make Novibra® type M a high performance antivibration mounting having a number of advantages:

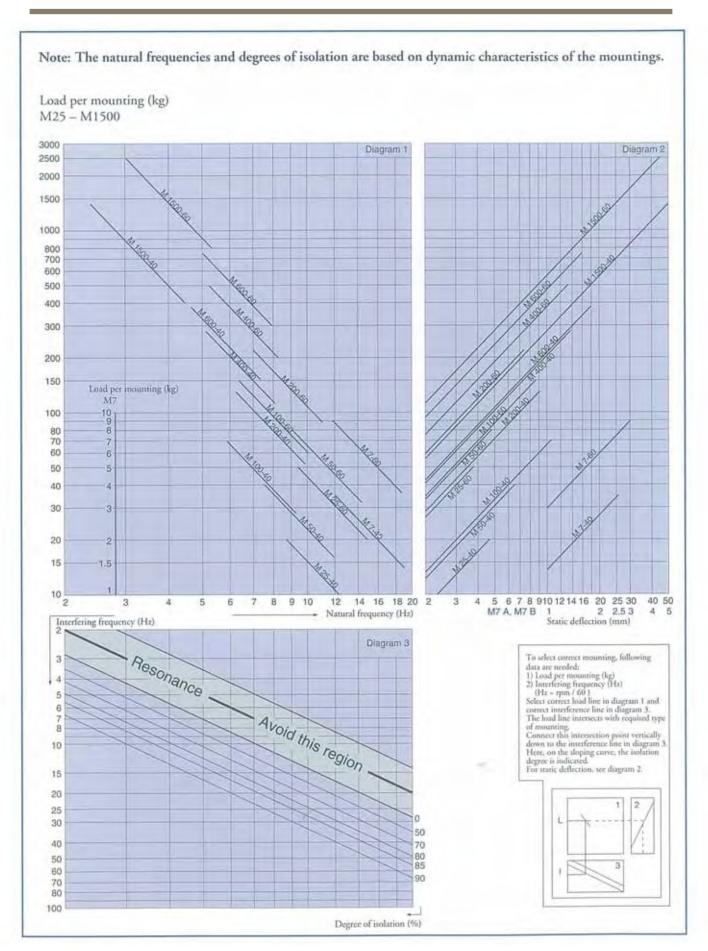
- Tight tolerances on dynamic stiffness rate for accurate vibration calculations.
- · Wide load rating options, 3.5-2500 kg.
- Corrosion protected to cope with arduous environments on land or marine applications (Fe/Zn8C2 as per ISO 2081).
- Clear and durable product marking so that mountings can be identified even after several years in operation.

When using M mount together with the height adjuster HA, it is necessary to use a washer. The diameter of the washer must be 20% larger than the diameter of the upper plate (D),





	Art.No.	Art.No.	Dir	nensi	ons in	mm					Weight	M-M:	ax(kg)
Type	40° IRH	60° IRH	D	E	A	K	H	h	d	G	(kg)	40° IRH	60° IRH
M 7	2255110	2255120	18	43	50	64	20	7	7.0	M 6	0.02	3.5	.9
M 25	1861220	1861230	33	56	66	85	25	11	8.0	M 8	0.07	20	50
M 50	1861240	1861250	45	76	92	114	35	14	10.0	M 10	0.16	40	.80
M 100	1861620	1861610	53	96	110	136	40	15	11.5	M 10	0.26	70	150
M 200	1861660	1861670	5.8	101	124	151	45	13	11.5	M 10	0.42	130	220
M 400	1861680	1861690	78		120	150	63	18	14.5	M 12	1.06	280	500
M 600	1533710	1533720	100		160	200	85	25	14.5	M 16	2.35	380	750
M 1500	1533730	1533740	186		250	310	160	43	18:0	M 24	9.43	1400	2500



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# Equi-frequency Mountings



#### Features

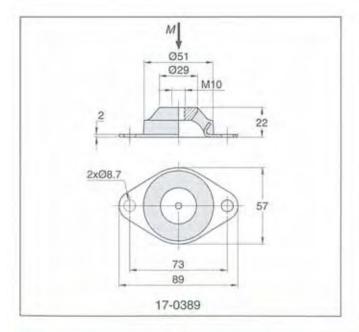
Each design has substantially the same stiffness in vertical and horizontal directions. Load range 11 kg to 54 kg. Can be used as small anti-shock mounting when static loadings are derated.

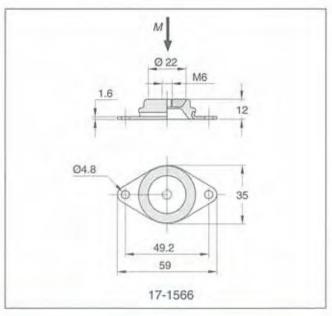
### Metalastik® type Equi-frequency Mounting

General purpose low profile mounting for use where space is restricted. Suitable for stationary applications. May also be used to protect delicate or sensitive equipment from external shock or disturbances.

Typical applications include:

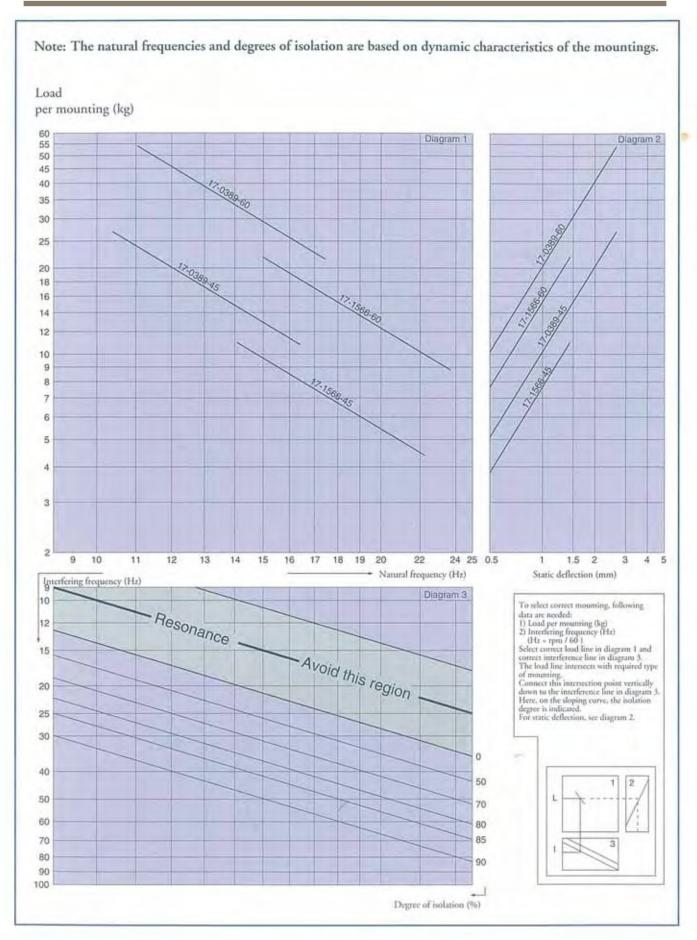
- · Instrument panels
- · Small fan sets
- Small vacuum pumps





Туре	Art.No.	M-Max (kg)	Weight (kg)
Equi-frequency mountings	17-1566-45 (45° IRH)	11	0.024
See	17-1566-60 (60° IRH)	22	0.024
	17-0389-45 (45° IRH)	27	0.10
	17-0389-60 (60° IRH)	54	0.10

# Equi-frequency Mountings



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## **Fanflex**



## Metalastik® type Fanflex™

A simple mounting designed predominantly for the suspension of heating, ventilating and air conditioning equipment.

May be used for:

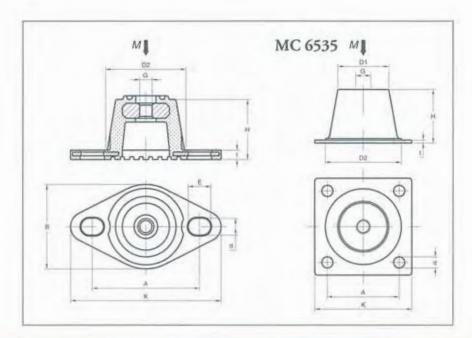
Pumps, fans, compressors and control cabinets.

#### **Features**

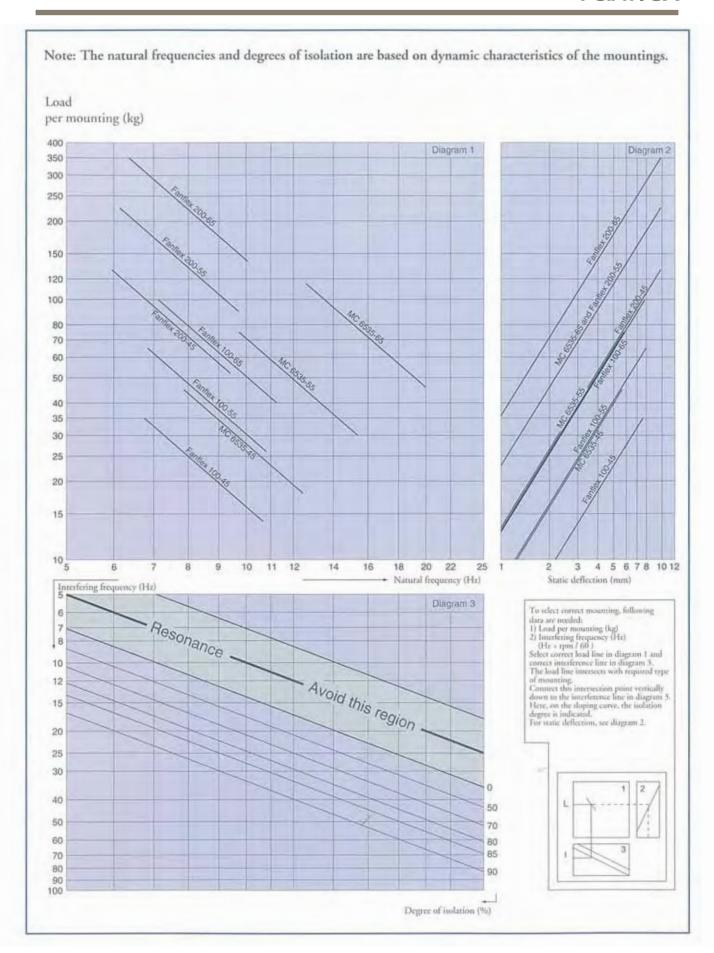
Simple design with metal parts encapsulated in high grade oil-resisting rubber compound giving good environmental resistance.

Provides relatively large static deflections and hence a high degree of vibration attenuation - 90% isolation for disturbing frequencies of 15 Hz ( 900 c.p.m ).

Range gives capacity for point loads of 35 kg to 350 kg.



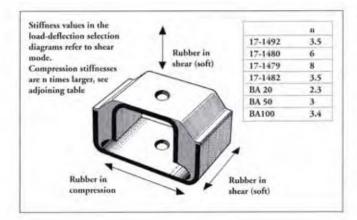
				E	Dimensi	ons in n	ım					Weight	M-Max	Colour
Туре	Art.No	A	K	H	В	DI	D2	E	G	d	t	(kg)	(kg)	code
Fanflex 100-45 (45" IRFI)	319900	57	80	32	45		41	.12	M8	9	5	0.09	35	yellow
Funflex 100-55 (55° IRH)	319910	57	80	32	45		41	12	M8	9	5	0.09	65	blue
Fanflex 100-65 (65° IRH)	319920	57	80	32	45		41	12	M8	9.	5	0.09	100	red
Fanflex 200-45 (45° IRH)	319930	71	95	45	60		56	14	M10	9	5	0.22	130	yellow
Fanflex 200-55 (55° IRH)	319940	71	95	45	60		-56	14	M10	9	5	0.22	225	blue
Fanflex 200-65 (65° IRH)	319950	71	95	45	60		56	14	M10	9	5	0.22	350	red
MC 6535-45 (45° IRH)	2231000	48	65	36		34	51	8	M10	7.5	2	0.12	45	white
MC 6535-55 (55" IRH)	2231010	48	65	36		34	51	8	M10	7.5	2	0.12	75	red
MC 6535-65 (65" IRH)	2231020	48	65	36		34	51	8	M10	7.5	2	0.12	115	black



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## BA & Double U-Shear





### Novibra® type BA and Metalastik® type Double U-Shear

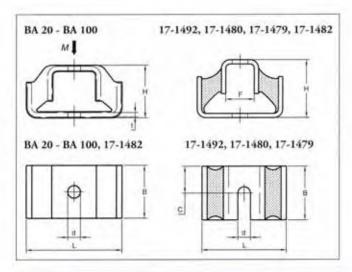
Novibra® type BA and Metalastik® type Double U-Shear are equally suitable for isolating vibrations from low speed machines and equipment. Protects sensitive and lightweight units from external shocks and vibrations.

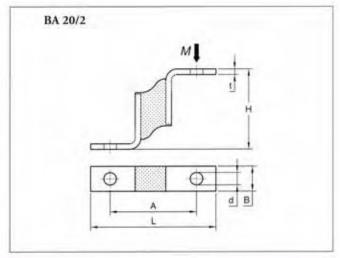
Type BA and Double U-Shear are easy to install and ideal for applications e.g.

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

#### **Features**

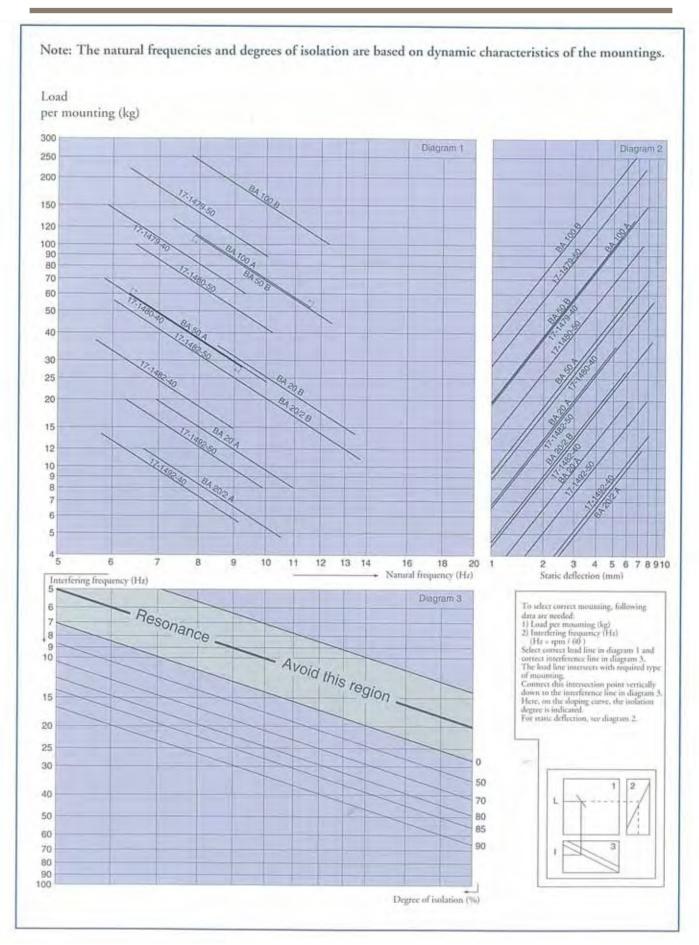
Novibra® type BA and Metalastik® type Double U-Shear mountings utilise bonded rubber in shear to permit relatively high deflections. Provides excellent isolation of low frequencies. (Type BA 20/2 is a half section suitable for very light loads). On rotating equipment applications the soft axis should be at right angles to the shaft. On mobile applications the stiff axis should be aligned in the direction of travel. For transit case applications the mountings need to be arranged so that the horizontal stiffness is the same in all directions.





	Art.No.	Art.No.	Dir	nensio	ns in m	m					Weight	M-Ma	x (kg)
Type	40° IRH	60° IRH	В	L	H	A	F		d	t	(kg)	40° IRH	60° IRH
BA 20/2	67868	67876	20	90	58	62			8	4	0.09	12	27
BA 20	2255230	2255240	20	90	50				10	4	0.16	20	35
BA 50	2255250	2255260	50	90	50				12	4	0.42	60	110
BA 100	2255270	2255280	100	90	50				15	4	0.83	130	250
Double	40° IRH	50° IRH						C				40° IRH	50° IRH
U-shear	17-1492-40	17-1492-50	19	60	43		19	10.3	6.7		0.09	14	20
	17-1480-40	17-1480-50	51	80	78		32	25	13		0.6	70	100
	17-1479-40	17-1479-50	64	86	108		38	32	16.7		1.1	150	220
	17-1482-40	17-1482-50	51	60	41		20		11		0.2	37	56

## BA & Double U-Shear



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## Metacone & HK



Metalastik® type Metacone™ and Novibra® type HK

A range of mountings designed for high load capacity with relatively large static deflections. The high loading for a given size is achieved by utilising the rubber to best advantage in shear and compression. Normally, mountings are assembled with overload and rebound washers to control and limit movement of the suspended equipment under shock loads. Centre fixing bolts should be torque tightened to the recommended values.

Applications include suspensions for:

- · Off-road and road vehicle engines
- · Vehicle Cabs
- Oil Tanks/Tankers
- · Mobile applications

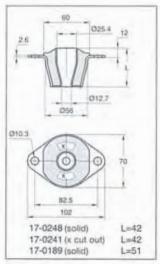
Type	Art.No.		Max vert, load (kg)	Weight (kg)
Metacone"	17-0189-45	(45° IRH)	145	0.28
	17-0189-70	(70° IRH)	290	0.28
	17-0241-45	(45° IRH)	62	0.18
	17-0241-60	(60° IRH)	122	0.18
	17-0248-45	(45° 1RH)	95	0.19
	17-0248-60	(60° IRH)	190	0.19
	17-0277-45	(45° IRH)	125	0.56
	17-0277-60	(60° IRH)	230	0.56
	17-0379-45	(45° IRH)	35	0.12
	17-0379-60	(60° IRH)	70	0.12
	17-0341-45	(45° IRH)	160	0.54
	17-0341-60	(60° IRH)	300	0.54
	17-0341-70	(70° IRH)	430	0.54
	17-0311-45	(45° 1RH)	125	0.58
	17-0311-60	(60° IRH)	220	0.58
	17-1691-45	(45° IRH)	72	0.44
	17-1691-60	(60° IRH)	144	0.44
HK 60-40	2256900	(40° IRH)	90.	0.24
HK 60-50	318390	(50° IRH)	115	0.24
HK 60-60	2256910	(60° IRH)	180	0.24
HK 60-70	318380	(70° IRH)	250	0.24

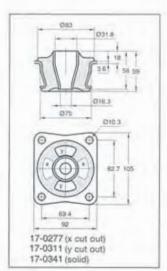
#### **Features**

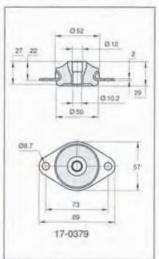
A compact fail safe design, available for a wide range of loadings with in some cases alternative fixings.

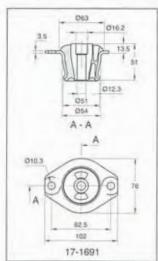
Cutouts in rubber section on various sizes provide different vertical/horizontal stiffness ratios.

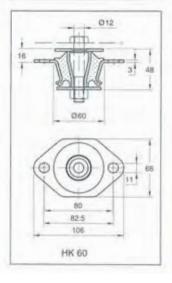
Most sizes can be supplied complete with overload and rebound washers.



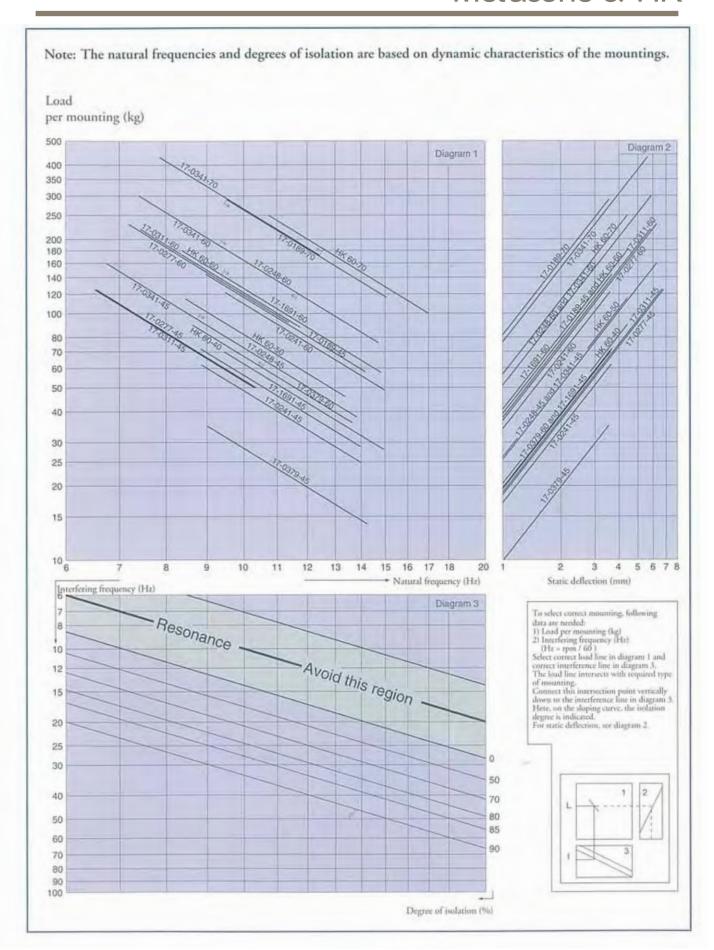








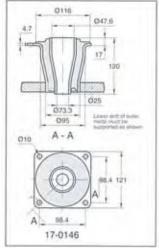
Туре	Conc	Top washer Art.No.	Bottom washer Art.No.
Metacone**	17-0189	336050	336000
	17-0241	336050	336000
	17-0248	336050	336000
	17-0277	336060	336080
	17-0379	336070	336070
	17-0341	336060	336080
	17-0311	336060	336080
	17-1691	336130	336120
HK	HK 60	318490	318500

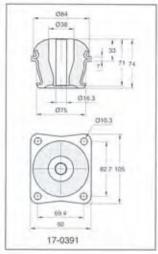


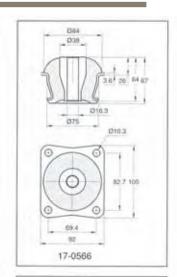
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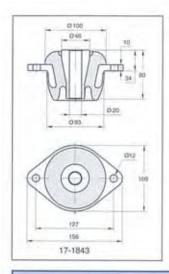
## Metacone & HK

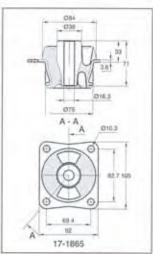
Metalastik® type Metacone™ and Novibra® type HK

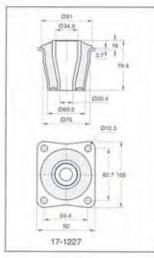


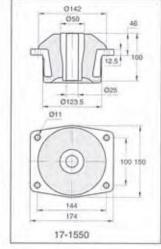




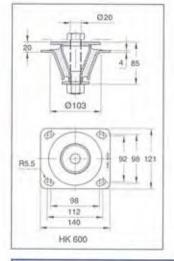


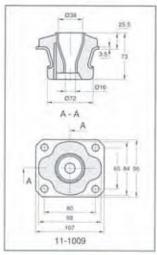






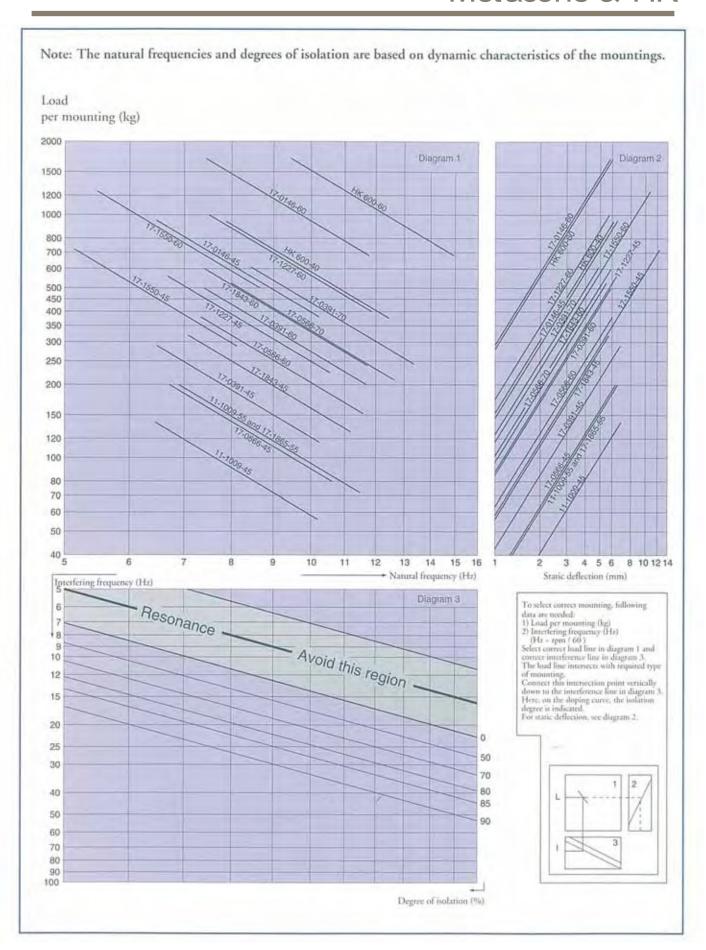
Туре	Art.No.		Max vert. load (kg)	Weight (kg)
Metacone	11-1009-45	(45" IRH)	140	0.59
	11-1009-55	(55° IRH)	200	0.59
	17-0391-45	(45° IRH)	290	1.1
	17-0391-60	(60° IRH)	500	1:1
	17-0391-70	(70° IRH)	610	1.1
	17-0566-45	(45° IRH)	200	0.82
	17-0566-60	(60° IRH)	380	0.82
	17-0566-70	(70° IRH)	525	0.82
	17-1227-45	(45° IRH)	560	1.1
	17-1227-60	(60° IRH)	1000	1.1
	17-1550-45	(45° IRH)	720	4.4
	17-1550-60	(60° IRH)	1250	4.4
	17-1843-45	(45° IRH)	320	1.7
	17-1843-60	(60° IRH)	600	1.7
	17-1865-55	(55° IRH)	180	0.86
	17-0146-45	(45° IRH)	950	2
	17-0146-60	(60° TRH)	1700	2
HK 600-40	2256940	(40° IRH)	940	1.0
HK 600-60	2256950	(60° IRH)	1700	1.0





Туре	Cone	Top washer Art.No.	Bottom washer Art.No.
Metacone"	11-1009	336080	336080
	17-0391	336080	336080
	17-0566	336080	336080
	17-1227	336040	336020
	17-1550	336100	336100
	17-1843	336090	336090
	17-1865	336080	336080
	17-0146	336030	336010
HK	HK 600	2230560	2230570

## Metacone & HK



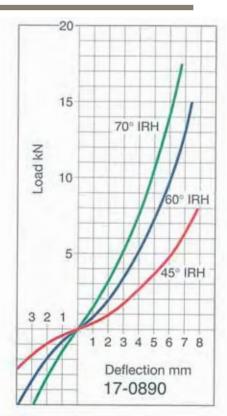
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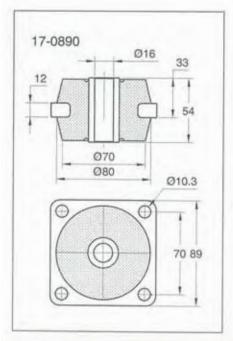
## Cab Mountings

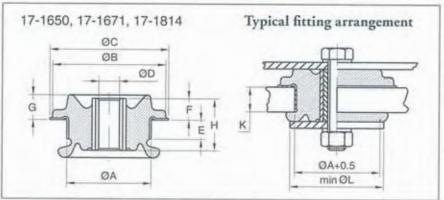


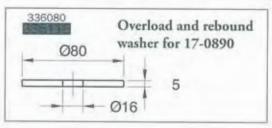
## Metalastik® type Cab Mountings

Specially profiled rubber section together with bump and rebound washers provide optimum suspension characteristics for cabs on commercial vehicles, tractors and other off-road vehicles, earthmoving equipment and construction plant.



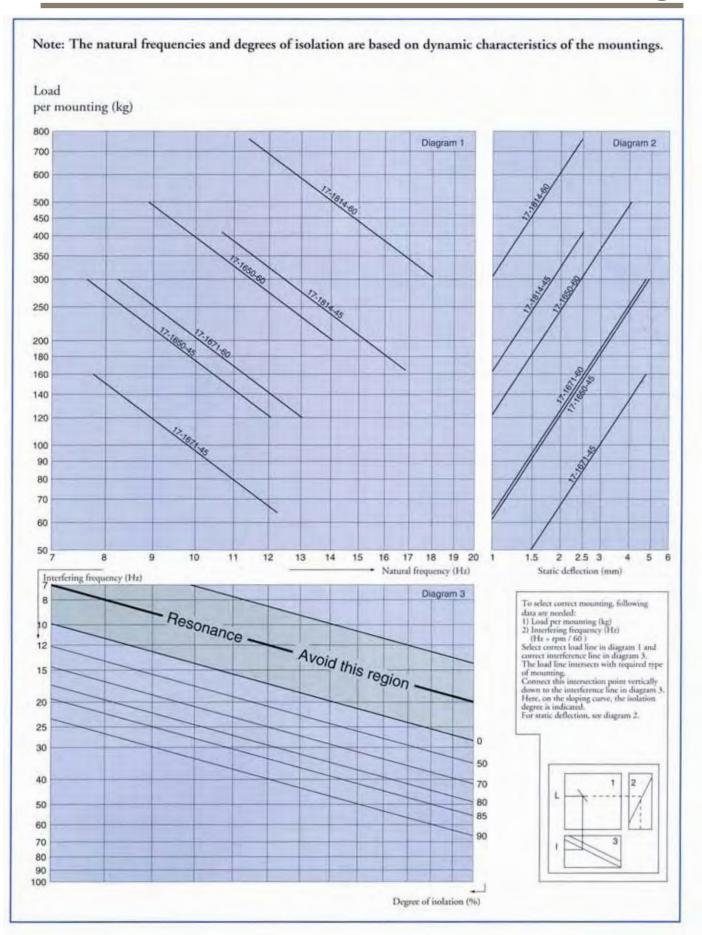






					Di	mensio	ns in r	nm					Max load	Radial stiffness	Weight
Type	Art.No		A	В	C	D	H	F	E	G	K	E	(kg)	(N/mm)	(kg)
Cab	17-1671-45	(45° IRH)	75	100	105	16.5	46	19	17	22	20	105	160	500	0.45
mountings	17-1671-60	(60° IRH)	75	100	105	16.5	46	19	17	22	20	105	300	1220	0.45
	17-1650-45	(45° IRH)	75	100	105	16.5	46	19	17	22	20	105	300	650	0.46
	17-1650-60	(60" IRH)	- 75	100	105	16.5	46	19	17	22	20	105	500	1300	0.46
	17-1814-45	(45° IRH)	89	115	120	25	47	13	23	21	25	120	410	700	0.63
	17-1814-60	(60° IRH)	89	115	120	25	47	13	23	21	25	120	760	1400	0.63
	17-0890-45	(45° IRH)											Max static		0.83
	17-0890-60	(60° IRH)				Sec	drawi	ng					deflection		0.83
	17-0890-70	(70° IRH)											5 mm		0.83
Washer	336080														11111

# Cab Mountings



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## Novibra® type EH

Type EH mountings are designed to achieve effective vibration isolation on engines, operator cabins and other ancillary units.

Typical applications can be found in the following areas:

- Off-road equipment
- · Construction equipment
- Military vehicles
- · Agricultural vehicles
- · Transport machinery
- · Industrial mobile machinery

### Max tightening torque

- EH 4850: 40 Nm • EH 6463: 80 Nm • EH 9075: 200 Nm
- Example of installation

  R
  C

  Machine in operation

#### Feature

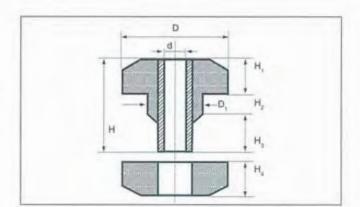
Type EH is designed primarily for mobile applications where high dynamic and shock forces are encountered.

Dynamic vertical movements in both the directions are restricted and excellent horizontal stability is provided.

Stress on brackets are optimized while at the same time obtaining vibration isolation and shock absorption.

The function of EH includes features as:

- · Dynamic efficiency in all directions
- · Attenuation of structure-borne noise
- · Accommodation of misalignment and distortion
- · Simple design easy to install
- · Fail-safe installation
- · Wide load range, 80 to 450 kg



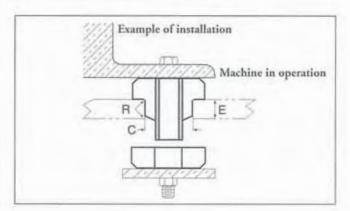
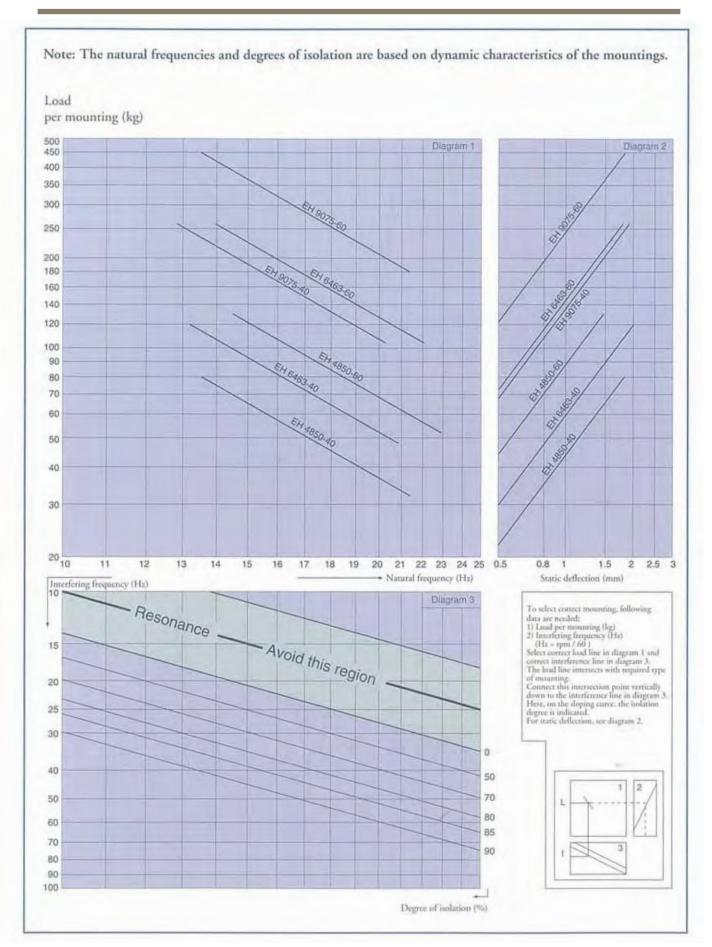


Table of dimensions for installation

		Dimensions in mm		
Type	C	E	R	
EH 4850	31.0	15.0	1.5	
EH 6463	39.0	22.0	2.3	
EH 9075	56.5	28.0	3.0	

Art.No. Art.No. Dimensions in mm										Max lo	Max load (kg)		
Type	40° IRH	60° IRH	d	D	D1	H	H1	H2	H3	H4	40° IRH	60° IRH	
EH 4850	1860570	1860560	13.0	50	32	50	20	10	20	20	80	130	
EH 6463	1860550	1860540	17.0	64	40	62	23	14-	25	23	120	260	
EH 9075	1860530	1860520	23.0	-89	58	73	25	19	29	25	260	450	





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### Novibra® type UH

Mounting type UH is particularly suitable for the suspension of both mobile and static cabs as well as platforms on agricultural vehicles.

Effectively isolating vibration and noise, the UH-mounting also protects tanks and ancillary equipment against metal fatigue caused by chassis distortion.

Specific applications can be found on:

- · Tractors
- · Combine harvester
- Wheel-mounted loaders
- Street sweepers
- Compactors
- Lifting cranes
- Construction vehicles
- · Forestry vehicles
- · Off-road equipment
- · Fork-lift trucks
- Excavators

#### **Features**

UH is an anti-vibration mounting designed to accommodate axial static and shock loads in both directions. The dynamic natural frequency is constant irrespective of the static load.

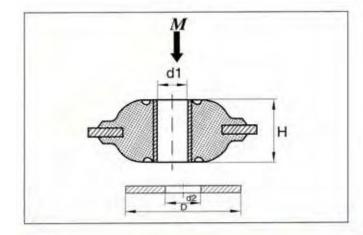
When fitted with overload/rebound washers, a high strength fail-safe installation is provided. Moreover, it is possible to alter the characteristics of the mounting by providing a dome-shaped washer at the upper rubber section. This will provide impact resistance to deflection beyond the permissable limit.

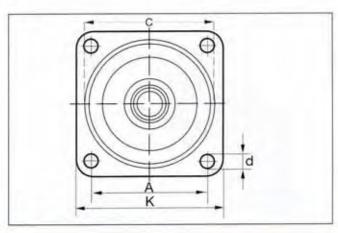
Installation reduces build tolerances.

UH is available in 2 standard versions allowing different maximum loads i.e. type UH 50 to a load of 250 kg and type UH 70 to 400 kg per mounting.

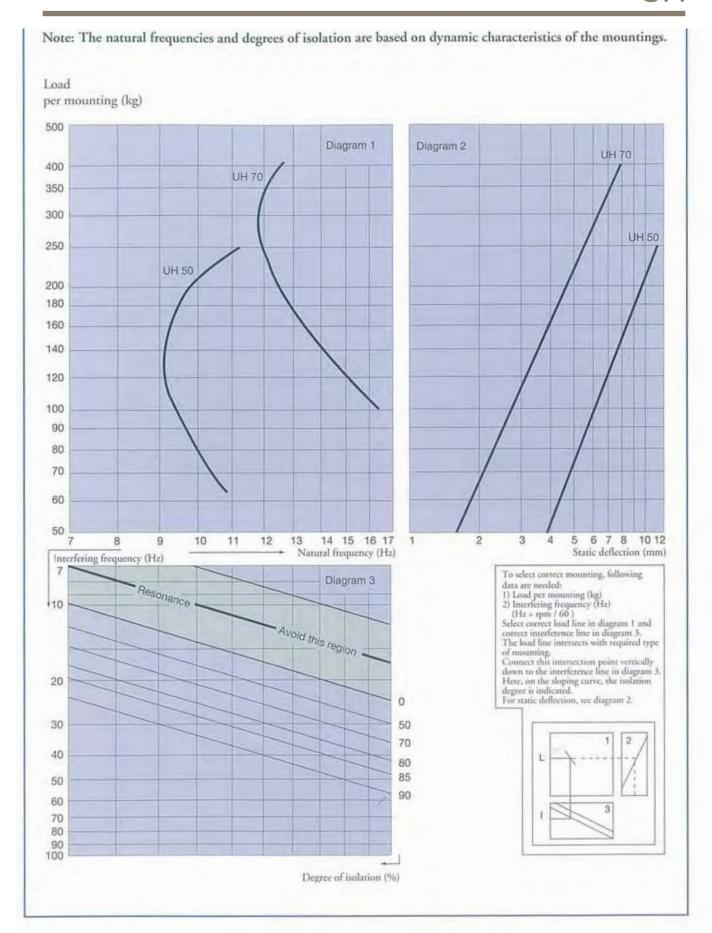
Note: Maximum tightening torque of bolts:

- UH 50 80 Nm
- UH 70 120 Nm





				Dimen	sions in mn	1		Weight	M-Max
Туре	Art.No.	K	A	H	C	d	d,	(kg)	(kg)
UH 50 (50° IRH)	1534120	100.5	80.4	37	91	10.5	15	0.41	250
UH 70 (70" IRH)	1660850	100.5	80.4	37	91	10.5	17	0.41	400
		d,	D	t					
UH Washer	1660420	17	75	6.					



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#### **Features**

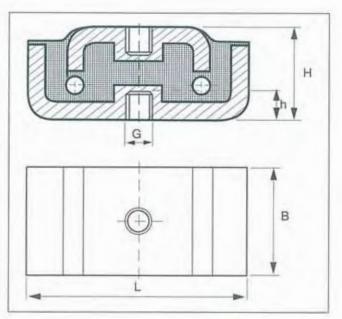
Type U is a robust element consisting of 2 solid U-shaped steel parts securely bonded to the rubber section. To achieve higher flexibility, two holes in the rubber are provided between the metals. The upper metal plate is fixed to the underside of the machine foot or baseplate by means of a bolt, while the bottom plate should be secured to the floor by an expansion bolt. For certain applications a dowel pin may be adequate.

### Novibra® type U

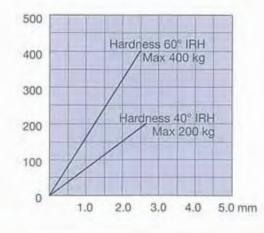
Type U provides for a stable machine installation and is particulary suitable for the vibration isolation of heavier machinery with relatively high interfering frequencies.

Typical applications can be found on:

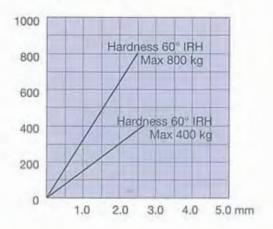
- Presses
- · Punches
- Weaving machines
- Woodworking machines
- · Church bells
- Transformers
- · Printing machinery
- Other heavy, high-speed machines



U 100 Load per mounting (kg)



U 130 Load per mounting (kg)



Art.No		Art.No.		Dime	nsions in	mm	Weight	M-Max(kg)		
Type	40° IRH	60° IRH	В	L	H	h	G	(kg)	40° IRH	60° IRH
U 100	67363	67371	50	100	42	12	M12	0,650	200	400
U 130	67421	67439	70	130	54	12	M12	1.318	400	800



### Novibra® type SAW

Novibra® elements type SAW are heavy duty mountings for static and shock loads in compression. Provides high isolation in the horizontal shear direction.

Typical fields of application are:

- · Crushers
- · Edge runners
- · Mills
- Hoppers and feeders
- Grinders

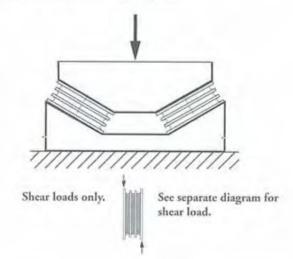
- · Vibratory rollers
- · Screens
- Other very heavy machines and equipment

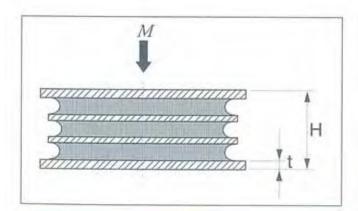
#### Features

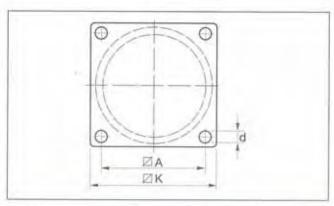
Novibra® type SAW mountings consist of a cylindrical shaped rubber section with integrally bonded interleaf metal plates bonded to two square heavy duty outer metal fixing plates. Designed for large compressive forces with minimum deformation, while providing low shear stiffness rates.

The combination of a stable low installation height, high compressive strength and low shear stiffness makes Novibra® type SAW a versatile high performance antivibration mounting. Ease of installation due to 4 clearance holes in each fixing plate.

By connecting 2 SAW-elements in series, i.e. one on top of the other, an increased isolation efficiency is achieved in both shear and compression planes. Where larger deflections are required in the vertical plane, Novibra® type SAW mountings are mounted at a calculated angle configuration to provide the optimum spring rate.

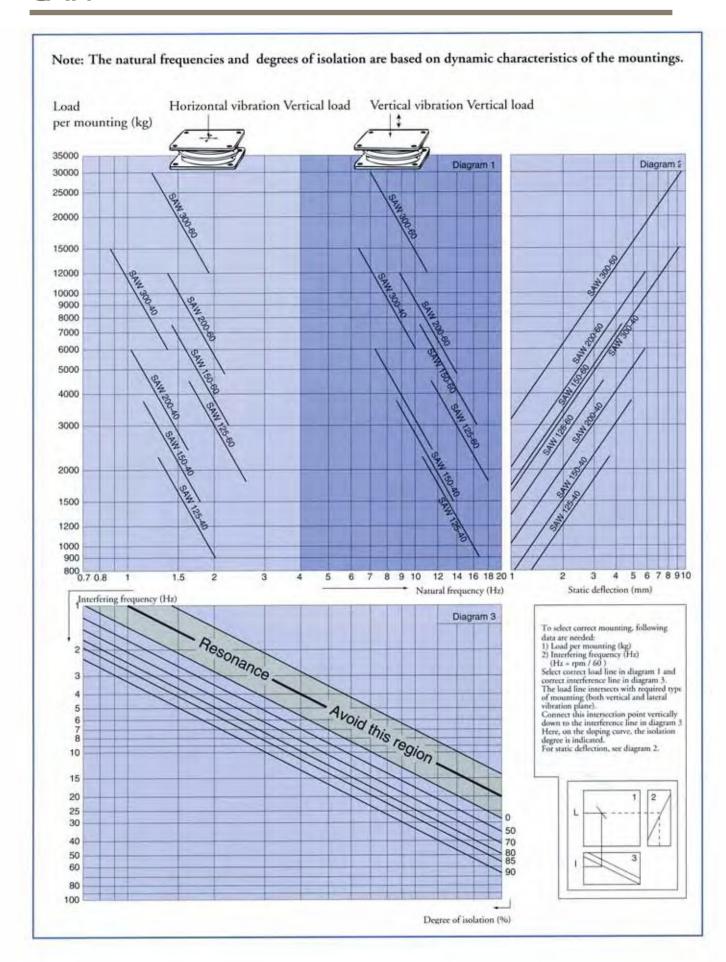




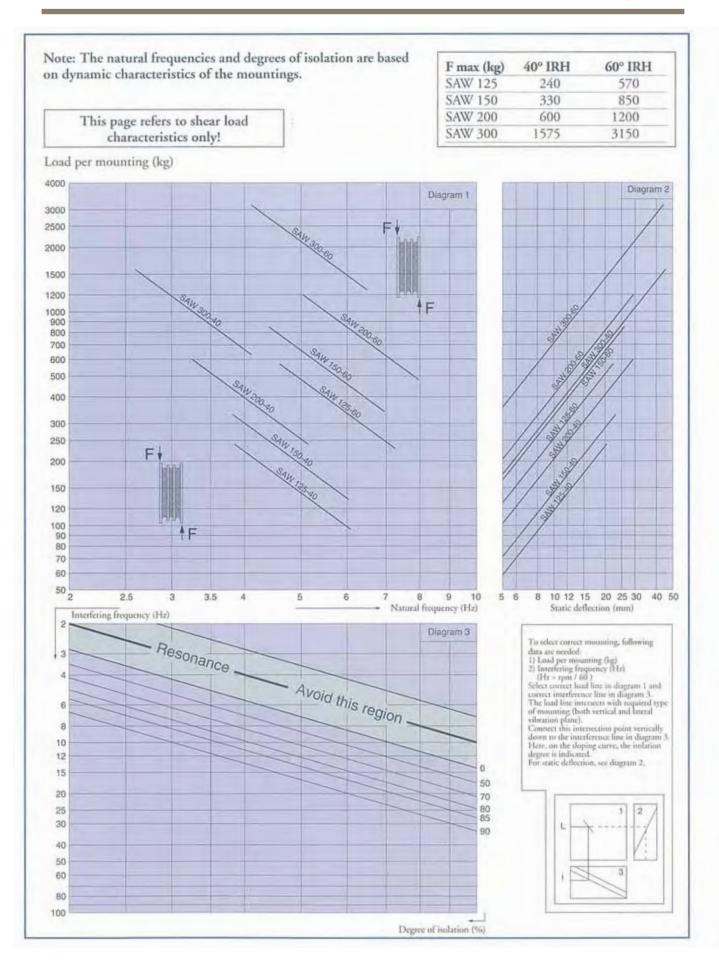


	Art.No.	Art.No		Din	ensions in	mm		Weight	M-N	lax(kg)
Type	40° IRH	60° IRH	A	K	H	d	t	(kg)	40° IRH	60° IRH
SAW 125	2255130	2255140	118	148	52	13.5	5	2.6	2250	4500
SAW 150	2255150	2255160	136	166	63	13.5	6	4.1	3750	7500
SAW 200	814467	814475	184	220	82	17.0	8	9.2	6000	12000
SAW 300	814483	814491	270	310	120	22.0	10	27.0	15000	30000



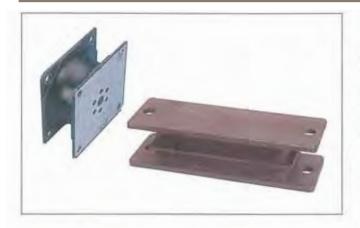






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## Rectangular SAW Mountings



## Metalastik® type Rectangular SAW Mountings and Novibra® type 3" COMP

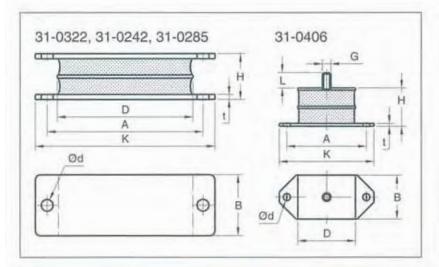
Widely used for suspending engines on road vehicles and may also be employed as springs for vibratory equipment.

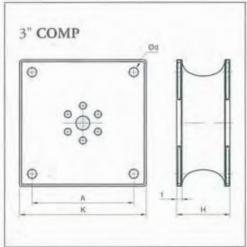
#### Features

Rectangular SAW mountings are also known as 'Sandwich' mountings because they feature a rubber section sandwiched between plates of metal. This arrangement allows a large difference between the compression and shear stiffnesses, thus providing the potential to 'tune' a mounting system by rotating the mountings. These mountings are commonly installed in a 'Vee' formation to utilise this feature.

The Rectangular SAW Mountings has the following features:

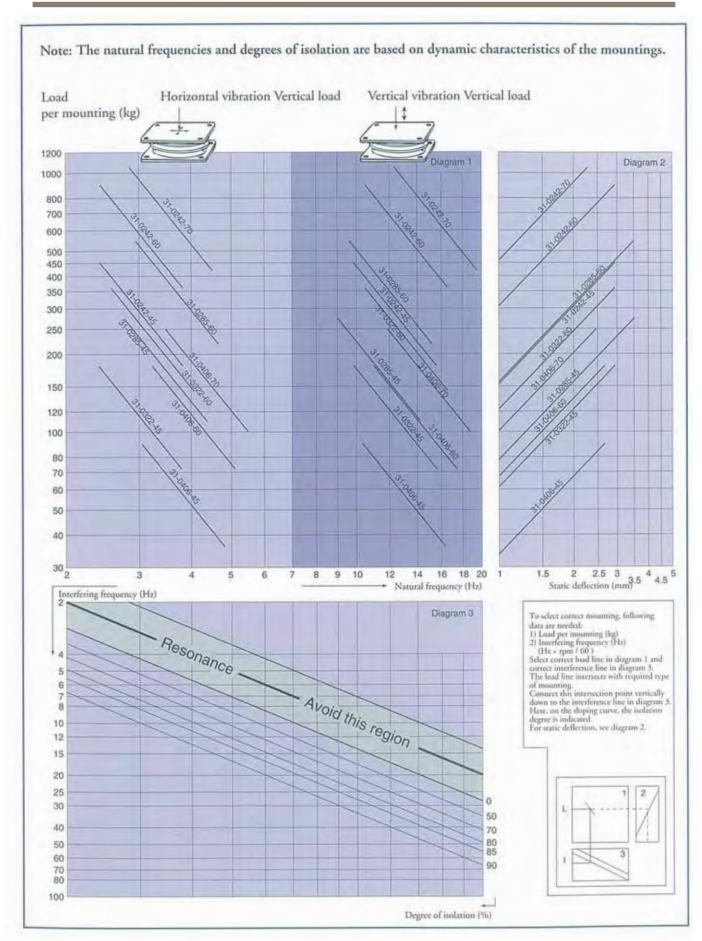
- Available with plate or stud fixings.
- Can be loaded in compression or shear, or a combination of both, for example in a 'Vee' arrangement.
- Can be manufactured with or without interleaves to change the ratio of shear to compression stiffness.





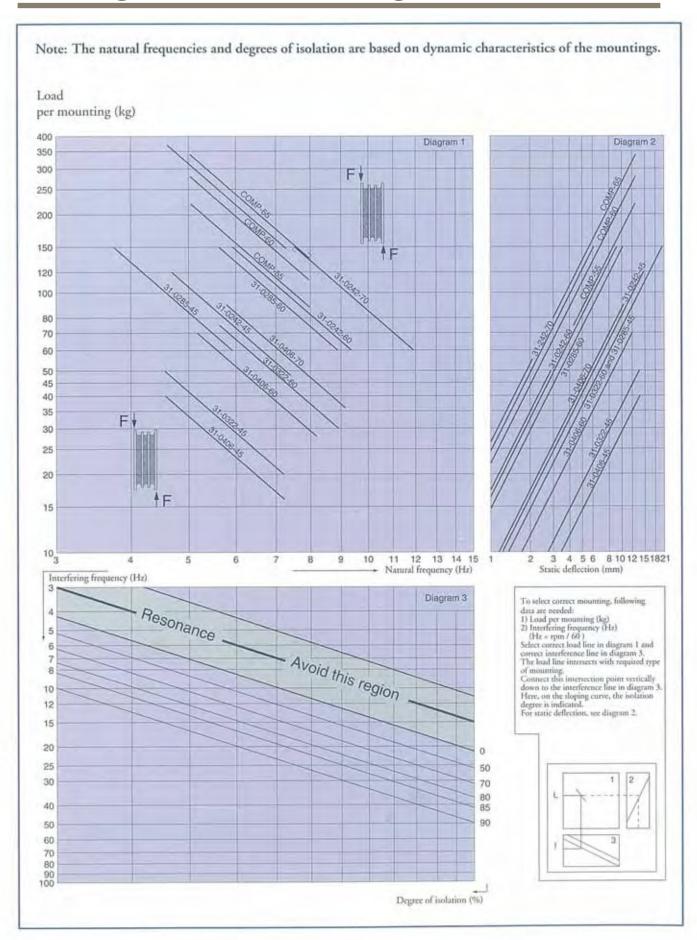
					Di	mension	s in m	m			Max load in	Max load in	Weight
Type	Art.No	A	В	K	H	D	d	t	G	1.	compression (kg)	shear (kg)	(lcg)
Rectangular	31-0322-45 (45° IRH)	89	57	108	43	63.5	11	-5			180	50	0.65
SAW	31-0322-60 (60° IRH)	89	57	108	43	63.5	1.1	5			360	75	0.65
Mountings	31-0242-45 (45° IRH)	146	57	168	43	127	11	5			450	120	1.1
	31-0242-60 (60° IRH)	146	57	168	43	127	11	5			900	150	1.1
	31-0242-70 (70° IRH)	146	57	168	43	127	11	5			1050	150	1,1
	31-0406-45 (45° IRH)	74.5	41	89	36	54	6.5	2.5	M8	14	90	40	0.23
	31-0406-60 (60° IRH)	74.5	41	89	36	54	6.5	2.5	M8	14	180	70	0.23
	31-0406-70 (70° IRH)	74.5	41	89	36	.54	6.5	2.5	M8	14	250	90	0.23
	31-0285-45 (45° IRH)	146	57	168	43	127	11	5			275	150	0.9
	31-0285-60 (60° IRH)	146	57	168	43	127	11	-5			546	150	0.9
3"COMP-55	319760 (55° IRH)	146		182	76		13	7.5				220	3.4
3"COMP-60	319700 (60° IRH)	146		182	76		13	7.5				280	3.4
3"COMP-65	319750 (65° IRH)	146		182	76		13	7.5				340	3.4

# Rectangular SAW Mountings



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# Rectangular SAW Mountings



# Circular SAW Mountings



#### **Features**

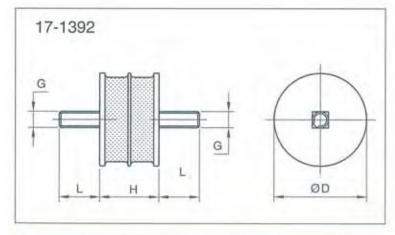
The metal interleaf incorporated (17-1392) in the design provides a higher compression to shear stiffness ratio, thereby increasing the load capacity in the compression or combined compression and shear modes.

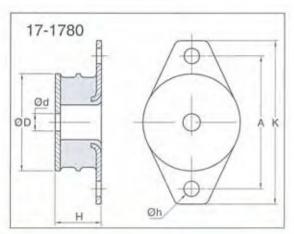
The 17-1780 engine mounting features a void in the rubber section to allow the use of a central snubber device.

### Metalastik® type Circular SAW Mountings

Used in a variety of industrial applications including vibratory rollers and small screens or for the suspension of smaller type I.C. engines.

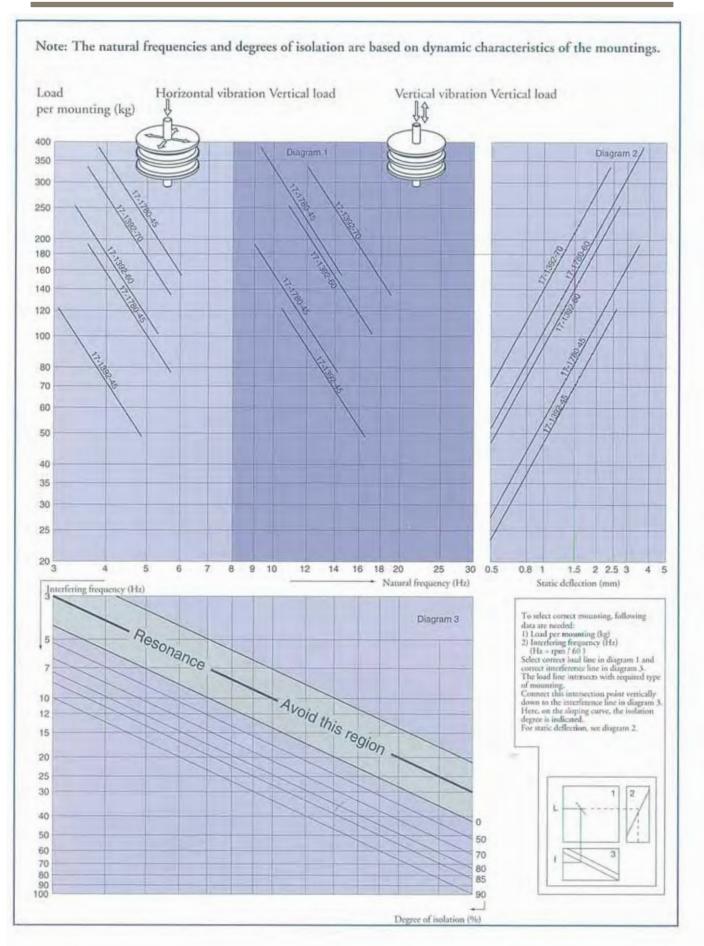
17-1780 can be fitted with a rebound washer for mobile applications.





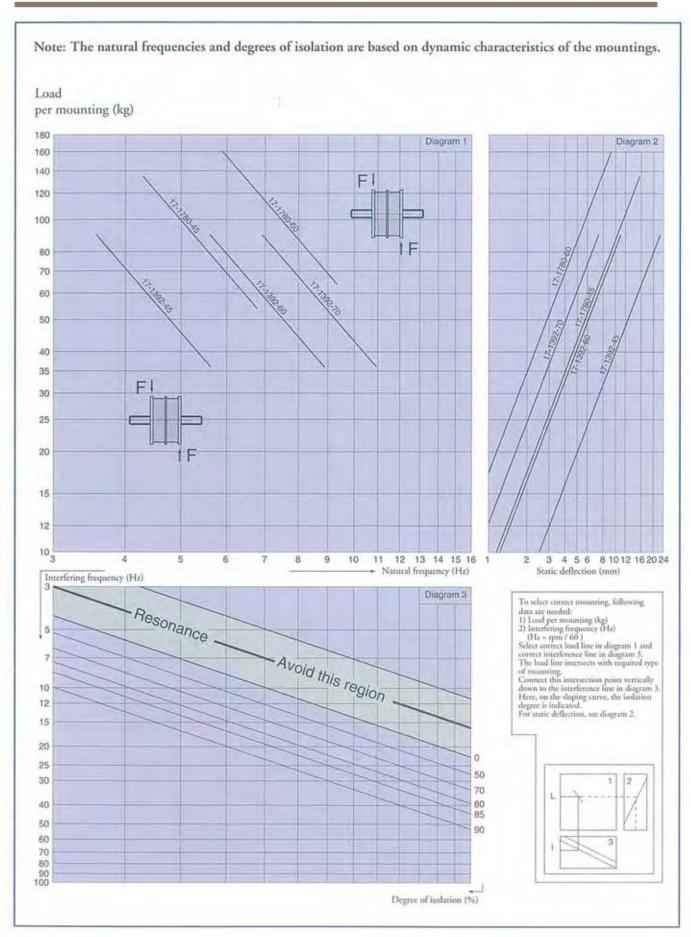
				Dir	mension	s in m	m			Max load in	Max load in	Weight
Туре	Art.No.	D	H	L	G	A	K	d	h	compression (kg)	shear (kg)	(kg)
Circular	17-1392-45 (45° IRH)	57	37	25	M10					120	90	0.28
SAW	17-1392-60 (60° IRH)	57	37	25	M10					250	90	0.28
Mountings	17-1392-70 (70° IRH)	57	37	25	M10					330	90	0.28
	17-1780-45 (45° IRH)	95	45			130	160	17	15	190	135	0.81
	17-1780-60 (60° IRH)	95	45			130	160	17	15	380	160	0.81

# Circular SAW Mountings



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# Circular SAW Mountings



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#### **Features**

The SE-mounting consists of an annular rubber section, securely bonded to a single steel support plate. A clearance hole is provided which can either be left plain or tapped to suit the application.

As the rubber element is in direct contact with the supporting surface, friction is normally sufficient to prevent the suspended equipment from "walking".

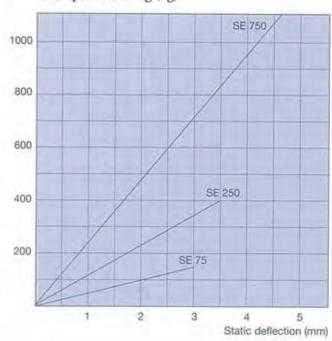
### Novibra® type SE

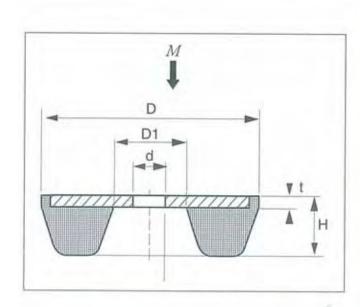
Type SE is suitable for the isolation of high frequency disturbances and provides reduction of structure-borne noise.

Specific applications are:

- · Office equipment
- · Textile machinery
- Domestic appliances
- Electric motors
- · Weighing equipment

## Load per mounting (kg)





	Art.No.		D	m		Weight	M-Max (kg)	
Туре	50° IRH	D	D1	d	H	t	(kg)	50° IRH
SE 75	1661010	55	18	8	15	3	0.069	150
SE 250	1861110	75	25	10	17	4	0.172	400
SE 750	1861120	115	40	14	24	4	0.456	1100



### Trelleborg Industrial AVS - Height Adjusters

Type HA is available in various sizes to suit the small and medium range of Trelleborg Industrial AVS-mountings, as listed in the table below. It allows mountings to be retrofitted to existing installations where original spares are unobtainable.

#### Notes:

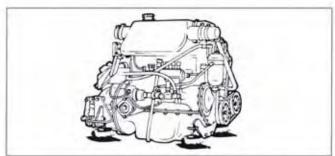
- For optimum solutions where close coupling tolerances are required, allow the mountings to settle for 48 hours before final alignment of the engine installation.
- For securing the bolt into the mounting, it is recommended to apply Loctite.
- The height adjuster HA can be used together with Novibra type M-mount. See description of M-mount.

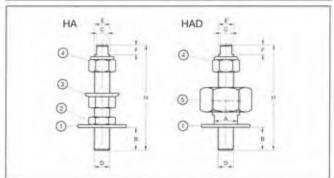
Height Adjusters can be used together with

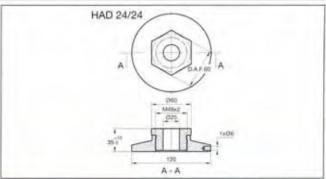
rieight Adjusters	can be used together with
HA 12/12	RAB, RA 100 M 12, RA 200 M 12, RAEM 60,
HA 12/16	RAEM 125 M 12, RAEM 350 M 12, 17-1463,
HAD 12/16	Cushyfloat 17-1600, SIM 100
HA 16/16	RA 350 M 16, RA 500, RA 800,
HAD 16/16	RAEM M 16, RAEM 800,
HA 16/20	Cushyfloat 17-1609, SIM 200
HAD 16/20	Cushyfoot 17-0213, 17-0290, 17-0346
HA 20/20	Cushyfloat 17-1657, SIM 300
HAD 20/20	
HAD 24/24	Cushyfloat 17-1841

#### **Features**

Type HA is a height adjuster made in corrosion protected grade 8 steel. The steel is zinc plated and chromated according to DIN 50691/ISO 2081. The height adjuster is supplied complete with washer and nut for fastening to the mounting and two nuts and a lock washer for the engine foot fastening. The HA height adjustment facilitates precise coupling alignment for engine installations and boat building tolerances.







					Dimension	8			1	2 Hexagon	3 Hexagon	Lock nut	Fine thread
Туре	Art.No.	н	D	E	A	В	c	F	Washer	low nut	flange nut	plastic insert	adjusting unit
HA 12/12	319800	95	M12	M12		20	D.A.E 8	8	37x12x3	M12	M12	M12	
HA 12/16	319810	105	M12	M16		20	D.A.E.12	10	44x15x3	M16	M16	M16	
HA 16/16	319820	110	M16	M16		24	D.A.E 12	10	50x15x3	M16	M16	M16	
HA 16/20	319830	130	M16	M20		24	D.A.E 12	10	56x20x4	M20	M20	M20	
HA 20/20	319840	135	M20	M20		30	D.A.F. 12	10	60x21x4	M20	M20	M20	
HAD 12/16	319850	105	M12	M16	D.A.E.24	20	D.A.E. 12	10	44x15x3			M16	M30x1.5
HAD 16/16	319860	110	M16	M16	D.A.E. 24	24	D.A.F. 12	10	50x15x3			M16	M30x1.5
HAD 16/20	319870	130	M16	M20	D.A.E. 27	24	D.A.F. 12	10	56x20x4			M20	M36x2
HAD 20/20	319880	135	M20	M20	D.A.E. 27	30	D.A.E. 12	10	60x21x4			M20	M36x2
HAD 24/24	319890				See drawing								



#### **Features**

Type GK is a heavy duty mounting with excellent flexible characteristics in both vertical and lateral planes. Deflection up to 30 mm is possible making type GK suitable for installations with low disturbing frequencies.

Installation is simple, eliminating traditional methods of attachment to machinery or support structure.

### Novibra® type GK

Mounting type GK is specifically designed for isolation of heavy machinery with low interfering frequencies. It is widely used under concrete foundations supporting heavy machinery.

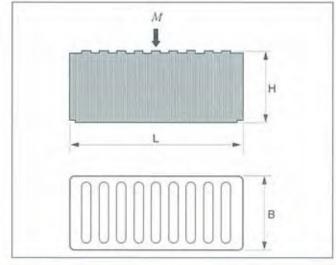
The long narrow section enables type GK to be suitable for fitting under a common structural frame supporting different equipments.

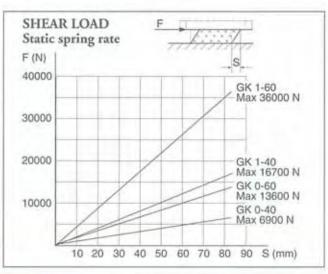
Typical fields of application are:

- · Rolling mills
- Paper mills

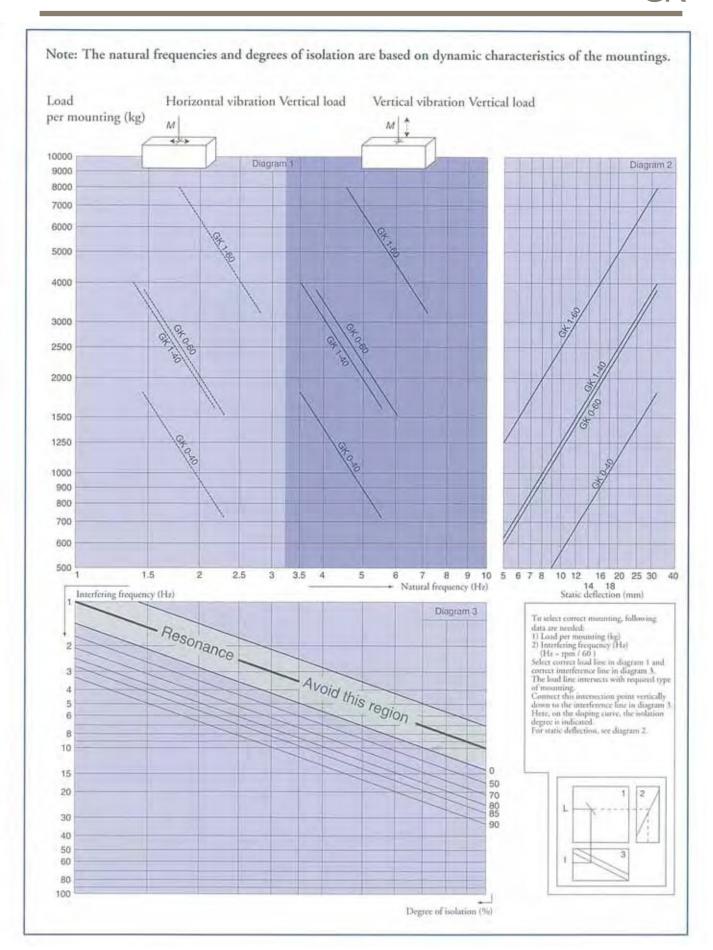
Mixers

- Converters
- Gearboxes
- · Sound enclosures
- · Industrial fans
- Floating structures





			Di	mensions in mm			
Турс		Art.No.	L	В	H	Weight (kg)	M-Max(kg)
GK 0-40	(40° IRH)	1534080	195	175	150	5.2	1800
GK 0-60	(60° IRH)	1861630	195	175	150	5.7	3800
GK 1-40	(40° IRH)	67959	400	175	150	10.7	4000
GK 1-60	(60° IRH)	67967	400	175	150	11.8	8000



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### Novibra AV Plate



### Novibra® type AV Plate

The Anti-Vibration Plate is intended, primarily, for applications with low requirement for vibration isolation. Typical installations are machinery generating vibrations in the high frequency range, and tall unstable installations, requiring secure attachments to the foundation.

If insufficient deflection is achieved with a single layer, multiple layers can be used by separating each layer with a weight distributing steel plate. In order to avoid direct contact between machine and foundation, a rubber bushing (e.g. rubber hose) should be installed in the mounting holes prior to installation of bolt and rubber washer. See "Mounting instructions" on this page.

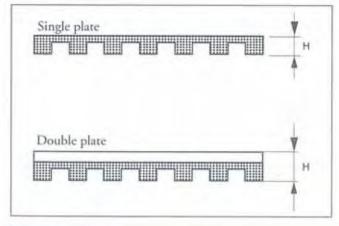
Suitable applications are:

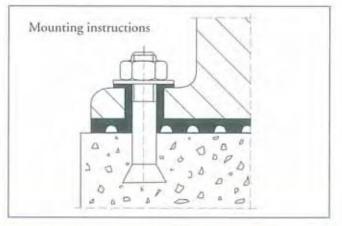
- · Pillar drills
- Transformers
- · Large pumps
- · Printing presses
- · Industrial fans
- · Horizontal drill presses
- · Textile machinery
- Large forging presses

The AV Plate, made of oil and grease resistant rubber material, is available either as a single (4.5 mm) or as a double (8 mm) version. The single version has ribs on one side only, while the double has ribs on both sides applied at a 90 degree angle to each other.

**Features** 

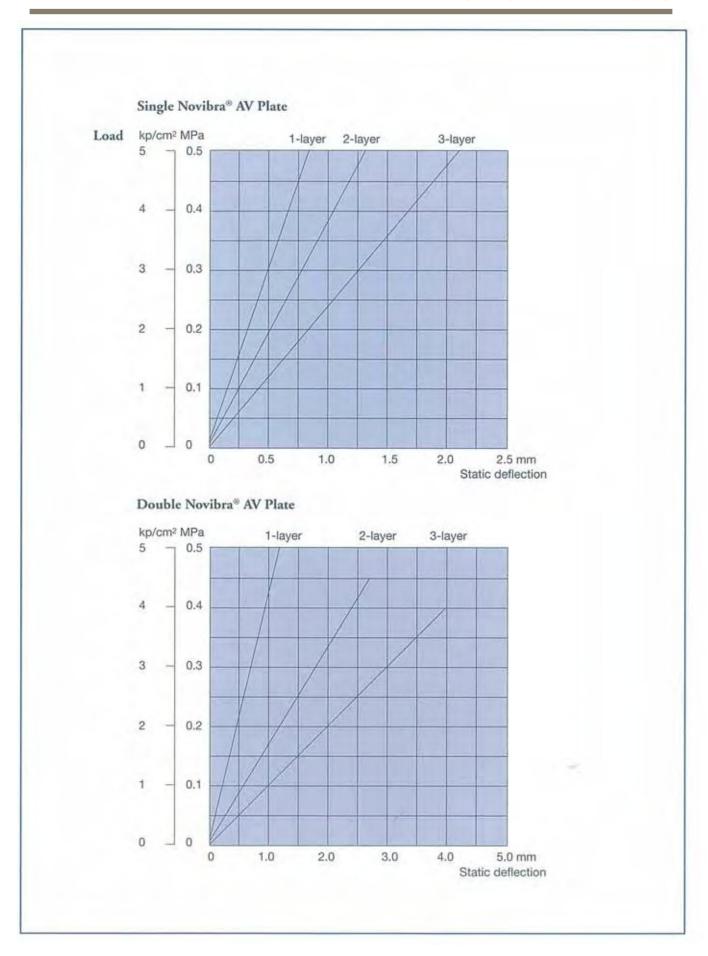
Good performance is obtained when using the Novibra® AV Plate in the building and construction industry as support pads between flooring and joists. This application provides for cushioning of loads and isolation of high frequency vibrations within the building.





Dimensions in m	m			Weight	M-max load	
Туре	Art.No.	LxB	H	(kg)	kg/cm <sup>2</sup>	
Single plate	7.0136	600x500	4.5	1.210	5	
Double plate	70151	600x500	8.0	1.815	5	

### Novibra AV Plate





#### Features

The TF mounting is installed in minutes by following the instructions provided. There is no need to fix the machines to the floor since the rubber base of the mounting keeps the machine in place. Whenever necessary, the machine can easily be re-positioned. The level is adjusted with load applied.

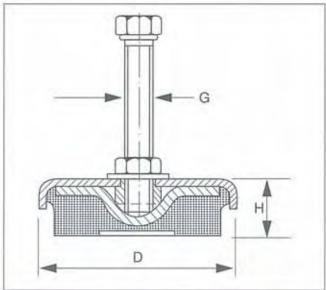
The rubber element of the TF mounting is oil and chemical resistant. All metal parts are zincplated and chromated for protection against corrosion.

Models TF 250, TF 600 and TF 1200, also available in S/S (ISO 2604/11, BS 3605:1).

### Novibra® type TF

Novibra® type TF with level adjuster is suitable for a wide range of free standing workshop machines, e.g.

- · Lathes
- · Milling machines
- · Grinding machines
- · Multiple operation machinery
- · Presses
- · Plate shears
- Nibbling machines
- · Punches and cutters
- Woodworking machines
- · Plastic moulding machinery



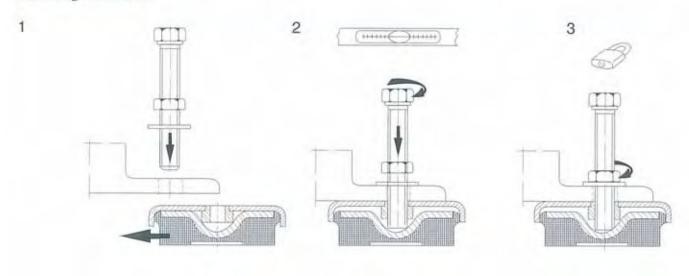
	Dimensions in mm				Overall	Thread	Weight	Max load
Type	Art.No.	D	H min	H max	bolt length	G	(kg)	(kg)
TF 250	1860740	69	23	-10/	100	M 12	0.40	250
TF 250 5/s	2256520	69	23	0.	100	M 12	0.40	250
TF 600	1860780	81	25	0	100	M 12	0.49	600
TF 600 5/5	2256530	81	25	D.	100	M 12	0.49	600
TF 1200	1860790	108	29	0	100	M 16	1.0	1200
TF 1200 5/s	2256540	108	29	0	100	M 16	1.0	1200
TF 3000	1860800	151	35	CH.	120	M 20	2.2	3000
TF 4000	1860810	170	39	1).	120	M 20	2.9	4000
TF 6000	1860820	205	44	0.	150	M 24	4.8	6000

1) Levelling of the bolt up to its total length.

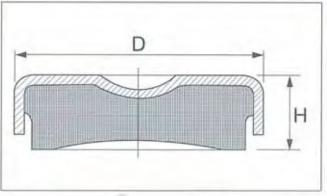
### Loading range per mounting (kg)

Type of machinery	General shop ma				Nun	Presses and punches Numbers of strokes per minute					
Mounting			1-	125	126-	175	176-	225	226-	275	
TF 250		250	25-	125	20-	100	15-	85	10-	60	
TF 600	251-	600	126-	300	101-	240	86-	200	61-	150	
TF 1200	601-	1200	301-	600	241-	480	201-	400	151-	300	
TF 3000	1201-	3000	601-	2400	481-	1600	401-	1000	301-	750	
TF 4000	3001-	4000	2401-	3200	1601-	2100	1001-	1300	751-	1000	
TF 6000	4001-	6000	3201-	4800	2101-	3200	1301-	2000	1001-	1500	

### Mounting instructions







Mounting TFE is a simpler version of type TF without level adjuster. It is used for machines which do not require height adjustment or where such a feature is already provided, e.g. by an adjusting screw in the machine.

Both models also available in S/S (ISO 2604/11,BS 3605:1)

		Dimensio	ns in mm	Weight	Max load		
Type	Art.No.	D	H	(kg)	(kg)		
TFE 601	1861050	80	25	0.375	800		
TFE 1201	1861060	109	29	0.925	1600		

TFE

### Hanged Instrumountings

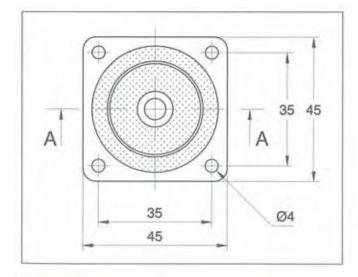


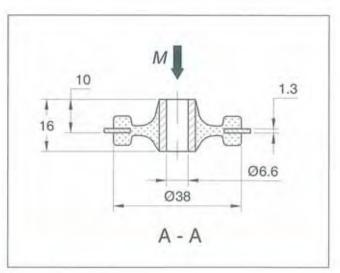
### Metalastik® type Flanged Instrumountings

These mountings are suitable for both mobile and static applications, for the protection of sensitive equipment from external vibration or for vibration isolation of small fan sets, transformers and similar equipment. Flanged Instrumountings can be fail-safe if fitted with a washer to the top and bottom of the rubber section.

#### Features

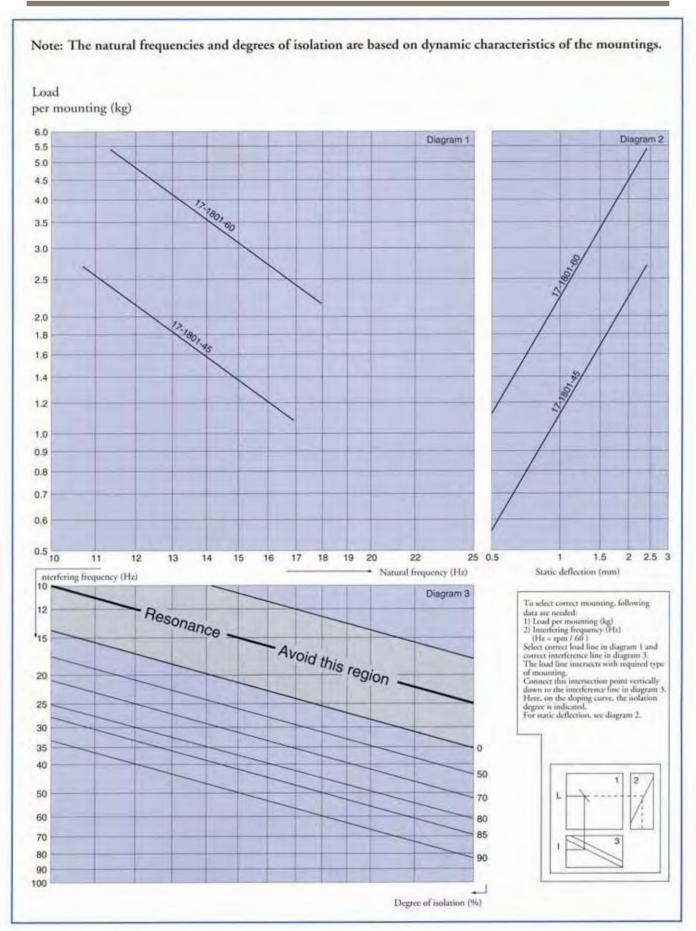
- Fail-safe when fitted with overload and rebound washers of the same diameter as the rubber section.
- · Load range from 2.7 to 5.4 kg.
- · Static deflection up to 3 mm.
- · Easy to fit as part of a cabinet enclosure.
- · Can be used in both vertical directions.





	Art.No.	M-Max (kg)	Weight (kg)	
N .	17-1801-45 (45° IRH)	2.7	0.03	
A. Company	17-1801-60 (60° IRH)	5.4	0.03	

# **Hanged Instrumountings**



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### Novibra® type ANB

The shockbuffer type ANB is used to effectively limit movement of equipment or machine components.

Typical field applications would be:

Wagons

- Cabinets
- Traversing cranes
- Forestry vehicles
- Lifting cranes
- Working beams
- · Off-road material handling equipment
- Falling goods
- · Container handling equipment

Through the low resilience of the rubber a high degree of energy absorption is achieved. The rubber is stiffer under dynamic conditions compared to static or pseudo static loading; hence more energy is absorbed for a given deformation. Diagram 4 shows the effect of the energy factor.

Buffer type ANB consists of a cylindrical rubber body bonded to a square baseplate of steel. Each corner of the baseplate has a fixing hole.

Special high-hysteresis rubber compound is used to ensure as much energy absorption as possible. The volume of the rubber is used at optimum efficiency.

For new machine developments simpler designs and lighter calculated forces can be considered enabling a lower cost.

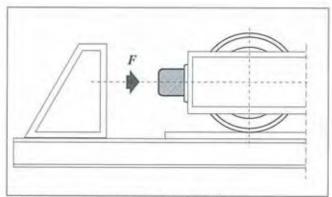


Fig. 1. Traverse crane with shock buffer ANB.

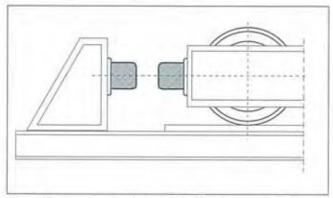


Fig. 2. Traverse crane with 2 ANB buffers connected in series.

				Dimensio	ns in mm			Weight	F-Max
Type	Art.No.	K	A	D	d	H	t	(kg)	(N)
ANB 50	2255290	70	50	-50	7	43	3	0.2	8000
ANB 75	2255300	100	75	75	9	63	3	0.5	20000
ANB 100	2255310	130	100	100	11	84	4	1.2	41000
ANB 150	68569	185	150	150	13.5	126	6	3.9	90000
ANB 200	68577	240	200	200	13.5	168	8	9.1	180000

For calculation purposes the following equations can be used:

 $E = m \cdot v^2$ (1) 2

E F . 5 (2)

F (3) m · a

a·r2 (4)

(5) $= \sqrt{a \cdot t}$ 

= 2 · a · s (6)

= 2 · g · h

(7) applicable in free fall

E = energy in Nm

mass in kg

velocity in m/s

force in N

distance in m

acceleration in m/s2

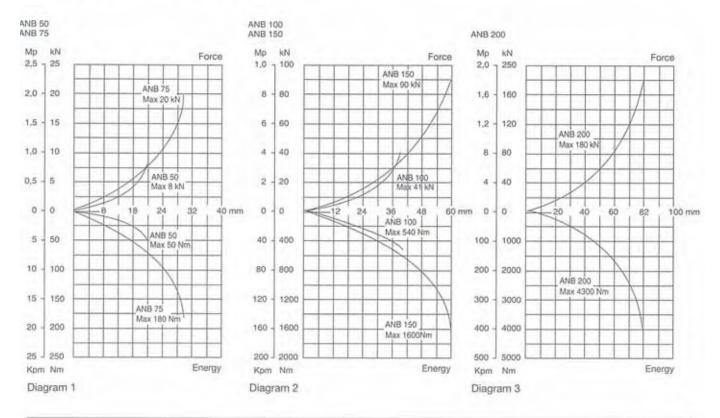
time in s

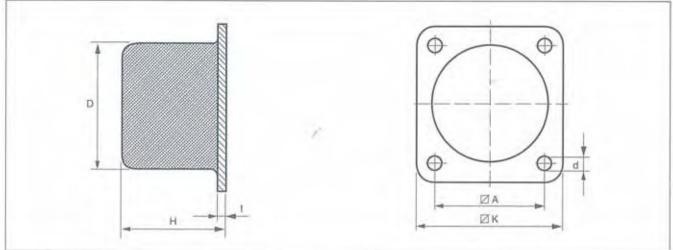
acceleration due to gravity 9.81 m/s2

h = height in m

d = spring travel in m









### **CALCULATION EXAMPLES**

The figures in parenthesis refer to the equations.

### EXAMPLE 1: FREE FALL CALCULATION

1850 kg weight is to be dropped 1.83 metres onto 4 ANB buffers. What size ANB should be used? What force will be transmitted to the floor?

Energy E =  $F \cdot s(2) = 1850 \cdot 9.81 \cdot 1.83 = 33212 \text{ Nm}$ 

Velocity at impact (shock velocity)  $v = \sqrt{2 \cdot g \cdot h}$  (7)=  $\sqrt{2 \cdot 9.81 \cdot 1.83} = 6$  m/s.

### REFER TO ENERGY FACTOR GRAPH

If 50% deformation is allowed, the energy factor at 6 m/s is 0.4. Then dynamic energy 33212 Nm corresponds to  $33212 \cdot 0.4 = 13285$  Nm static energy and for 4 buffers the static energy per buffer is 3320 Nm.

### REFER TO FORCE-ENERGY DIAGRAM

Select ANB 200 which can each absorb up to 4300 Nm at 80 mm compression (which is 50% of static height) or will compress 76 mm at 3320 Nm.

Force at impact surface

- = force at 76 mm deflection / 0.4
- = 150 / 0.4 = 375 kN per buffer
- = 1500 kN for 4 buffers

Hence if 1850 kg is dropped 1.83 metres onto 4 x ANB 200 buffers they will each compress 76 mm and the total force on the floor will be 1500 kN.

### **EXAMPLE 2A: CRANE BUFFER CALCULATION**

A crane weighs 2000 kg and travels at 1.6 m/s. What size ANB buffers should be used to stop it and what will the final force be?

The dynamic or kinetic energy

$$E = \frac{m \cdot v^2}{2} = \frac{2000 \cdot 1.6^2}{2} = 2560 \text{ Nm (1)}$$

### REFER TO ENERGY FACTOR GRAPH

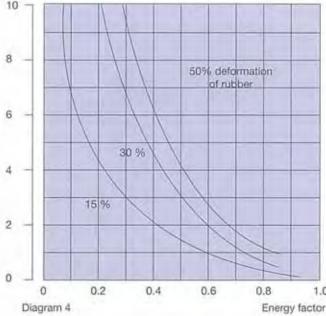
Assuming a 50% deformation, the energy factor = 0.75 at 1.6 m/s. Hence the equivalent static energy is 2560 · 0.75 = 1920 Nm. Then for 2 buffers the static energy is 960 Nm per buffer.

### REFER TO FORCE-ENERGY DIAGRAM

ANB 150 buffers can be chosen with a deflection at 960 Nm of 49 mm, which is only 41% of a free height of 120 mm, whereas 50% had been assumed. With the energy factor reduced to 0.72 (for 41% deflection at 1.6 m/s) the static energy is:

2560/2 x 0.72 = 922 Nm





REFER TO FORCE-ENERGY DIAGRAM FOR ANB 150 At 922 Nm static energy, the deflection is 48.5 mm (close to 49 mm). Then the static force at 48.5 mm deflection is about 51 kN. Therefore the dynamic load (Force at impact) = 51 / 0.72 = 71 kN. Hence 2 x ANB 150 buffers will deflect 48.5 mm and transmit a force of 71 kN or 7240 kg each, i.e. the structure must withstand 14.6 tons.

#### EXAMPLE 2B: CRANE BUFFER CALCULATION

How can the dynamic force calculated in example 2a be reduced, and by how much?

The force will be reduced and the deflection will be increased if ANB 150 buffers are connected in series (i.e. 4 buffers instead of 2) as illustrated by fig. 2.

Then, assuming 30% deformation the energy factor at 1.6 m/s = 0.68.

Hence the equivalent static energy is 2560 · 0.68 = 1740 Nm and for 4 buffers the static energy is 435 Nm per buffer.

The force-Energy diagram shows that at 435 Nm, buffer ANB 150 deforms 35 mm. This corresponds to 29.2% of a free height of 120 mm which is close to assumed value 30%.

Then the static force at 35 mm deformation is 26 kN and the dynamic load at impact will be:

Hence 4 x ANB 150 buffers connected 2 + 2 will give a total deflection of 70 mm with a final force per double arrangement of 38 kN or 3870 kg, i.e. the structure must withstand 7.7 tons.

# Two Bolt Instrumountings



### Metalastik® type Two Bolt Instrumountings

Two Bolt Instrumountings provide a convenient and effective means of isolating vibration generated by lightweight machinery. Also used to protect instruments and light equipment from vibration and shock. They may be loaded in compression or shear depending on application requirements.

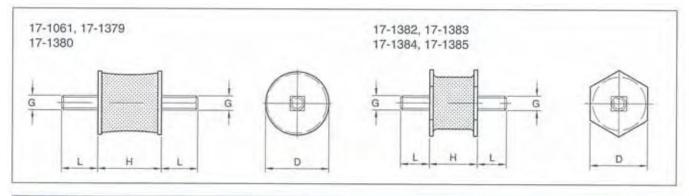
### Typical applications:

- Instrument panels
- · Lightweight laboratory machines
- Electronic equipment

#### Features

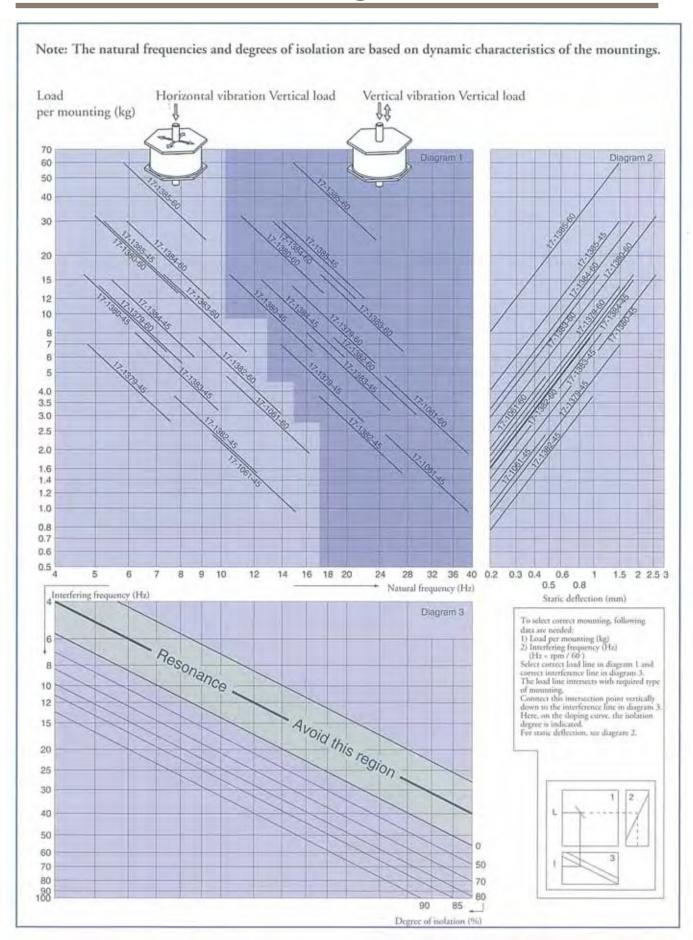
These mountings are high quality products capable of protecting light equipment from vibration and shock. Two Bolt Instrumountings are available in either 45° or 60° IRH natural rubber compound. Similar to Rectangular SAW Mountings and Circular SAW Mountings, Two Bolt Instrumountings can be assembled in a 'Vee' arrangement for good stability and improved vibration isolation.

- · Circular or hexagonal end plates for simple fitting
- Can take up to 3 times rated load under shock conditions.
- Takes load in either shear or compression, or a combination
- Fixing bolts threaded to within 2 pitches of the end plate.
- Up to 12 mm deflection in shear for a very soft suspension.
- Top quality bond strength for reliability and safety.



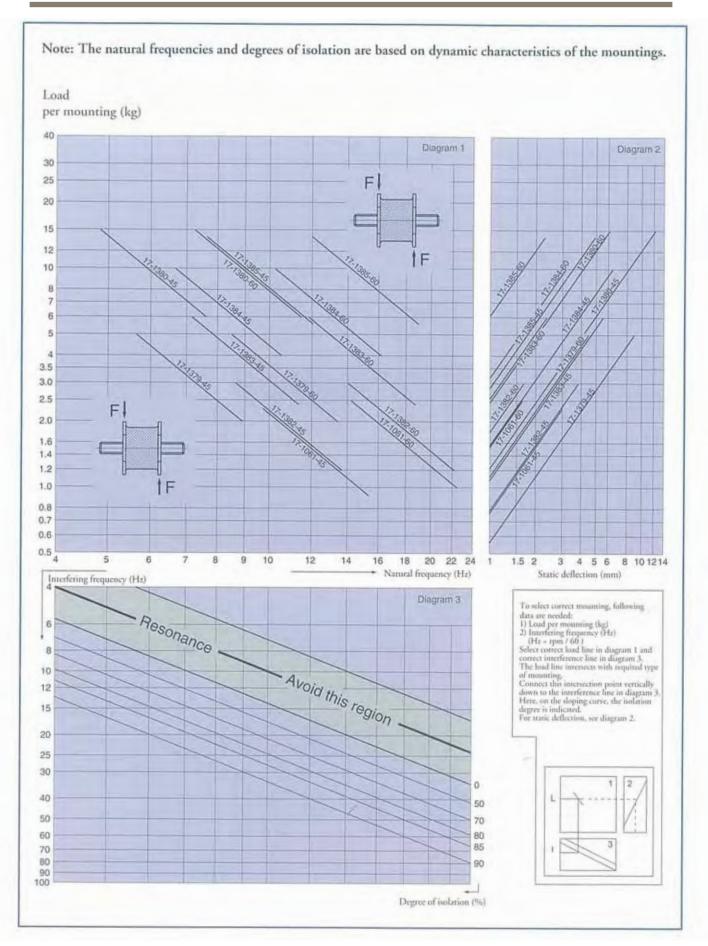
		Din	nensions in	mm		Max load in	Max load in	Weight
Type	Art.No	D	H	G	I.	compression (kg)	shear (kg)	(kg)
Two bolt	17-1061-45 (45° IRH)	11	11	M4	10	2.4	2.3	0.005
instrumountings	17-1061-60 (60° IRH)	11	11	Ma	10	4.8	2.5	0.005
	17-1379-45 (45° IRH)	21	22	M6	15	7.0	5	0.02
	17-1379-60 (60° IRH)	21	22	M6	15	14	5	0.02
	17-1380-45 (45° IRH)	35	34	M8	20	16	15	0.07
	17-1380-60 (60° IRH)	35	34	M8	20	32	15	0.07
	17-1382-45 (45° IRH)	15	16	M6	15	3.8	3	0.013
	17-1382-60 (60" IRH)	15	16	MG	15	7.6	3	0.013
	17-1383-45 (45° IRH)	21	19	M8	20	8.0	6	0.03
	17-1383-60 (60° IRH)	21	19	M8	20	16	6	0.03
	17-1384-45 (45° IRH)	32	26	M8	16	(5	10	0.06
	17-1384-60 (60" IRH)	32	26	M8	16	30	10	0.06
	17-1385-45 (45° IRH)	33	22	M10	25	30	14	0.11
	17-1385-60 (60° IRH)	33	22	M10	25	60	14	0.11

# Two Bolt Instrumountings

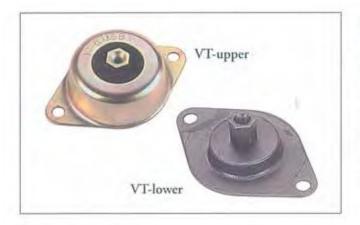


Call the Sales Team on 01473 738569 • fax 01473 738751 • sales@robush.co.uk

# Two Bolt Instrumountings



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### Novibra® type VT

Novibra® type VT protects wall-mounted instrument cabinets from vibrations and shocks generated by nearby engines, workshop machinery, etc. It is also suitable to isolate light wall-mounted machines, fans, refrigerating units, etc.

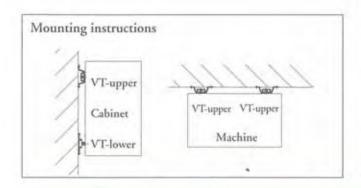
Mounting type VT-upper could be used for ceiling suspension e.g. fittings, fans, music speakers, etc.

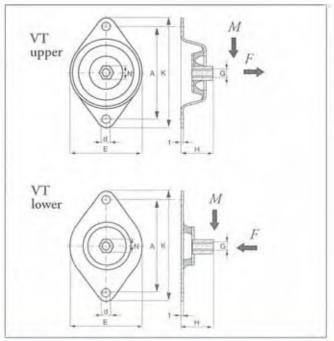
#### Features

Type VT has been designed so that upon installation the rubber section is subjected to shear loads, thus providing high deflection even at low loads.

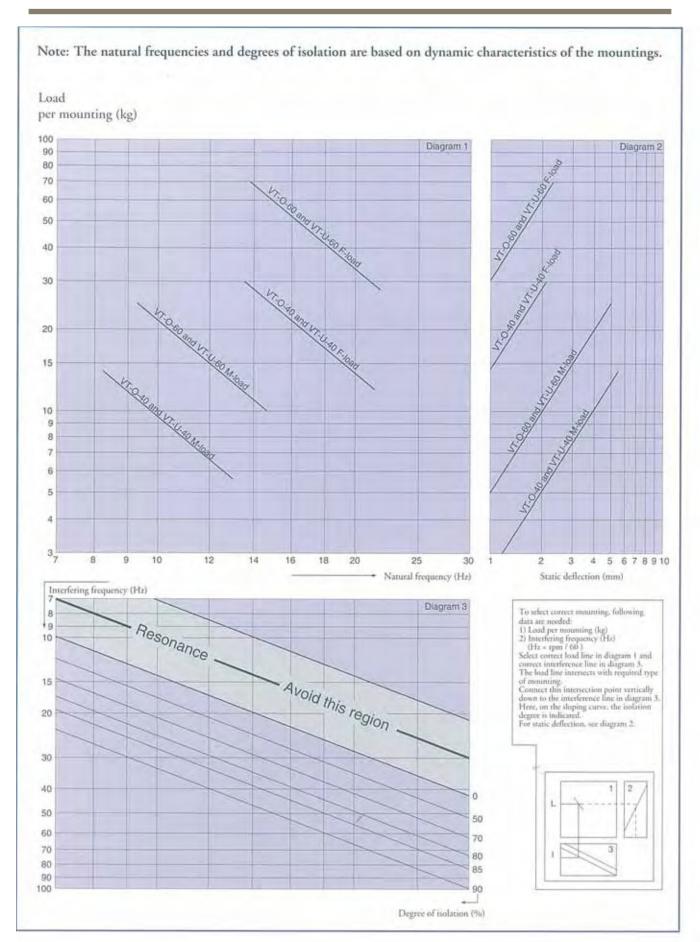
Two different parts are available. The VT-upper provides for protection against tension preventing the isolated unit from falling down if overloading occurs.

VT-lower is designed to accept horizontal compression loads and allow shear deflection vertically.





	Art.No	Art.No.			Dimensions in mm					Weight	M-Max(kg)		F-Max(kg)		
Туре	40° IRH	60° IRH	E	K	A	H	d	N	t	G	(kg)	40°IRH	60°IRH	40°IRH	60°IRH
VT-upper	69526	69534	75	114	96	33	9	15	1.5	M8	0.149	14	25	30	70
VT-lower	69567	69575	75	114	96	33	9	15	1.5	M8	0.104	14	25	30	70



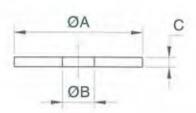
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### Metacone & HK Washers

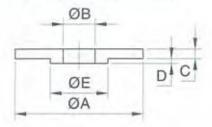
### Top and bottom washers

Overload and rebound washers (top and bottom) are necessary to limit maximum movement in the event of shock loading.

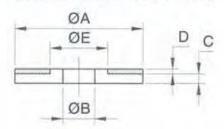
Type A Steel Washer



Type B Top Stepped Steel Washer



Type C Rebound Washer with Rubber



### Washer

Designation	Art.No.	Type		Din	ensions i	n mm	
		0.00	A	В	C	D	E
Washer 50x12C	336000	C	50	12	3	3	28.5
Washer 95x24C	336010	C	95	24	8	6	38
Washer 67.5x20C	336020	C	67.5	20	5	5	30
Washer 116x24B	336030	В	116	24	8	4	47
Washer 80x20B	336040	В	80	20	6	3	34.5
Washer 55x12B	336050	В	55	12	5	2.5	25
Washer 80x16B	336060	В	80	16	6.5	3	31.5
Washer 50x10A	336070	A	50	10	4		
Washer 80x16A	336080	A	80	16	5		
Washer 100x20A	336090	A	100	20	6		
Washer 139x24A	336100	A-	139	24	10		
Washer 55x12A	336130	A	55	12	5		
Washer 51x16A	336120	A	51	16	4		
Washer 57x16B	318490	В	57	16	3	1.5	-22
Washer 52x16A	318500	A	52	16	3		
Washer 110x20B	2230560	В	110	20	5	3	52.5
Washer 55x20A	2230570	A	55	20	5		

center fixing bolts					
Thread size	Torque (Nm)				
M10	25				
M12	40				
M16	60				
M20	120				
M24	200				

### Metacone" and HK on page 40

Туре	Cone	Top washer Art.No.	Bottom washer Art.No.
Memcone"	17-0189	336050	336000
	17-0241	336050	336000
	17-0248	336050	336000
	17-0277	336060	336080
	17-0379	336070	336070
	17-0341	336060	336080
	17-0311	336060	336080
	17-1691	336130	336120
HK	HK 60	318490	318500

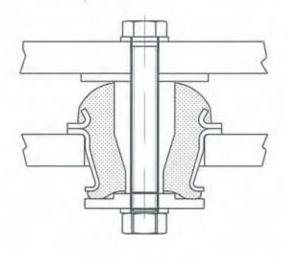
Metacone<sup>13</sup> and HK on page 42

Туре	Cone	Top washer Art.No.	Bottom washer Art.No.
Meracone	11-1009	336080	336080
	17-0391	336080	336080
	17-0566	336080	336080
	17-1227	336040	336020
	17-1550	336100	336100
	17-1843	336090	336090
	17-1865	336080	336080
	17-0146	336030	336010
HK	HK 600	2230560	2230570

### Installation Guidelines

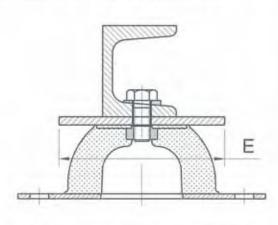
### Metacone™ and HK

Always use appropriate washers when installing conical mountings! This recommendation refers also to mountings type Cab Mountings, UH and EH.



### M Mountings

The underside surface of the suspended unit which rests on type M mountings should have an area of at least the diameter shown in the diagram and table. Otherwise a thick washer of diameter E should be fitted,



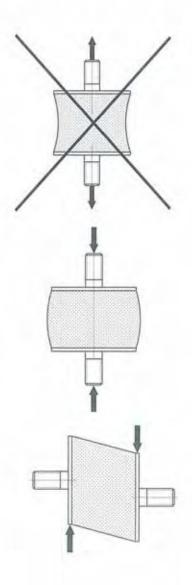
M mounting	E (mm)
M7	43
M25	56
M50	76
M100	96
M200	101
M400	125
M600	165
M1500	260

### Loading directions

Do not install antivibration mountings in a way that causes the rubber to work in tension.

Compression and shear are the correct loading directions!

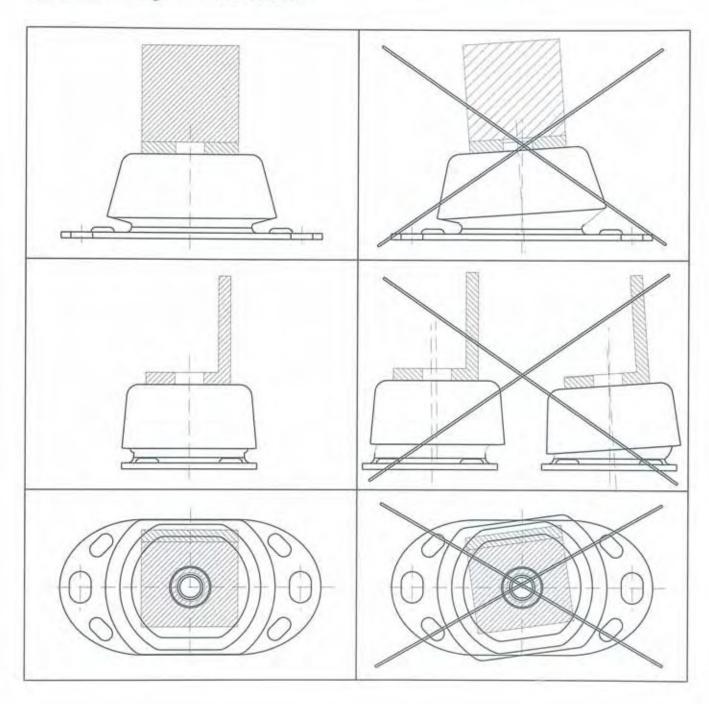
Take this into consideration for mounting types: Bobbins, M, Two Bolt Instrumountings, Equi-Frequency, type SAW, Rectangular SAW and Circular SAW.



### Installation Guidelines

### Alignment

In order to ensure maximum performance of all Metalastik® and Novibra® antivibration mountings fitted with top caps, all form of misalignment should be avoided. Actual mounting types are: RA, RAEM, Cushyfloat™, SIM™, Cushyfoor™ and RAB.



### Case Studies



Client: Big Ben, Westminster
Project: Replacement of the bell hammers

We were proud to be part of the team that replaced the rubber hammers on the hour bell and three of the quarter hour bells.

The clock was stopped at 8am on a Saturday for the badly worn buffers to be removed and the new ones fitted.

On schedule, the clock was re-started at 4pm on Sunday and rang perfectly.



Client: Traymaster, Norfolk Project: Static Straw Baler

Traymaster have been designers and innovators of mechanical handling systems since the 1960's and have developed a unique static, indoor straw baler powered by an external generator.

Specialist anti-vibration mounts were needed to support the 12 tonne machine and we were delighted to supply them.

The successful prototype led to an export order from China.



Client: London Transport Project: Blast damaged trains

In July 2005, a number of London's underground trains were severely damaged by bomb blasts.

These iconic trains were rebuilt and restored to their original condition and Robush were part of that team of specialists. We supplied anti-vibration mounts to original specifications, many of which had long been obsolete.





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