

CLOVER® DOME SPRING WASHERS

Stock Sizes in stainless steel

Clover® Dome spring washers are well suited for applications where a bellville washer or disc spring does not provide adequate deflection, or where the load obtained from a wave washer is not sufficient for the application. By combining washers in varying sequences, each size provides multiple load-carrying or deflection possibilities. These washers have had the set removed during the manufacturing process.

Material

Stainless Steel Type 17-7 PH - Chemistry per AMS 5529
 Certificate of compliance available upon request.
 Certificate of chemical analysis available at extra cost.

Load and Deflection

Typical load-deflection curves for four characteristic proportions of washers listed are shown in Figure 1 below. From them, loads at intermediate heights may be estimated. The nominal amount of dish or cone (h) is found by subtracting "t" from "H".

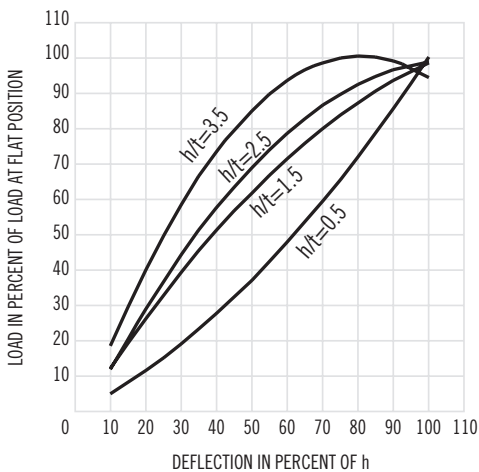
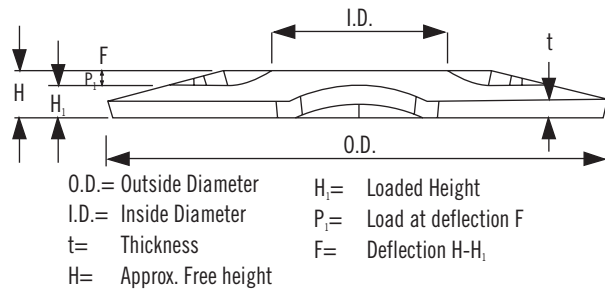


Figure 1

EXAMPLE: Using part BC-0709-015-S, estimate the load at 50% deflection.
 $h/t = .052 / .015 \sim 3.5$.

From Figure 1 above, using the curve for $h/t = 3.5$, the load at 50% of the deflection is approximately 85% of the load at flat position. From the table (see following page), the load at flat is 27 lbs. To calculate the load at 50%, $27 \text{ lbs} \times .85 = 22.95 \text{ lbs}$.

The typical curves in Figure 1 show deflections beyond 75%. The area beyond 75% deflection should be avoided due to the partial bottoming of the Clover® Dome and excessive stress concentrations above 75% deflection.

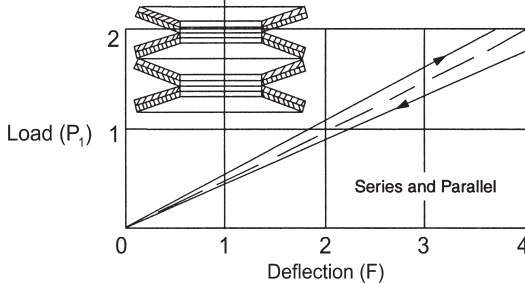
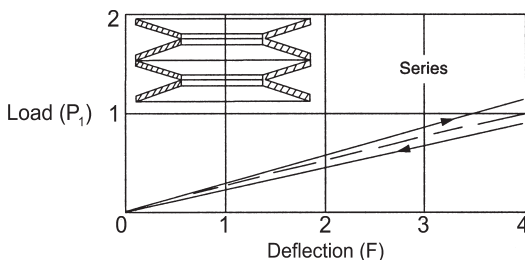
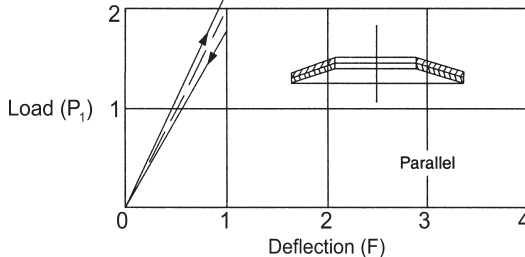
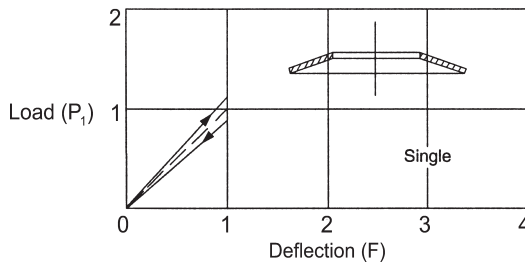


Stacked Clover® Dome Washers

Additional load of deflection can be obtained by stacking washers in series or in parallel. See charts below.

Contact our engineering department for tolerances.

Shown below are comparative force/deflection graphs by alternate methods of stacking.



US Patent #5,269,499. Patents pending outside USA.

CLOVER® DOME SPRING WASHERS																				
Catalog Number	Free Fit over Rod Ø			Minimum I.D.		Maximum O.D.		Free Fit in Hole Ø			Stock Thickness (t)		Free Height (H) Approximate		Loaded Height (H _i)		Load at H _i (P _i) (Min./Max.)		Ref. Load at Flat Position (P)	
	in	in	mm	in	mm	in	mm	in	in	mm	in	mm	in	mm	in	mm	lb	N	lb	N
BC0250-008-S	1/8	0.125	3.18	0.125	3.18	0.250	6.35	1/4	0.250	6.35	0.008	0.20	0.022	0.56	0.012	0.29	6.1 – 9.1	27.1 – 40.5	11	49
BC0250-012-S											0.012	0.30	0.026	0.66	0.016	0.39	17.6 – 26.3	78.3 – 117	34	151
BC0312-012-S	#6	0.138	3.51	0.143	3.63	0.312	7.92	5/16	0.313	7.95	0.012	0.30	0.032	0.81	0.017	0.43	18.3 – 27.5	81.4 – 122.4	23	102
BC0312-018-S											0.018	0.46	0.038	0.97	0.023	0.58	44.6 – 67	198 – 299	89	396
BC0343-014-S											0.014	0.36	0.034	0.86	0.019	0.48	23.9 – 35.9	106.3 – 159.7	35	156
BC0343-016-S	#8	0.164	4.17	0.169	4.29	0.343	8.71	11/32	0.344	8.74	0.016	0.41	0.036	0.91	0.021	0.53	26.7 – 40.1	118 – 179	52	231
BC0343-020-S											0.020	0.51	0.040	1.02	0.025	0.64	52.1 – 78.3	231 – 349	104	463
BC0375-010-S											0.010	0.25	0.031	0.79	0.015	0.39	10.8 – 16.4	48 – 73	10	44
BC0375-016-S											0.016	0.41	0.037	0.94	0.021	0.54	23.1 – 34.7	102 – 155	45	200
BC0375-018-S	#10	0.195	4.95	0.195	4.95	0.375	9.53	3/8	0.375	9.53	0.018	0.46	0.039	0.99	0.023	0.59	32.8 – 49.4	145 – 220	64	285
BC0375-020-S											0.020	0.51	0.041	1.04	0.025	0.64	45.1 – 67.8	200 – 302	90	400
BC0562-020-S						0.562	14.27	9/16	0.563	14.30	0.020	0.51	0.062	1.57	0.031	0.77	40.9 – 61.5	181 – 274	70	311
BC0562-030-S											0.030	0.76	0.072	1.83	0.041	1.03	138 – 208	613 – 926	272	1210
BC0437-018-S	#12	0.22	5.59	0.220	5.59	0.437	11.10	7/16	0.438	11.13	0.018	0.46	0.043	1.09	0.024	0.62	36 – 54	160.1 – 240.2	71	316
BC0437-022-S											0.022	0.56	0.047	1.19	0.028	0.72	81.7 – 122.6	363.4 – 545.4	163	725
BC0500-014-S											0.014	0.36	0.042	1.07	0.021	0.53	21.1 – 31.6	93.9 – 140.6	36	160
BC0500-018-S											0.018	0.46	0.046	1.17	0.025	0.64	28.7 – 43.1	127.7 – 191.7	50	222
BC0500-022-S	1/4	0.25	6.35	0.255	6.48	0.500	12.70	1/2	0.500	12.70	0.022	0.56	0.050	1.27	0.029	0.74	68.2 – 102.3	303.4 – 455.1	134	596
BC0500-026-S											0.026	0.66	0.054	1.37	0.033	0.84	89.4 – 134.1	397.7 – 596.5	179	796
BC0709-015-S											0.015	0.38	0.067	1.70	0.028	0.71	17.8 – 26.7	79.2 – 118.8	27	120
BC0709-020-S						0.709	18.01	23/32	0.719	18.26	0.020	0.51	0.072	1.83	0.033	0.84	33.9 – 50.9	151 – 226.4	56	249
BC0709-025-S											0.025	0.64	0.077	1.96	0.038	0.97	56.8 – 85.2	252.7 – 379	97	431
BC0625-018-S											0.018	0.46	0.054	1.37	0.027	0.69	25.3 – 38	112.5 – 169	44	196
BC0625-022-S				0.317	8.05	0.625	15.88	5/8	0.625	15.88	0.022	0.56	0.058	1.47	0.031	0.79	52.5 – 78.7	233.5 – 350.1	92	409
BC0625-030-S											0.030	0.76	0.066	1.68	0.039	0.99	140.7 – 211.5	626 – 940.6	277	1232
BC0625-033-S	5/16	0.313	7.95								0.033	0.84	0.069	1.75	0.042	1.07	152.3 – 228.4	677.5 – 1016	304	1352
BC0896-015-S											0.015	0.38	0.081	2.06	0.032	0.80	17.1 – 25.7	76.2 – 114.3	19	85
BC0896-020-S				0.320	8.13	0.896	22.76	29/32	0.906	23.02	0.020	0.51	0.086	2.18	0.037	0.93	31.9 – 47.8	141.9 – 212.8	47	209
BC0896-025-S											0.025	0.64	0.091	2.31	0.042	1.05	54.4 – 81.6	241.9 – 362.9	90	400
BC0750-022-S											0.022	0.56	0.065	1.65	0.033	0.83	46.2 – 69.3	205.5 – 308.3	79	351
BC0750-026-S											0.026	0.66	0.069	1.75	0.037	0.93	73.4 – 110.1	326.5 – 489.8	128	569
BC0750-030-S											0.030	0.76	0.073	1.85	0.041	1.04	103 – 154.5	458.2 – 687.3	202	899
BC0750-033-S	3/8	0.375	9.53	0.380	9.65	0.750	19.08	3/4	0.750	19.05	0.033	0.84	0.076	1.93	0.044	1.11	138 – 207	613.9 – 920.8	271	1205
BC0750-039-S											0.039	0.99	0.082	2.08	0.050	1.26	220.7 – 331	981.7 – 1472.4	440	1957
BC0750-043-S											0.043	1.09	0.086	2.18	0.054	1.37	297.6 – 446.4	1323.8 – 1985.7	594	2642
BC1070-020-S				0.400	10.16	1.069	27.15	1 7/64	1.100	28.00	0.020	0.51	0.097	2.46	0.039	1.00	31.9 – 47.8	141.8 – 212.7	47	209
BC1070-025-S											0.025	0.64	0.102	2.59	0.044	1.12	49.9 – 74.9	222.3 – 334.4	78	347
BC0875-030-S	7/16	0.438	11.13	0.442	11.23	0.875	22.25	7/8	0.875	22.23	0.030	0.76	0.080	2.03	0.043	1.08	92.1 – 138.2	409.7 – 614.7	161	716
BC0875-033-S											0.033	0.84	0.083	2.11	0.046	1.16	119 – 178.4	529.3 – 793.6	233	1036
BC1000-033-S											0.033	0.84	0.090	2.29	0.047	1.20	102.2 – 153.2	454.6 – 681.5	178	792
BC1000-037-S	1/2	0.5	12.70	0.505	12.83	1.000	25.43	1	1.000	25.40	0.037	0.94	0.094	2.39	0.051	1.30	151.1 – 226.7	672.1 – 1008.4	263	1170
BC1000-039-S											0.039	0.99	0.096	2.44	0.053	1.35	184.8 – 277.3	822 – 1233.5	362	1610
BC1000-043-S											0.043	1.09	0.100	2.54	0.057	1.45	254.2 – 381.2	1130.7 – 1695.7	498	2215

OTHER DIMENSIONS AND CUSTOM DESIGNS ARE AVAILABLE.
PLEASE CALL 1-800-345-7732 FOR ADDITIONAL INFORMATION.

