VIBRATION DAMPING ELEMENTS

VIBRATIONS UNDER CONTROL

Our vibration damping elements absorb jarring and structure-borne sound, insulate machine vibrations and shield against noise. They are functional, flexible and can be used universally – everywhere where elastic mountings are used in different areas of mechanical engineering, civil engineering and apparatus construction. Numerous sizes and types with various metal part designs and elastomer Shore hardnesses result in design possibilities for multiple applications.

MANUFACTURE AND MACHINING

PROFESSIONAL SERVICE FROM THE ADVICE TO THE END PRODUCT

Our experts advise you from the beginning, define application areas and your specific requirements and implement machining requirements and special designs for you.

APPLICATION-ORIENTED ADVICE

The use of vibration damping elements depends on various factors: weight, frequency to be produced and environment of the machine determine which element is used. You give us your requirements and we select the suitable product for you.

MACHINING SERVICE

We drill, saw and machine the products so that they meet your individual requirements. Our comprehensive machining service includes product modifications of standard products as well as special designs.

DELIVERY CAPABILITY

We have many vibration damping elements in stock and can guarantee fast and reliable delivery.

PRODUCT RANGE ON THE NEXT PAGES

Rubber-metal buffers
Rubber-metal stop bumpers
Rubber-metal elements
Rubber-bonded metal elements

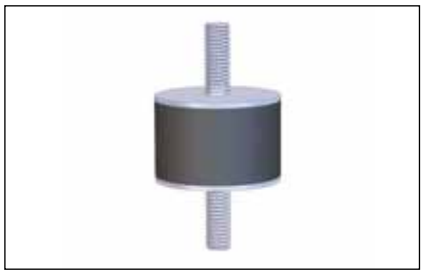
Friction wheels
Air springs
Rubber hollow springs
Structural bearings

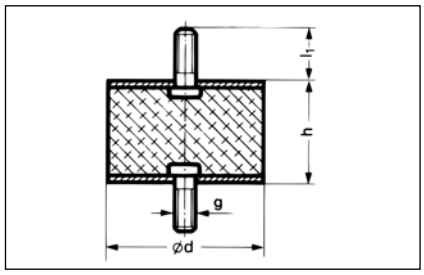
1 *Diversity– diverse rubber buffers and machine feet are processed for shipment.*

2 *The Shore hardness of the rubber mixture significantly influences the vibration damping characteristics.*

RUBBER/METAL STOPS

Rubber/metal bumper design A





Material:
Natural rubber, optionally in 43° (soft), 57° (average) and 68° (hard) Shore. Tolerance +/- 5° Shore.

Design: 2x outer threads

Item No. Soft	Item No. Medium	Item No. Hard	Diameter (d) mm	Height (h) mm	Threads g x l1	€/unit beginning at 1 unit	€/unit beginning at 10 unit	€/unit beginning at 50 unit	€/unit beginning at 100 unit
450620	**450600**	**161230**	8	8	M 3x 6				
161260	**161860**	**161990**	10	10	M 4x10				
162080	**162100**	**162130**	15	8	M 4x10				
162290	**162310**	**161170**	15	15	M 4x13				
1047490*	**1047480***	**1047470***	15	30	M 4x15				
1048230*	**1048220***	**1048240***	20	25	M 6x18				
163600	**163630**	**163960**	25	10	M 6x18				
164320	**164380**	**164410**	25	15	M 6x18				
163080	**164470**	**164480**	25	20	M 6x18				
164500	**164510**	**164560**	25	30	M 6x18				
64900	**64820**	**64910**	30	15	M 8x20				
64830	**64920**	**64840**	30	20	M 8x20				
64890	**64810**	**65130**	30	30	M 8x20				
65750	**65760**	**164600**	40	30	M 8x23				
164620	**164700**	**164740**	40	40	M 8x23				
164790	**164450**	**164910**	50	20	M10x28				
164930	**164950**	**164970**	50	30	M10x28				
1047260*	**1047240***	**1047250***	50	30	M10x33				
164990	**165070**	**165170**	50	40	M10x28				
1047190*	**1047180***	**1047200***	50	45	M10x33				
164840	**165760**	**167030**	50	50	M10x28				
167050*	**167500***	**167940***	70	45	M10x25				
168500	**168510**	**165590**	75	40	M12x37				
168570	**168580**	**168590**	75	55	M12x37				
168600	**168770**	**168810**	100	40	M16x45				
168840	**168520**	**168900**	100	55	M16x45				

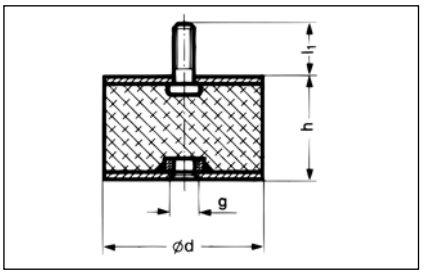
* Special dimensions, some are available from our warehouse.

RUBBER/METAL STOPS

Rubber/metal bumper design B

Material:
Natural rubber, optionally in 43° (soft), 57° (average) and 68° (hard) Shore. Tolerance +/- 5° Shore.

Design: 1x outer/inner thread



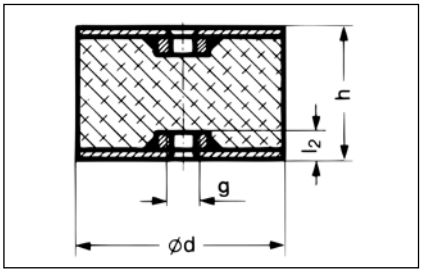
Item No. Soft	Item No. Medium	Item No. Hard	Diameter (d) mm	Height (h) mm	Threads g x l1	€/unit beginning at 1 unit	€/unit beginning at 10 unit	€/unit beginning at 50 unit	€/unit beginning at 100 unit
168990	**169020**	**169050**	10	10	M 4x10				
169140	**169780**	**170080**	15	15	M 4x13				
168880	**452690**	**452040**	15	20	M 4x13				
1047460*	**1047440***	**1047450***	15	30	M 4x15				
1047390*	**1047410***	**1047400***	20	25	M 6x18				
452160	**452130**	**452140**	25	15	M 6x18				
452150	**452180**	**452210**	25	20	M 6x18				
452190	**452200**	**452170**	25	30	M 6x18				
452260	**452250**	**452240**	30	20	M 8x20				
452220	**452230**	**452280**	30	30	M 8x20				
452290	**452300**	**452310**	40	30	M 8x23				
452270	**452350**	**452320**	40	40	M 8x23				
452340	**452360**	**452330**	50	20	M10x28				
1047230*	**1047210***	**1047220***	50	30	M10x33				
1047170*	**1047150***	**1047160***	50	45	M10x33				
452490	**452530**	**452520**	75	40	M12x37				
452570	**452600**	**452580**	75	55	M12x37				
452610	**452590**	**452650**	100	40	M16x45				
452630	**452660**	**452640**	100	55	M16x45				

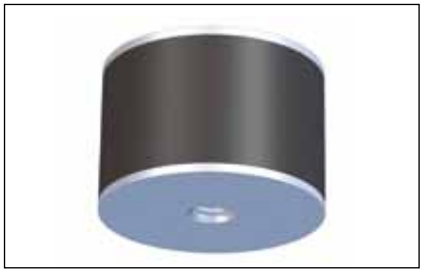
* Special dimensions, some are available from our warehouse.

Rubber/metal bumper design C

Material:
Natural rubber, optionally in 43° (soft), 57° (average) and 68° (hard) Shore. Tolerance +/- 5° Shore.

Design: 2x inner threads

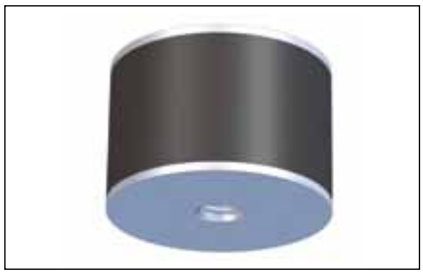


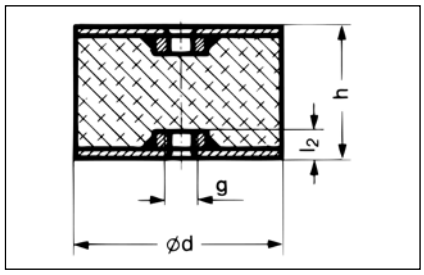


Item No. Soft	Item No. Medium	Item No. Hard	Diameter (d) mm	Height (h) mm	Threads g x l2	€/unit beginning at 1 unit	€/unit beginning at 10 unit	€/unit beginning at 50 unit	€/unit beginning at 100 unit
452770	**458000**	**452850**	13	26	M 4x4				
452780	**452860**	**452840**	15	15	M 4x4				
453470	**453480**	**453490**	20	25	M 6x6				
453540	**453550**	**453560**	25	20	M 6x6				
453600	**453610**	**453620**	30	20	M 8x8				
453630	**453640**	**453650**	30	30	M 8x8				
453660	**453670**	**453680**	40	30	M 8x8				

RUBBER/METAL STOPS

Continued: Rubber/metal bumper design C





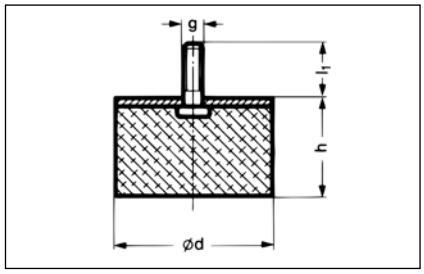
Material:
Natural rubber, optionally in 43° (soft), 57° (average) and 68° (hard) Shore. Tolerance +/- 5° Shore.

Design: 2x inner threads

Item No. Soft	Item No. Medium	Item No. Hard	Diameter (d) mm	Height (h) mm	Threads g x l2	€/unit beginning at 1 unit	€/unit beginning at 10 unit	€/unit beginning at 50 unit	€/unit beginning at 100 unit
453690	**453760**	**453770**	40	40	M 8x8				
453780	**453790**	**453800**	50	30	M10x10				
453840	**453850**	**453860**	50	45	M10x10				
453900	**453910**	**453920**	70	45	M10x10				
454000	**454010**	**454020**	75	55	M12x12				
454030	**454040**	**454050**	100	55	M16x16				
1046450*	**1046460***	**1046470***	100	75	M16x16				
454090	**454100**	**454120**	150	55	M16x16				
454140	**454130**	**454150**	150	75	M16x16				
1046420*	**1046430***	**1046440***	200	100	M16x16				

* Special dimensions, some are available from our warehouse.

Rubber/metal bumper design D



Material:
Natural rubber, optionally in 43° (soft), 57° (average) and 68° (hard) Shore. Tolerance +/- 5° Shore.

Available from our warehouse in NK 57° Shore.

Design: 1x outer threads

Item No.	Diameter (d) mm	Height (h) mm	Threads g x l1	Shore hardness	€/unit beginning at 1 unit	€/unit beginning at 10 unit	€/unit beginning at 50 unit	€/unit beginning at 100 unit
1047520	15	13	M 4x13	Medium				
1047500*	15	28	M 4x13	Medium				
1047430*	20	23	M 6x20	Medium				
1048100	25	8	M 6x18	Medium				
1048200	25	13	M 6x18	Medium				
1047380	25	17	M 6x18	Medium				
1047350	25	28	M 6x18	Medium				
1047340*	30	28	M 8x20	Medium				
1047320	40	28	M 8x23	Medium				
1047300*	40	38	M 8x23	Medium				
1047290*	50	17	M10x28	Medium				
1047280	50	28	M10x33	Medium				
1048210	50	42	M10x33	Medium				
1047130	75	36	M12x37	Medium				
1047110*	75	51	M12x37	Medium				
1046540	100	50	M16x45	Medium				

* Special dimensions, some are available from our warehouse.

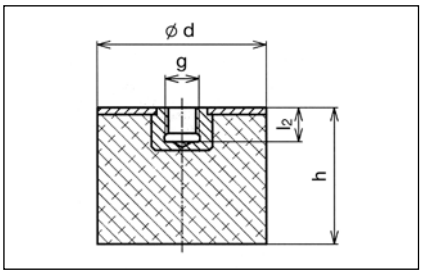
RUBBER/METAL STOPS

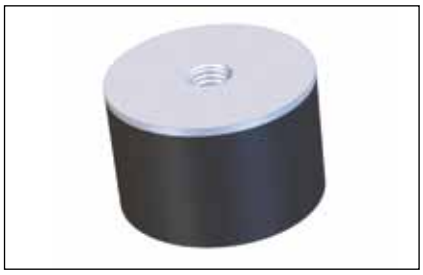
Rubber/metal bumper design E

Material:
Natural rubber, optionally in 43° (soft), 57° (average) and 68° (hard) Shore. Tolerance +/- 5° Shore.

Available from our warehouse in NK 57° Shore.

Design: 1x inner thread





Item No.	Diameter (d) mm	Height (h) mm	Threads g x l2	Shore hardness	€/unit beginning at 1 unit	€/unit beginning at 10 unit	€/unit beginning at 50 unit	€/unit beginning at 100 unit
926420	15	15	M 4x4	Medium				
811530	20	13.5	M 6x6	Medium				
978200	20	20	M 6x6	Medium				
1134270	20	25	M 6x6	Medium				
994700	25	28	M 6x6	Medium				
925910	30	20	M 8x8	Medium				
627830*	30	28	M 8x8	Medium				
1134310	30	30	M 8x8	Medium				
1134300	40	28	M 8x8	Medium				
1062490	100	50	M16x16	Medium				

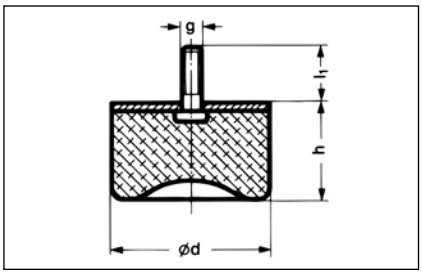
* Special dimensions, some are available from our warehouse.

Rubber/metal bumper design DS

Material:
Natural rubber, optionally in 43° (soft), 57° (average) and 68° (hard) Shore. Tolerance +/- 5° Shore.

Available from our warehouse in NK 57° Shore.

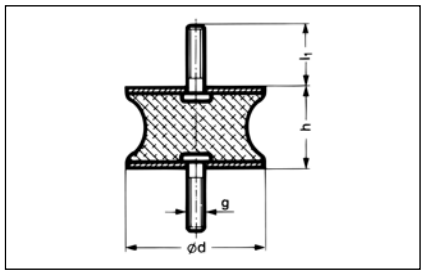
Design: 1x outer threads



Item No.	Diameter (d) mm	Height (h) mm	Threads g x l1	Shore hardness	€/unit beginning at 1 unit	€/unit beginning at 10 unit	€/unit beginning at 50 unit	€/unit beginning at 100 unit
1047510	15	14	M 4x13	Medium				
1047420	20	23.5	M 6x18	Medium				
1047360	25	18.5	M 6x18	Medium				
1047330	30	28.5	M 8x20	Medium				
1047310	40	28.5	M 8x23	Medium				
1047270	50	28	M10x33	Medium				
1047140	70	43	M10x30	Medium				
1047120	75	37	M12x37	Medium				
1047100	100	50	M16x45	Medium				

RUBBER/METAL STOPS

Rubber/metal bumper design AT



Material:
Natural rubber, optionally in 43° (soft), 57° (average) and 68° (hard) Shore. Tolerance +/- 5° Shore.

Available from our warehouse in NK 57° Shore.

Design: 2x outer threads

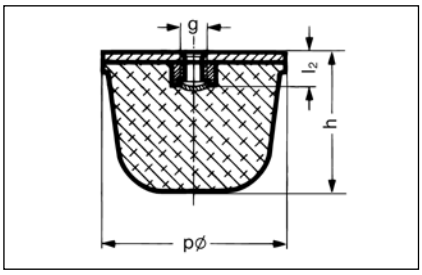
Item No.	Diameter (d) mm	Height (h) mm	Threads g x l1	Shore hardness	€/unit beginning at 1 unit	€/unit beginning at 10 unit	€/unit beginning at 50 unit	€/unit beginning at 100 unit
1044560	20	15	M 6x18	Medium				
1044570	30	20	M 8x20	Medium				
1044590	50	30	M10x33	Medium				
1044600	75	40	M12x37	Medium				

RUBBER-METAL IMPACT BUMPER

Rubber/metal stop/bumper design KE

Material:
Natural rubber, optionally in 43° (soft), 57° (average) and 68° (hard) Shore.
Tolerance +/- 5° Shore.

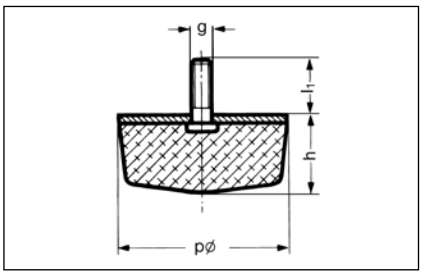
Available from our warehouse in NK 57° Shore.



Item No.	Diameter (d) mm	Height (h) mm	Threads g x l2	Shore hardness	€/unit beginning at 1 unit	€/unit beginning at 10 unit	€/unit beginning at 50 unit	€/unit beginning at 100 unit
1044520	50	35	M10x10	Medium				
1044530	80	60	M12x12	Medium				
1044540	125	90	M16x16	Medium				

Rubber/metal stop/bumper design K

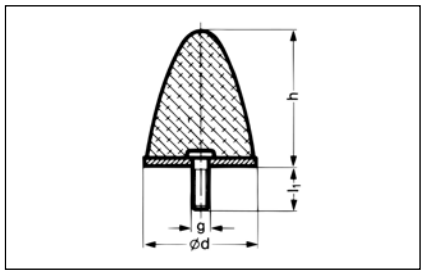
Material:
Natural rubber, optionally in 43° (soft), 57° (average) and 68° (hard) Shore.
Tolerance +/- 5° Shore.



Item No. Soft	Item No. Medium	Item No. Hard	Diameter (d) mm	Height (h) mm	Threads g x l1	€/unit beginning at 1 unit	€/unit beginning at 10 unit	€/unit beginning at 50 unit	€/unit beginning at 100 unit
1044640	**1044620**	**1044630**	25	17	M 6x18				
1044670	**1044650**	**1044660**	50	18	M10x28				
1044700	**1044680**	**1044690**	80	25	M12x35				
1044730	**1044710**	**1044720**	125	45	M16x45				

RUBBER-METAL IMPACT BUMPER

Rubber/metal parabola bumper design KP



Material:
Natural rubber, optionally in 43° (soft), 57° (average) and 68° (hard) Shore. Tolerance +/- 5° Shore.

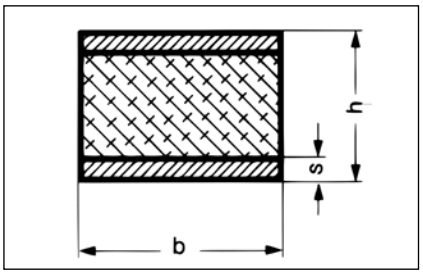
Available from our warehouse in NK 57° Shore.

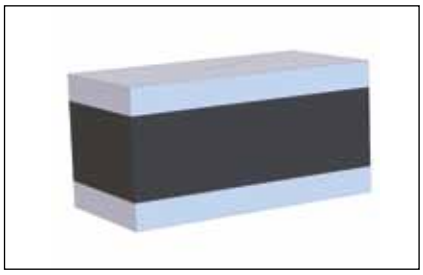
Item No.	Diameter (d) mm	Height (h) mm	Threads g x l1	Shore hardness	€/unit beginning at 1 unit	€/unit beginning at 10 unit	€/unit beginning at 50 unit	€/unit beginning at 100 unit
1044470	20	24	M 6x18	Medium				
1044480	30	36	M 8x20	Medium				
1044490	50	58	M10x28	Medium				
1044500	75	89	M12x37	Medium				
1044510	115	136	M16x43	Medium				

RUBBER/METAL ELEMENTS

Rubber/metal rails design A

Material: Natural rubber 57° (medium) Shore / steel
Available in original length of 2000 mm or cut to size in a short time.

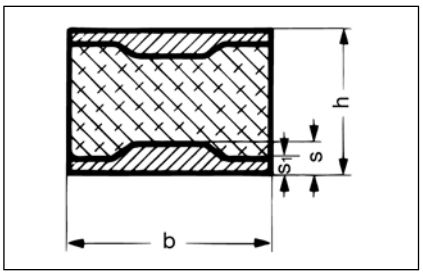


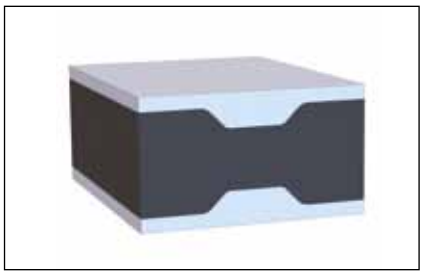


Item No.	Shore hardness	Steel thickness S mm	Width mm	Height/Length mm	€/ unit
4388490	Medium	5	40	20 x 2000	

Rubber/metal rails design A2

Material: Natural rubber 57° (medium) Shore / steel (reinforced).
Available in the original length of 2000 mm or as a tailored cut on short notice.

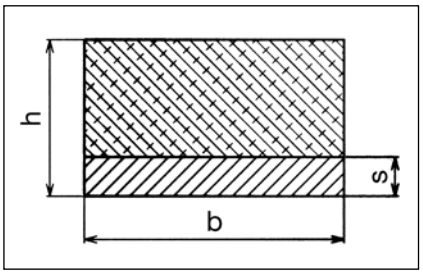


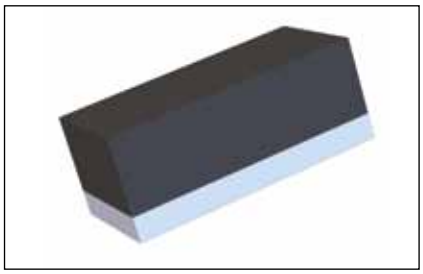


Item No.	Shore hardness	Steel thickness S/S1 mm	Width mm	Height/Length mm	€/ unit
4388500	Medium	10/5	50	35 x 2000	

Rubber/metal rails design F

Material: Natural rubber / steel (one side)
Available in the original length of 2000 mm or as a tailored cut on short notice.

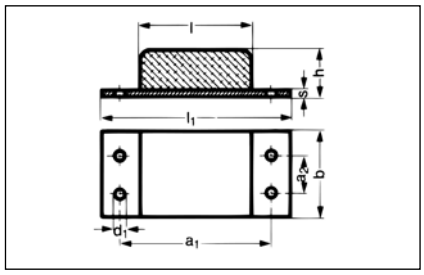




Item No.	Shore hardness	Steel thickness S mm	Width mm	Height/Length mm	€/ unit
4388510	Medium	5	40	20 x 2000	

RUBBER-BONDED METAL ELEMENTS

Rubber Metal Bars

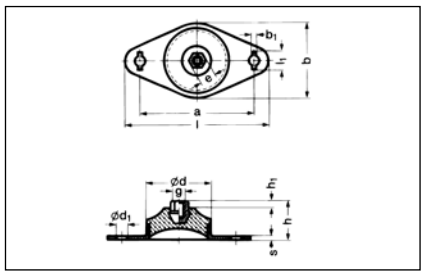


Material: Natural rubber / steel (one side)
For absorbing large impact forces.

Available from our warehouse in NK 57° (medium) Shore

Item No.	Shore hardness	Steel thickness S mm	Width (b) mm	Height/Length mm	€/unit
910300	Medium	5	50	35 x 130/70	
649550	Medium	10	100	80 x 200/120	

Instrument Mounts



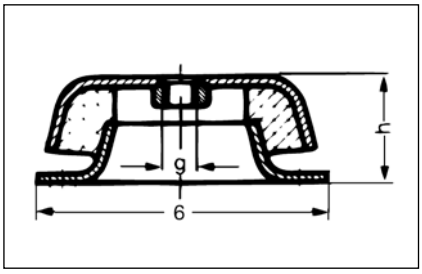
For storage of leather round belts and smaller units.
The springing is very soft and the same in all directions.
Instrument mounts must be axially loaded.
Natural rubber, optionally in 40° (soft), 55° (medium) and 65° (hard) Shore.

Item No.	Shore hardness	Threads	Length mm	Width mm	Form No.	Distance (a) mm	€/unit beginning at 1 unit	€/unit beginning at 10 unit	€/unit beginning at 50 unit	€/unit beginning at 100 unit
66210	Soft	M6	60	35	27860	a=45				
66240	Medium	M6	60	35	27860	a=45				
66270	Hard	M6	60	35	27860	a=45				
66220	Soft	M10	90	50	27859	a=70				
66250	Medium	M10	90	50	27859	a=70				
66280	Hard	M10	90	50	27859	a=70				
66230	Soft	M16	140	80	27924	a=105				
66260	Medium	M16	140	80	27924	a=105				
66290	Hard	M16	140	80	27924	a=105				

RUBBER-BONDED METAL ELEMENTS

Dome Mounts

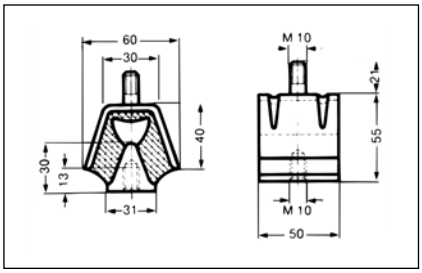
Same spring values in compression and thrust direction.
Level regulation and underlay mat are not included in the price; however these are available on request.
Natural rubber, optionally in 40° (soft), 55° (average) and 65° (hard) Shore.



Item No.	Shore hardness	Height mm	Threads	Width mm	Form No.	€/unit beginning at 1 unit	€/unit beginning at 10 unit	€/unit beginning at 50 unit	€/unit beginning at 100 unit
66300	Soft	40	M12	108	58540				
66330	Medium	40	M12	108	58540				
66360	Hard	40	M12	108	58540				
66310	Soft	50	M16	168	33629				
66340	Medium	50	M16	168	33629				
66370	Hard	50	M16	168	33629				
66320	Soft	70	M20	200	58541				
66350	Medium	70	M20	200	58541				
811990	Hard	70	M20	200	58541				

Roof panel 38451

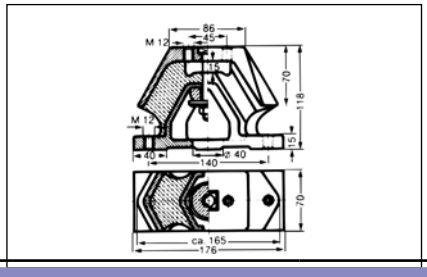
For large vertical spring deflections.
Available from our warehouse in NK 57° (average) Shore. On request, there is also 65° (hard) Shore available.



Item No.	Shore hardness	Form No.	€/unit beginning at 1 unit	€/unit beginning at 10 unit	€/unit beginning at 50 unit	€/unit beginning at 100 unit
66140	Medium	38451				

Roof panel 33660

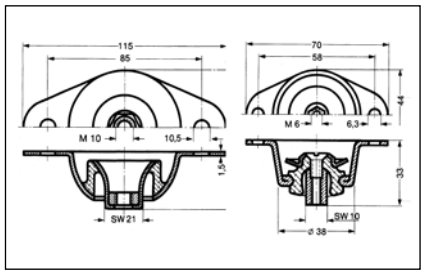
For large vertical spring deflections.
Available from our warehouse in NK 57° (average) Shore. On request, there is also 65° (hard) Shore available.



Item No.	Shore hardness	Form No.	€/unit beginning at 1 unit	€/unit beginning at 10 unit	€/unit beginning at 50 unit	€/unit beginning at 100 unit
66150	Medium	33660				

RUBBER-BONDED METAL ELEMENTS

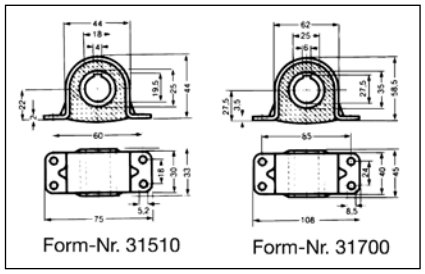
Bell Elements



For suspension points, especially those with tensile stress.
The elements are protected against breaking off.
Natural rubber, optionally in 40° (soft), 55° (average) and 65° (hard) Shore.

Item No.	Shore hardness	Height mm	Threads	Length mm	Width mm	Form No.	€/unit beginning at 1 unit	€/unit beginning at 10 unit	€/unit beginning at 50 unit	€/unit beginning at 100 unit
404390	Medium	33	M6	70	44	58500				
66390	Soft	30	M10	115	62.5	27994				
404380	Medium	30	M10	115	62.5	27994				
404410	Hard	30	M10	115	62.5	27994				

Bracket Elements



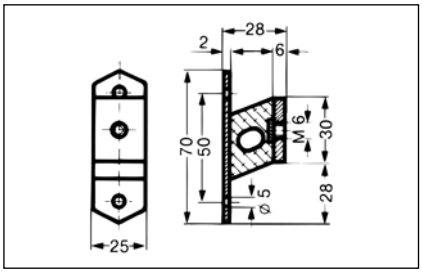
Maintenance-free spherical plain bearings with spring support on all sides with particularly simple mounting.
Natural rubber, optionally in 40° (soft), 55° (average) and 65° (hard) Shore.

Item No.	Shore hardness	Height mm	Length mm	Width mm	Form No.	€/unit beginning at 1 unit	€/unit beginning at 10 unit	€/unit beginning at 50 unit	€/unit beginning at 100 unit
66410	Soft	44	75	33	31510				
66430	Medium	44	75	33	31510				
66450	Hard	44	75	33	31510				
66420	Soft	58.5	108	45	31700				
66440	Medium	58.5	108	45	31700				

RUBBER-BONDED METAL ELEMENTS

Device element 25284

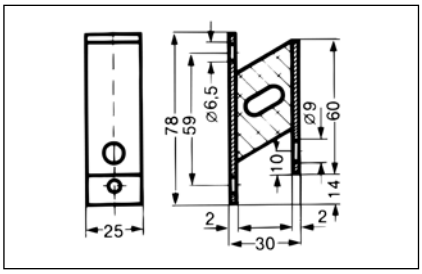
Elastic support of light systems, sensitive instruments and devices. Preferably for compressive and shear stresses.
Natural rubber, optionally in 40° (soft), 55° (average) and 65° (hard) Shore.
Metal parts are painted black.



Item No.	Shore hardness	Form No.	€/unit beginning at 1 unit	€/unit beginning at 10 unit	€/unit beginning at 50 unit	€/unit beginning at 100 unit
66470	Soft	25284				
66510	Medium	25284				
66550	Hard	25284				

Device element 21423

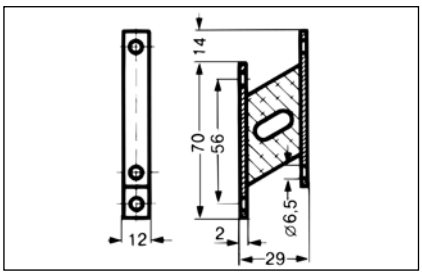
Elastic support of light systems, sensitive instruments and devices. Preferably for compressive and shear stresses.
Natural rubber, optionally in 40° (soft), 55° (average) and 65° (hard) Shore.
Metal parts are painted black.



Item No.	Shore hardness	Form No.	€/unit beginning at 1 unit	€/unit beginning at 10 unit	€/unit beginning at 50 unit	€/unit beginning at 100 unit
66480	Soft	21423				
66520	Medium	21423				
66560	Hard	21423				

Device element 25187

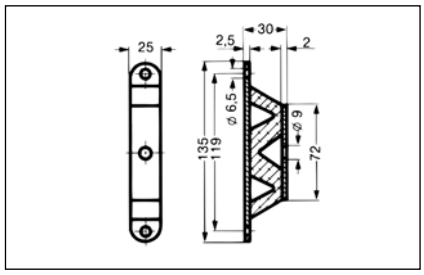
Elastic support of light systems, sensitive instruments and devices. Preferably for compressive and shear stresses.
Natural rubber, optionally in 40° (soft), 55° (average) and 65° (hard) Shore.
Metal parts are painted black.



Item No.	Shore hardness	Form No.	€/unit beginning at 1 unit	€/unit beginning at 10 unit	€/unit beginning at 50 unit	€/unit beginning at 100 unit
66490	Soft	25187				
66530	Medium	25187				
66570	Hard	25187				

RUBBER-BONDED METAL ELEMENTS

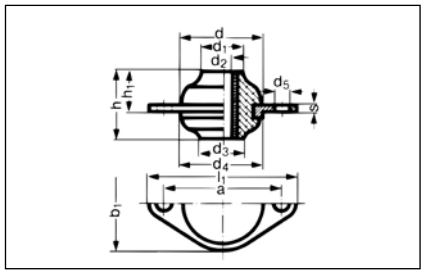
Device element 24332



Elastic support of light systems, sensitive instruments and devices.
Preferably for compressive and shear stresses.
Natural rubber, optionally in 40° (soft), 55° (average) and 65° (hard) Shore.

Item No.	Shore hardness	Form No.	€/unit beginning at 1 unit	€/unit beginning at 10 unit	€/unit beginning at 50 unit	€/unit beginning at 100 unit
66500	Soft	24332				
66540	Medium	24332				
66580	Hard	24332				

Flange Elements



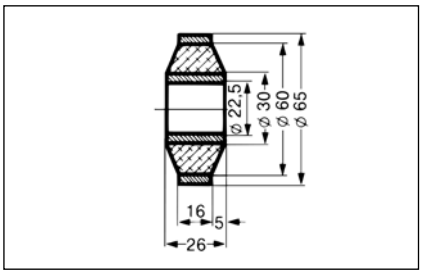
For tensile and pressure load and high safety requirements.
Special design without the usual bonding methods:
Very strongly tensioned rubber prevents detachment of the individual parts.
Standard = 45° (soft) +/- 5 Shore A

Item No.	Shore hardness	Diameter mm	Height mm	Length mm	Width mm	Form No.	Distance (a) mm	€/ unit
66650	Soft	47	40	l1=90	48	48685	a=70	
759670	Soft	68	44	l1=117	71	48688	a=94	
66660	Soft	68	54	l1=117	71	48686	a=94	
66670	Soft	82	62	l1=150	90	48690	a=114	
66690	Soft	96	76	l1=174	108	48693	a=138	
66680	Soft	96	82	l1=174	108	48692	a=138	

RUBBER-BONDED METAL ELEMENTS

Ring Elements 21489

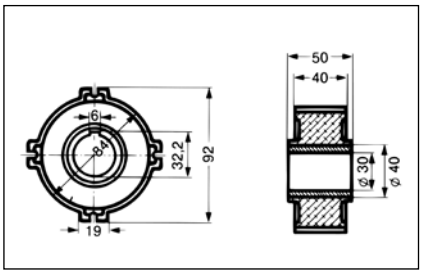
Four-part outer ring with 1.5 mm slot width.
Installation with 1 mm preload, d = 64 mm, natural rubber, optionally in 40° (soft), 55° (medium) and 65° (hard) Shore.



Item No.	Shore hardness	Form No.	€/unit beginning at 1 unit	€/unit beginning at 10 unit	€/unit beginning at 50 unit	€/unit beginning at 100 unit
66590	Soft	21489				
66610	Medium	21489				
66630	Hard	21489				

Torsion bush 27843a

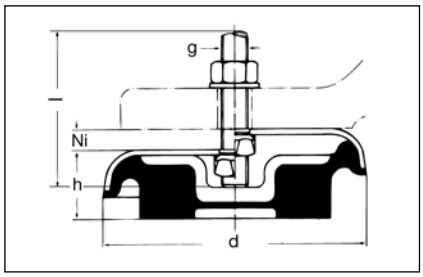
For soft axial suspension with good radial guidance and torsion elastic joints.
Natural rubber, optionally in 40° (soft), 55° (average) and 65° (hard) Shore.
Available from our warehouse in NK 55° (average) Shore.



Item No.	Shore hardness	Form No.	€/ unit
66620	Medium	27843a	

MACHINE MOUNTS

Machine mounts



The correct way for installing machines without floor anchoring.
Use:
Machine mounts are suitable for all torsion resistant and tilt-proof machines, units and other elastically supported equipment. They prevent the transmission of vibrations and impacts from the machine to the ground and to the building.
Due to the reduction of structure-borne sound, vibrations are reduced and building damage reliably prevented. Foundations and floor anchors are not necessary. Fine machining stations can be installed next to impacting or percussion machines. The machine park can thus be optimally grouped flexibly and with minimum complexity.
Characteristics:
- vibration-insulating
- impact-absorbing
- structure-borne sound insulating
- non-slip
- adjustable for height
- resistant to oil and ageing
- easy to install

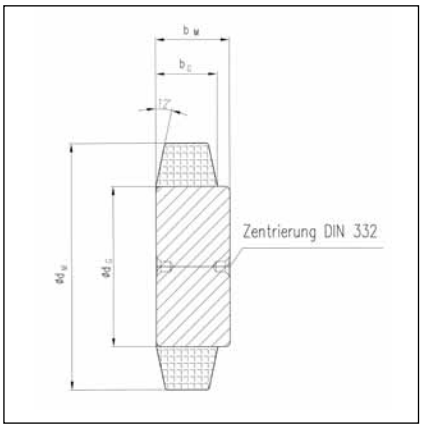
Load values can be requested.
On request, also available with vulcanised base plate.

Item No.	Type	Levelling height mm	Diameter mm	Height mm	Threads g x l	€/ unit
68460	LM 1-11	15	80	25	M10 x 80	
68470	LM 3-33	20	120	32	M12 x 90	
68480	LM 5-55	20	160	35	M16 x 1.5 x 100	
68490	LM 6-66	20	185	39	M20 x 1.5 x 120	
68500	LM 7-77	20	228	54	M24 x 1.5 x 140	

FRICTION WHEELS

Friction wheels

Standard version:
Friction wheels consist of an elastomer covering and a metal body. joined to the metal part. The polypropylene-based elastomer mixture used has Shore A harness 80° +/-5. It is wear-resistant and largely oil-resistant; however, temperatures should not exceed 70 °C. Short-term peaks of up to 80 °C are permitted after running-in of the drive. The metal body is made of commercially available machining steel 9 S 20 K. Centrings are available for subsequent machining. The metal body is wider on one side than the friction covering so that the rolling gear can be well supported. The standard range includes all the dimensions shown in the following table.



Characteristics of the friction wheels:
- high power transmission
- high efficiency
- long service life
- low space requirements
- low noise running
- low bearing load
- easy installation
- maintenance-free operation

Item No.	Width Metal (b_M) mm	Width Rubber (b_G) mm	d M mm	d G mm	€/unit
4384300	13	10	40	25	
4384320	14	11	45	28	
4384330	16	12	50	32	
4384340	18	14	56	35	
4384350	20	16	63	40	
4384360	22	18	71	45	
4384370	25	20	80	50	
4384380	27	22	90	55	
4384390	30	25	100	65	
4384400	33	28	112	70	
4384410	37	32	125	80	
4384430	41	36	140	90	
4384440	45	40	160	100	

AIR SPRINGS

Air springs

Possible applications
The air springs are primarily used as main springs in road and rail vehicles. Air springs have been able to prevail, for example in omnibus construction, as load-controllable spring element for today's light weight design and high requirements for travel comfort. In trucks, the air springs can, for example raise and lower the vehicle structure as auxiliary function which saves time and makes the work easier for loading and unloading on the ramp or during transport of interchangeable bodies and containers. Air springs also have a permanent place in the technology area. For example, bellows are used for supporting vibrating / oscillating machines, for pressing rollers in textile processing and for lifting equipment in the manufacturing process. Air bellows are available as single and double convoluted air springs or rolling sleeve type air springs. We are pleased to give you spring characteristic curves.
Possibly necessary clamping rings are available on request as special design.

Item No.	Product area:	Type	€/ unit
68640	Single-fold bellows	04	
68720	Dual-fold bellows	04R	
68650	Single-fold bellows	07	
68750	Dual-fold bellows	07R	
68660	Single-fold bellows	12	
68760	Dual-fold bellows	12R	
68780	Dual-fold bellows	15R	
68680	Single-fold bellows	20	
68800	Dual-fold bellows	20R	
68690	Single-fold bellows	22	
68840	Dual-fold bellows	22R	
68700	Single-fold bellows	34	
68710	Single-fold bellows	49	
68970	Sleeve-type rolling lobe bellows	644N	
68980	Sleeve-type rolling lobe bellows	661N	
811890	Sleeve-type rolling lobe bellows	788N	

HOLLOW RUBBER SPRINGS

Barrel-shaped Rubber Hollow Spring TO

Rubber hollow springs are used in the complete vehicle design as only cushioning, additional cushioning, stop cushioning, combined cushioning and structure cushioning, as trailer coupling and collision buffer.
Another application area for rubber hollow springs can be found in general mechanical engineering as impact, shock and vibration insulation, for passive and active suppression, energy absorption and for tension and elongation equalisation.
Natural rubber 60° - 65° Shore
linear initial stiffness
- kink-resistant
- absorption of shear forces
- for peak forces up to 100 kN

Item No.	Outer diameter mm	Height mm	€/unit
69020	34	25	
69040	55	55	
939600	70	36	
69070	75	60	
69090	85	70	
69050	90	56	
69130	108	90	
69190	120	110	
69250	125	140	
69270	155	150	

Single constricted rubber hollow spring EE

Material:
Natural rubber 60° – 65° Shore
- lower initial stiffness in comparison with barrel springs
- greater compression than TO possible
- forces up to 50 kN

Item No.	Outer diameter mm	Height mm	€/unit
69230	92	125	
629650	120	100	

HOLLOW RUBBER SPRINGS

Multiple constricted rubber hollow spring ME

Material:
Natural rubber 60° – 65° Shore
- lower initial stiffness depending on number of constrictions as compared with TO and EE
- larger spring displacements
- forces up to 25 kN

Item No.	Outer diameter mm	Height mm	€/unit
69290	110	160	
69330	135	235	

Tapered Rubber Hollow Spring KE

Material:
Natural rubber 60° – 65° Shore
- for very soft starting characteristic curve
- strong progression
- forces up to 10 kN

Item No.	Outer diameter mm	Height mm	€/unit
69110	75	87	
69310	120	180	

REIFF CAN DO MORE

With a product range of more than 140,000 standard products, it is impossible to know every product. Antifriction bearings, V-belts, hydraulic hoses or sealing rings – the products are as diverse as the intended applications and application areas themselves.

Explore our diverse product areas and discover the possibilities this catalogue provides.

**From the standard product to the special design –
we are true product specialists in the areas of:**

DRIVE TECHNOLOGY
FLAT SEALS, RUBBER COMPONENTS AND INSULATORS
RUBBER AND PLASTIC PROFILES

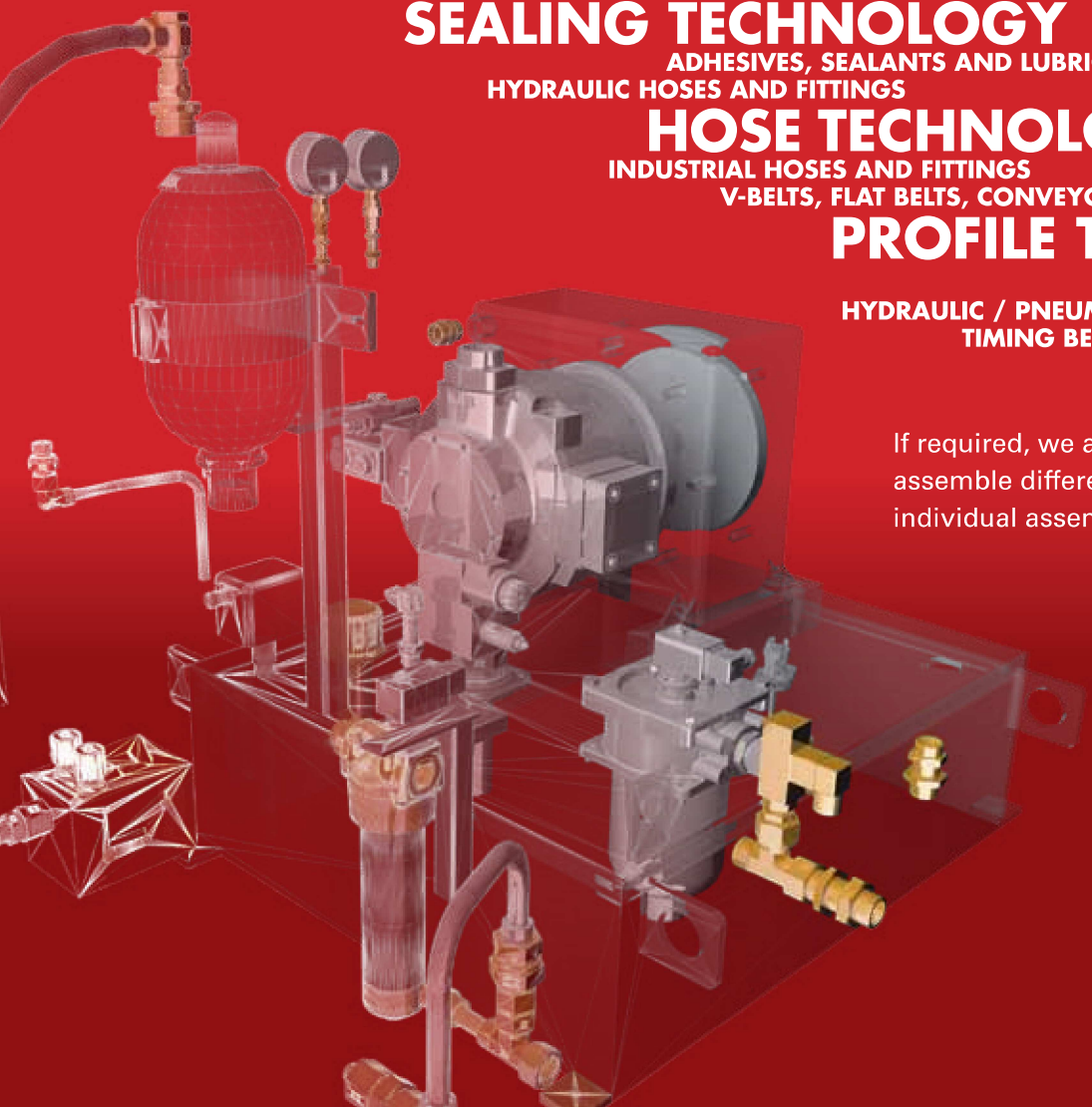
LINEAR TECHNOLOGY
VIBRATION DAMPING ELEMENTS

SEALING ELEMENTS ANTIFRICTION BEARINGS

SEALING TECHNOLOGY
ADHESIVES, SEALANTS AND LUBRICANTS
HYDRAULIC HOSES AND FITTINGS

HOSE TECHNOLOGY
INDUSTRIAL HOSES AND FITTINGS
V-BELTS, FLAT BELTS, CONVEYOR BELTS

PROFILE TECHNOLOGY
PLASTICS
HYDRAULIC / PNEUMATIC SEALS
TIMING BELTS AND PULLEYS



If required, we are also pleased to assemble different product elements into individual assemblies.