



Stock sizes in high-carbon and stainless steels

Belleville spring washers are especially suited for high loads in small spaces. By combining them in varying sequence, each size gives numerous load-carrying possibilities. These washers have had all set removed during manufacture.

Typical load-deflection curves for three characteristic proportions of washers listed are as shown in Fig. 2. From them, loads at intermediate heights may be estimated. The nominal amount of dish or cone(h) is found by subtracting "t" from Lo.

Material

Spring steel

Commercial-1074-Certified to ASTM-A684

Stainless steel

Thicknesses up to and including 1.83mm

Commercial - Type 302

Government - MIL-S-5059 Type 302

Thicknesses over 1.83mm

Commercial - Type 17-7 PH certified to AMS 5528

(Part numbers with suffix 'S' are Stainless Steel).

Disponibilité sur stock en acier à haute teneur en carbone et en acier inoxydable.

Les rondelles Belleville sont particulièrement adaptées à des charges élevées dans des espaces réduits. En les combinant en séquence variée, chaque modèle offre de nombreuses possibilités de capacité de charge. Lors de leur fabrication, toute déformation de ces rondelles est éliminée.

Des courbes de charge-déflexion types pour trois proportions de ressorts caractéristiques sont indiquées dans la figure 2. A partir de celles-ci, les charges à des hauteurs intermédiaires peuvent être estimées. La quantité nominale de concavité est obtenue en soustrayant "t" de "Lo".

Matériaux

Acier à ressort

Commercial - 1074 - Certifié suivant ASTM-A684

Acier inoxydable

Épaisseur jusqu'à 1,83mm inclus:

Commercial - Type 302

Gouvernement - MIL-S-5059 Type 302

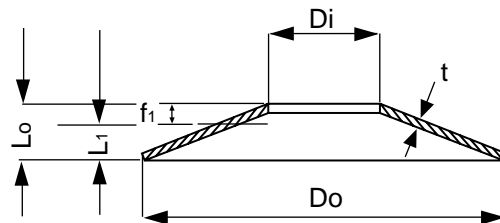
Épaisseur supérieure à 1,83mm

Commercial - Type 17-7 PH certifié suivant AMS 5528

Les références du catalogue se terminant par le suffixe 'S' sont en acier inoxydable.

If you need more information please contact our technical service

Pour plus de détails contactez notre service technique

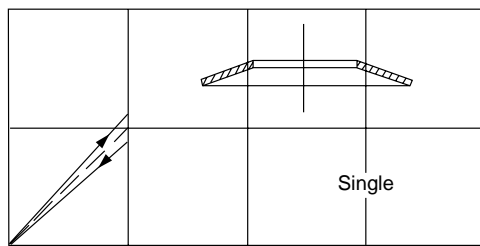


- Di = Inside diameter (Min)
- Do = Outside diameter (Max)
- t = Thickness
- Lo = Approx Free Height
- L1 = Loaded Height
- P1 = Load at L1 Newtons
- P = Cal Load flat. Newton
- F1 = Deflection = Lo-L1

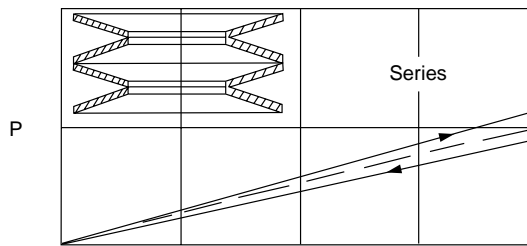
- Di = Diamètre intérieur (min)
- Do = Diamètre extérieur (max)
- t = Épaisseur
- Lo = Hauteur libre approximative
- L1 = Hauteur en charge
- P1 = Charge à L1 Newton
- P = Charge à plat étalon. Newton

Shown below are the comparative force/deflection graphs for the alternative methods of stacking.

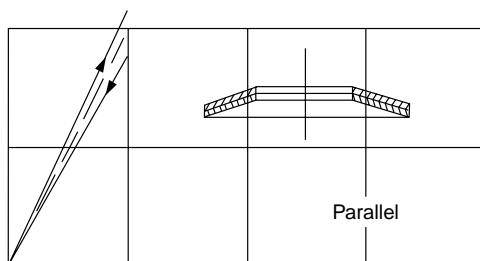
Graphiques de charge/déflexion pour les différents empilages.



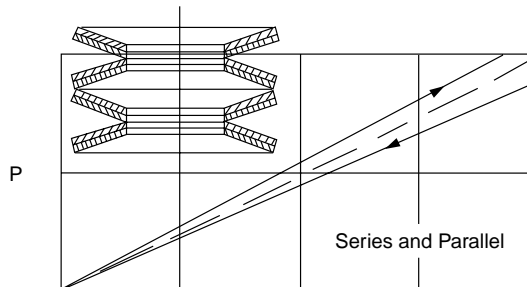
Deflection (F)



F



F



F

Di Inside Dia. mm	Do Outside Dia. mm	t Thickness mm	Lo Approx. Free height mm	L1 Loaded Height mm	P1 Load at L1 N	P Calc. Load Flat N	Part No.	Price Group	
2.36	4.75	0.17	0.33	0.25	27.1 ~ 33.4	44	B0187-007	E	
		0.17	0.33	0.25	25.4 ~ 34.7	44	B0187-007-S	E	
		0.25	0.38	0.32	60.9 ~ 75.2	124	B0187-010	E	
		0.25	0.38	0.32	57.8 ~ 78.3	124	B0187-010-S	G	
3.18	6.35	0.22	0.44	0.33	46.7 ~ 57.4	75	B0250-009	E	
		0.22	0.44	0.33	44.0 ~ 60.1	75	B0250-009-S	E	
		0.34	0.51	0.43	105.0 ~ 129.0	214	B0250-013	E	
		0.34	0.51	0.43	97.9 ~ 133.5	214	B0250-013-S	G	
	9.53	0.47	0.71	0.58	164.6 ~ 205.0	325	B0375-019	E	
3.51	7.14	0.25	0.51	0.38	60.1 ~ 73.4	102	B0281-010	E	
		0.33	0.53	0.43	97.9 ~ 120.1	191	B0281-013	E	
		0.38	0.58	0.48	133.5 ~ 164.6	276	B0281-015	E	
		0.38	0.58	0.48	126.8 ~ 171.3	276	B0281-015-S	G	
11.10	0.56	0.81	0.69	218.0 ~ 271.0	440	B0437-022	E		
3.96	7.92	0.27	0.55	0.41	74.3 ~ 91.2	120	B0312-011	E	
		0.27	0.55	0.41	70.3 ~ 95.2	120	B0312-011-S	E	
		0.42	0.64	0.53	165.5 ~ 203.0	334	B0312-017	E	
		0.42	0.64	0.53	155.7 ~ 214.0	334	B0312-017-S	G	
4.17	8.71	0.33	0.61	0.46	100.1 ~ 122.3	169	B0343-013	E	
		0.41	0.66	0.53	142.3 ~ 177.9	289	B0343-016	E	
		0.47	0.71	0.58	200.0 ~ 249.0	414	B0343-019	E	
		0.47	0.71	0.58	191.3 ~ 258.0	414	B0343-019-S	G	
	12.70	0.64	0.94	0.79	289.0 ~ 356.0	583	B0499-025	E	
4.83	9.53	0.38	0.69	0.53	140.1 ~ 171.3	245	B0375-015	E	
		0.38	0.69	0.53	129.0 ~ 177.9	245	B0375-015-S	G	
		0.44	0.71	0.58	182.4 ~ 227.0	360	B0375-018	G	
		0.51	0.76	0.64	240.0 ~ 294.0	489	B0375-020	E	
		0.51	0.76	0.64	227.0 ~ 307.0	489	B0375-020-S	G	
		0.76	0.91	0.84	471.5 ~ 640.6	1036	B0375-030	E	
	14.27	0.48	0.94	0.71	180.2 ~ 220.0	298	B0562-019	G	
5.59	11.10	0.71	1.07	0.89	347.0 ~ 427.0	725	B0562-028	G	
		0.41	0.79	0.58	160.1 ~ 195.7	267	B0437-016	E	
		0.41	0.79	0.58	151.2 ~ 205.0	267	B0437-016-S	G	
		0.51	0.81	0.66	227.0 ~ 280.0	436	B0437-020	G	
		0.58	0.86	0.74	302.0 ~ 374.0	618	B0437-023	G	
17.45	0.86	1.27	1.07	498.0 ~ 614.0	1019	B0687-034	G		
6.48	12.70	0.46	0.86	0.66	180.2 ~ 220.0	311	B0500-018	E	
		0.46	0.86	0.66	169.0 ~ 231.0	311	B0500-018-S	G	
		0.55	0.91	0.74	267.0 ~ 329.0	512	B0500-022	G	
		0.55	0.91	0.74	245.0 ~ 343.0	512	B0500-022-S	G	
		0.64	0.97	0.79	378.0 ~ 467.0	712	B0500-025	E	
		0.64	0.97	0.79	356.0 ~ 389.0	712	B0500-025-S	G	
		0.97	1.19	1.09	716.0 ~ 974.0	1779	B0500-038	G	
		0.97	1.19	1.09	716.0 ~ 974.0	1779	B0500-038-S	H	
		16.18	0.81	1.22	1.02	472.0 ~ 578.0	988	B0637-032	H
	19.05	0.64	1.24	0.94	307.0 ~ 378.0	507	B0750-025	G	
		0.91	1.37	1.14	587.0 ~ 721.0	1161	B0750-036	H	
		1.32	1.65	1.47	1174.0 ~ 1592.0	2491	B0750-052	H	
		0.56	1.07	0.81	280.0 ~ 343.0	467	B0625-022	E	
8.05	15.88	0.56	1.07	0.81	262.0 ~ 360.0	467	B0625-022-S	H	
		0.81	1.22	1.02	578.0 ~ 712.0	1157	B0625-032	G	
		0.81	1.22	1.02	547.0 ~ 743.0	1157	B0625-032-S	H	
		1.19	1.50	1.35	1134.0 ~ 1535.0	2669	B0625-047	G	
		1.19	1.50	1.35	1134.0 ~ 1535.0	2669	B0625-047-S	J	
		23.80	0.76	1.52	1.14	440.0 ~ 538.0	707	B0937-030	H
	1.14	1.70	1.42	872.0 ~ 1068.0	1757	B0937-045	H		
	1.14	1.70	1.42	823.0 ~ 1117.0	1757	B0937-045-S	L		
	9.65	19.05	0.71	1.30	0.99	440.0 ~ 538.0	778	B0750-028	G
			0.71	1.30	0.99	414.0 ~ 565.0	778	B0750-028-S	H
0.86			1.40	1.12	663.0 ~ 814.0	1254	B0750-034	G	
0.86			1.40	1.12	627.0 ~ 850.0	1254	B0750-034-S	H	
1.02			1.50	1.24	939.0 ~ 1152.0	1846	B0750-040	G	
1.02			1.50	1.24	885.0 ~ 1205.0	1846	B0750-040-S	H	
1.42			1.78	1.60	1624.0 ~ 2202.0	3759	B0750-056	G	
1.42			1.78	1.60	1624.0 ~ 2202.0	3759	B0750-056-S	K	
24.13		1.19	1.78	1.47	1041.0 ~ 1281.0	2060	B0950-047	H	
28.58		1.35	2.03	1.68	1197.0 ~ 1464.0	2380	B1125-053	J	
	1.35	2.03	1.68	1130.0 ~ 1530.0	2380	B1125-053-S	O		
	1.98	2.46	2.24	2291.0 ~ 3100.0	5494	B1125-078	L		
11.23	22.23	0.79	1.50	1.14	538.0 ~ 663.0	912	B0875-031	H	
		0.79	1.50	1.14	507.0 ~ 694.0	912	B0875-031-S	J	
		1.14	1.70	1.42	1081.0 ~ 1321.0	2202	B0875-045	H	
		1.14	1.70	1.42	1018.0 ~ 1383.0	2202	B0875-045-S	K	
12.83	25.40	0.89	1.70	1.30	698.0 ~ 859.0	1157	B1000-035	H	
		0.89	1.70	1.30	658.0 ~ 899.0	1157	B1000-035-S	L	
		1.09	1.80	1.45	1001.0 ~ 1223.0	1917	B1000-043	J	
		1.09	1.80	1.45	943.0 ~ 1281.0	1917	B1000-043-S	L	
		1.27	1.91	1.57	1361.0 ~ 1664.0	2669	B1000-050	H	
		1.27	1.91	1.57	1286.0 ~ 1739.0	2669	B1000-050-S	M	
		1.85	2.31	2.08	2549.0 ~ 3456.0	5938	B1000-073	K	
		1.85	2.31	2.08	2549.0 ~ 3456.0	5938	B1000-073-S	S	
	32.05	1.52	2.31	1.91	1637.0 ~ 2002.0	3252	B1262-060	K	
	38.10	1.19	2.36	1.78	1005.0 ~ 1228.0	1628	B1500-047	L	
		1.78	2.64	2.21	1979.0 ~ 2420.0	3986	B1500-070	M	
1.78		2.64	2.21	1868.0 ~ 2535.0	3986	B1500-070-S	V		
2.59		3.25	2.92	3928.0 ~ 5316.0	9163	B1500-102	R		
14.40	28.58	0.97	1.85	1.40	778.0 ~ 956.0	1268	B1125-038	H	
		0.97	1.85	1.40	863.0 ~ 1170.0	1268	B1125-038-S	V	
		1.42	2.13	1.78	1619.0 ~ 1984.0	3269	B1125-056	H	



Di Inside Dia. mm	Do Outside Dia. mm	t Thickness mm	Lo Approx. Free height mm	L1 Loaded Height mm	P1 Load at L1 N	P Calc. Load Flat N	Part No.	Price Group	
14.40	28.58	1.42	2.13	1.78	1530.0 ~ 2073.0	3269	B1125-056-S	V	
16.00	31.75	1.02	2.08	1.55	921.0 ~ 1125.0	1468	B1250-040	H	
		1.02	2.08	1.55	867.0 ~ 1179.0	1468	B1250-040-S	N	
		1.30	2.21	1.75	1361.0 ~ 1664.0	2589	B1250-051	J	
		1.57	2.34	1.96	1899.0 ~ 2326.0	3870	B1250-062	J	
		1.57	2.34	1.96	1793.0 ~ 2433.0	3870	B1250-062-S	Q	
		2.26	2.82	2.54	3705.0 ~ 5013.0	8514	B1250-089	L	
		2.26	2.82	2.54	3705.0 ~ 5013.0	8514	B1250-089-S	X	
		1.45	2.92	2.16	1481.0 ~ 1810.0	2322	B1875-057	O	
	47.63	2.18	3.28	2.72	2922.0 ~ 3576.0	5867	B1875-086	Q	
		2.18	3.28	2.72	2758.0 ~ 3737.0	5867	B1875-086-S	X	
		3.23	4.01	3.61	6223.0 ~ 8420.0	13812	B1875-127	W	
		1.12	2.24	1.65	1059.0 ~ 1299.0	1668	B1375-044	J	
	17.58	34.93	1.12	2.24	1.65	1001.0 ~ 1357.0	1668	B1375-044-S	O
			1.70	2.57	2.13	2260.0 ~ 2767.0	4559	B1375-067	K
1.14			2.36	1.75	1134.0 ~ 1392.0	1779	B1500-045	K	
19.18	38.10	1.14	2.36	1.75	1072.0 ~ 1450.0	1779	B1500-045-S	R	
		1.52	2.59	2.06	1819.0 ~ 2229.0	3443	B1500-060	L	
		1.83	2.72	2.26	2660.0 ~ 3256.0	5249	B1500-072	L	
		1.83	2.72	2.26	2513.0 ~ 3403.0	5249	B1500-072-S	W	
		2.72	3.40	3.07	5293.0 ~ 7162.0	12602	B1500-107	P	
		2.72	3.40	3.07	5293.0 ~ 7162.0	12602	B1500-107-S	X	
	57.15	1.73	3.48	2.62	2015.0 ~ 2460.0	3256	B2250-068	T	
		2.59	3.89	3.23	4048.0 ~ 4951.0	8105	B2250-102	W	
		3.81	4.78	4.29	8243.0 ~ 11161.0	19105	B2250-150	X	
	22.35	44.45	1.45	2.90	2.16	1802.0 ~ 2202.0	2891	B1750-057	N
1.45			2.90	2.16	1699.0 ~ 2304.0	2891	B1750-057-S	W	
2.16			3.25	2.69	3643.0 ~ 4453.0	7251	B1750-085	P	
2.16			3.25	2.69	3438.0 ~ 4657.0	7251	B1750-085-S	X	
25.40	50.80	1.65	3.30	2.49	2362.0 ~ 2887.0	3825	B2000-065	R	
		1.65	3.30	2.49	2233.0 ~ 3020.0	3825	B2000-065-S	W	
		2.13	3.45	2.79	3421.0 ~ 4186.0	6619	B2000-084	R	
		2.46	3.68	3.07	4724.0 ~ 5774.0	9519	B2000-097	V	
		2.46	3.68	3.07	4457.0 ~ 6041.0	9519	B2000-097-S	Y	
		3.61	4.50	4.06	9110.0 ~ 12330.0	21458	B2000-142	W	
28.58	76.20	2.29	4.57	3.43	3425.0 ~ 4186.0	5534	B3000-090	X	
	76.20	3.43	5.13	4.27	6886.0 ~ 8420.0	13870	B3000-135	X	
	57.15	1.85	3.76	2.87	2922.0 ~ 3572.0	4893	B2250-073	T	
		2.82	4.19	3.53	5845.0 ~ 7144.0	12366	B2250-111	W	
31.75	63.50	4.04	5.03	4.55	11343.0 ~ 15346.0	26569	B2250-159	X	
		2.03	4.06	2.05	3483.0 ~ 4257.0	5605	B2500-080	W	
		2.03	4.06	2.05	3287.0 ~ 4448.0	5605	B2500-080-S	Y	
		3.05	4.57	3.81	7046.0 ~ 8612.0	14234	B2500-120	X	
		3.05	4.57	3.81	6655.0 ~ 9003.0	14234	B2500-120-S	Y	
34.93	95.25	4.27	6.38	5.31	10444.0 ~ 12766.0	21147	B3750-168	Y	
	69.85	2.21	4.39	3.35	3843.0 ~ 4697.0	6405	B2750-087	X	
3.35		4.98	4.19	7807.0 ~ 9541.0	14279	B2750-132	Y		
38.10	76.20	2.36	4.80	3.63	4444.0 ~ 5431.0	7251	B3000-093	X	
		3.63	5.41	4.57	9128.0 ~ 11156.0	19483	B3000-143	Y	
50.80	101.60	3.18	6.35	4.75	8047.0 ~ 9835.0	12944	B4000-125	Y	
		4.75	7.11	5.92	16014.0 ~ 19661.0	32383	B4000-187	Y	

