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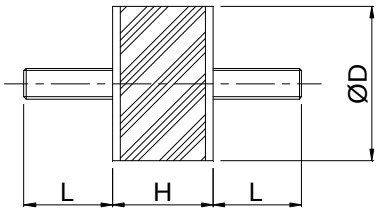
Buffers Cont'd: Section 2

Buffer Type A



Compounds Produced: (Natural Rubber)

- 43° Shore A (soft)
- 57° Shore A (medium)
- 68° Shore A (hard)

Buffers can be manufactured in non-standard sizes, rubber hardness and various compounds. Minimum order quantities may apply

Available Sizes

• = STANDARD STOCK

Dimensions Dia/Ht (mm)	Screw Thread Size x L (mm)	Special Screw Thread Size (mm)
6/6 6/7	M3 x 6 M3 x 6	
8/6 8/8	M3 x 6 M3 x 6	
9/12	M4 x 6	
10/8 • 10/10 10/15	M4 x 10 M4 x 10 M4 x 10	M3 x 5, M5 x 5 M5 x 10, M5 x 15
12/24	M4 x 12	
13/26	M4 x 10	
15/6 15/8 15/10 • 15/15 15/20 15/25 15/28 15/30	M4 x 13 M4 x 13 M4 x 13 M4 x 13 M4 x 13 M4 x 13 M4 x 13 M4 x 13	M4 x 6, M4 x 8 M4 x 10, M4 x 15 M5 x 15
• 18/8.5	M6 x 16	M6 x 10
20/10 • 20/15 • 20/20 • 20/25 20/30	M6 x 15 M6 x 15 M6 x 15 M6 x 15 M6 x 15	M5 x 15, M6 x 8 M6 x 10, M6 x 12 M6 x 18, M6 x 20
25/10 • 25/15 • 25/20 25/25 25/30	M6 x 18 M6 x 18 M6 x 18 M6 x 18 M6 x 18	M6 x 8, M6 x 10 M6 x 12, M6 x 15 M6 x 20
• 30/15 • 30/20 30/25 • 30/30 30/40 30/50	M8 x 20 M8 x 20 M8 x 20 M8 x 20 M8 x 20 M8 x 20	M8 x 8, M8 x 10 M8 x 13, M8 x 16 M8 x 18, M8 x 23 M8 x 27, M10 x 25
40/20 • 40/30 • 40/40 40/66	M8 x 23 M8 x 23 M8 x 23 M8 x 23	M8 x 12, M8 x 13 M8 x 16, M8 x 28 M10 x 20

Dimensions Dia/Ht (mm)	Screw Thread Size x L (mm)	Special Screw Thread Size (mm)
• 50/20 50/25 • 50/30 50/35 • 50/40 50/45 • 50/50 50/55	M10 x 28 M10 x 28 M10 x 28 M10 x 28 M10 x 28 M10 x 28 M10 x 28 M10 x 28	M8 x 23, M10 x 15 M10 x 20, M10 x 33 M12 x 27
60/35 60/40 60/45	M10 x 28 M10 x 28 M10 x 28	M8 x 23, M10 x 15 M10 x 20, M10 x 33 M12 x 27
70/35 • 70/45	M10 x 30 M10 x 30	M10 x 25
75/25 • 75/40 75/45 • 75/50 • 75/55 75/60	M12 x 37 M12 x 37 M12 x 37 M12 x 37 M12 x 37 M12 x 37	M12 x 27, M12 x 32
80/66	M12 x 37	
90/50 90/55	M14 x 33 M14 x 33	M14 x 30
100/30 100/40 100/50 • 100/55 100/60 100/75 100/100	M16 x 45 M16 x 45 M16 x 45 M16 x 45 M16 x 45 M16 x 45 M16 x 45	M12 x 27, M16 x 37
125/55 125/60	M16 x 45 M16 x 45	
150/55 150/60 150/75 150/100	M16 x 45 M16 x 45 M16 x 45 M16 x 45	M20 x 45
160/75	M16 x 45	
200/100	M20 x 45	

Note: Buffers can be manufactured in non-standard sizes, rubber hardness and various compounds, minimum order quantities may apply.

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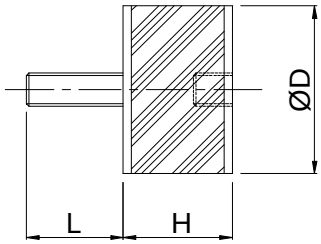
Buffers Cont'd: Section 2

Buffer Type B



Compounds Produced: (Natural Rubber)

43° Shore A (soft)
57° Shore A (medium)
68° Shore A (hard)

Available Sizes

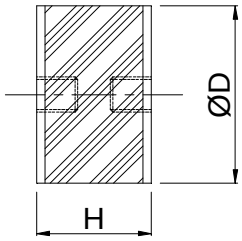
• = STANDARD STOCK

Dimensions Dia/Ht (mm)	Screw Thread Size x L (mm)	Special Screw Thread Size (mm)
6/6 6/7	M3 x 6 M3 x 6	
8/6 8/8	M3 x 6 M3 x 6	
9/12	M3 x 6	
• 10/10 10/15	M4 x 10 M4 x 10	M3 x 5, M5 x 5 M5 x 10
12/24	M4 x 12	
13/26	M4 x 10	M4 x 12
15/10 • 15/15 15/20 15/25 15/28 15/30	M4 x 13 M4 x 13 M4 x 13 M4 x 13 M4 x 13 M4 x 13	M4 x 6, M4 x 8 M4 x 10, M4 x 15 M5 x 15
• 20/15 • 20/20 • 20/25 20/30	M6 x 15 M6 x 15 M6 x 15 M6 x 15	M5 x 15, M6 x 8 M6 x 10, M6 x 12 M6 x 18, M6 x 20
• 25/15 • 25/20 25/25 25/30	M6 x 18 M6 x 18 M6 x 18 M6 x 18	M6 x 8, M6 x 10 M6 x 12, M6 x 15 M6 x 20
• 30/15 • 30/20 30/25 • 30/30 30/40 30/50	M8 x 20 M8 x 20 M8 x 20 M8 x 20 M8 x 20 M8 x 20	M8 x 8, M8 x 10 M8 x 13, M8 x 16 M8 x 18, M8 x 23 M8 x 27
40/20 • 40/30 • 40/40 40/66	M8 x 23 M8 x 23 M8 x 23 M8 x 23	M8 x 12, M8 x 13 M8 x 16, M8 x 28 M10 x 20

Dimensions Dia/Ht (mm)	Screw Thread Size x L (mm)	Special Screw Thread Size (mm)
• 50/20 50/25 • 50/30 50/35 • 50/40 50/45 • 50/50 50/55	M10 x 28 M10 x 28 M10 x 28 M10 x 28 M10 x 28 M10 x 28 M10 x 28 M10 x 28	M8 x 23, M10 x 15 M10 x 20, M10 x 33 M12 x 27
60/35 60/40 60/45	M10 x 28 M10 x 28 M10 x 28	M10 x 15 M10 x 20, M10 x 33
70/35 • 70/45	M10 x 30 M10 x 30	M10 x 25
75/25 • 75/40 75/45 • 75/50 • 75/55 75/60	M12 x 37 M12 x 37 M12 x 37 M12 x 37 M12 x 37 M12 x 37	M12 x 27, M12 x 32
80/66	M12 x 37	M12 x 27
90/50 90/55	M14 x 33 M14 x 33	
100/30 100/40 100/50 • 100/55 100/60 100/75 100/100	M16 x 45 M16 x 45 M16 x 45 M16 x 45 M16 x 45 M16 x 45 M16 x 45	M12 x 27, M12 x 37
125/55 125/60	M16 x 45 M16 x 45	
150/55 150/60 150/75 150/100	M16 x 45 M16 x 45 M16 x 45 M16 x 45	M20 x 45
160/75	M16 x 45	
200/100	M20 x 45	

Note: Buffers can be manufactured in non-standard sizes, rubber hardness and various compounds, minimum order quantities may apply.

Buffer Type C



Compounds Produced: (Natural Rubber)

- 43° Shore A (soft)
- 57° Shore A (medium)
- 68° Shore A (hard)

Available Sizes

- = STANDARD STOCK

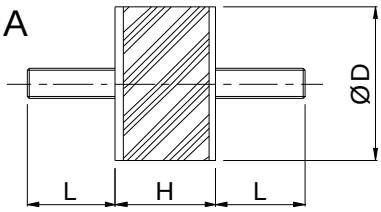
Dimensions Dia/Ht (mm)	Screw Thread Size x L (mm)	Special Screw Thread Size (mm)
8/8	M3	
9/12	M4	
• 10/10	M4	M3
10/15	M4	
12/24	M4	
13/26	M4	
• 15/15	M4	M5
15/20	M4	
15/25	M4	
15/28	M4	
15/30	M4	
• 20/20	M6	M5
20/25	M6	
20/30	M6	
• 25/20	M6	
25/25	M6	
25/30	M6	
• 30/20	M8	
30/25	M8	
• 30/30	M8	
30/40	M8	
30/50	M8	
• 40/30	M8	M10
• 40/40	M8	
40/66	M8	
• 50/30	M10	M8, M12
50/35	M10	
• 50/40	M10	
50/45	M10	
• 50/50	M10	
50/55	M10	

Dimensions Dia/Ht (mm)	Screw Thread Size x L (mm)	Special Screw Thread Size (mm)
60/35	M10	
60/40	M10	
60/45	M10	
70/35	M10	M12, M16
• 70/45	M10	
• 75/40	M12	M16
75/45	M12	
• 75/50	M12	
• 75/55	M12	
75/60	M12	
80/66	M12	
90/50	M14	
90/55	M14	
100/40	M16	M12
100/50	M16	
• 100/55	M16	
100/60	M16	
100/75	M16	
100/100	M16	
125/55	M16	M20
125/60	M16	
150/55	M16	M20
150/60	M16	
150/75	M16	
150/100	M16	
160/75	M16	
200/100	M20	M16

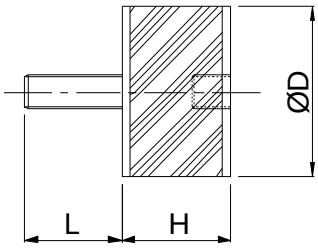
Note: Buffers can be manufactured in non-standard sizes, rubber hardness and various compounds, minimum order quantities may apply.

Spring Characteristics For Types:

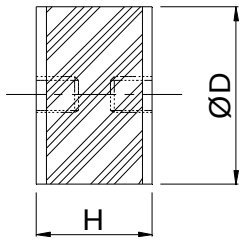
A



B



C



IMPORTANT NOTE: All values of load in the table shown apply to type A buffers—for types B and C use the appropriate correction factor (CF). Reference should be made to the beginning of this chapter for load calculations and to Section 1—Technical Information for selection examples.

Dia/Ht (mm)	Compression Characteristics				Shear Characteristics				Dia/Ht (mm)	Compression Characteristics				Shear Characteristics			
	Def (mm)	Load (N)			Def (mm)	Load (N)				Def (mm)	Load (N)			Def (mm)	Load (N)		
		43°	57°	68°		43°	57°	68°			43°	57°	68°		43°	57°	68°
8/8	0.3	4.3	12.1	17.7	0.6	2.5	4.6	6.6	25/10	0.3	123	207	296	0.6	21.1	44.4	67.5
	0.6	8.5	24.1	35.4	1.2	5.0	9.1	13.2		0.6	246	414	592	1.2	42.1	88.9	135
	0.9	12.8	36.2	53.0	1.8	7.6	13.7	19.8		0.9	369	621	888	1.8	63.2	133	202
	(MAX)	CF:B=1.15			(MAX)	CF:B=1.15				(MAX)	CF:B=1.25			(MAX)	CF:B=1.25		
10/10	0.4	8.9	17.9	25.9	0.7	3.5	6.2	9.0	25/15	0.6	74.2	135	174	1.1	24.6	44.5	64.2
	0.7	15.5	31.4	45.4	1.4	6.9	12.4	18.0		1.1	136	247	319	2.2	49.3	89.0	129
	1.1	24.4	49.3	71.4	2.1	10.4	18.6	27.0		1.7	210	381	493	3.3	73.9	134	193
	(MAX)	CF:B=1.05			(MAX)	CF:B=1.05; C = 1.20				(MAX)	CF:B=1.20			(MAX)	CF:B=1.20		
15/8	0.3	30.8	56.2	83.1	0.5	4.4	13.5	19.2	25/20	0.8	68.7	111	158	1.6	23.1	44.7	64.0
	0.5	51.3	93.6	139	1.0	8.8	27.0	38.5		1.6	138	222	316	3.2	46.3	89.4	128
	0.8	82.0	150	222	1.5	13.2	40.5	57.7		2.4	206	333	474	4.8	69.4	134	192
	(MAX)	CF:B=1.25			(MAX)					(MAX)	CF:B=1.05; C=1.10			(MAX)	CF:B=1.05; C=1.10		
15/15	0.6	16.9	36.1	58.7	1.2	8.9	16.0	23.1	25/25	1.1	65	105	165	2.1	24.6	44.2	64.1
	1.2	33.8	72.2	117	2.4	17.8	32.0	46.2		2.1	125	200	314	4.2	49.1	88.4	128
	1.8	50.6	108	176	3.6	26.7	48.1	69.2		3.2	190	305	479	6.3	73.7	133	192
	(MAX)	CF:B=1.05; C = 1.10			(MAX)	CF:B=1.05; C = 1.10				(MAX)	CF:C=1.05			(MAX)	CF:C=1.05		
15/30	1.4	20.2	34.3	48.6	2.7	14.1	16.1	22.3	25/30	1.3	58.7	92.9	135	2.6	24.6	44.3	67.0
	2.7	38.8	66.2	93.6	5.4	28.1	32.1	44.6		2.6	118	186	270	5.2	49.2	88.6	134
	4.1	59.0	101	142	8.1	42.2	48.2	66.9		3.9	176	279	405	7.8	73.8	133	201
	(MAX)	CF:C=1.05			(MAX)	CF:C=1.05				(MAX)	CF:C=1.05			(MAX)	CF:B=1.05; C=1.10		
18/8.5	0.3	29.8	50.0	80.3	0.6	13.9	25.0	36.8	30/15	0.6	160	292	420	1.1	35.4	64.1	92.1
	0.6	59.6	100	161	1.1	25.5	45.8	67.5		1.1	293	535	770	2.2	70.8	128	184
	0.8	79.5	133	214	1.7	39.5	70.8	104		1.7	453	827	1190	3.3	106	192	276
	(MAX)				(MAX)					(MAX)	CF:B=1.25			(MAX)	CF:B=1.25		
20/15	0.6	50.0	78.3	113	1.1	14.4	26.1	40.2	30/20	0.8	107	164	239	1.6	35.5	63.8	92.2
	1.1	91.7	144	206	2.2	28.9	52.1	80.5		1.6	214	327	477	3.2	71.0	128	184
	1.7	142	222	319	3.3	43.3	78.2	121		2.4	321	491	715	4.8	107	191	277
	(MAX)	CF:B=1.15			(MAX)	CF:B=1.20				(MAX)	CF:B=1.15; C = 1.25			(MAX)	CF:B=1.15; C=1.25		
20/20	0.8	40.0	66.7	98.0	1.6	14.8	26.7	38.7	30/25	1.1	98.4	151	224	2.1	35.4	63.6	93.1
	1.6	80.0	133	196	3.2	29.7	53.3	77.3		2.1	188	287	427	4.2	70.7	127	186
	2.4	120	200	294	4.8	44.5	80.0	116		3.2	286	438	651	6.3	106	191	279
	(MAX)				(MAX)					(MAX)	CF:B=1.10; C = 1.20			(MAX)	CF:B=1.10; C=1.15		
20/25	1.1	39.6	64.1	93.0	2.1	15.0	27.1	39.2	30/30	1.3	79.9	140	202	2.6	35.4	63.8	92.3
	2.1	75.7	122	178	4.2	30.0	54.2	78.3		2.6	160	280	404	5.2	70.8	128	185
	3.2	115	187	271	6.3	45.0	81.2	118		3.9	240	420	607	7.8	106	191	277
	(MAX)	CF:C=1.05			(MAX)	CF:C=1.05				(MAX)	CF:C=1.10			(MAX)	CF:C=1.10		

Note: There is a possible deviation of ±20% in the above values due to production and hardness tolerances

Spring Characteristics For Types A, B and C Cont'd:

Dia/Ht (mm)	Compression Characteristics				Shear Characteristics			
	Def (mm)	Load (N)			Def (mm)	Load (N)		
		43°	57°	68°		43°	57°	68°
40/30	1.3	170	250	394	2.6	58.7	113	164
	2.6	341	500	788	5.2	117	226	328
	3.9	511	749	1182	7.8	176	340	492
	(MAX)	CF:B=1.05; C=1.10			(MAX)	CF:B=1.05; C=1.10		
40/40	1.8	152	244	353	3.6	62.9	113	164
	3.6	304	487	705	7.2	126	226	327
	5.4	456	731	1058	10.8	189	340	491
	(MAX)	CF:B=1.10; C=1.05			(MAX)	CF:C=1.05		
50/20	0.8	432	800	1289	1.6	99	177	257
	1.6	865	1600	2578	3.2	197	354	513
	2.4	1297	2400	3866	4.8	296	531	770
	(MAX)	CF:B=1.25			(MAX)	CF:B=1.25		
50/25	1.1	353	643	937	2.1	98.4	177	256
	2.1	674	1227	1789	4.2	197	355	512
	3.2	1027	1869	2725	6.3	295	532	768
	(MAX)	CF:B=1.20			(MAX)	CF:B=1.20		
50/30	1.3	286	516	743	2.6	99	177	256
	2.6	571	1031	1486	5.2	197	354	513
	3.9	857	1547	2229	7.8	296	531	769
	(MAX)	CF:B=1.15; C=1.20			(MAX)	CF:B=1.15; C=1.20		
50/40	1.8	265	471	666	3.6	99	177	276
	3.6	530	941	1332	7.2	198	354	551
	5.4	795	1412	1998	10.8	297	531	826
	(MAX)	CF:C=1.05			(MAX)	CF:C=1.05		
50/45	2.1	252	403	656	4.1	98.2	173	256
	4.1	491	786	1280	8.2	197	345	511
	6.2	743	1189	1936	12.3	295	518	767
	(MAX)	CF:C=1.05			(MAX)	CF:C=1.05		
50/50	2.3	237	399	613	4.6	98.3	177	256
	4.6	473	797	1227	9.2	197	354	511
	6.9	710	1196	1840	13.8	295	531	767
	(MAX)				(MAX)			
70/45	2.0	541	975	1467	3.9	188	347	502
	3.9	1055	1902	2861	7.8	376	693	1004
	5.9	1595	2878	4328	11.7	563	1040	1506
	(MAX)	CF:C=1.05			(MAX)	CF:C=1.05		
75/40	1.7	708	1278	1839	3.4	221	399	576
	3.4	1416	2556	3679	6.8	442	797	1151
	5.1	2124	3835	5518	10.2	664	1196	1727
	(MAX)	CF:B=1.05; C=1.10			(MAX)	CF:B=1.05; C=1.10		
75/45	2.0	659	1188	1722	3.9	221	398	576
	3.9	1285	2317	3358	7.8	442	796	1152
	5.9	1943	3506	5079	11.7	663	1194	1728
	(MAX)	CF:B=1.05; C=1.10			(MAX)	CF:B=1.05; C=1.10		
75/50	2.2	620	1114	1618	4.4	221	398	573
	4.4	1239	2229	3235	8.8	442	796	1145
	6.6	1858	3343	4853	13.2	663	1195	1718
	(MAX)	CF:C=1.05				CF:C=1.05		

Dia/Ht (mm)	Compression Characteristics				Shear Characteristics			
	Def (mm)	Load (N)			Def (mm)	Load (N)		
		43°	57°	68°		43°	57°	68°
75/55	2.5	610	1098	1598	4.9	221	398	576
	4.9	1195	2152	3132	9.8	442	796	1151
	7.4	1804	3250	4730	14.7	663	1194	1727
	(MAX)	CF:C=1.05			(MAX)	CF:C=1.05		
75/60	2.7	580	1040	1499	5.4	221	398	575
	5.4	1161	2079	2998	10.8	442	796	1149
	8.1	1741	3119	4496	16.2	663	1194	1723
	(MAX)				(MAX)			
100/40	1.6	1576	3127	4661	3.2	393	708	1023
	3.2	3153	6254	9322	6.4	786	1416	2047
	4.8	4729	9381	13983	9.6	1179	2124	3070
	(MAX)	CF:B=1.25			(MAX)	CF:B=1.20		
100/50	2.1	1344	2380	3433	4.2	393	572	1024
	4.2	2689	4759	6867	8.4	786	1143	2048
	6.3	4033	7139	10300	12.6	1179	1715	3072
	(MAX)	CF:B=1.10; C=1.25			(MAX)	CF:B=1.10; C=1.25		
100/55	2.4	1273	2268	3200	4.7	393	708	843
	4.7	2492	4441	6267	9.4	786	1416	1686
	7.1	3765	6709	9467	14.1	1179	2124	2529
	(MAX)	CF:B=1.15; C=1.20			(MAX)	CF:B=1.15; C=1.20		
100/60	2.6	1141	2093	3017	5.2	393	708	1023
	5.2	2282	4185	6035	10.4	786	1415	2046
	7.8	3422	6278	9052	15.6	1179	2123	3068
	(MAX)	CF:C=1.10			(MAX)	CF:C=1.10		
100/75	3.4	1044	1939	2800	6.7	393	708	1022
	6.7	2058	3821	5518	13.4	786	1416	2045
	10.1	3102	5761	8319	20.1	1178	2124	3067
	(MAX)				(MAX)			
150/55	2.3	4027	7031	10397	4.6	904	1704	2300
	4.6	8053	14063	20794	9.2	1808	3409	4600
	6.9	12079	21094	31191	13.8	2712	5114	6900
	(MAX)	CF:C=1.05			(MAX)	CF:C=1.05		
150/60	2.6	3703	6466	9630	5.1	902	1561	2301
	5.1	7264	12683	18889	10.2	1804	3121	4601
	7.7	10967	19149	28519	15.3	2705	4682	6902
	(MAX)	CF:C=1.05			(MAX)	CF:C=1.05		
150/75	3.3	2835	4094	7381	6.6	880	1382	2300
	6.6	5671	8190	14762	13.2	1795	2764	4601
	9.9	8506	12285	22142	19.8	2693	4146	6901
	(MAX)	CF:C=1.05			(MAX)	CF:C=1.05		
200/100	4.5	5031	9214	13090	9.0	1571	2829	4087
	9.0	10026	18428	26180	18.0	3143	5658	8174
	13.5	15093	27642	39270	27.0	4714	8487	12261
	(MAX)				(MAX)			

Note: There is a possible deviation of ±20% in the above values due to production and hardness tolerances