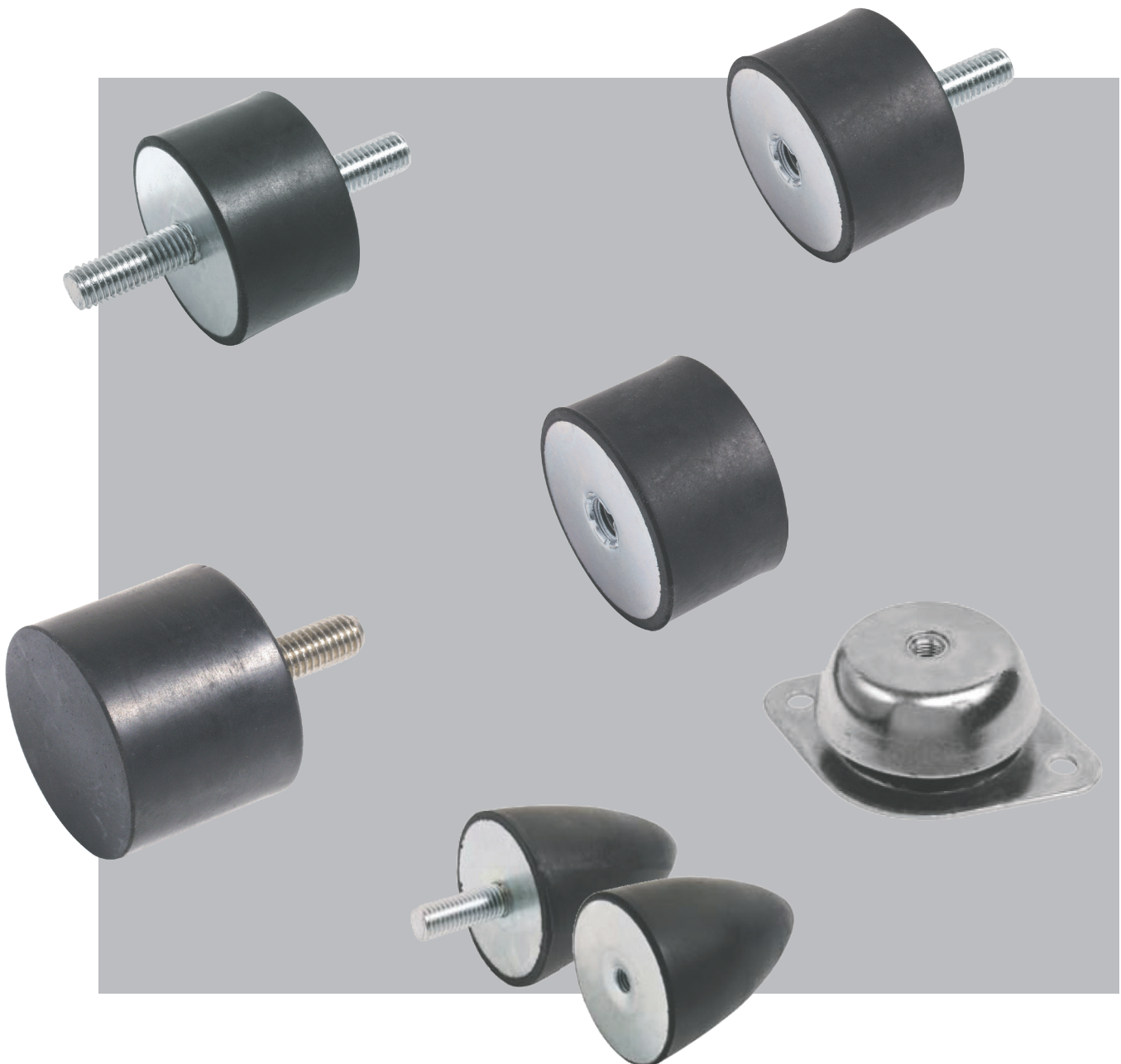




Vibrationsdæmpere



BRD. KLEE INGENIØR- & HANDELSAKTIESELSKAB
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Brd. Klee tilbyder et bredt program af tekniske gummiprodukter i høj kvalitet, og vi er bredt lagerførende i standardudførsler. Desuden kan vi levere kundespecifikke løsninger inden for formstøbte emner og ekstruderede tætningsartikler.

Et godt netværk af underleverandører er medvirkende til, at vi kan opfylde tolerancekravene iht. DIN 7715 M3-M4 samt tilbyde et bredt udvalg af materialer: NR, NBR, SBR, CR, EPDM og silikone med hårdheder mellem sh° 30 og 90.

Vibrationsdæmpning

Med den rette vibrationsdæmpning af produktionsudstyr, pumper, køleanlæg, boremaskiner, generatorer - kort sagt alt der har en frekvens - forlænges levetiden på maskiner og anlæg . Desuden mindskes gener fra støj og rystelser.

Det store program af cylindriske dæmpere vil ofte kunne afhjælpe udfordringer med vibrationer. Standardprogrammet rummer desuden maskinfødder, ophæng, bøsninger og buffere designet til at løse specifikke vibrationsdæmpende opgaver.

Tekniske egenskaber

Som udgangspunkt er vores dæmpere fremstillet i gummi, som udmærker sig ved at materialets elasticitet lader det absorbere stød og vibrationer uden selv at blive udsat for nævneværdig slitage. Gummi fås i forskellige sammensætninger, der hver især udviser større eller mindre modstandsdygtighed, over for forskellige belastninger, som for eksempel temperatur, olie, ozon og rengøringsmidler.

Brd. Klee kan levere i alle førnævnte gummityper, så der kan tages de korrekte forholdsregler til det omkringliggende miljø. Vores vibrationsdæmpere leveres som standard i forzinket stål, men kan også leveres i A2 rustfast og A4 syrefast stål.

Fordele

- Enkel montage
- Høj elasticitet (især diagonalt)
- Økonomisk
- Forlænget levetid på produktionsapparatet

Anvendelsesområder

Cylindriske dæmpere kan med fordel anvendes til mindre pumpeenheder, ringkammerblæsere, tørreanlæg, vaskemaskiner, elektromotorer, instrumentpaneler, måleapparater, mikrofoner, lysstofrør, vibrationsanlæg, samt i sammenhænge, hvor støj og/eller vibrationer skal dæmpes.

Modstandsdygtighed	Termiske karakteristika	Mekaniske karakteristika ved rumtemperatur						Internationale forkortelser	Hårdhed shore	Naturgummi
		Formbestandig	Høj temperatur	Slidstyrke	Vedvarende træksstyrke	Tilbageslag elasticitet	Rivestyrke			
Luftarters gennemtrængelighed	Varme	★	●	●	●	●	●	NR	30-90	●
	Kulde	★	●	●	●	●	●	SBR	35-95	★
	Benzin/Petroleum	○	○	○	○	○	○	EPDM	30-90	●
	Mineralisk olie (100C ^o)	○	○	○	○	○	○	VMQ	30-85	○
	Syre (25%-os H ₂ SO ₄ , 50C ^o)	○	○	○	○	○	○	CR	25-90	★
	Alkali (25%-os NaOH, 50C ^o)	○	○	○	○	○	○	NBR	30-95	★
Vand (100 Co-on)	★	★	★	★	★	★				○
Vejr og ozon	★	★	★	★	★	★				○
UV	★	★	★	★	★	★				○

- = særdeles god
- ★ = god
- (with dot) = tilfredsstillende
- ◎ (with dot) = tilstrækkelig
- ⊙ (with dot) = kritisk
- = utilstrækkelig

Nedenfor følger en beskrivelse af de forskellige materials fordele.

- **NR – naturgummi**

Har meget høje mekaniske egenskaber så som rive-, træk- og slidstyrke. Derfor anvendes gummitypen ofte til vibrationsdæmpere med stor belastning, som ikke udsættes for sollys og olie. Kan anvendes fra -50 til 80°C.

- **SBR – styren-butadiengummi**

Har næsten lige så gode mekaniske egenskaber som NR, men tåler ozon lidt bedre. Gummitypen anvendes til buffere, vibrationsdæmpere og i dækproduktion. Kan anvendes fra -25 til 90°C.

- **EPDM – ethylen-propylengummi**

Har stor bestandighed over for ozon, syrer og baser, men tåler ikke olie og benzin. Bruges til vindueslister samt pakninger i fødevareindustrien, tætninger til drikkevand, hvor rengøring foregår med syrer/baser. Kan anvendes fra -50 til 130°C.

- **VMQ – silikonegummi**

Har stor varme- og kuldebestandighed, god ozon- og kemikaliebestandighed samt elektrisk isolationsevne. Kan fås transparent og anvendes derfor ofte i fødevare- og medicinalindustrien. Gummiblandning i øvre prisklasse. Kan anvendes fra -50 til 200°C.

- **CR – chloroprengummi**

Har en god bestandighed over for olie og ozon og tåler fleksende bevægelser. Kan brandhæmmes og fås kun i sort. Anvendes hvor pakningen udsættes for havvand, ozon og olie. Ideel til offshore. Kan anvendes fra -20 til 90°C.

- **NBR – nitrilgummi**

Har stor bestandighed over for olie, benzin og nogle opløsningsmidler, men tåler ikke ozon. Anvendes ofte i fødevareindustrien til tætninger og pakninger. Kan anvendes fra -15 til 90°C.

Beregningseksempel



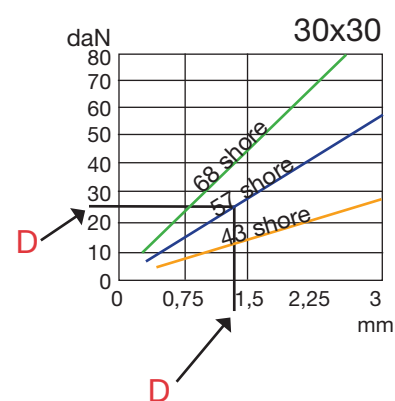
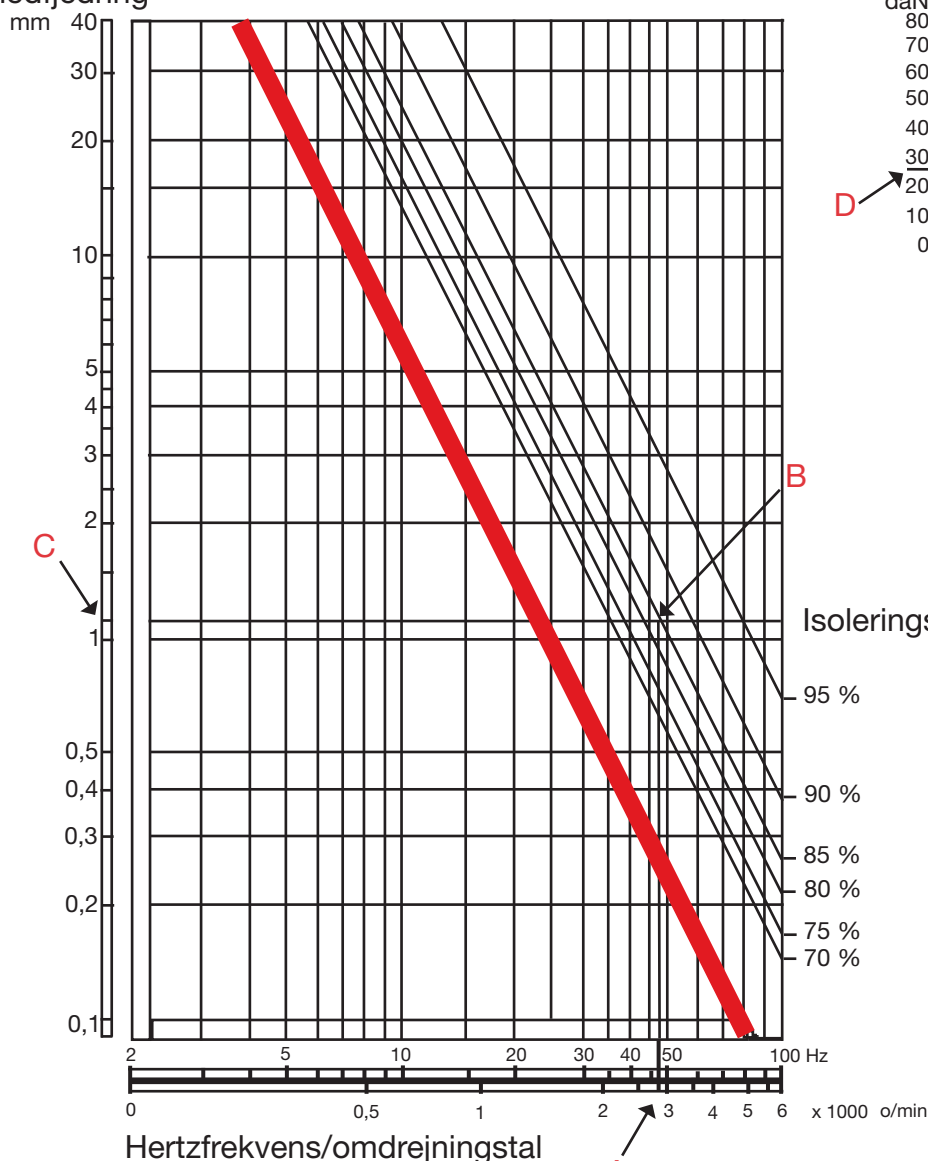
Som hjælp til udvælgelse af den rette vibrationsdæmper kan skemaerne på de følgende sider anvendes. Her følger et tænkt beregningseksempel.

En pumpe med motor vejer 100 kg. og skal dæmpes. Pumpen, der er direkte drevet, arbejder med 2800 o/min. Isoleringsgraden ønskes i dette eksempel til 85 %. Konstruktionen placeres på 4 dæmpere.

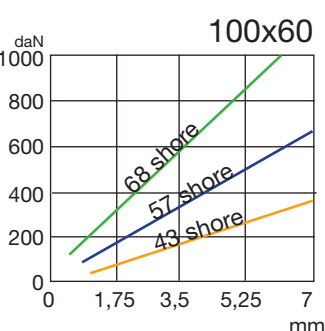
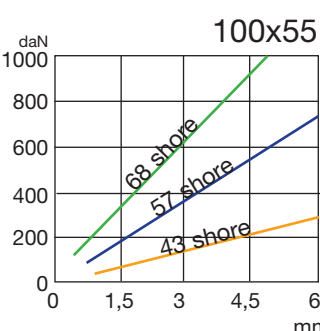
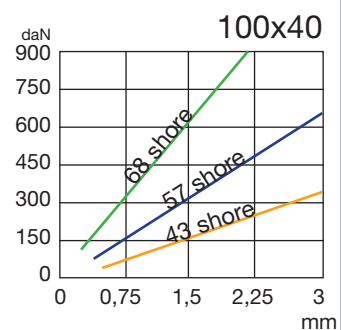
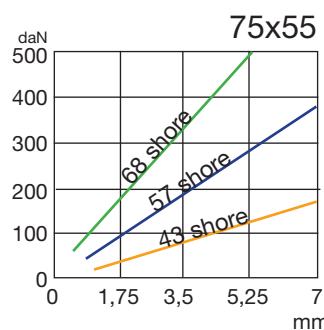
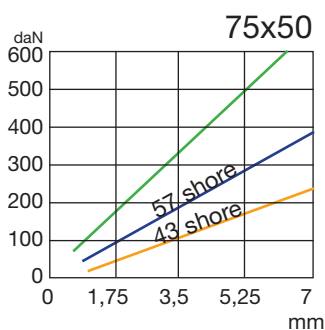
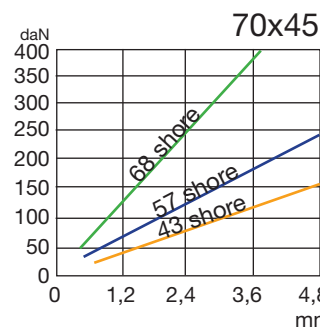
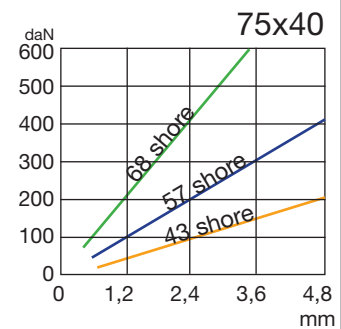
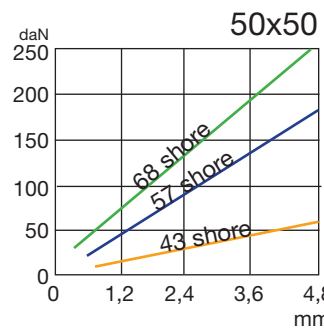
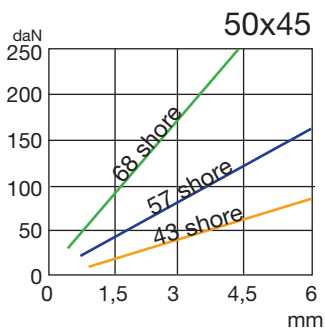
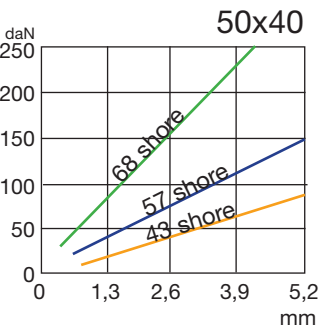
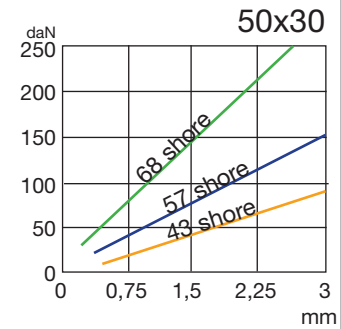
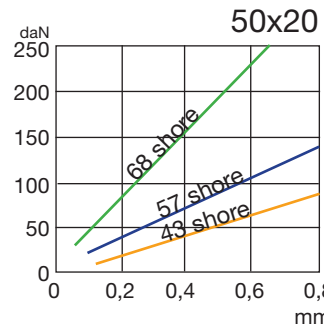
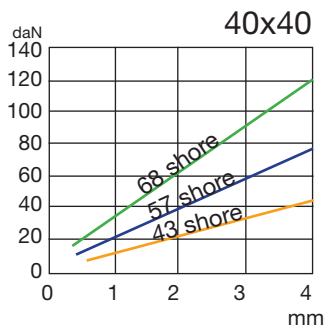
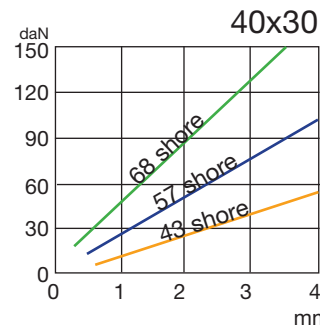
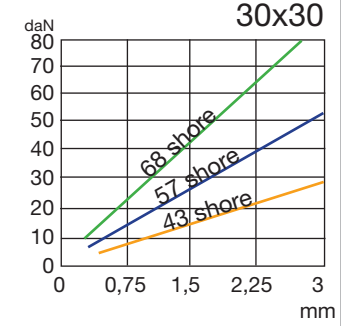
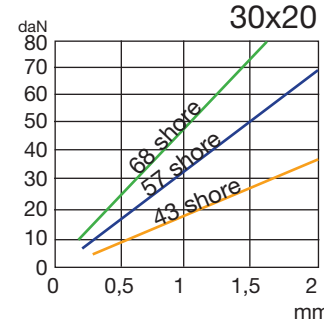
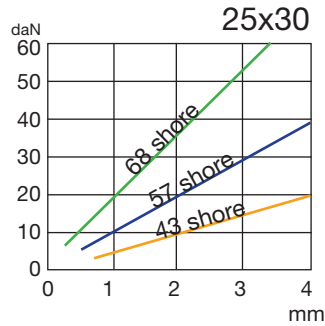
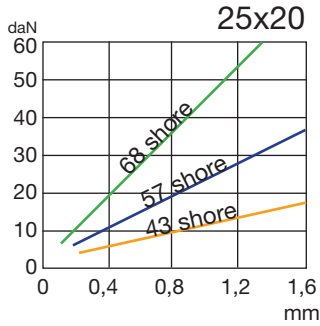
- A) Søg i tabellinien 'hertzfrekvens/omdrejningstal' efter det aktuelle omdrejningstal (2800).
- B) Følg linien op til isoleringsgraden på 85 %.
- C) Følg så linien til 'statisk nedfjedring' og aflæs nedfjedringen for den aktuelle dæmper.
- D) Søg blandt 'belastningsdiagrammer' på side 7 og 8 en dæmper der svarer til en nedfjedring på 1,2 mm ved en belastning på 25 daN (100:4 (totalvægt : antal 'fødder'))).

I dette eksempel er det en vibrationsdæmper 30-30 type 2 hårdhed 57 shore der passer bedst.

Statisk nedfjedring



Belastningsdiagram





D	H	f (mm)	Fv (daN=kg)		
			43Sh	57Sh	68Sh
8	8	0,4	0,7	1,6	4,5
		0,8	1,5	3,5	9,0
		1,2	2,5	5,5	14,5
10	10	0,6	1,2	2,5	7,0
		1,2	2,5	6,0	14,5
		1,6	3,5	8,0	20,5
15	8	0,4	3,5	7,5	21,0
		0,8	7,5	15,5	45,0
		1,2	12,0	25,0	74,5
15	15	0,8	2,0	4,5	12,5
		1,5	4,0	9,5	22,5
		2,5	7,5	17,0	40,0
20	15	1,0	5,5	13,5	28,0
		2,0	11,5	28,5	60,0
		2,5	15,0	37,0	77,5
20	20	1,0	3,5	8,5	18,0
		2,5	9,0	22,5	47,5
		3,5	13,0	32,5	70,0
25	15	1,0	9,5	23,0	48,0
		1,5	14,5	36,0	74,5
		2,5	26,0	64,5	134
25	20	1,0	5,5	14,0	29,5
		2,5	15,0	37,0	78,0
		3,5	22,0	54,0	114,5
30	15	1,0	16,5	29,0	89,0
		2,0	46,0	80,0	195,0
		2,5	61,0	104,5	256,0
30	20	1,0	10,5	21,0	49,0
		2,5	29,0	57,0	131,5
		3,5	43,0	84,0	194,5
30	30	1,5	8,0	17,5	39,5
		3,0	17,0	36,5	81,5
		5,3	31,5	67,5	152,0
40	30	1,5	16,0	33,5	74,5
		3,0	33,0	67,0	155,5
		5,3	62,0	130,0	291,0
40	40	2,0	13,5	30,5	67,0
		5,0	36,0	78,0	176,5
		7,0	53,0	116,0	256,5
50	20	1,0	44,0	89,5	183,0
		2,0	94,5	191,0	390,0
		3,0	153,5	308,5	627,0

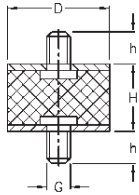
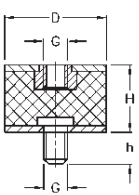
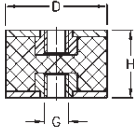
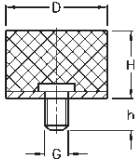
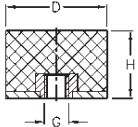





D	H	f (mm)	Fv (daN=kg)		
			43Sh	57Sh	68Sh
50	30	1,5	27,5	60,0	126,0
		3,0	58,0	125,5	263,0
		4,5	91,5	198,0	414,5
50	40	3,0	35,0	78,5	167,0
		6,0	74,5	167,0	354,0
		8,0	104,5	232,5	493,0
70	45	2,0	46,0	101,0	212,5
		5,0	122,5	210,0	563,0
		8,0	210,5	458,0	961,0
75	40	2,0	69,0	147,5	307,5
		4,0	145,5	247,5	646,5
		7,0	279,5	590,5	1227,5
75	55	1,5	29,0	64,5	137,0
		4,5	90,5	201,5	427,5
		7,5	158,5	352,0	743,5
100	40	2,0	176,0	358,0	734,0
		4,0	378,5	765,0	1560,0
		6,0	614,0	1233,5	2500,0
100	55	3,0	130,0	280,0	586,5
		6,0	276,5	591,5	1234,0
		9,0	442,5	942,5	1956,0
100	60	3,0	110,0	234,0	504,5
		6,0	231,5	502,0	1054,0
		10,5	440,0	949,0	1984,5
100	75	6,0	155,0	346,0	734,0
		12,0	333,5	741,0	1568,0
		16,5	487,5	1077,5	2279,0
150	55	3,0	414,5	915,0	1713,5
		6,0	892,0	1969,5	3659,0
		9,0	1452,0	3104,5	5902,5
150	60	3,0	336,0	745	1422,5
		7,5	925,0	2046,5	3771,5
		10,5	1391,5	3075,0	5775,0
150	75	4,0	282,5	634,5	1259,5
		10,0	771,0	1726,0	3401,0
		14,0	1152,0	2573,5	5042,5
200	100	6,0	540,5	1204,0	2504,5
		12,0	1150,0	2550,0	5302,0
		18,0	1846,5	4073,5	8467,0

Standardtyper 1-5



D	H	Type 1	Type 2	Type 3	Type 4	Type 5
6	7	M3xh	M3xh/M3	M3	M3xh	M3
8	5	M3xh			M3xh	
8	8		M3xh/M3	M3		M3
8	10					
9	12	M3xh M4xh M5xh	M3xh/M3 M4xh/M4	M3 M4	M3xh M4xh M5xh	M3 M4 M5
10	8	M3xh	M3xh/M3	M3	M3xh	M3
10	10	M4xh M5xh	M4xh/M4	M3	M4xh	M4 M5
10	15		M3xh/M3	M3		
10	17		M4xh/M4	M4		
10	18		M5xh/M5	M5		
10	30					
11	11	M3xh M4xh M5xh	M3xh/M3 M4xh/M4	M3 M4	M3xh M4xh M5xh	M3 M4 M5
12	10	M3xh M4xh M5xh	M3xh/M3 M4xh/M4	M3	M3xh M4xh M5xh	M3 M4 M5
13	26	M4xh M5xh	M4xh/M4 M5xh/M5 M6xh/M6	M3 M4 M5	M4xh M5xh M6xh	M3 M4
15	4				M4xh	
15	5					
15	6	M4xh M5xh			M4xh M5xh	
15	7					
15	8		M4xh/M4	M3		M3 M4
15	9					
15	10		M4xh/M4 M5xh/M5			
15	12			M3		
15	13			M4		
15	15			M3		M3
15	20			M4		M4
15	25			M5		M5
15	30					
16	18	M4xh M5xh	M4xh/M4 M5xh/M5	M3 M4 M5	M4xh M5xh	M3 M4 M5
20	5				M5xh	
20	8	M5xh			M6xh	M5
20	10	M6xh M8xh	M5xh/M5 M6xh/M6		M8xh	M6

G	h
M3	4,6,8,10,12
M4	6,8,10,12,15
M5	6,8,10,12,15,18,20
M6	6,8,10,12,15,18,20,23,25,28,33,36,37,38,47
M8	8,10,12,15,18,20,23,25,28,33,36,37,38,47

						
						
D	H	Type 1	Type 2	Type 3	Type 4	Type 5
20	11	M5xh M6xh M8xh	M5xh/M5 M6xh/M6 M8xh/M8	M5 M6 M8	M5xh M6xh M8xh	M5 M6 M8
20	12					
20	13					
20	15					
20	17					
20	20					
20	23					
20	25					
20	30					
25	8	M6xh M6xh M8xh	M6xh/M6 M8xh/M8	M6 M8	M6xh M8xh	M6 M6 M8
25	10					
25	12					
25	13					
25	14					
25	15					
25	17					
25	18					
25	19					
25	20					
25	22					
25	25					
25	27					
25	28					
25	30					
26	22	M6xh M8xh	M6xh/M6 M8xh/M8	M6 M8	M6xh M8xh	M6 M8
30	8					
30	10					
30	12					
30	13					
30	15					
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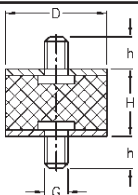
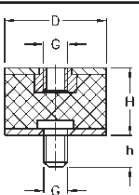
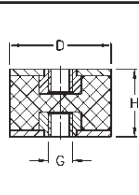
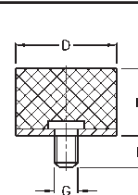
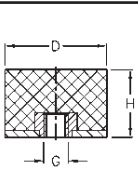





G	h
M5	6,8,10,12,15,18,20
M6	6,8,10,12,15,18,20,23,25,28,33,36,37,38,47
M8	8,10,12,15,18,20,23,25,28,33,36,37,38,47
M10	8,10,12,15,18,20,23,25,28,33,38,43,47

Standardtyper 1-5



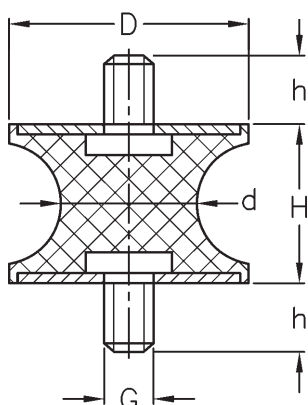
						
						
D	H	Type 1	Type 2	Type 3	Type 4	Type 5
40	35	M6xh	M6xh/M6	M6	M6xh	M6
40	38	M8xh	M8xh/M8	M8	M8xh	M8
40	40	M10xh	M10xh/M10	M10	M10xh	M10
40	45					
40	60					
50	7					
50	9	M8xh			M8xh	
50	12				M10xh	
50	15	M8xh			M8xh	M8
50	17	M10xh			M10xh	
50	20	M12xh	M8xh/M8	M8	M12xh	M8
50	21		M10xh/M10			M10
50	25		M12xh/M12	M8		M12
50	27			M10		
50	28					
50	30			M8		
50	35			M10		
50	37			M12		
50	40					
50	42					
50	45					
50	50					
50	80					
60	15	M8xh			M8xh	M8
60	16	M10xh			M10xh	M10
60	20			M8	M12xh	M8
60	25	M8xh	M8xh/M8	M8		M10
60	25	M10xh	M10xh/M10	M10		M12
60	25	M12xh	M8xh/M8	M8		
60	30		M10xh/M10	M10		
60	35		M12xh/M12	M12		
60	40					
60	45					
60	50					
60	60					
65	35	M12xh	M12xh/M12	M12	M12xh	M12
70	20				M10xh	M10
70	25	M10xh		M10	M12xh	M12
70	30	M10xh	M10xh/M10	M10		
70	35	M12xh	M12xh/M12	M12		
70	40					
70	45					
70	50					
70	53					
70	55					
70	60					
70	70					

G	h
M6	6,8,10,12,15,18,20,23,25,28,33,36,37,38,47
M8	8,10,12,15,18,20,23,25,28,33,36,37,38,47
M10	8,10,12,15,18,20,23,25,28,33,38,43,47
M12	10,12,17,18,20,22,23,25,27,33,37,41,42,47

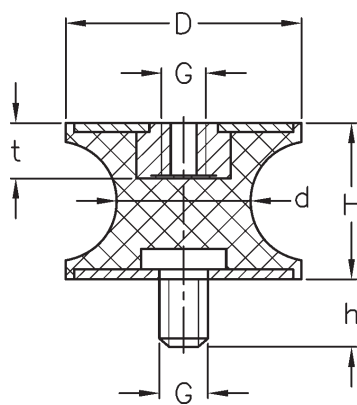
						
						
D	H	Type 1	Type 2	Type 3	Type 4	Type 5
75	20					
75	25	M10xh	M10xh/M10	M10	M10xh	M10
75	30	M12xh	M12xh/M12	M10	M12xh	M12
75	35			M12		
75	40					
75	45					
75	50					
75	55					
75	60					
75	70					
75	100					
100	25	M12xh			M12xh	
100	30	M16xh			M16xh	
100	35			M12		M12
100	40		M12xh/M12	M16		M16
100	45		M16xh/M16			
100	50					
100	55					
100	60					
100	65					
100	70					
100	75					
100	80					
100	100					
150	50	M16xh		M16	M16xh	M16
150	55	M20xh	M16xh/M16	M20	M20xh	M20
150	60		M20xh/M20			
150	75					
200	100	M20xh	M20xh/M20	M20	M20xh	M20

G	h
M10	8,10,12,15,18,20,23,25,28,33,38,43,47
M12	10,12,17,18,20,22,23,25,27,33,37,41,42,47
M16	22,26,27,36,41,46
M20	41,45,46

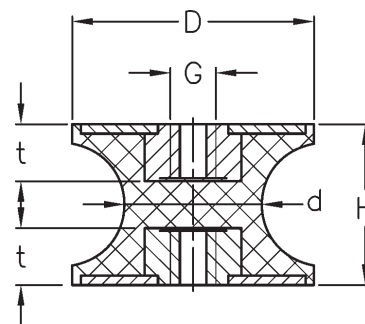
TP1



TP2



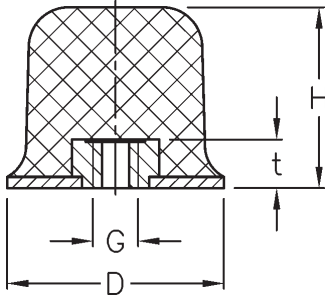
TP3



Type	D	d	H	G	h	t
10/4,5-8	10	4,5	8	M3	6	3
10/8-10	10	8,0	10	M4	10	4
15/8,5-15	15	8,5	15	M4	10	4
15/12-15	15	12,0	15	M4	10	4
20/12-30	20	12,0	30	M6	18	6
20/14-19	20	14,0	19	M6	18	6
20/14-15	20	14,0	15	M4	10	4
20/14-30	20	14,0	30	M4	10	4
25/18-20	25	18,0	20	M8	23	8
25/20-20	25	20,0	20	M6	10	6
30/22-20	30	22,0	20	M8	23	8
30/25-20	30	25,0	20	M8	23	8
30/18-25	30	18,0	25	M6	15	6
30/19,5-41	30	19,5	41	M8	20	8
40/25-30	40	25,0	30	M8	23	8
40/33-30	40	33,0	30	M8	23	8
40/20-48	40	20,0	48	M8	23	8
46/40-25	46	40,0	25	M10	28	10
50/42-30	50	42,0	30	M10	28	10
55/44-45	55	44,0	45	M8	28	8
57/25-44	57	25,0	44	M10	28	10
57/45-44	57	45,0	44	M10	28	10
57/44-45	57	44,0	45	M10	28	10
57/25-45	57	25,0	45	M8	20	8
60/49-60	60	49,0	60	M10	28	10
70/45-53	70	45,0	53	M12	28	12
95/80-75	95	80,0	75	M16	41	16
180/148-75	180	148,0	75	M20	34	20
180/150-75	180	150,0	75	M20	45	20

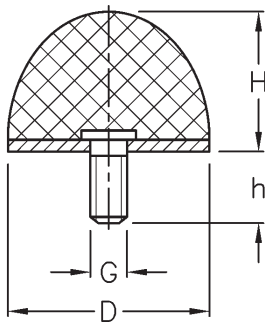


KE



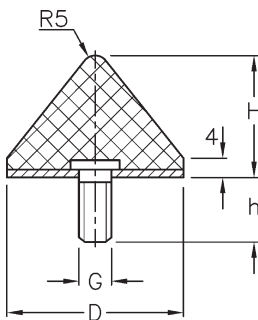
Type	D	H	G	t
50/35	50	35	M10	10

KG



Type	D	H	G	h
25/13	25	13	M6	10
25/15	25	15	M6	18

KK

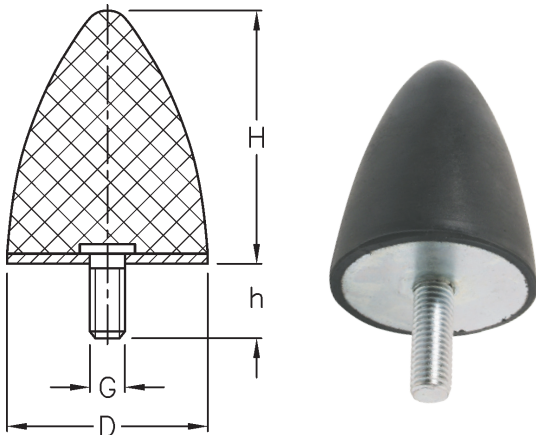


Type	D	H	G	h
24/17	24	17	M8	20
25/16	25	16	M8	20
40/24	40	24	M8	28
50/28	50	28	M8	28
50/45	50	45	M10	35

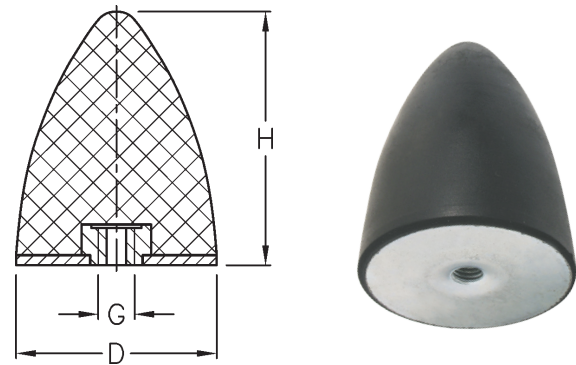
Type KP-D og KP-E



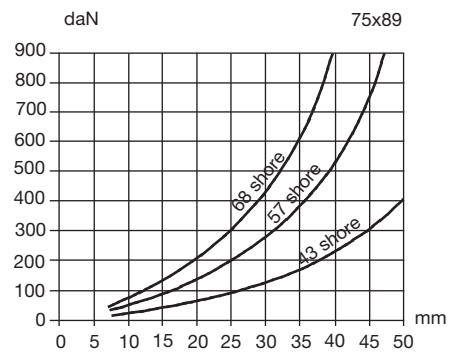
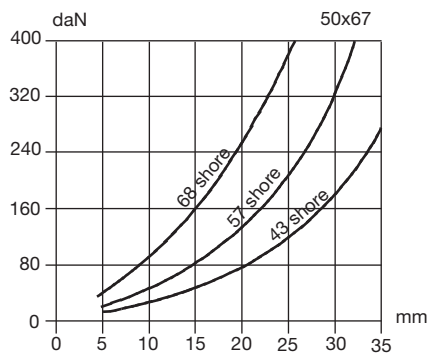
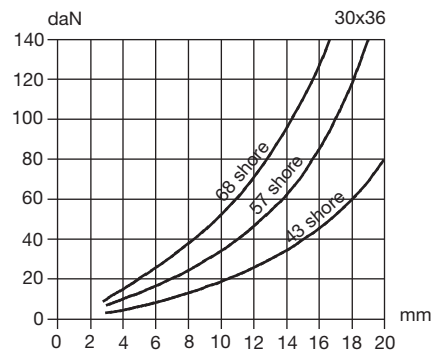
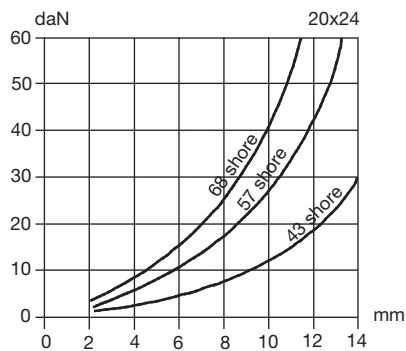
KP-D



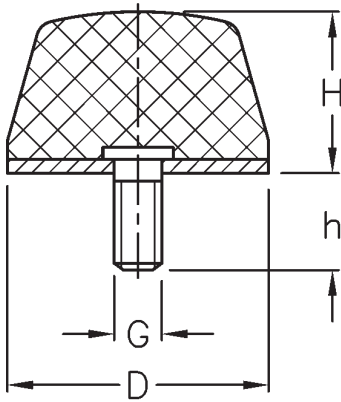
KP-E



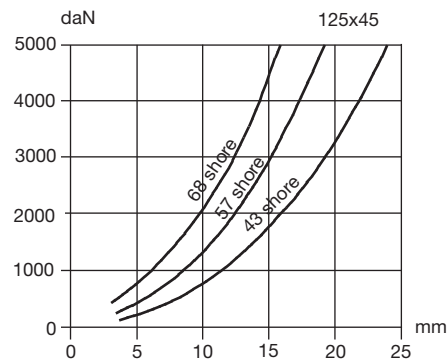
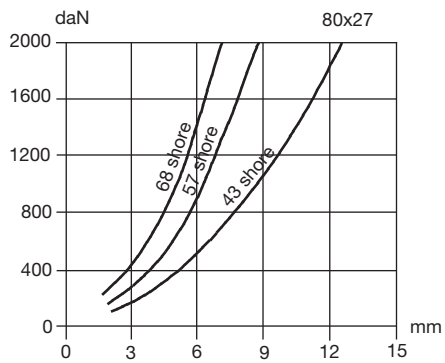
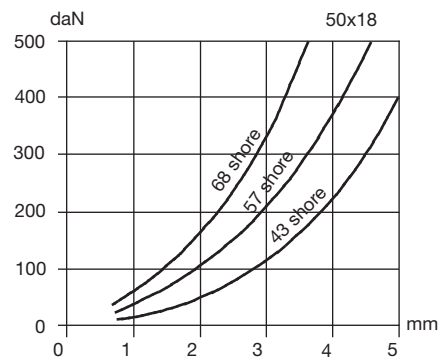
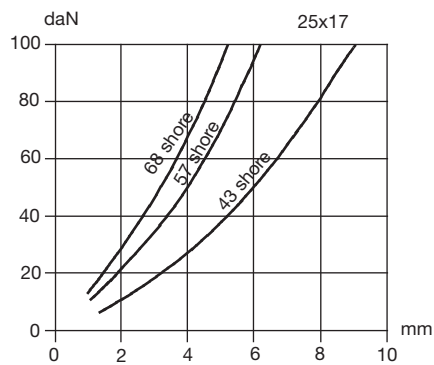
Type	D	H	G	h
10/10	10	10	M5	12
20/15	20	15	M6	10
20/24	20	24	M6	18
25/16	25	16	M6	18
25/20	25	20	M6	18
30/30	30	30	M8	20
30/36	30	36	M8	20
35/40	35	40	M8	23
50/50	50	50	M10	28
50/61	50	61	M8	28
50/67	50	67	M8	33
50/68	50	68	M10	38
70/58	70	58	M12	32
75/89	75	89	M12	37
95/80	95	80	M16	42
118/77	118	77	M16	41



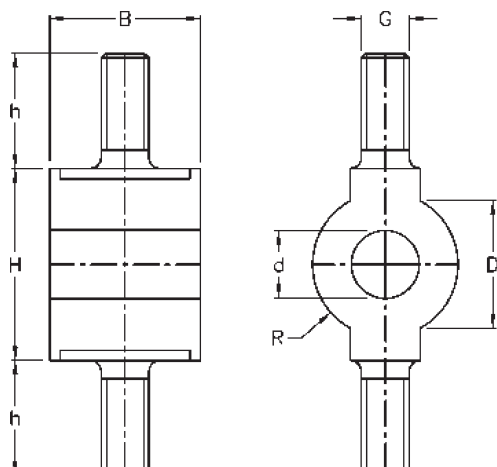
KD



Type	D	H	G	h
12/12	12	12,0	M4	10
14/6,3	14	6,3	M4	4
25/12	25	12,0	M6	18
25/14	25	14,0	M4	10
25/17	25	17,0	M6	18
35/40 (boldformet)	35	40,0	M8	23
45/21	45	21,0	M8	46
50/18	50	18,0	M10	28
50/20 (kvadratisk)	50	20,0	M10	28
50/50	50	50,0	M10	28
80/27 (kvadratisk)	80	27,0	M12	37
125/45	125	45,0	M16	45

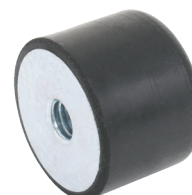
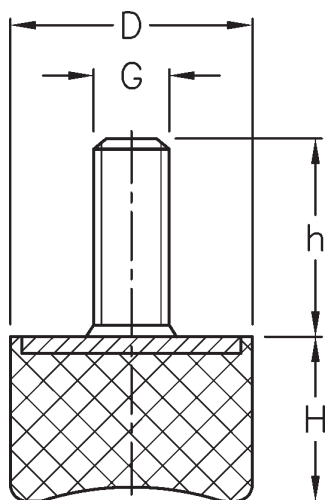


O-puffer



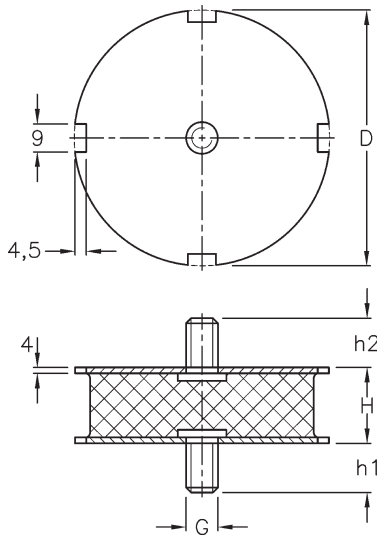
Type	D	H	B	d	G	h	R
10,5/12,5	12,5	12,5	9,5	5,6	M4	10	5,25
17/14	17,0	14,0	13,0	6,0	M4	10	7,00
25/30	25,0	30,0	20,0	12,0	M5/5	14/6	7,00
36/40	36,0	40,0	26,0	17,0	M10	20	7,00

DS



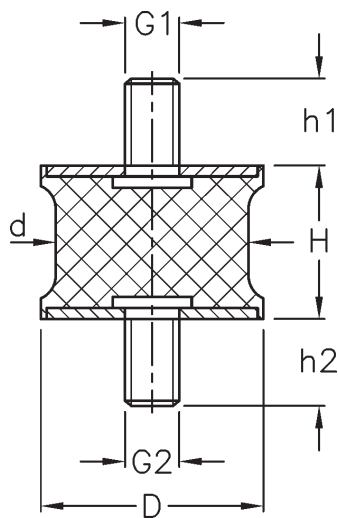
Type	D	H	G	h
15/14	15	14,0	M4	13
25/18,5	25	18,5	M6	18
40/28	40	28,0	M8	10
50/28	50	28,0	M10	33
70/43	70	43,0	M10	28
75/37	75	37,0	M12	37

KR



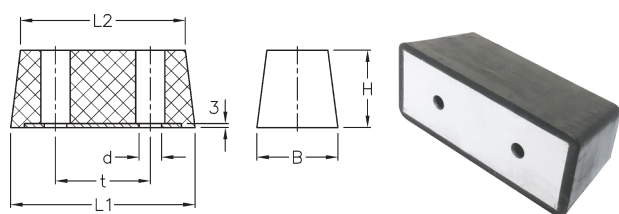
Type	D	H	h1	h2
KR-1	105	55	30	30
KR-2	105	40	30	25

SP

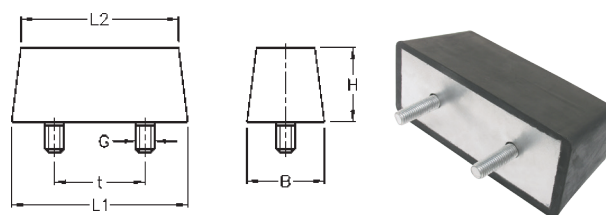


Type	D	d	H	G1/h1	G2/h2
25/22-22	26	22	22	M8x10	M8x18
40/35-28	40	35	28	M10x16	M10x20
46/40-25	46	40	25	M10x28	M10x28
75/70-40	75	70	40	M12x37	M12x37
100/95-55	100	95	55	M16x41	M16x41
100/95-75	100	95	75	M16x45	M16x45

RP-OG

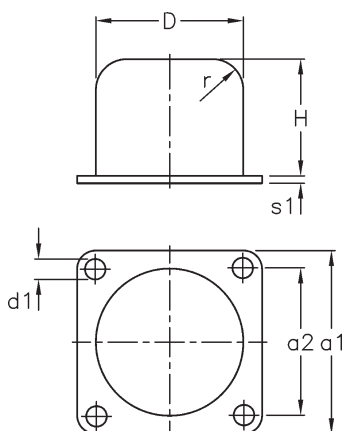


RP-2G

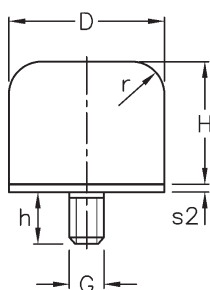


Type	L1	L2	B	H	t	G	d
150	150	136	60	60	70	M10X32	11
200	200	168	100	100	90	M12X36	13

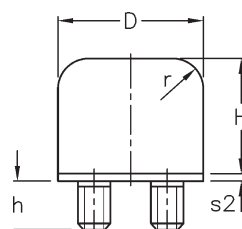
GP-QP



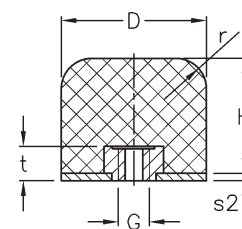
GP-1G



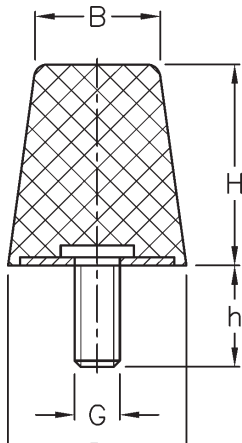
GP-2G



GP-1I



Type	D mm	H mm	a1 mm	a2 mm	d1 mm	G mm	Mål						Belastning		
							e mm	h mm	r mm	s1 mm	s2 mm	t mm	mm	kN	J
40x32	40	32	50	40	5,5	M8	-	23	8,0	2	2	8	18	15,0	70
50x40	50	40	63	50	6,5	M10	-	28	10,0	3	2	10	22	24,0	140
63x50	63	50	80	63	6,5	M10	-	28	12,5	4	3	10	28	37,5	280
80x63	80	63	100	80	9,0	M12	-	37	18,0	5	3	12	35	60,0	560
100x85	100	80	125	100	9,0	M12	50	36	20,0	6	4	12	44	95,0	1.120
125x100	125	100	160	125	11,0	M16	63	36	25,0	6	4	16	55	150,0	2.240
160x125	160	125	200	160	11,0	M16	80	44	32,0	8	6	16	68	240,0	4.400
200x160	200	160	250	200	13,0	M20	100	44	40,0	8	6	18	38	375,0	8.800

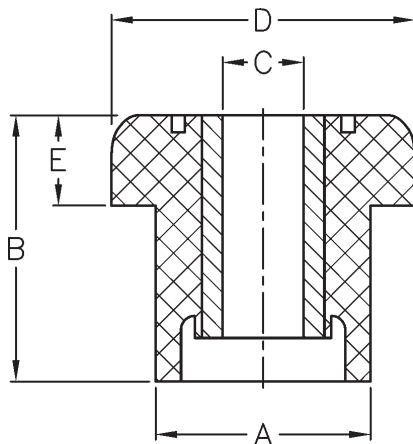


KH

Type	D	B	H	M Gxh
43/50	43	30	50	M10x25
43/35	43	30	35	M10x27
38/35	38	30	35	M10x27



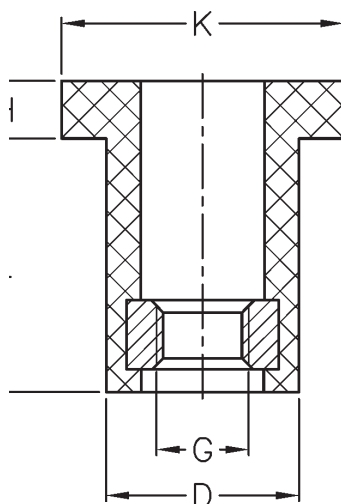
T-block



Type	A	B	C	D	E
TB-1	20,6	17,5	10	27,7	5,6
TB-2	31,5	25,4	13	44,5	10,4
TB-3	34,3	35,0	13	50,8	13,5
TB-4	41,1	44,5	16	63,5	15,7
TB-5	38,0	23,0	16	64,0	16,0
TB-6	56,6	50,8	20	95,0	25,4



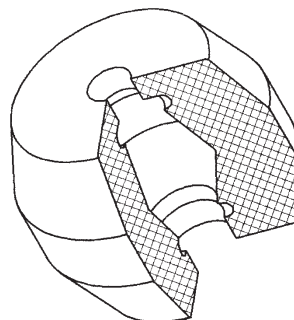
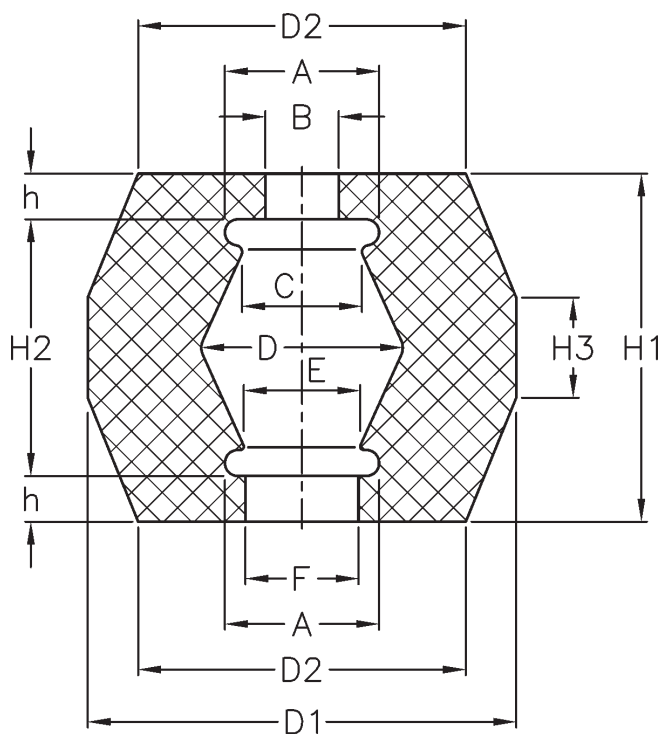
T-flex



Type	D	K	L	H	G
TF-1	7,2	9	9,0	2,5	M3
TF-2	9,3	12	11,5	3,0	M4
TF-3	10,2	15	14,5	3,5	M5
TF-4	12,7	18	17,0	4,0	M6
TF-5	16,5	24	22,0	5,0	M8

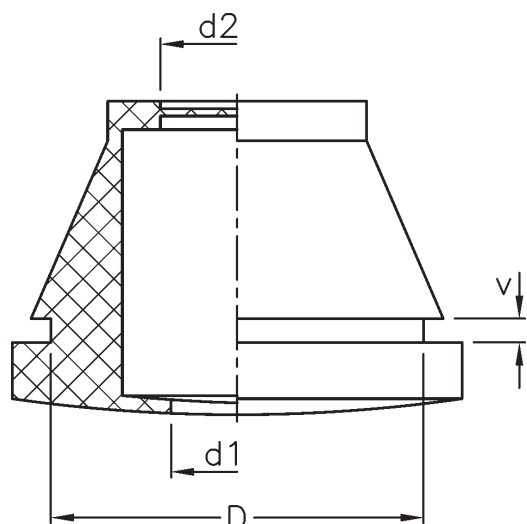


GF



Type	D1	H1	D2	A	B	C	D	E	F	H2	H3	h
55/55	55	55	42	22	14	15	24	15	14	35	15	10
56/90	90	56	75	32	14		36		24	40	24	8
90/108	108	90	82	38	19	29	50	29	29	66	26	12
140/125	125	140	115	50	24	40	55	40	39	104	40	18
150/155	155	150	135	50	24	40	60	40	39	114	50	118
150/188	188	150	155	60	29	58	70	48	39	112	50	20
180/188	188	180	167	60	29	48	70	48	39	142	60	20

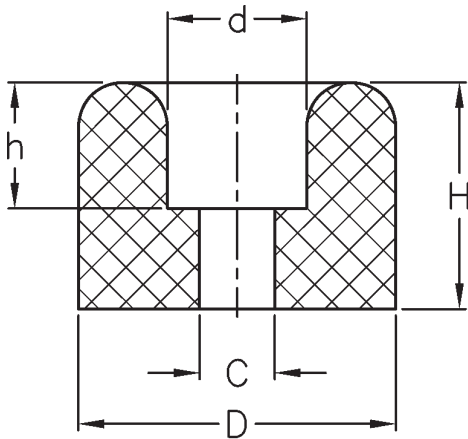
Kabelgennemføring



Type	d1	d2	D	v
5-7	4	4,5	16	1
7-10	6	7,0	18	2
10-14	8	9,0	23	2
14-20	13	14,0	28	2
20-26	16	19,0	38	3
26-35	21	25,0	48	3

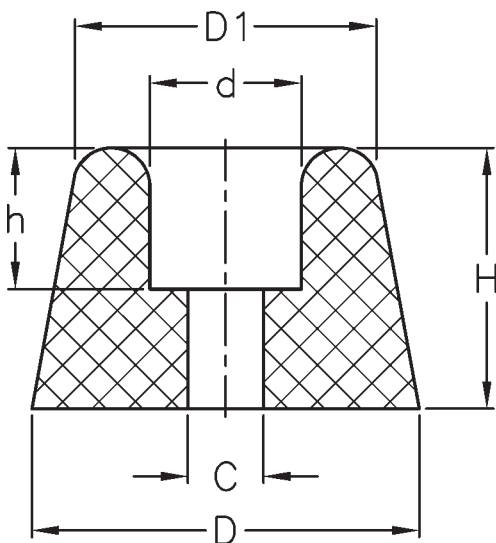


DBH



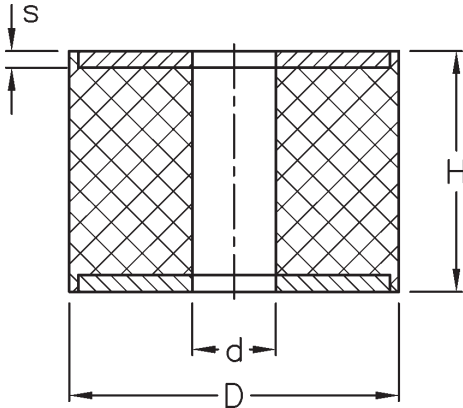
Type	D	H	C	d	h
26/29	25	29	5	10	4
28/25	28	25	6	14	15
30/32	30	32	6	13	20
40/25	40	25	6	18	15
40/25	40	25	7	20	8
40/31	40	31	6	18	21
40/35	40	35	7	20	8
40/46	40	46	6	16	32

DBF

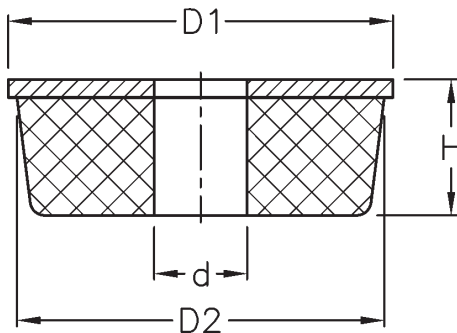


Type	D	H	D1	C	d	h
20/10	20	10	16	5,0	8	6
25/10	25	10	20	4,5	7	6

GH

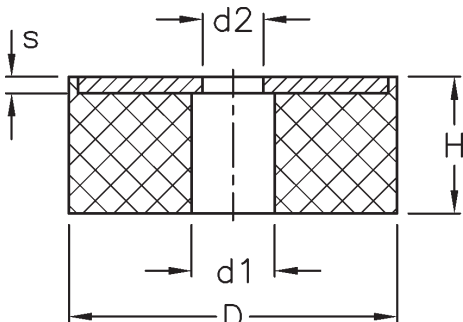


Type	D	d	H	s
15/6-25	15	6	25	2
20/6-25	20	6	25	2
40/13-20	40	13	20	3
40/13-30	40	13	30	3
40/13-40	40	13	40	3
50/17-20	50	13	20	3
50/17-40	50	17	40	3
50/17-50	50	17	50	3
50/21-15	50	21	15	3
50/21-30	50	21	30	3
60/21-50	60	21	50	4
75/25-55	75	25	55	3
80/21-30	80	21	30	3
100/21-40	100	21	40	4
100/31-40	100	31	40	4
100/33-75	100	33	75	5
120/41-40	120	41	40	5
120/51-40	120	51	40	5
150/51-100	150	51	100	6
200/32-100	200	32	100	8
200/61-100	200	61	100	8



RB

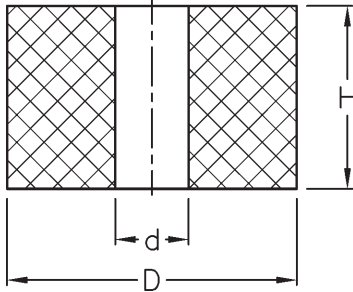
Type	D1	D2	d	H
1	42	40	18	23
2	62	60	21	33
3	72	70	21	33
4	82	80	25	40
5	102	100	32	54
6	122	120	38	46



GK

Type	D	H	d1	d2	s
30/16	30	16	16	9	3
40/16	40	16	16	9	3
40/20	40	20	17	9	3
50/16	50	16	20	11	3
50/20	50	20	22	11	3
60/18	60	18	25	25	3
60/20	60	20	25	11	4
75/25	75	25	30	13	6
80/20	80	20	32	13	4
100/25	100	25	40	13	6
100/30	100	30	60	33	6
125/25	125	25	50	17	6

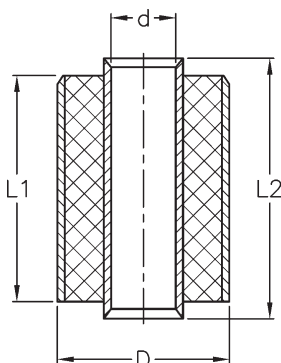
GP



Type	D	d	H
8/3-3	8,5	3,2	3,5
13/6,5-12	13,0	6,5	12,0
17,5/9-16	17,5	9,0	16,0
19/13-19	19,0	13,0	19,0
20/8,5-15	20,0	8,5	15,0
25/8-25	25,0	8,5	25,0
25/10,5-0,25	25,0	10,5	0,25
25/10,5-15	25,0	10,5	15,0
28/10,5-50	28,0	10,5	50,0
28/8-16	28,0	8,0	16,0
30,16/40	30,0	16,0	40,0
32/13-32	32,0	13,5	32,0
40/0,9-30	40,0	0,9	30,0
40/12-25	40,0	12,0	25,0
40/12-35	40,0	12,0	35,0
40/12-65	40,0	12,0	65,0
40/13-30	40,0	13,0	30,0
40/13,5-32	40,0	13,5	32,0
40/13-40	40,0	13,5	40,0
40/13-50	40,0	13,5	50,0
40/13,5-40	40,0	13,5	40,0
40/17-30	40,0	17,0	30,0
47/20-50	47,0	20,0	50,0
48/17-100	48,0	17,0	100,0
50/17-25	50,0	17,0	25,0
50/17-40	50,0	17,0	40,0
50/10-45	50,0	10,0	45,0
50/14-80	50,0	14,0	80,0
50/17-32	50,0	17,0	32,0
50/17-50	50,0	17,0	50,0
50/17-63	50,0	17,0	63,0
50/17-80	50,0	17,0	80,0
58/17-100	58,0	17,0	100,0
50/20-38	50,0	20,0	38,0
50/24-50	50,0	24,0	50,0

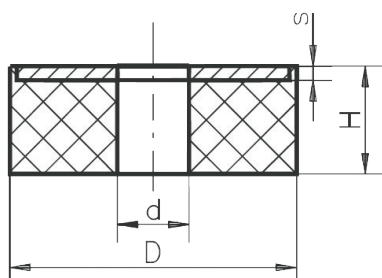
D/d-H	D	d	H
50/24,8-50	50,0	24,8	50,0
53/32,5-100	53,0	32,5	100,0
60/20-40	60,0	20,0	40,0
70/40-40	70,0	40,0	40,0
75/18-40	75,0	18,0	40,0
80/15-50	80,0	15,0	50,0
80/20-27	80,0	20,0	27,0
80/20-40	80,0	20,0	40,0
80/21-30	80,0	21,0	30,0
80/25-40	80,0	25,0	40,0
80/25-82	80,0	25,0	82,0
80/30-35	80,0	30,0	35,0
80/40-30	80,0	40,0	30,0
80/21-100	80,0	21,0	100,0
90/30-45	90,0	30,0	45,0
100/21-40	100,0	21,0	40,0
100/25-40	100,0	25,0	40,0
100/25-70	100,0	25,0	70,0
100/26-40	100,0	26,0	40,0
100/30-35	100,0	30,0	35,0
100/33-40	100,0	33,0	40,0
100/33-75	100,0	33,0	75,0
100/40-70	100,0	40,0	70,0
100/70-40	100,0	70,0	40,0
120/25-40	120,0	25,0	40,0
120/40-40	120,0	40,0	40,0
120/50-40	120,0	50,0	40,0
125/35-125	125,0	35,0	125,0
125/50-125	125,0	50,0	125,0
150/51-100	150,0	51,0	100,0
150/45-180	150,0	45,0	180,0
160/33-160	160,0	33,0	160,0
200/61-100	200,0	61,0	100,0
200/33-200	200,0	33,0	200,0
250/60-200	250,0	60,0	200,0

Bøsning



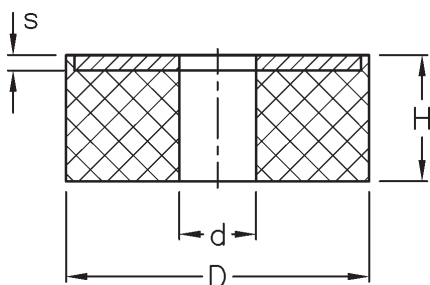
Type	D	d	L1	L2
27/14/40/48	27	14,0	40	48
30/13/40/40	30	13,0	40	40
30/14/25/28	30	14,0	25	28
30/14/67/76	30	14,0	67	76
40/25/20/20	40	25,0	20	20
40/25/30/30	40	25,0	30	30
45/20/60/63	45	20,0	60	63
50/25/30/34	50	25,0	30	34
50/25/65/68	50	25,0	65	68
55/15,5/30/16	55	15,5	30	16
55/20/90/94	55	20,0	90	94
60/30/60/68	60	30,0	60	68

RINGELEMENT



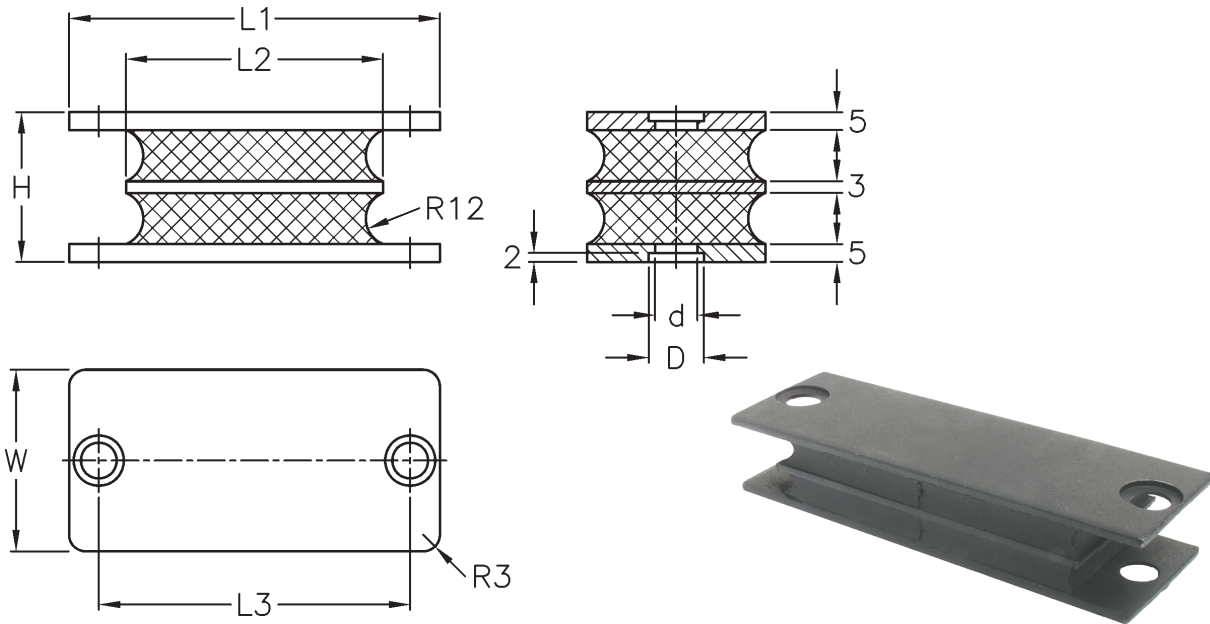
	D	A	B	C	E	F	s
RING-1	36	16,6	18	20	8	3	1
RING-2	36	6	6	15	16	6	1
RING-3	36	8,5	12	18	10	4	1
RING-4	50	16,5	20	24	12	10	1,5
RING-5	50	16,5	22	24	12	12	1
RING-6	60	20,5	24	27	13	10	1,5

IS



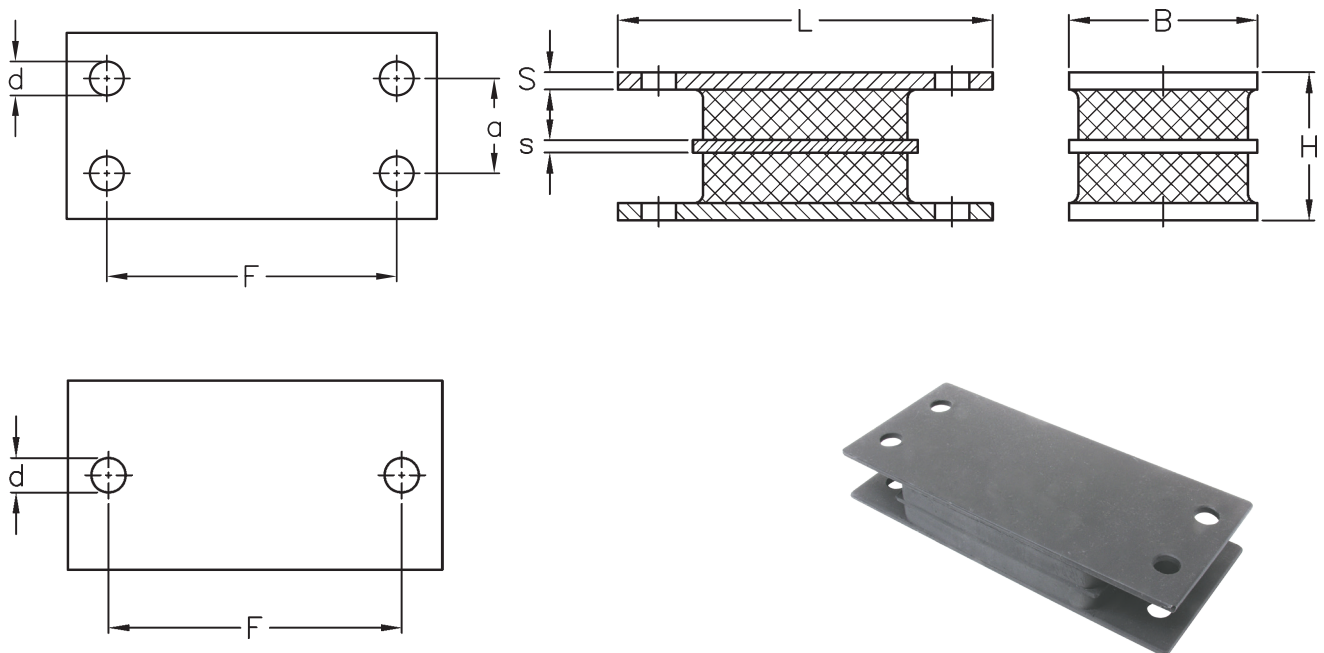
Type	D	d	H	s
40/10-10	40	10	10	2
62/14-6	62	14	6	3
80/21-30	80	21	40	2
100/21-30	100	21	30	4
100/21-40	100	21	40	4
100/25-40	100	25	40	4
100/56-19	100	56	19	3
100/60-30	100	60	30	4
120/21-30	120	21	30	4
120/25-40	120	25	40	4
150/32-40	150	32	40	4

GMR sandwich



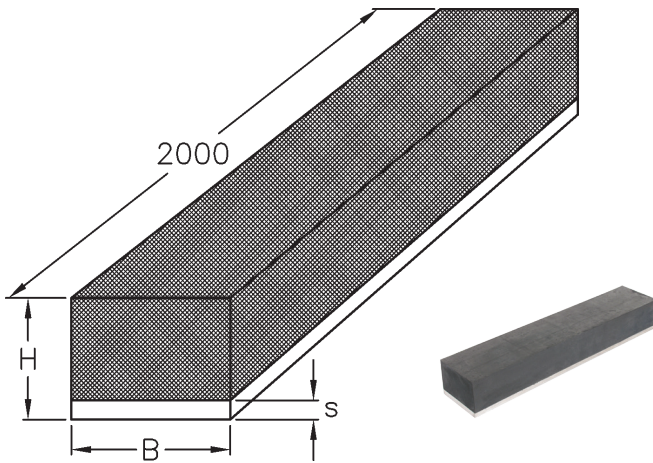
Type	L1	L2	L3	H	D	d	w
GMRS-1	108	63,5	89	43	20	13	57
GMRS-2	168	127,0	146	43	20	13	57

RMR sandwich

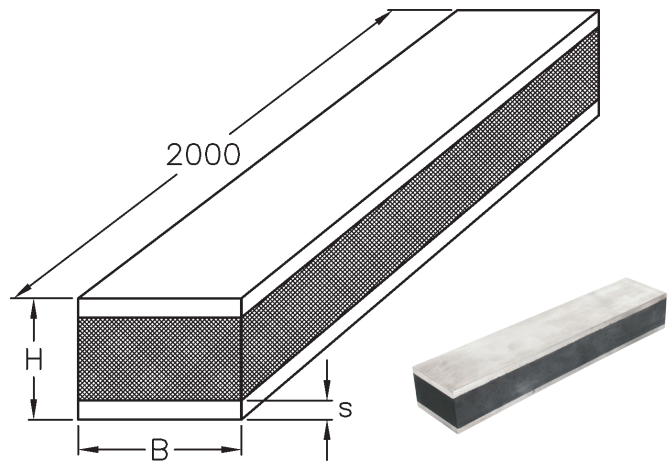


Type	H	B	L	a	F	d	S	s
R-100	43	57	108	-	89	11	5	3
R-600	43	108	251	51	210	13	5	3

GS-M1



GS-M2



Type	B	H	s		
			5	10	15
10/30	10	30	○	○	●
20/25	20	25	●	●	○
20/30	20	30	●	○	○
25/25	25	25	●	●	○
25/30	25	30	●	●	○
30/20	30	20	●	●	○
30/30	30	30	●	●	○
35/15	35	15	●	●	○
35/50	35	50	○	●	○
40/20	40	20	●	●	○
40/30	40	30	●	●	○
40/35	40	35	●	●	○
40/40	40	40	●	●	○
40/45	40	45	○	●	○
40/50	40	50	○	●	○
50/10	50	10	●	○	○
50/15	50	15	○	○	●
50/20	50	20	●	●	○
50/25	50	25	●	●	○
50/30	50	30	●	●	○
50/35	50	35	●	●	○
50/40	50	40	●	●	○
50/45	50	45	●	●	○
50/50	50	50	●	●	○
50/55	50	55	○	●	○
50/60	50	60	●	●	●
50/70	50	70	●	●	○
60/20	60	20	●	●	○
60/30	60	30	●	●	○
60/35	60	35	●	●	●
60/40	60	40	●	●	○
60/45	60	45	○	●	○
60/50	60	50	●	●	○
60/55	60	55	●	○	○
60/60	60	60	●	●	●
120/45	120	45	○	●	●
120/50	120	50	○	●	●
120/60	120	60	○	●	●
120/70	120	70	○	●	●
120/80	120	80	○	●	●
150/30	150	30	○	●	○
150/40	150	40	○	○	●
150/50	150	50	○	●	●
150/60	150	60	○	●	●
150/70	150	70	○	●	●

Type	B	H	s		
			5	10	15
60/70	60	70	●	●	○
60/80	60	80	●	●	○
70/30	70	30	●	●	○
70/40	70	40	●	●	○
70/45	70	45	●	●	○
70/50	70	50	●	●	○
70/60	70	60	●	●	○
70/70	70	70	●	●	○
70/80	70	80	●	●	○
70/55	70	55	○	●	○
70/65	70	65	○	●	○
75/40	75	40	○	●	○
75/55	75	55	○	●	○
80/20	80	20	●	○	○
80/40	80	40	●	●	○
80/45	80	45	●	●	○
80/60	80	60	●	●	○
80/70	80	70	○	●	○
80/80	80	80	●	●	●
90/45	90	45	○	●	●
100/12	100	12	●	○	○
100/20	100	20	●	○	○
100/30	100	30	○	●	○
100/40	100	40	●	●	●
100/45	100	45	○	○	●
100/50	100	50	○	●	●
100/55	100	55	○	●	●
100/60	100	60	○	●	●
100/65	100	65	○	○	●
100/70	100	70	○	●	●
100/75	100	75	○	○	●
100/80	100	80	●	●	●
100/90	100	90	○	●	●
100/100	100	100	○	●	●
110/40	110	40	○	○	●
150/75	150	75	○	○	●
150/80	150	80	○	●	●
150/90	150	90	○	●	●
150/100	150	100	○	●	●
200/30	200	30	○	●	○
200/60	200	60	○	●	●
200/70	200	70	○	○	●
200/80	200	80	○	●	○
200/100	200	100	○	●	○

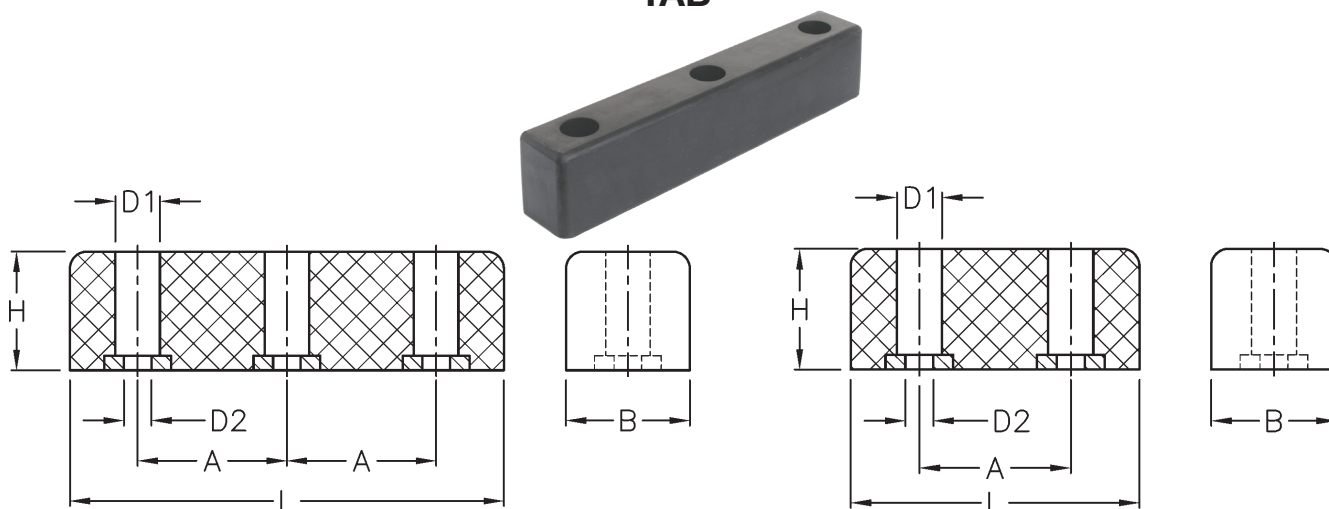
○ = Muligt
● = Ikke muligt

Belastingsdata for type GS

B	H	L	s	f(mm)	Fv (daN)		
					43Sh	57Sh	68Sh
25	25	2.000	5	0,75	16	35	74
				1,50	34	72	154
				2,25	53	113	241
25	30	2.000	5	1,00	14	30	66
				2,00	28	63	136
				3,00	44	98	212
30	30	2.000	5	1,00	22	47	101
				2,00	45	98	210
				3,00	71	153	328
40	20	2.000	5	0,50	109	207	415
				1,00	234	441	885
				1,50	378	710	1421
50	40	2.000	5	1,50	64	138	295
				3,00	134	287	614
				4,50	312	451	962
50	50	2.000	5	2,00	54	121	262
				4,00	113	250	543
				6,00	177	390	846
60	30	2.000	10	0,50	479	867	1.705
				1,00	1.032	1.866	3.665
				1,50	1.677	3.027	5.940
60	60	2.000	10	2,00	86	188	405
				4,00	180	390	840
				6,00	283	612	1.315
60	80	2.000	10	3,00	72	163	356
				6,00	148	336	735
				9,00	230	520	1.140
70	30	2.000	10	0,50	857	1.536	3.005
				1,00	1.850	3.313	6.470
				1,50	3.015	5.390	10.510
70	50	2.000	10	1,50	168	345	717
				3,00	355	720	1.510
				4,50	565	1.145	2.385

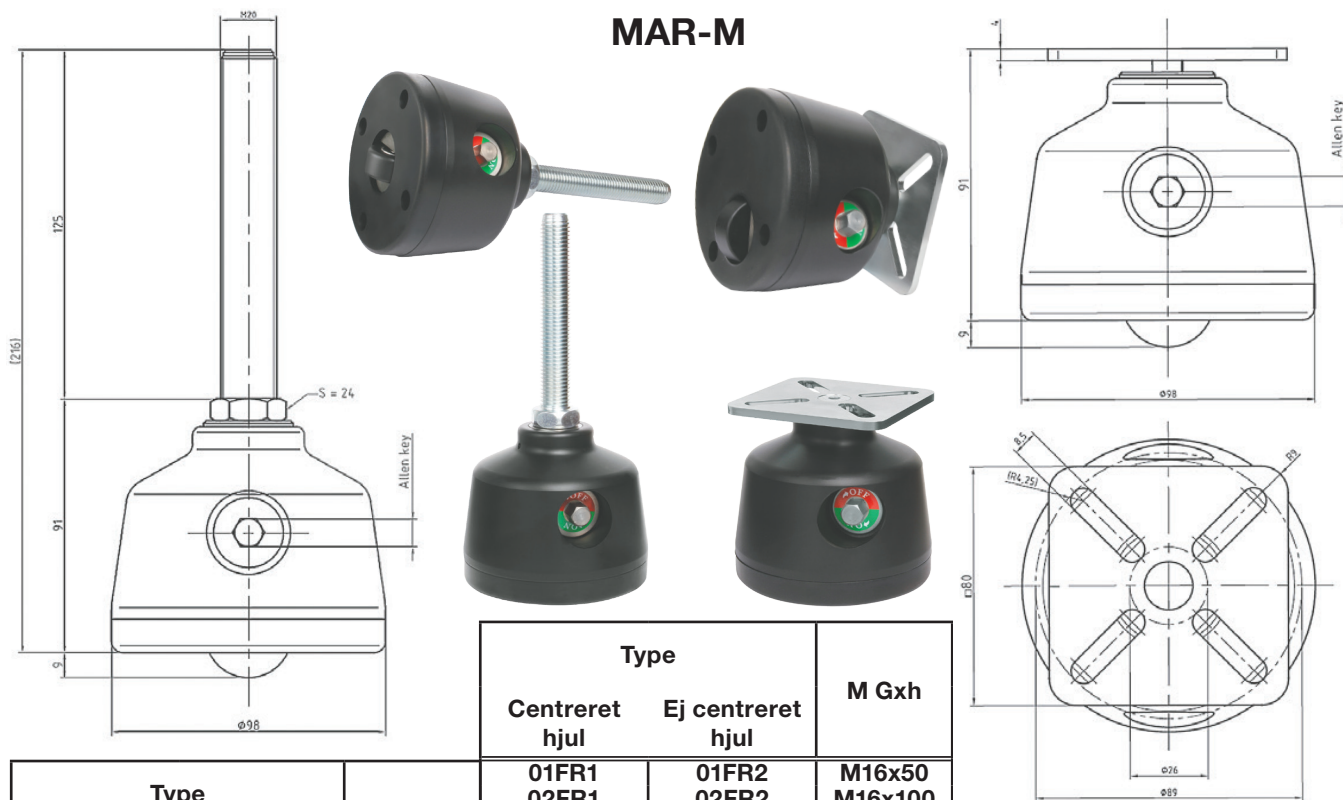
B	H	L	s	f(mm)	Fv (daN)		
					43Sh	57Sh	68Sh
70	60	2.000	10	2,00	130	278	592
				4,00	273	580	1.235
				6,00	430	912	1.938
80	45	2.000	10	1,25	318	619	1.265
				2,50	678	1.315	2.680
				3,75	1.090	2.105	4.280
80	60	2.000	10	2,00	190	400	838
				4,00	400	830	1.750
				6,00	630	1.310	2.760
80	80	2.000	10	3,00	143	317	685
				6,00	298	628	1.420
				9,00	468	1.027	2.220
100	60	2.000	10	2,00	368	745	1.550
				4,00	780	1.570	3.262
				6,00	1.245	2.500	5.170
100	80	2.000	10	3,00	256	550	1.180
				6,00	536	1.150	2.455
				9,00	845	1.800	3.845
120	45	2.000	10	0,75	3.215	5.725	11.140
				1,50	6.950	12.360	24.040
				2,25	11.335	20.120	39.110
120	60	2.000	15	1,50	985	1.860	3.735
				3,00	211	3.970	7.962
				4,50	3.405	6.380	12.790
120	80	2.000	15	2,50	507	1.033	2.156
				5,00	1.075	2.175	4.535
				7,50	1.710	3.450	7.175
150	60	2.000	15	1,50	2.190	4.035	8.005
				3,00	4.710	8.655	17.150
				4,50	7.640	14.000	27.700
200	100	2.000	15	3,50	1.720	3.400	7.020
				7,00	3.655	7.210	14.825
				10,50	5.855	11.500	23.590

TAB



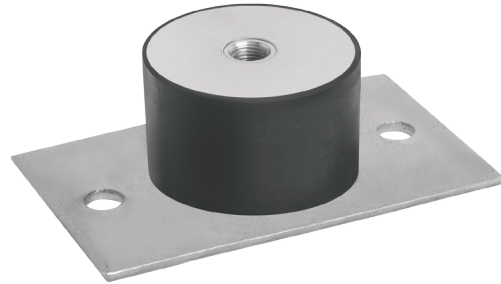
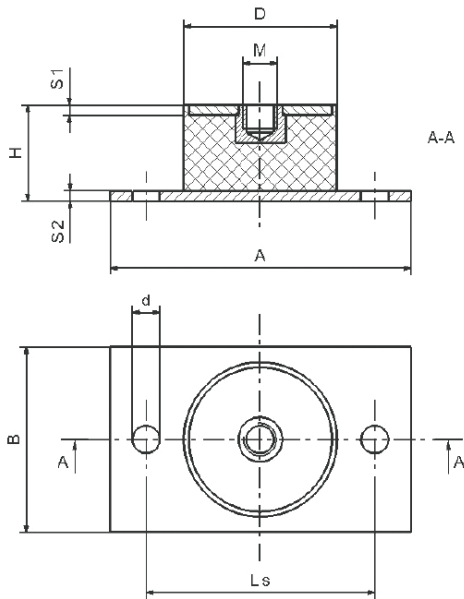
Type	H	L	B	Antal huller	A	D1	D2
TAB-1	15	125	40	2	60	19,7	8,0
TAB-2	40	125	40	2	60	19,8	8,0
TAB-3	50	125	43	2	60	20,3	8,0
TAB-4	70	125	43	2	60	19,8	8,0
TAB-5	60	200	52	2	120	26,0	10,5
TAB-6	80	200	52	2	120	26,0	10,5
TAB-7	60	300	52	3	115	26,0	10,5
TSB-8	80	300	52	3	115	26,0	10,5
TAB-9	60	400	52	3	165	26,0	10,5
TAB-10	80	400	52	3	165	26,0	10,5
TAB-11	35	530	60	4	157	26,0	12,5

MAR-M



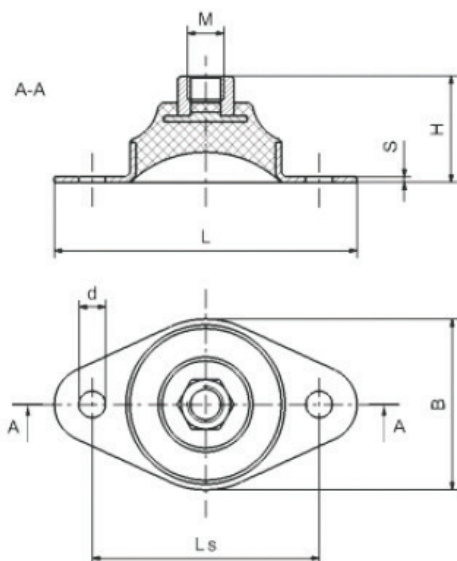
Type		Plade	Type		M Gxh
Centreret hjul	Ej centreret hjul		Centreret hjul	Ej centreret hjul	
020.PF R1	020PF R2	80x80	01FR1	01FR2	M16x50
			02FR1	02FR2	M16x100
			03FR1	03FR2	M20x75
			04FR1	04FR2	M20x125
			05FR1	05FR2	M24x75
			06FR1	06FR2	M24x125

PLO



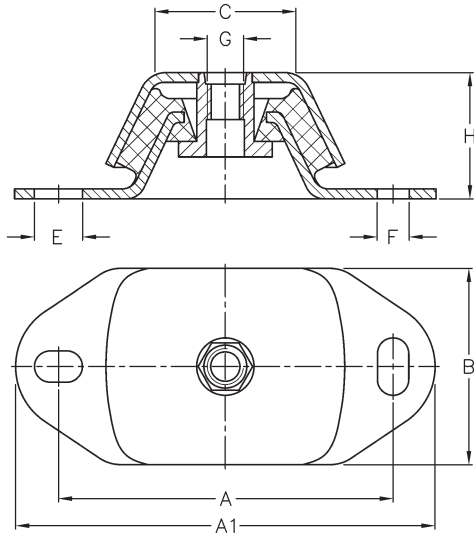
Type	A	B	Ls	H	D	d	S1/S2	M	Sh A	Belastning		
										S max (N)	F max (N)	C (N/n)
PLO-1	80	30	60	33	25	9	3/1,5	M6	43	4	160	40
PLO-2	80	30	60	33	30	9	3/1,5	M8	55	4	450	112
PLO-3	100	60	75	33	50	9	3/3	M10	55	4	1150	387
PLO-4	130	80	105	44	75	11	4/5	M12	68	5,5	6100	1110
PLO-5	120	120	95/95	44	100	4x12,5	4/5	M16	55	5,5	8500	1545

HUT-ELEMENT

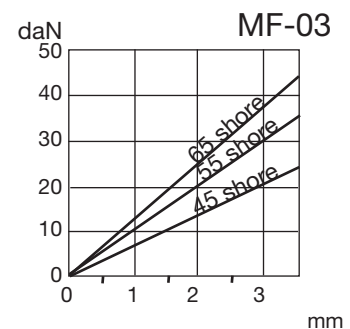
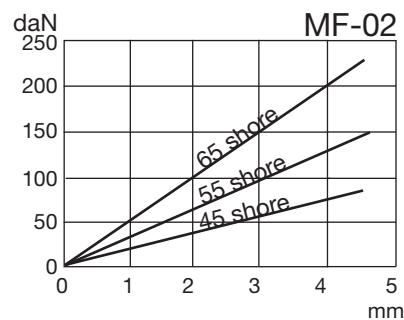
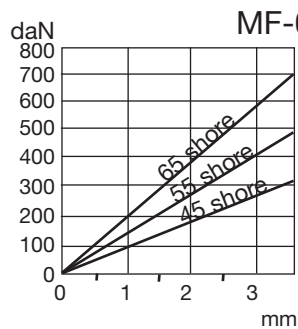


Type	B	H	L	M	S	Ls	d
64 060 014	35	20	60	M6	2	45	6
64 090 014	50	32	90	M10	2	70	9
64 140 014	80	50	140	M16	3	105	13

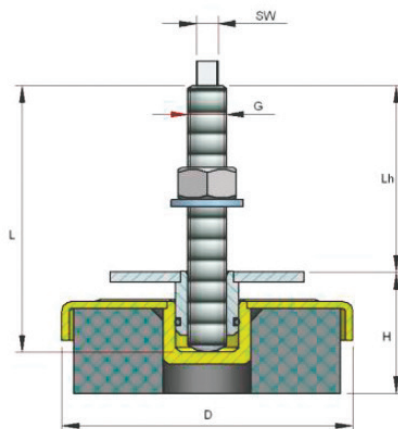
MF



Type	A	A1	B	C	E	F	G	H
01	182	230	112	80	25x18	18x33	M20	70
02	140	183	75	75	20x13	13x30	M16	50
03	100	120	60	60	11x14	11x14	M10	40



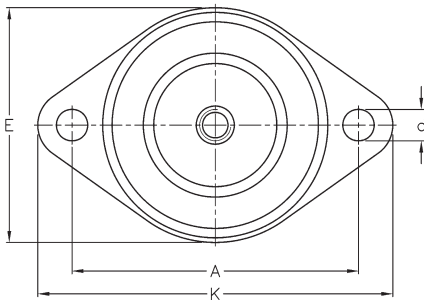
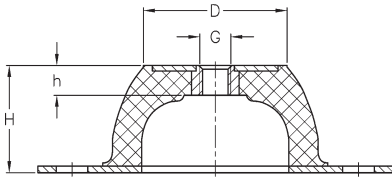
MFL



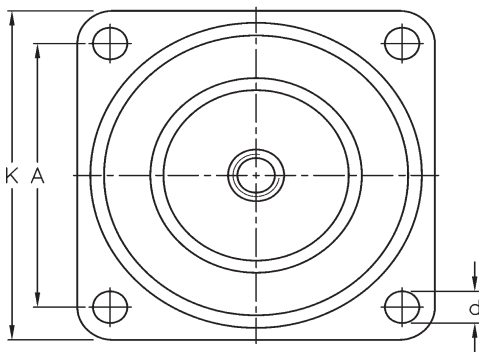
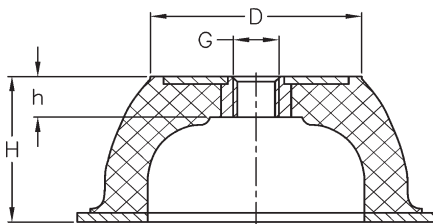
	D	H	G	L	Lh	SW
MFL-1	80	38-48	M12x1,5	100	75-65	8
MFL-2	120	43-55	M16x1,5	120	80-68	9
MFL-3	160	48-53	M20x1,5	170	125-110	12

NR70 Shore	Statisk Belastning (N)	Dynamisk belastning (N)		
MFL-1	6000	1200	1400	2000
MFL-2	15000	2500	3500	4000
MFL-3	30000	7000	10000	25000

VIBR M



VIBR M0007
 VIBR M0025
 VIBR M0050
 VIBR M0100
 VIBR M0100
 VIBR M0200



VIBR M0400
 VIBR M0600
 VIBR M1500

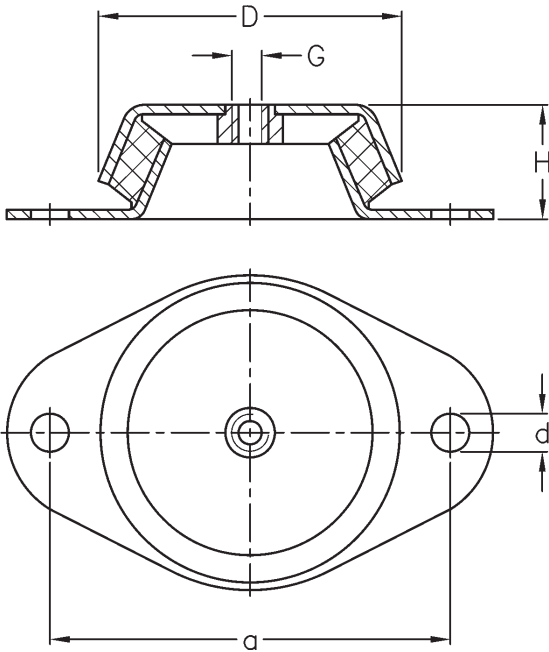


Type	D	E	A	K	H	h	d	G
VIBR M0007	18	43	50	64	20	7	7.0	M6
VIBR M0025	33	56	66	85	25	11	8.0	M8
VIBR M0050	45	76	92	114	35	14	10.0	M10
VIBR M0100	53	96	110	136	40	15	11.5	M10
VIBR M0200	58	101	125	151	45	13	11.5	M10
VIBR M0400	78		120	150	63	18	14.5	M12
VIBR M0600	100		160	200	85	25	14.5	M16
VIBR M1500	186		250	310	160	43	18.0	M24

Type	MAX (KG)	
	40°	60°
VIBR M0007	3,5	9
VIBR M0025	20,0	50
VIBR M0050	40,0	80
VIBR M0100	70,0	150
VIBR M0200	130,0	220
VIBR M0400	280,0	500
VIBR M0600	380,0	750
VIBR M1500	1400,0	2.500

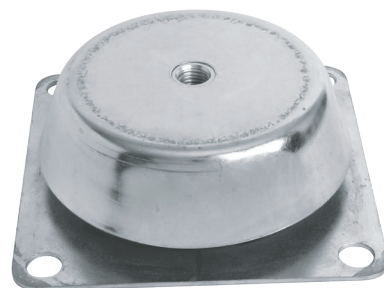
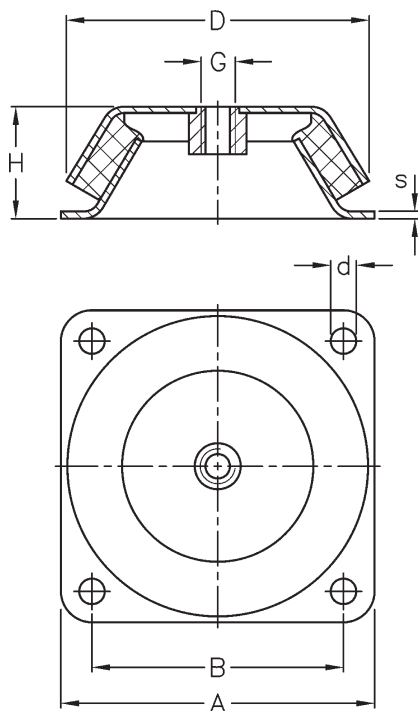
Type GMF og QMF

GMF



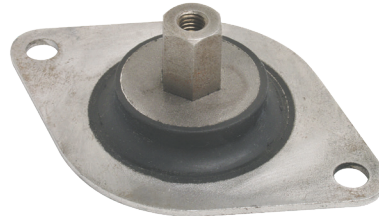
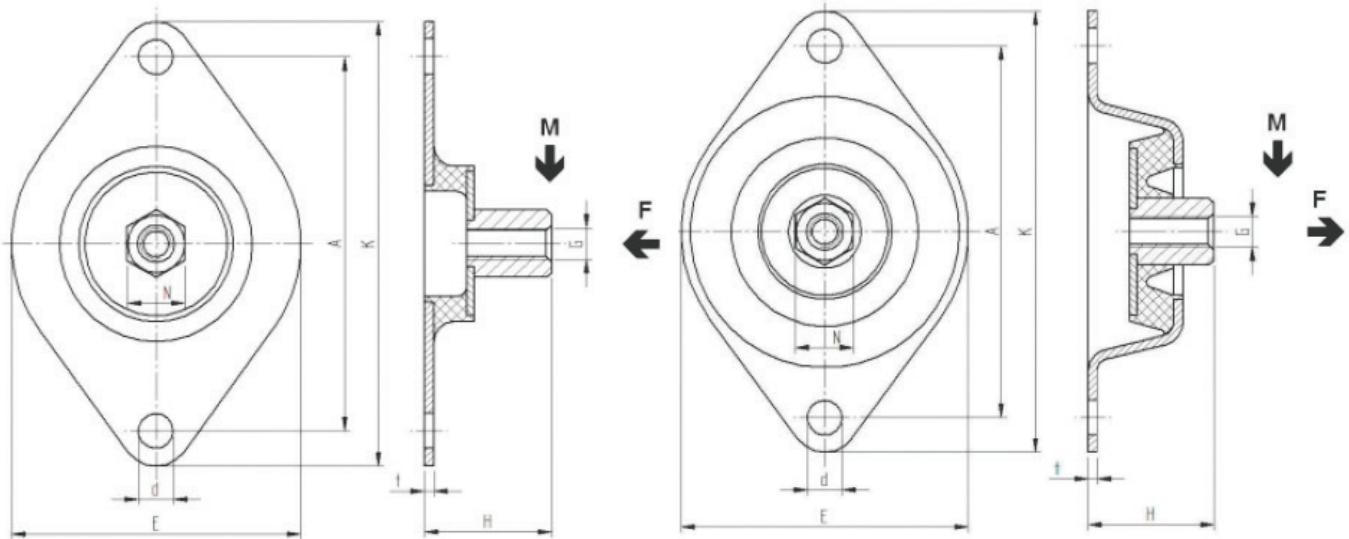
Type	D	H	a	d	G	Belastning (daN)
48/23	48	23	68	6,2	M8	100
62/30	62	30	85	8,2	M10	200
92/45	92	45	110	10,2	M12	300
106/38	106	38	140	12,4	M12	400
160/60	160	60	200	16,2	M16	1.000

QMF



Type	D	H	A	B	S	G	d	Belastning (daN)
160/60	160	60	175	145	3	M16	12,5	800
177/63	177	63	180	150	3	M20	13,0	1400

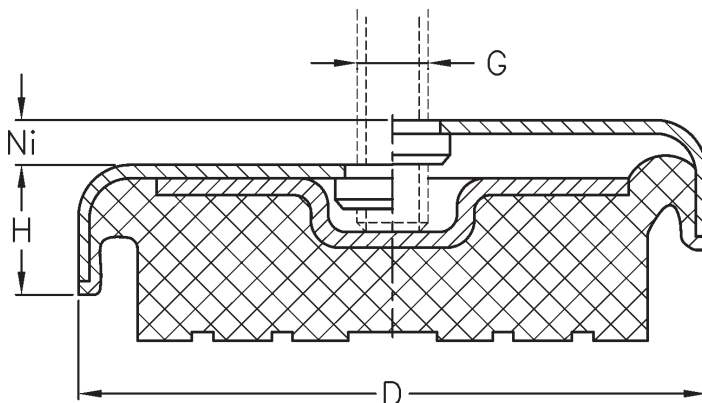
HNG



Type	E	K	A	H	d	N	t	G
HNG-overdel	75	114	96	33	9	15	2,5	M8
HNG-underdel	75	114	96	33	9	15	2,5	M8

Belastning	M-Max (kg)		F-Max (kg)	
	40° Sh	60° Sh	40° Sh	60° Sh
HNG-overdel	14	25	30	70
HNG-underdel	14	25	30	70

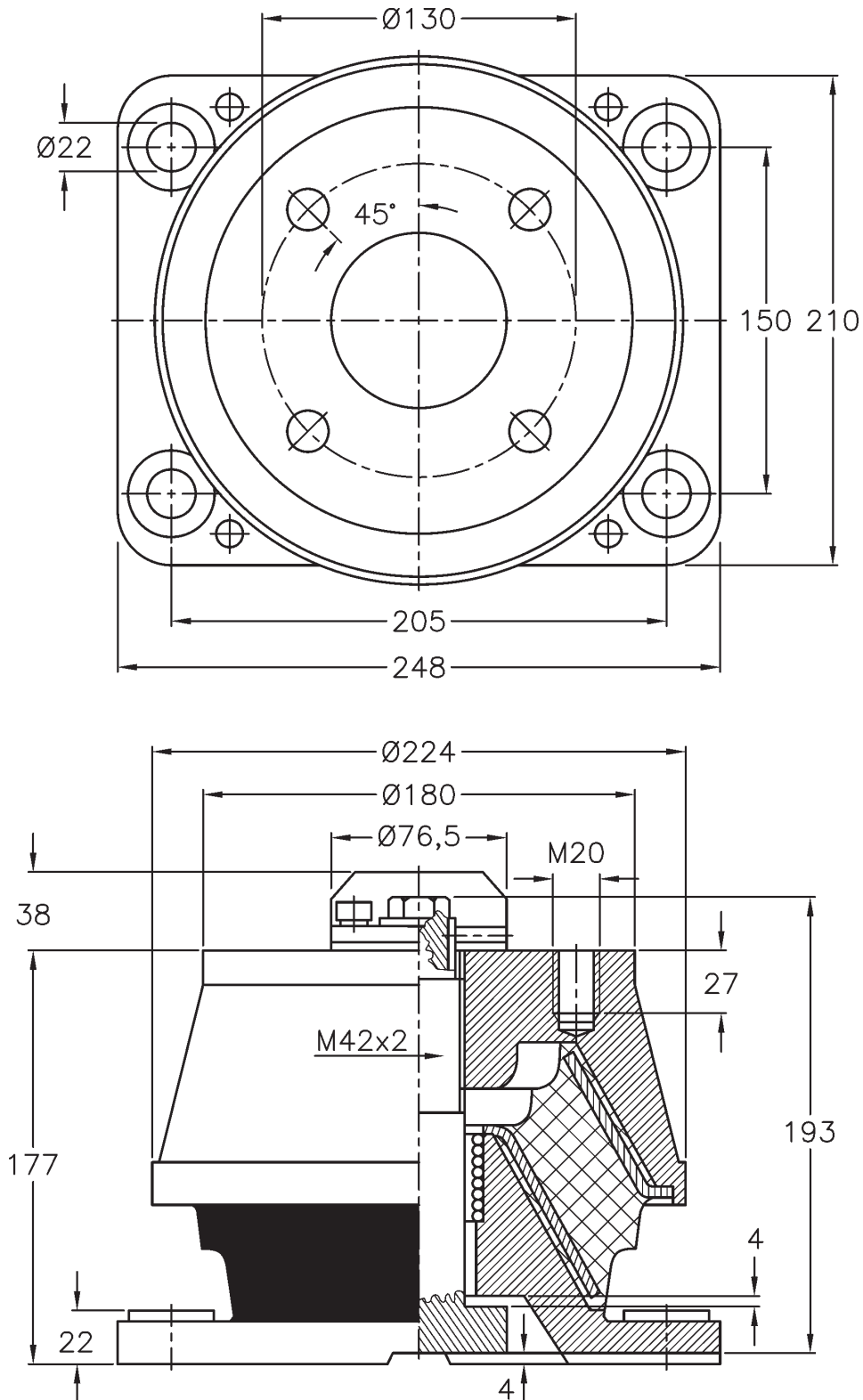
KA



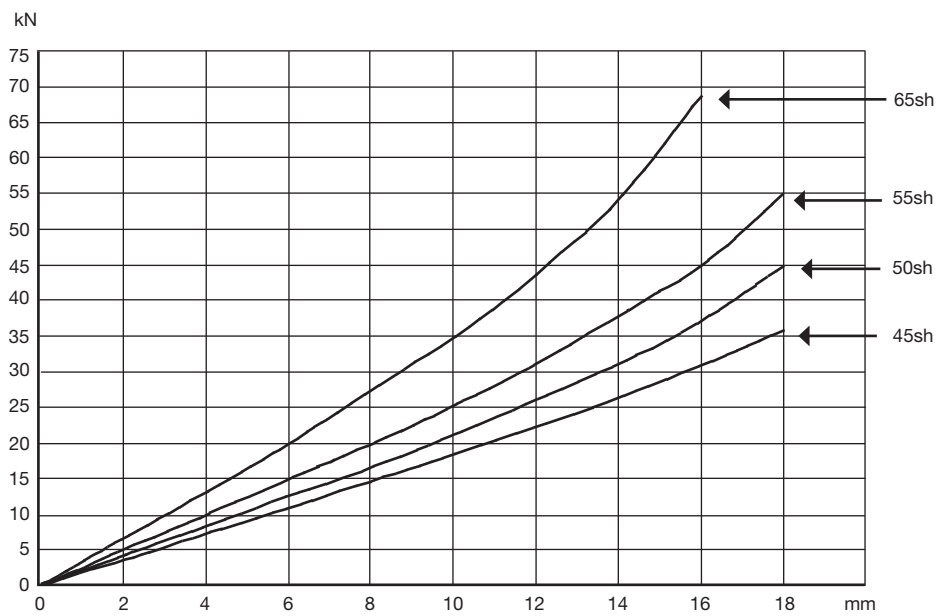
Type	D	H	Ni	G	Belastning (DaN)
KA01	80	25	10	M10	150
KA02	150	40	12	M16	1.000
KA03	200	45	15	M20	3.000
KA015	120	35	12	M12	600
KA090	9	35	10	M12	400

Type HD

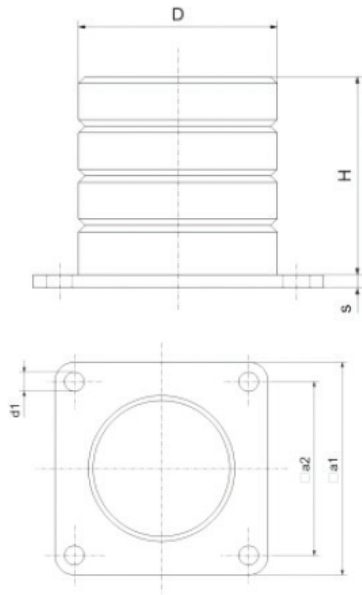
Heavy duty vibrationsdæmper til stationære og maritime applikationer.
 Fås som standard i denne ene dimension. Specialudførsler på forespørgsel efter tegning.



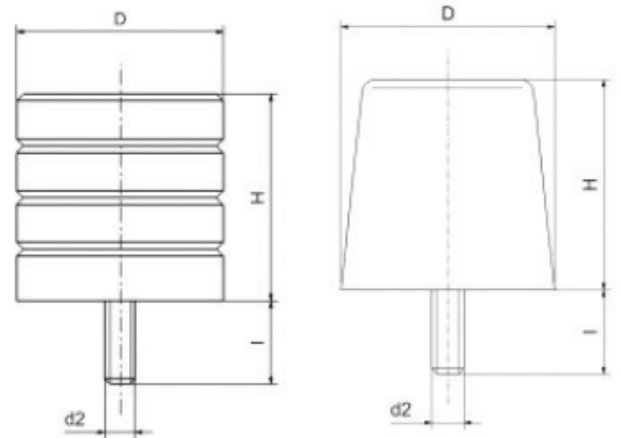
Belastningsdiagram heavy duty vibrationsdæmper.



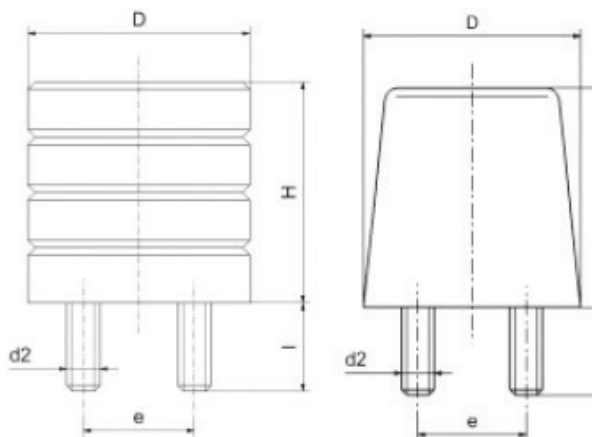
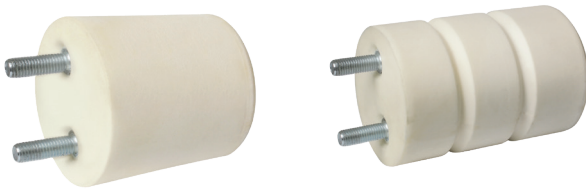
ZP-QP



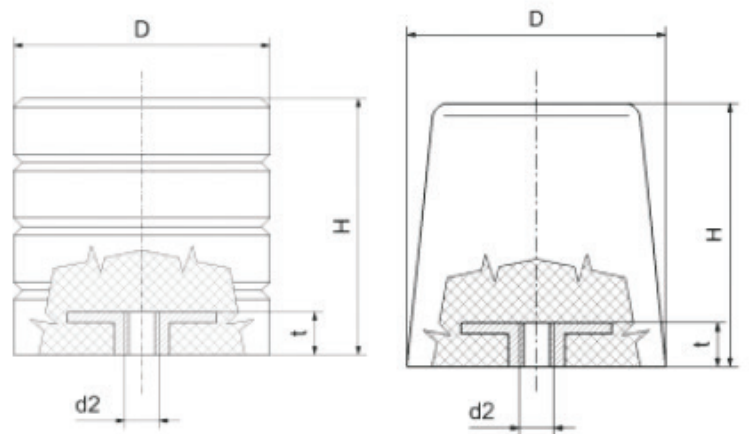
ZP-1G



ZP-2G



ZP-1I



Konisk dæmper, uden rille, størrelse $D = H$, ved type ZP-1G; ZP-2G og ZP-1I.
Typerne ZP-QP fra Ø200 mm er tilgængelig med kabelsikring.

Cellelegemets materiale: polyurethan-elastomer (cellulær Vulkolan®/på forespørgsel).

Volumentæthed: $0,53 \text{ g/cm}^3$
(Special: blød - g/cm^3 hård - g/cm^3).

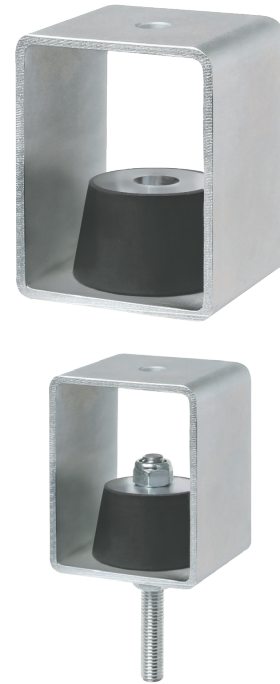
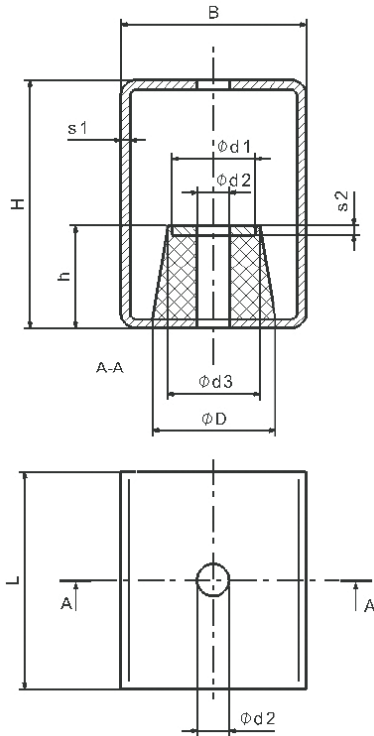
Firkantet plade op til Ø200 mm i plast. Fra Ø 250 mm i stål.

dimension	Type		Størrelse									Belastning ¹		
	D mm	H mm	a1 mm	a2 mm	d1 mm	d2 mm	e mm	l mm	s mm	t mm	mm	kN	J	
070x070	70	70	-	-	-	M12	-	35	-	-	52	30	330	
080x040	80	40	110	80	13	M12	-	35	10	12,5	30	40	200	
080x080 ²	80	80	110	80	13	M12	-	35	10	12,5	60	40	400	
080x120	80	120	100	80	13	M12	-	35	10	12,5	90	40	600	
100x050	100	50	125	100	13	M12	-	35	10	12,5	38	63	400	
100x100	100	100	125	100	13	M12	50	35	10	12,5	75	63	800	
100x150	100	150	125	100	13	M12	50	35	10	12,5	112	63	1200	
125x063	125	63	160	125	17	M12	-	35	12	12,5	47	100	750	
125x125 ²	125	125	160	125	17	M12	63	35	12	12,5	94	100	1500	
125x190	125	190	160	125	17	M12	63	35	12	12,5	142	100	3000	
160x080	160	80	200	160	17	M12	-	35	12	14	60	160	1600	
160x160 ²	160	160	200	160	17	M12	80	35	12	14	120	160	3200	
160x240	160	240	200	160	17	M12	80	35	12	14	180	160	4800	
200x100	200	100	250	200	21	M12	-	35	14	14	75	250	3150	
200x200 ²	200	200	250	200	21	M12	100	35	14	14	150	250	6300	
200x300	200	300	250	200	21	M12	100	35	14	14	225	250	9450	
250x125	250	125	315	250	21	M24	-	80	15	25	94	400	6000	
250x250	250	250	315	250	21	M24	125	80	15	25	188	400	12000	
250x375	250	375	315	250	21	M24	125	80	15	25	280	400	18000	
315x160	315	160	400	315	21	M24	-	80	15	25	120	630	12000	
315x315	315	315	400	315	21	M24	160	80	15	25	236	630	24000	
315x475	315	475	400	315	21	M24	160	80	15	25	356	630	36000	
400x200	400	200	500	400	25	M30	-	80	20	30	150	1000	24000	
400x400	400	400	500	400	25	M30	200	80	20	30	300	1000	48000	
400x600	400	600	500	400	25	M30	200	80	20	30	450	1000	72000	
500x250	500	250	600	500	25	-	-	-	20	-	188	1600	48000	
500x500	500	500	600	500	25	-	-	-	20	-	375	1600	96000	
500x750	500	750	600	500	25	-	-	-	20	-	563	1600	144000	
600x300	600	300	730	600	25	-	-	-	20	-	225	2000	63000	
600x600	600	600	730	600	25	-	-	-	20	-	450	2000	125000	
600x900	600	900	730	600	25	-	-	-	20	-	675	2000	188000	

1) Værdier for $<1 \text{ m/s}$ og fjederafbøjning $f = 0,75 \times H$ /belastningsdiagram efter anmodning.
2) Typer ZP-1G, ZP-2G og ZP-1I formen er konisk.

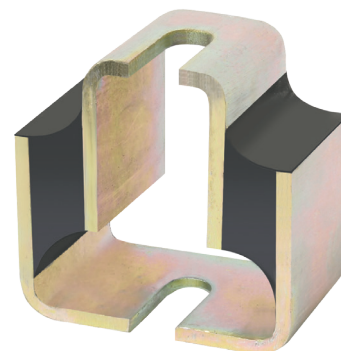
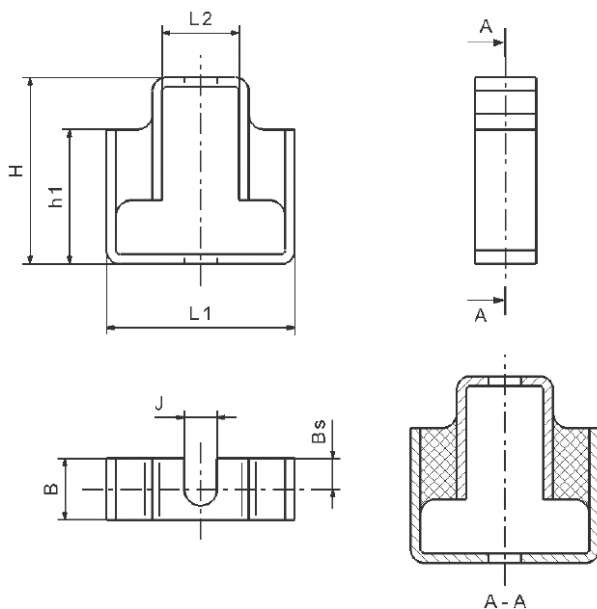
1J = 1Nm = 0,102 mkp

HNG-S



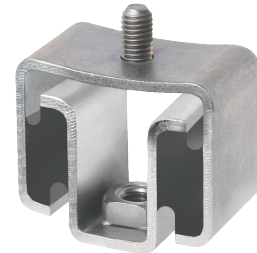
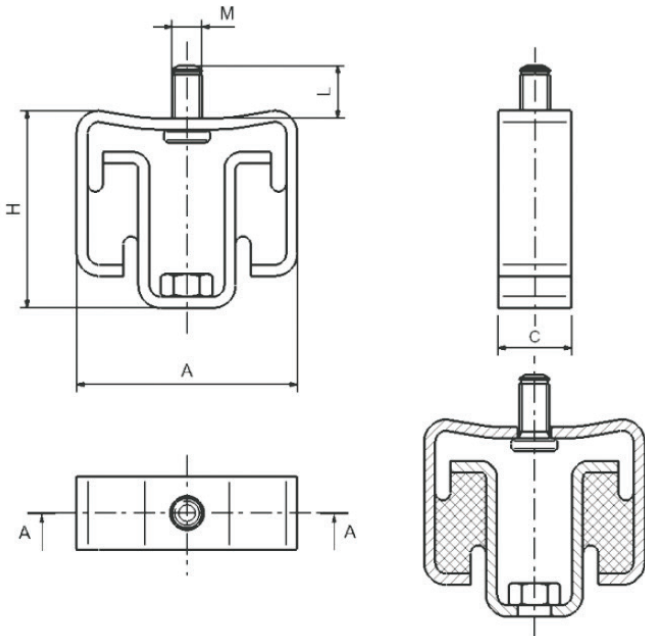
Type	B	H	L	D	h	s1	s2	d1	d2	d3
HNG-S1	40	60	45	30	28	3	2	22,5	8,5	25
HNG-S2	60	80	55	40	33	3	3	27	10,5	30
HNG-S3	80	100	70	60	54	4	3	45	12,5	50

U-LAGER GM1



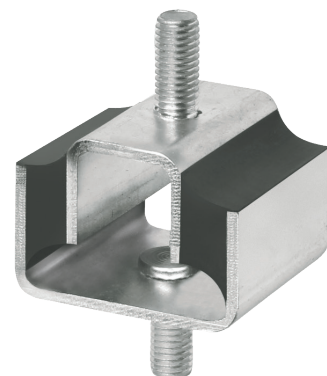
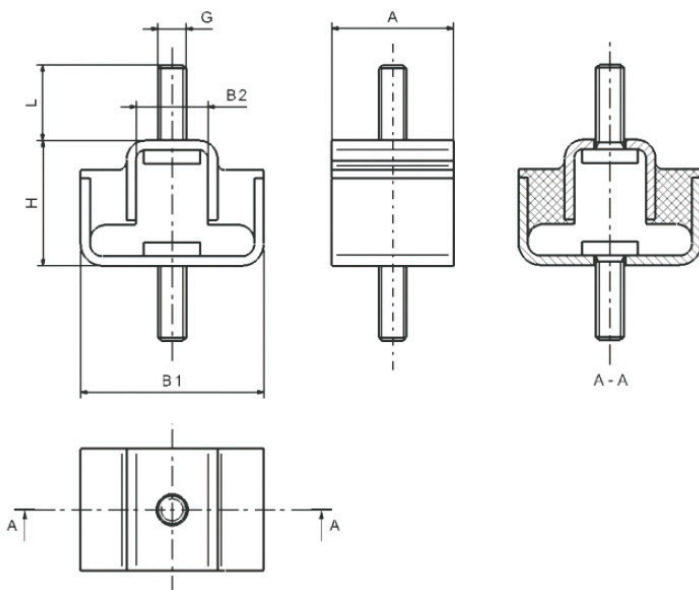
Type	B	L1	L2	H	h1	Bs	J
U25	25	71	26,4	62	43	12,5	11
U50	50	79	32,4	78	56	25	13,5
U50 L	50	60	20	41	30	25	Ø11
U65	65	87	38,4	108	83	32,5	17,5
U80	80	100	48	130	100	40	17,5

U-LAGER GM2



Type	Shore	H	C	A	M	L
535 611	NK45	47	30	55	M8	13
53561160	NK60	47	30	55	M8	13

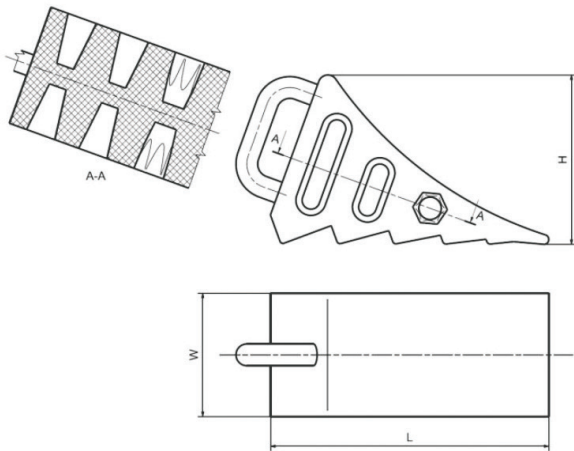
U-LAGER RB



Type	B1	B2	A	H	L	G
L2000	52	20	35	36	21	M8
18301	54	22	50	40	22	M10

Type PEG og KN

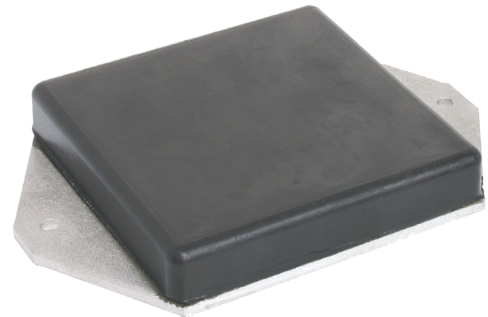
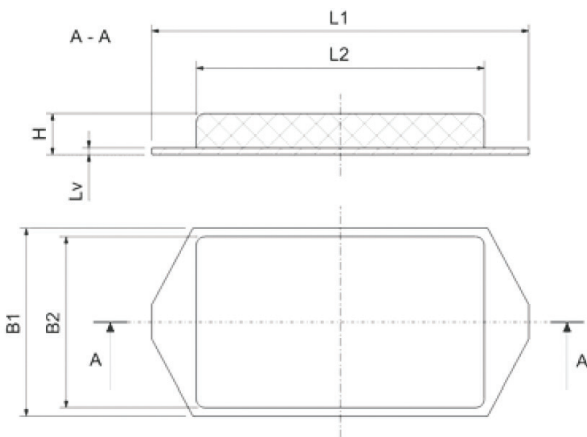
PEG



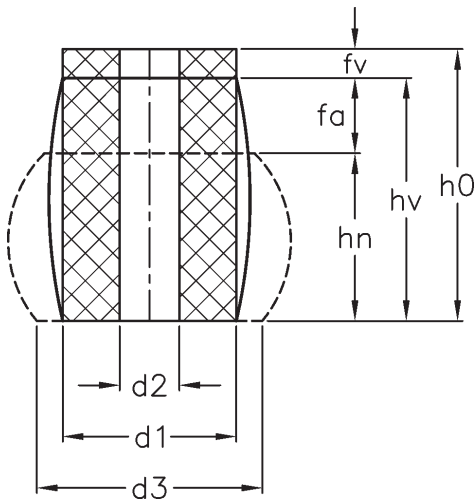
NK70 +/- 5 Shore

Type	W	H	L
PEG-S	100	105	165
PEG-B	100	145	228

KN



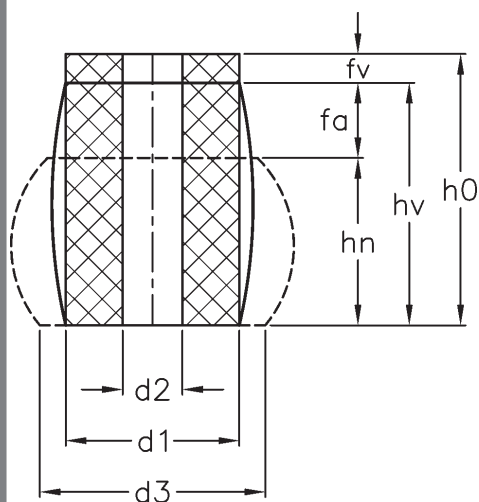
Type	L1	L2	B1	B2	H	Lv
KN-1	148	100	98	98	20	4
KN-2	208	160	98	98	20	4
KN-3	600	600	105	95	20	4

Polyurethan dæmpere PU 80 shore (farve: rød)


d ₁ mm	d ₂ mm	h0 mm	hv mm	fs mm	Tryk kp	d ₃ mm
16	6,5	12,5	11,0	3,0	115	~21
		16,0	14,5	4,0	110	
		20,0	18,0	5,0	106	
		25,0	22,5	6,0	104	
20	8,5	16,0	14,5	4,0	175	~28
		20,0	18,0	5,0	170	
		25,0	22,5	6,0	165	
		32,0	28,5	7,5	162	
25	8,5	20,0	18,0	5,0	280	~35
		25,0	22,5	6,0	275	
		32,0	28,5	7,5	270	
		40,0	36,0	10,0	268	
32	13,5	32,0	28,5	7,5	440	~42
		40,0	36,0	10,0	430	
		50,0	45,0	12,5	425	
		63,0	56,0	15,0	420	
40	13,5	32,0	28,5	7,5	745	~52
		40,0	36,0	10,0	735	
		50,0	45,0	12,5	730	
		63,0	56,0	15,0	725	
50	17,0	32,0	28,5	7,5	1.200	~66
		40,0	36,0	10,0	1.170	
		50,0	45,0	12,5	1.150	
		63,0	56,0	15,0	1.130	
63	17,0	32,0	28,5	7,5	1.120	~80
		40,0	36,0	10,0	1.110	
		50,0	45,0	12,5	2.200	
		63,0	56,0	15,0	2.000	
80	21,0	32,0	28,5	7,5	1.930	~105
		40,0	36,0	10,0	1.890	
		50,0	45,0	12,5	1.850	
		63,0	56,0	15,0	1.820	
100	21,0	32,0	28,5	7,5	3.600	~127
		40,0	36,0	10,0	3.450	
		50,0	45,0	12,5	3.280	
		63,0	56,0	15,0	3.150	
125	27,0	32,0	28,5	7,5	3.100	~155
		40,0	36,0	10,0	3.040	
		50,0	45,0	12,5	2.980	
		63,0	56,0	15,0	6.000	
125	27,0	80,0	72,0	20,0	5.750	~127
		100,0	90,0	25,0	5.520	
		125,0	112,0	30,0	5.320	
		160,0	144,0	40,0	5.120	
125	27,0	80,0	72,0	20,0	4.980	~155
		100,0	90,0	25,0	4.850	
		125,0	112,0	30,0	10.000	
		160,0	144,0	40,0	9.580	
125	27,0	100,0	90,0	25,0	8.800	~155
		125,0	112,0	30,0	8.520	
		160,0	144,0	40,0	8.060	
		125,0	112,0	30,0	7.800	
125	27,0	160,0	144,0	40,0	7.700	~155
		125,0	112,0	30,0	7.580	
		100,0	90,0	25,0	7.580	
		75,0	72,0	20,0	7.580	

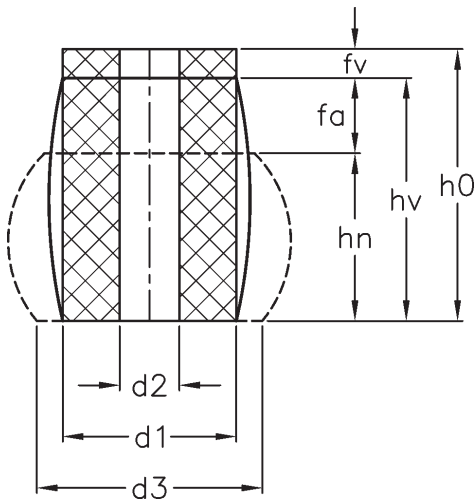
Ved bestilling:
Angiv PU80 16/6,5/12,5

Polyurethan dæmpere PU 90 shore (farve: blå)



d ₁ mm	d ₂ mm	h ₀ mm	h _v mm	f _a mm	Tryk kp	d ₃ mm
16	6,5	12,5	11,5	2	158	~20
		16,0	14,5	3	153	
		20,0	18,0	4	150	
		22,5	22,5	5	148	
		25,0	22,5	5	148	
20	8,5	16,0	14,5	3	235	~27
		20,0	18,0	4	230	
		25,0	22,5	5	228	
		32,0	28,5	6	226	
25	8,5	20,0	18,0	4	398	~32
		25,0	22,5	5	39	
		32,0	28,5	6	386	
		40,0	36,0	8	382	
32	13,5	32,0	28,5	6	595	~39
		40,0	36,0	8	585	
		50,0	45,0	10	580	
		63,0	56,0	12	757	
40	13,5	32,0	28,5	6	1.020	~49
		40,0	36,0	8	1.000	
		50,0	45,0	10	995	
		63,0	56,0	12	990	
		80,0	72,0	16	985	
50	17,0	32,0	28,5	6	1.600	~62
		40,0	36,0	8	1.575	
		50,0	45,0	10	1.550	
		63,0	56,0	12	1.530	
		80,0	72,0	16	1.515	
63	17,0	100,0	90,0	20	1.500	
		32,0	28,5	6	2.800	
		40,0	36,0	8	2.720	
		50,0	45,0	10	2.650	
		63,0	56,0	12	2.600	
80	21,0	80,0	72,0	16	2.550	
		100,0	90,0	20	2.500	
		125,0	112,0	24	2.450	
		32,0	28,5	6	4.970	
		40,0	36,0	8	4.660	
100	21,0	50,0	45,0	10	4.520	~125
		63,0	56,0	12	4.340	
		80,0	72,0	16	4.200	
		100,0	90,0	20	4.130	
		125,0	112,0	24	4.050	
125	27,0	32,0	28,5	6	8.050	~150
		40,0	36,0	8	7.740	
		50,0	45,0	10	7.420	
		63,0	56,0	12	7.140	
		80,0	72,0	16	6.900	
		100,0	90,0	20	6.700	
		125,0	112,0	24	6.520	
		160,0	144,0	32	9.850	
		32,0	28,5	6	12.450	
		40,0	36,0	8	12.000	
		50,0	45,0	10	11.550	
		63,0	56,0	12	11.150	
		80,0	72,0	16	10.700	
100,0	90,0	20	10.300			
125,0	112,0	24	10.050			
160,0	144,0	32	9.850			

Ved bestilling:
Angiv PU90 16/6,5/12,5

Polyurethan dæmpere PU 95 shore (farve: grøn)


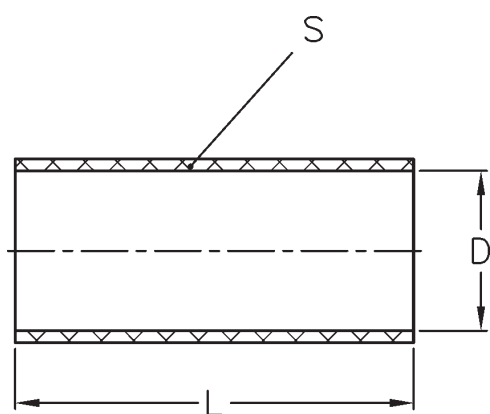
d_1 mm	d_2 mm	h_0 mm	h_v mm	h_n mm	Tryk kp	d_3 mm
16	6,5	12,5	11,0	1,5	192	~19,5
		16,0	14,5	2,0	188	
		20,0	18,0	3,0	185	
		25,0	22,5	4,0	182	
20	8,5	16,0	14,5	2,0	290	~25
		20,0	18,0	3,0	285	
		25,0	22,5	4,0	282	
		32,0	28,5	4,5	280	
25	8,5	20,0	18,0	3,0	490	~30
		25,0	22,5	4,0	480	
		32,0	28,5	4,5	475	
		40,0	36,0	6,0	470	
32	13,5	32,0	28,5	4,5	730	~38
		40,0	36,0	6,0	718	
		50,0	45,0	7,5	1.225	
		63,0	56,0	9,0	1.900	
40	13,5	32,0	28,5	4,5	1.250	~46
		40,0	36,0	6,0	1.230	
		50,0	45,0	7,5	1.225	
		63,0	56,0	9,0	1.215	
50	17,0	80,0	72,0	12,0	1.200	
		32,0	28,5	4,5	2.010	~59
		40,0	36,0	6,0	1.960	
		50,0	45,0	7,5	1.920	
63	17,0	63,0	56,0	9,0	1.900	
		80,0	72,0	12,0	1.880	
		100,0	90,0	15,0	1.860	
		32,0	28,5	4,5	3.450	~75
80	21,0	40,0	36,0	6,0	3.360	
		50,0	45,0	7,5	3.280	
		63,0	56,0	9,0	3.200	
		80,0	72,0	12,0	3.150	
125	27,0	100,0	90,0	15,0	3.110	
		125,0	112,0	18,0	3.070	
		32,0	28,5	4,5	6.000	~98
		40,0	36,0	6,0	5.750	
125	27,0	50,0	45,0	7,5	5.540	
		63,0	56,0	9,0	5.360	
		80,0	72,0	12,0	5.200	
		100,0	90,0	15,0	5.130	
125	27,0	125,0	112,0	18,0	5.060	
		160,0	144,0	24,0	17.200	~105
		40,0	36,0	6,0	16.200	
		50,0	45,0	7,5	15.100	
125	27,0	63,0	56,0	9,0	14.300	
		80,0	72,0	12,0	13.600	
		100,0	90,0	15,0	13.000	
		125,0	112,0	18,0	12.900	
125	27,0	160,0	144,0	24,0	12.800	

Ved bestilling:

Angiv PU95 16/6,5/12,5

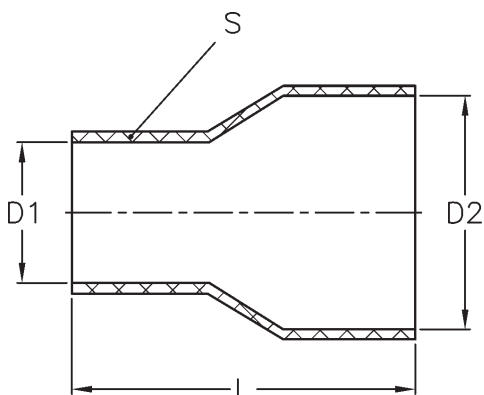
Gummiføring

Egenskab	Værdigrænser	Krav	Mål
Hårdhed Trækstyrke Brudstyrke	- Minimum Minimum	65 ± 5 5 300	Sh° A Mpa %
Ældningsmodstand			
Hårdhed ændring Trækstyrke Brudstyrke forandring	Maximum Maximum Maximum	6 5 20	sh° A % %
Væskemodstand			
Cylindervolumen	Maximum	10	%



D (mm)	D tolerance (mm)	L (mm)	S (mm)
10,0	+0 / -1	1.000	4 + 1/ -0
15,0	+0 / -1	1.000	4 + 1/ -0
16,0	+0 / -1	1.000	4 + 1/ -0
18,0	+0 / -1	1.000	4 + 1/ -0
19,0	+0 / -1	1.000	4 + 1/ -0
20,0	+0 / -1	1.000	4 + 1/ -0
22,0	+0 / -1	1.000	4 + 1/ -0
25,0	+0 / -1	1.000	4 + 1/ -0
28,0	+0 / -1	1.000	4 + 1/ -0
30,0	+0 / -1	1.000	4 + 1/ -0
30,2	+0 / -1	1.000	4 + 1/ -0
35,0	+0 / -1	1.000	4 + 1/ -0
38,0	+0 / -1	1.000	4 + 1/ -0
45,0	+0 / -1	1.000	4 + 1/ -0
50,8	+0 / -1	1.000	5 + 1/ -0
55,0	+0 / -1	1.000	5 + 1/ -0
60,0	+0 / -1	1.000	5 + 1/ -0
80,0	+0 / -1	1.000	5 + 1/ -0
127,0	+0 / -1	1.000	5 + 1/ -0
15,0	+0 / -1	100	4 + 1/ -0
15,0	+0 / -1	120	4 + 1/ -0
35,0	+0 / -1	100	4 + 1/ -0
35,0	+0 / -1	120	4 + 1/ -0
127,0	+0 / -1	85	5 + 1/ -0
127,0	+0 / -1	100	5 + 1/ -0
127,0	+0 / -1	120	5 + 1/ -0
129,0	+0 / -1	60	5 + 1/ -0
129,0	+0 / -1	85	5 + 1/ -0
129,0	+0 / -1	100	5 + 1/ -0
150,0	+0 / -1	100	5 + 1/ -0

DIN 53 505-2.000

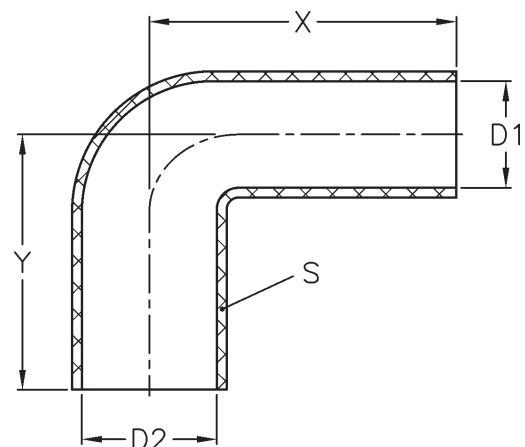
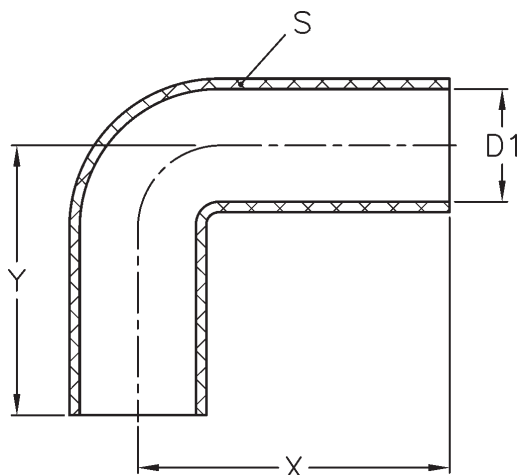


D1/D2 (mm)	D tolerance (mm)	L (mm)	S (mm)
20/30	+0 / -1	FRIT VALG	4 + 1/ -0
35/38	+0 / -1		4 + 1/ -0
40/70	+0 / -1		4 + 1/ -0
50/55	+0 / -1		4 + 1/ -0
50/60	+0 / -1		4 + 1/ -0
50/70	+0 / -1		4 + 1/ -0
50/90	+0 / -1		4 + 1/ -0
60/70	+0 / -1		4 + 1/ -0
60/75	+0 / -1		4 + 1/ -0

Gummivinkel

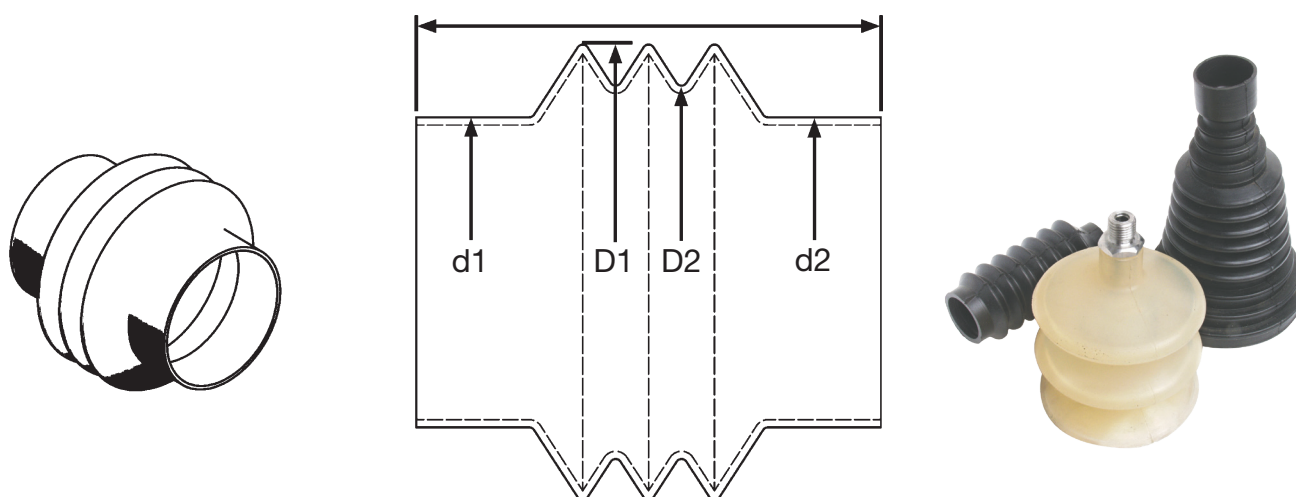
Egenskaber	Værdigrænser	Krav	Mål
Hårdhed	-	65± 5	Sh° A
Trækstyrke	Minimum	5	Mpa
Brudstyrke	Minimum	300	%
Ændringsmodstand			
Hårdhedsændring	Maximum	6	sh° A
Trækstyrke	Maximum	5	%
Brudstyrke foran	Maximum	20	%
Væskemodstand			
Cylindervolumen	Maximum	10	%

D1 / D2 (mm)	D1,2 tolerance (mm)	α (°)	X (mm)	Y (mm)	S (mm)
15,0	+0 / -1	90	46	46	4 + 1 / -0
15,0	+0 / -1	90	100	100	4 + 1 / -0
16,0	+0 / -1	90	60	60	4 + 1 / -0
16,0	+0 / -1	90	100	100	4 + 1 / -0
22,0	+0 / -1	90	56	56	4 + 1 / -0
22,0	+0 / -1	90	100	100	4 + 1 / -0
28,0	+0 / -1	90	65	65	4 + 1 / -0
28,0	+0 / -1	90	100	100	4 + 1 / -0
28,6	+0 / -1	90	66	66	4 + 1 / -0
35,0	+0 / -1	90	76	76	4 + 1 / -0
35,0	+0 / -1	90	100	100	4 + 1 / -0
44,5	+0 / -1	90	90	90	4 + 1 / -0
50,0	+0 / -1	90	100	100	4 + 1 / -0
50,8	+0 / -1	90	100	100	4 + 1 / -0
50,8	+0 / -1	105	100	100	4 + 1 / -0
60,4	+0 / -1	90	100	100	5 + 1 / -0
63,6	+0 / -1	90	123	123	5 + 1 / -0
127,0	+0 / -1	90	178	178	5 + 1 / -0
22,0 / 31,8	+0 / -1	90	100	100	4 + 1 / -0
38,0 / 28,0	+0 / -1	90	100	100	4 + 1 / -0
38,0 / 31,5	+0 / -1	90	100	100	4 + 1 / -0
38,0 / 35,0	+0 / -1	90	100	100	4 + 1 / -0
60,0 / 50,0	+0 / -1	90	76	76	5 + 1 / -0
60,0 / 50,0	+0 / -1	90	100	100	5 + 1 / -0
60,0 / 50,8	+0 / -1	110	100	100	5 + 1 / -0
60,0 / 52,0	+0 / -1	90	100	100	5 + 1 / -0
60,0 / 52,0	+0 / -1	90	102	102	5 + 1 / -0
70,0 / 60,0	+0 / -1	90	220	250	5 + 1 / -0



Bælge

Lmax, Lmin



Fremstilles i henhold til ønskede specifikationer (prøve og/eller tegning).

Gummiplader

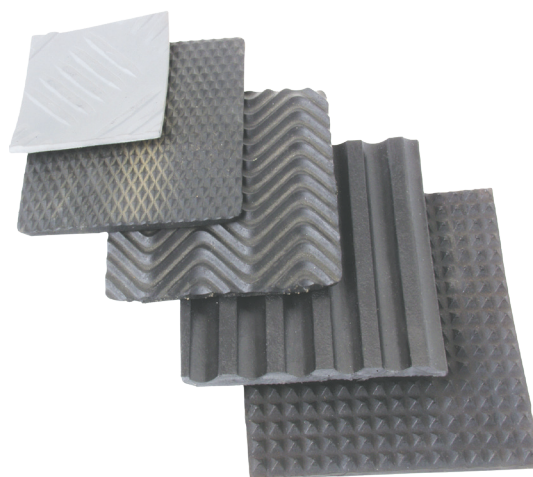
Største dimension: 1.200 x 1.950 mm

Tykkelse: 3-40 mm

Fremstilles i henhold til ønskede specifikationer.

Mulighed for

- tekstilindlæg
- kundespecifik form
- glat overflade
- præget overflade
- mønstret overflade



DIN 7715 tolerance for formfremstillede produkter

Nominelle mål		Klasse M1		Klasse M2		Klasse M3		Klasse M4	
		F ±	C ±	F ±	C ±	F ±	C ±	F ±	C ±
Tolerance i mm									
Over 2,5	to 2,5	0,08	0,08	0,10	0,15	0,25	0,40	0,50	0,50
Over 2,5	to 4,0	0,08	0,10	0,10	0,15	0,25	0,40	0,50	0,50
Over 4,0	to 6,3	0,10	0,10	0,15	0,20	0,25	0,40	0,50	0,50
Over 6,3	to 10	0,10	0,15	0,20	0,20	0,30	0,50	0,70	0,70
Over 10	to 16	0,15	0,20	0,20	0,25	0,40	0,60	0,80	0,80
Over 16	to 25	0,20	0,20	0,25	0,35	0,50	0,80	1,00	1,00
Over 25	to 40	0,20	0,25	0,35	0,40	0,60	1,00	1,30	1,30
Over 40	to 63	0,25	0,37	0,40	0,50	0,80	1,30	1,60	1,60
Over 63	to 100	0,35	0,40	0,50	0,70	1,00	1,60	2,00	2,00
Over 100	to 160	0,40	0,50	0,70	0,80	1,30	2,00	2,50	2,50
Tolerance i %									
Over 160		0,30	0,40	0,50	0,70	0,80	1,30	1,50	1,50

DIN 7715 tolerance for ekstruderede gummi profiler

Nominelle mål		Tolerance ±
over 2,5	til 2,5	0,5
over 4,0	til 4,0	0,7
over 6,3	til 6,3	0,8
over 10,0	til 10,0	1,0
over 16,0	til 16,0	1,3
over 25,0	til 25,0	1,6
over 40,0	til 40,0	2,0
over 63,0	til 63,0	2,5
over 100,0	til 100,0	3,2

Nominelle mål		Mål uden tolerance
		Grov tolerance
		Tolerance i mm
over 3	til 3	±0,4
over 6	til 6	±0,5
over 10	til 10	±0,6
over 18	til 18	±0,8
over 30	til 30	±1,0
over 50	til 50	±1,5
over 80	til 80	±2,0
over 120	til 120	±2,5
over 180	til 180	±3,0
over 250	til 250	±4,0
over 315	til 315	±5,0
over 400	til 400	±6,0
over 500	til 500	±7,0
		Tolerance i %
over 500		±1,5

Bemærk:

De statiske belastningsdata kan have en tolerance på ± 20% (på grund af produktions eller hårdhedsdifferencer).

Om Brd. Klee

Brd. Klee Ingeniør- og Handelsaktieselskab er grundlagt i 1944 og er siden 1986 børsnoteret. Vi er beliggende i Albertslund og tilbyder løsninger inden for tekniske komponenter og halvfabrikata. Vi er ca. 75 ansatte i Danmark. Hertil kommer kolleger i vores datterselskaber i Taiwan og Kina med fokus på sourcing og kvalitetskontrol for vores danske og internationale kunder.

På vores værksted bygger og samler vi kundespecifikke produkter, f.eks. i specialfarve, med kundenavn eller anden tekst påtrykt. Mulighederne er mange.

Det samlede sortiment er på over 650.000 artikelnumre og udbygges løbende.

- Greb-, Maskin-, DIN- & Normdele
- Gummi & Plast
- Pneumatik & Hydraulik
- Lineærteknik
- Åbne Transmissioner
- Gear og Gearmotorer
- Motorer, Pumper & Blæsere
- Stylinger, Elektronik & Robotter



Hos Brd. Klee har du mulighed for at bestille og få varer leveret døgnet rundt - året rundt. Her er 12 gode grunde til at vælge Brd. Klee:

- **100 % kvalitet.** ISO certificering. Egenkontrol på producenters fabrikker. Forhandling af kvalitetsprodukter og brands fra ledende producenter worldwide. Egne mærker og producenter.
Det er vort løfte til dig om kvalitet hele vejen.
- **Mennesker og miljø.** Overfor alle leverandører stiller vi krav om god og fair produktion med respekt for mennesker og miljø.
- **24 timers service.** Du kan få fat i os pr. telefon døgnet rundt, året rundt. Uden for normal åbningstid tager vi et gebyr for support og ordrehåndtering.
- **Vi kommer til dig** med support fra vores kompetente specialister og key account kolleger.
- **Kundespecifikke løsninger** fra vores værksted i Albertslund skræddersyet efter dine behov.
- Vi lagerfører for dig. Mulighed for aftale om lagerføring af varer specielt til dig på vores 10.000 m² lager i Albertslund.
- **Lokalt samarbejde** med ca. 30 partnerforhandlere – primært med elektromekanisk baggrund - i Danmark og Norden, som tilbyder hele Klees sortiment og er lagerførende i dele heraf.
- **2D/3D måltegninger** til fri download på klee.dk.
- **www.klee.dk** med opdateret online katalog. Det kræver ingen adgangskode at se lagerbeholdning, hente PDF kataler m.v.
- **Webshop** med personligt login. Så kan du se dine priser, åbne ordrer, ordrearkiv, bestille ud fra dine egne artikelnumre, følge ordrer via 'track and trace' etc.
- **Nyhedsbreve** med produktnyt og messeinvitationer m.v.
- **EDI.** Mulighed for samhandel og dokumentudveksling via EDI.





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