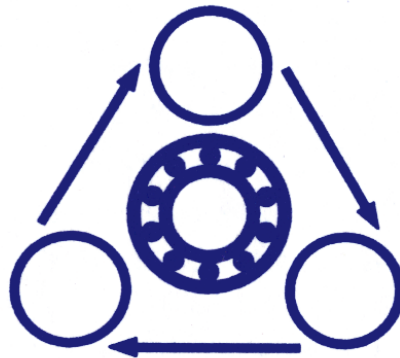


ASHLEY POWER LTD.
580-586 ASHLEY ROAD
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DORSET, BH14 0AQ

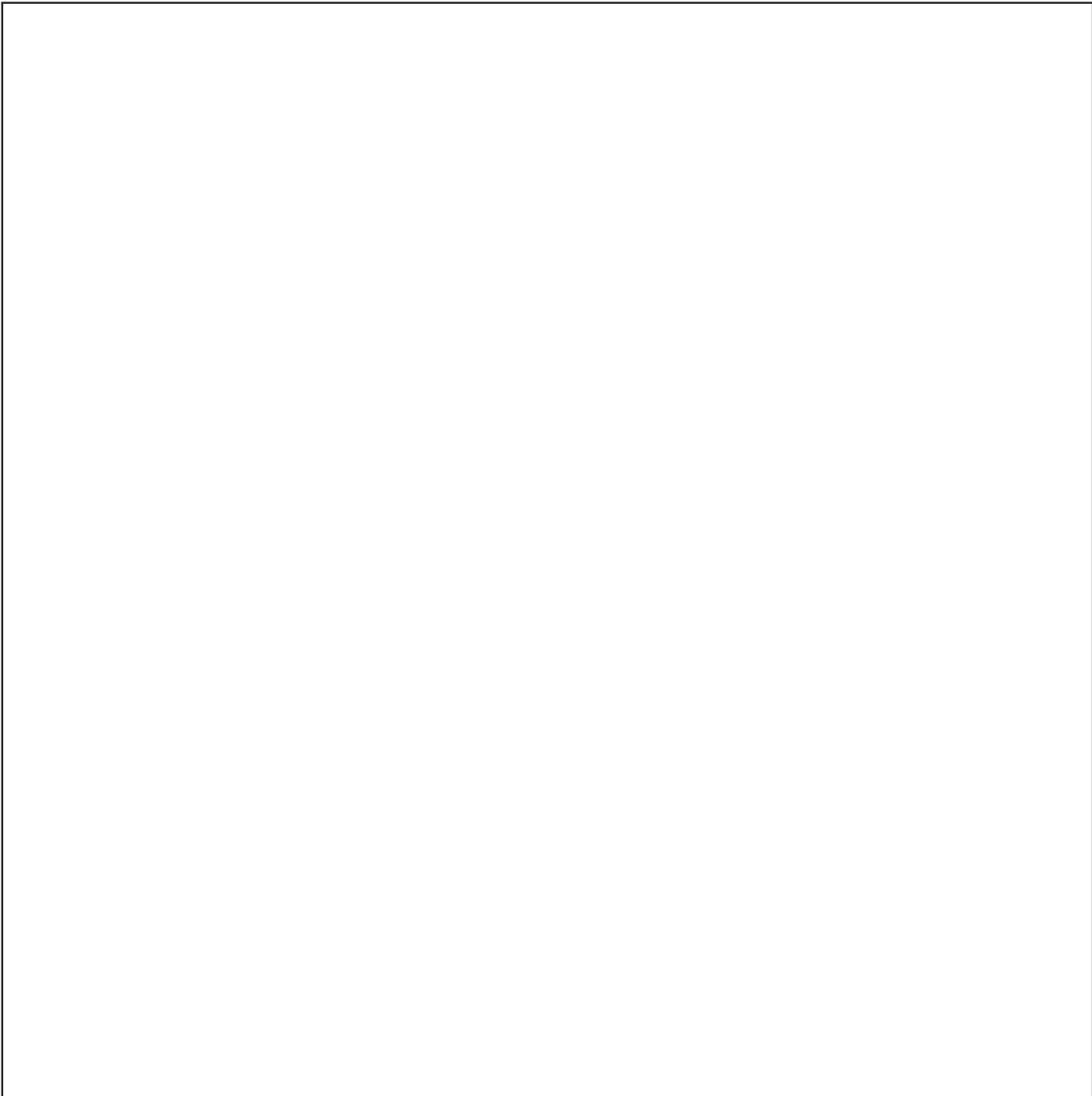
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DISC SPRINGS CATALOGUE



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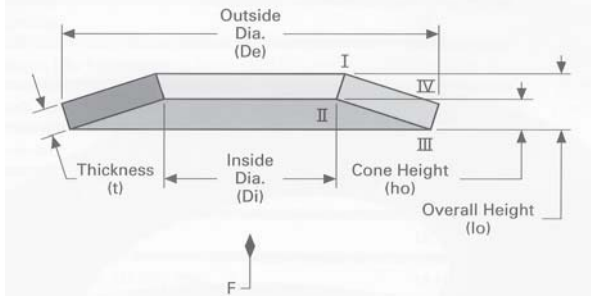
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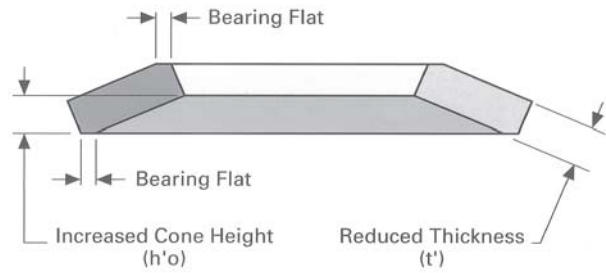
Stainless Steel Disc Springs available on request



Disc Spring without Bearing Flats



Disc Spring with Bearing Flats

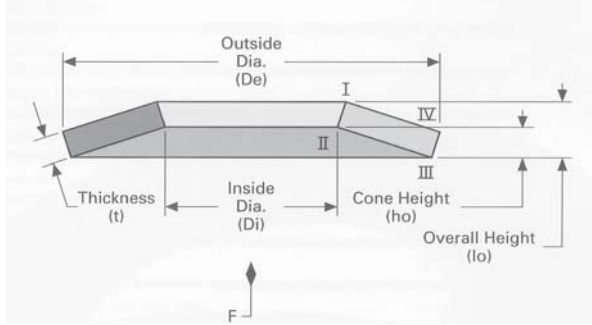


Product Code	Inner Dia. (Di) mm	Outer Dia. (De) mm	Thick. (t) mm	Reduced Thick. (t') mm	Cone Ht. (ho) mm	Overall Ht. (lo) mm	Cone Ht. To Thickness Ratio	Weight per 1000 pieces	15% Deflection		30% Deflection		45% Deflection		60% Deflection		75% Deflection		90% Deflection													
									Defl. mm		Defl. mm		Defl. mm		Defl. mm		Defl. mm		Defl. mm													
									Force N	Stress δII N/mm2	Force N	Stress δIII N/mm2	Force N	Stress δII N/mm2	Force N	Stress δIII N/mm2	Force N	Stress δII N/mm2	Force N	Stress δIII N/mm2	Force N	Stress δII N/mm2	Force N	Stress δIII N/mm2								
DS3.2X6X0.3	3.20	6.00	0.30		0.15	0.45	0.50	0.05	0.02	27	0.05	53	0.07	76	0.09	98	0.11	119	0.14	140	198	273	420	531	664	774	930	1002	1220	1215	1532	1414
DS3.2X8X0.2	3.20	8.00	0.20		0.20	0.40	1.00	0.07	0.03	8	0.06	14	0.09	19	0.12	23	0.15	26	0.18	28	37	144	97	276	179	396	283	504	409	600	558	684
DS3.2X8X0.3	3.20	8.00	0.30		0.25	0.55	0.83	0.10	0.04	29	0.08	53	0.11	73	0.15	90	0.19	104	0.23	117	113	247	261	475	443	684	660	875	912	1046	1198	1199
DS3.2X8X0.4	3.20	8.00	0.40		0.20	0.60	0.50	0.13	0.03	43	0.06	82	0.09	119	0.12	153	0.15	186	0.18	217	212	214	446	416	702	605	981	783	1281	949	1604	1102
DS3.2X8X0.5	3.20	8.00	0.50		0.20	0.70	0.40	0.17	0.03	79	0.06	153	0.09	223	0.12	291	0.15	357	0.18	422	299	249	620	485	964	710	1329	922	1717	1123	2128	1311
DS4.2X8X0.2	4.20	8.00	0.20		0.25	0.45	1.25	0.06	0.04	14	0.08	24	0.11	32	0.15	36	0.19	39	0.23	41	-7	253	21	483	85	690	185	873	319	1034	489	1172
DS4.2X8X0.3	4.20	8.00	0.30		0.25	0.55	0.83	0.09	0.04	33	0.08	60	0.11	83	0.15	102	0.19	118	0.23	133	99	308	233	594	402	856	607	1095	847	1312	1123	1505
DS4.2X8X0.4	4.20	8.00	0.40		0.20	0.60	0.50	0.11	0.03	48	0.06	93	0.09	134	0.12	173	0.15	210	0.18	245	198	268	419	522	663	761	929	985	1218	1194	1530	1389
DS3.2X10X0.3	3.20	10.00	0.30		0.35	0.65	1.17	0.17	0.05	34	0.11	59	0.16	77	0.21	90	0.26	98	0.32	105	39	234	124	447	254	638	430	808	652	957	919	1085
DS3.2X10X0.4	3.20	10.00	0.40		0.30	0.70	0.75	0.22	0.05	48	0.09	88	0.14	123	0.18	153	0.23	179	0.27	204	160	214	353	412	579	595	840	762	1134	913	1461	1048
DS3.2X10X0.5	3.20	10.00	0.50		0.25	0.75	0.50	0.28	0.04	64	0.08	123	0.11	178	0.15	229	0.19	279	0.23	326	238	189	500	368	784	535	1092	692	1424	838	1779	972
DS4.2X10X0.4	4.20	10.00	0.40		0.30	0.70	0.75	0.20	0.05	50	0.09	93	0.14	129	0.18	161	0.23	189	0.27	215	134	249	300	480	497	693	727	888	988	1066	1282	1225
DS4.2X10X0.5	4.20	10.00	0.50		0.25	0.75	0.50	0.25	0.04	68	0.08	130	0.11	188	0.15	242	0.19	294	0.23	344	208	221	438	430	690	626	964	810	1260	981	1578	1140
DS4.2X10X0.6	4.20	10.00	0.60		0.25	0.85	0.42	0.30	0.04	111	0.08	216	0.11	315	0.15	410	0.19	502	0.23	592	277	250	575	487	896	712	1239	925	1604	1125	1991	1313
DS5.2X10X0.25	5.20	10.00	0.25		0.30	0.55	1.20	0.11	0.05	20	0.09	35	0.14	45	0.18	53	0.23	58	0.27	61	2	235	37	449	104	642	203	814	336	965	500	1095
DS5.2X10X0.4	5.20	10.00	0.40		0.30	0.70	0.75	0.18	0.05	56	0.09	103	0.14	143	0.18	178	0.23	209	0.27	238	124	298	280	575	468	832	690	1067	943	1281	1230	1474
DS5.2X10X0.5	5.20	10.00	0.50		0.25	0.75	0.50	0.22	0.04	75	0.08	144	0.11	208	0.15	268	0.19	325	0.23	381	198	266	419	517	663	753	929	975	1218	1182	1529	1375
DS4.2X12X0.4	4.20	12.00	0.40		0.40	0.80	1.00	0.31	0.06	55	0.12	98	0.18	132	0.24	158	0.3	178	0.36	195	76	238	193	455	350	653	548	830	786	988	1064	1125
DS4.2X12X0.5	4.20	12.00	0.50		0.35	0.85	0.70	0.39	0.05	73	0.11	136	0.16	191	0.21	240	0.26	284	0.32	325	165	219	361	423	589	612	847	785	1136	943	1456	1086
DS4.2X12X0.6	4.20	12.00	0.60		0.40	1.00	0.67	0.47	0.06	141	0.12	263	0.18	372	0.24	468	0.3	557	0.36	640	239	295	519	569	839	824	1199	1058	1600	1273	2041	1467
DS5.2X12X0.5	5.20	12.00	0.50		0.40	0.90	0.80	0.36	0.06	96	0.12	176	0.18	243	0.24	300	0.3	350	0.36	395	137	303	314	584	530	842	785	1078	1080	1291	1414	1482
DS5.2X12X0.6	5.20	12.00	0.60		0.35	0.95	0.58	0.43	0.05	122	0.11	231	0.16	330	0.21	421	0.26	506	0.32	588	213	279	456	540	730	785	1033	1012	1367	1222	1730	1415
DS6.2X12X0.5	6.20	12.00	0.50		0.35	0.85	0.70	0.33	0.05	84	0.11	157	0.16	220	0.21	276	0.26	326	0.32	374	139	291	308	563	509	815	740	1047	1001	1259	1294	1452
DS6.2X12X0.6	6.20	12.00	0.60		0.35	0.95	0.58	0.39	0.05	133	0.11	252	0.16	360	0.21	459	0.26	552	0.32	640	204	325	440	631	706	916	1002	1182	1329	1429	1687	1655
DS5.2X12.5X0.5	5.20	12.50	0.50		0.35	0.85	0.70	0.40	0.05	70	0.11	131	0.16	183	0.21	230	0.26	272	0.32	312	138	224	304	432	497	625	718	803	967	965	1244	1112
DS6.2X12.5X0.35	6.20	12.50	0.35		0.45	0.80	1.29	0.25	0.07	55	0.14	95	0.2	123	0.27	141	0.34	151	0.41	157	-14	314	18	598	97	854	222	1080	393	1278	611	1446

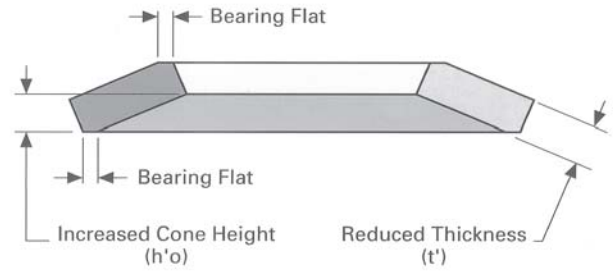
Disc Springs to DIN 2093



Disc Spring without Bearing Flats



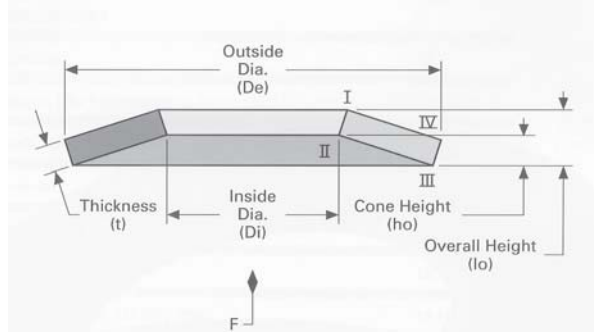
Disc Spring with Bearing Flats



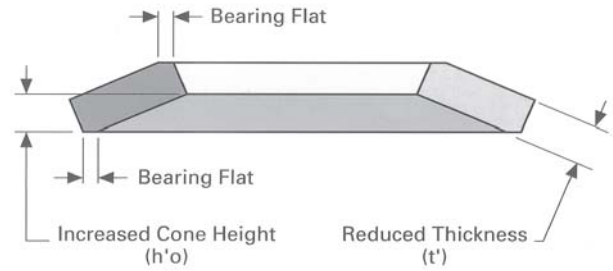
Product Code	Inner Dia. (Di) mm	Outer Dia. (De) mm	Thick. (t) mm	Reduced Thick. (t') mm	Cone Ht. (ho) mm	Overall Ht. (lo) mm	Cone Ht. To Thickness Ratio	Weight per 1000 pieces	15% Deflection		30% Deflection		45% Deflection		60% Deflection		75% Deflection		90% Deflection													
									Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N										
									Stress δ_{II} δ_{III} N/mm ²		Stress δ_{II} δ_{III} N/mm ²		Stress δ_{II} δ_{III} N/mm ²		Stress δ_{II} δ_{III} N/mm ²		Stress δ_{II} δ_{III} N/mm ²		Stress δ_{II} δ_{III} N/mm ²													
DS6.2X12.5X0.5	6.20	12.50	0.50		0.35	0.85	0.70	0.36	0.05	76	0.11	141	0.16	198	0.21	248	0.26	293	0.32	336	129	258	286	498	471	721	684	926	925	1114	1194	1284
DS6.2X12.5X0.6	6.20	12.50	0.60		0.35	0.95	0.58	0.44	0.05	119	0.11	227	0.16	324	0.21	413	0.26	496	0.32	576	189	288	407	558	652	811	926	1046	1227	1264	1557	1464
DS6.2X12.5X0.7	6.20	12.50	0.70		0.30	1.00	0.43	0.51	0.05	147	0.09	284	0.14	415	0.18	539	0.23	660	0.27	777	235	259	491	505	767	739	1064	959	1382	1167	1720	1361
DS6.2X12.5X1	6.20	12.50	1.00		0.20	1.20	0.20	0.73	0.03	257	0.06	510	0.09	760	0.12	1008	0.15	1254	0.18	1499	289	206	586	407	893	602	1209	791	1534	975	1868	1152
DS7.2X14X0.35	7.20	14.00	0.35		0.45	0.80	1.29	0.31	0.07	45	0.14	78	0.2	100	0.27	115	0.34	123	0.41	128	-13	259	12	494	74	705	173	892	309	1055	482	1195
DS7.2X14X0.5	7.20	14.00	0.50		0.40	0.90	0.80	0.44	0.06	76	0.12	140	0.18	194	0.24	239	0.3	279	0.36	315	94	258	217	497	370	717	553	919	764	1101	1005	1265
DS7.2X14X0.8	7.20	14.00	0.80		0.30	1.10	0.38	0.71	0.05	173	0.09	338	0.14	496	0.18	648	0.23	797	0.27	943	228	235	473	460	735	674	1013	878	1308	1071	1619	1253
DS5.2X15X0.4	5.20	15.00	0.40		0.55	0.95	1.38	0.49	0.08	67	0.17	115	0.25	147	0.33	166	0.41	176	0.5	180	-15	249	19	473	103	674	235	850	417	1002	647	1130
DS5.2X15X0.5	5.20	15.00	0.50		0.50	1.00	1.00	0.61	0.08	86	0.15	154	0.23	206	0.3	246	0.38	278	0.45	305	77	236	195	453	353	650	551	826	790	983	1070	1119
DS5.2X15X0.6	5.20	15.00	0.60		0.45	1.05	0.75	0.73	0.07	108	0.14	200	0.2	278	0.27	347	0.34	407	0.41	463	151	222	334	428	551	618	800	792	1082	949	1397	1090
DS5.2X15X0.7	5.20	15.00	0.70		0.40	1.10	0.57	0.85	0.06	133	0.12	252	0.18	361	0.24	461	0.3	555	0.36	645	206	206	439	399	697	579	981	746	1291	901	1627	1043
DS6.2X15X0.5	6.20	15.00	0.50		0.50	1.00	1.00	0.58	0.08	89	0.15	160	0.23	214	0.3	256	0.38	289	0.45	317	64	262	168	501	311	719	494	915	716	1089	977	1242
DS6.2X15X0.6	6.20	15.00	0.60		0.45	1.05	0.75	0.69	0.07	112	0.14	208	0.2	290	0.27	360	0.34	424	0.41	482	135	246	302	475	501	685	732	878	994	1054	1289	1212
DS6.2X15X0.7	6.20	15.00	0.70		0.40	1.10	0.57	0.81	0.06	138	0.12	262	0.18	376	0.24	480	0.3	578	0.36	671	189	228	402	443	642	643	906	829	1195	1002	1510	1160
DS8.2X15X0.5	8.20	15.00	0.50		0.50	1.00	1.00	0.49	0.08	103	0.15	184	0.23	247	0.3	295	0.38	334	0.45	365	51	334	142	640	275	919	448	1171	662	1396	917	1593
DS8.2X15X0.7	8.20	15.00	0.70		0.40	1.10	0.57	0.68	0.06	159	0.12	303	0.18	433	0.24	553	0.3	666	0.36	774	178	293	382	569	612	827	868	1067	1150	1291	1459	1496
DS8.2X15X0.8	8.20	15.00	0.80		0.40	1.20	0.50	0.78	0.06	226	0.12	434	0.18	628	0.24	809	0.3	982	0.36	1150	226	320	478	622	757	906	1061	1173	1392	1423	1749	1655
DS8.2X16X0.4	8.20	16.00	0.40		0.50	0.90	1.25	0.47	0.08	55	0.15	96	0.23	124	0.3	143	0.38	154	0.45	162	-6	247	23	471	88	673	187	852	322	1009	491	1143
DS8.2X16X0.6	8.20	16.00	0.60		0.45	1.05	0.75	0.70	0.07	109	0.14	201	0.2	280	0.27	349	0.34	410	0.41	466	109	258	246	498	412	720	607	924	830	1109	1081	1276
DS8.2X16X0.7	8.20	16.00	0.70		0.45	1.15	0.64	0.81	0.07	159	0.14	298	0.2	422	0.27	534	0.34	637	0.41	735	156	283	341	547	555	793	796	1021	1067	1230	1366	1422
DS8.2X16X0.8	8.20	16.00	0.80		0.40	1.20	0.50	0.93	0.06	190	0.12	365	0.18	527	0.24	680	0.3	825	0.36	966	199	262	420	509	663	742	929	960	1218	1164	1529	1354
DS8.2X16X0.9	8.20	16.00	0.90		0.35	1.25	0.39	1.05	0.05	221	0.11	431	0.16	632	0.21	825	0.26	1013	0.32	1197	226	238	469	465	729	681	1006	886	1301	1080	1613	1263
DS6.2X18X0.4	6.20	18.00	0.40		0.60	1.00	1.50	0.70	0.09	57	0.18	96	0.27	121	0.36	134	0.45	139	0.54	138	-32	198	-23	376	26	534	116	673	247	791	418	890
DSX6.2X18X0.5	6.20	18.00	0.50		0.60	1.10	1.20	0.88	0.09	85	0.18	149	0.27	194	0.36	225	0.45	245	0.54	259	23	217	86	414	190	591	335	748	520	885	746	1003
DS6.2X18X0.6	6.20	18.00	0.60		0.60	1.20	1.00	1.06	0.09	124	0.18	221	0.27	296	0.36	355	0.45	400	0.54	438	78	236	196	452	354	647	554	823	794	980	1074	1116
DS6.2X18X0.7	6.20	18.00	0.70		0.55	1.25	0.79	1.23	0.08	150	0.17	276	0.25	382	0.33	473	0.41	553	0.5	625	140	224	315	431	523	622	766	795	1043	953	1354	1093



Disc Spring without Bearing Flats



Disc Spring with Bearing Flats

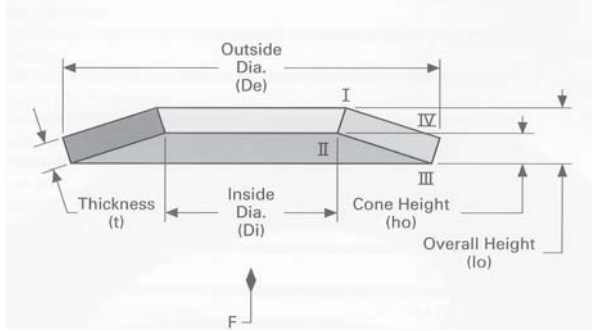


Product Code	Inner Dia. (Di) mm	Outer Dia. (De) mm	Thick. (t) mm	Reduced Thick. (t') mm	Cone Ht. (ho) mm	Overall Ht. (lo) mm	Cone Ht. To Thickness Ratio	Weight per 1000 pieces	15% Deflection		30% Deflection		45% Deflection		60% Deflection		75% Deflection		90% Deflection	
									Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N
									Stress		Stress		Stress		Stress		Stress		Stress	
									δ_{II}	δ_{III}	δ_{II}	δ_{III}	δ_{II}	δ_{III}	δ_{II}	δ_{III}	δ_{II}	δ_{III}	δ_{II}	δ_{III}
									N/mm ²		N/mm ²		N/mm ²		N/mm ²		N/mm ²		N/mm ²	
DS6.2X18X0.8	6.20	18.00	0.80		0.50	1.30	0.63	1.41	0.08	179	0.15	337	0.23	479	0.3	607	0.38	726	0.45	838
DS8.2X18X0.5	8.20	18.00	0.50		0.60	1.10	1.20	0.79	0.09	92	0.18	161	0.27	209	0.36	243	0.45	265	0.54	280
DS8.2X18X0.7	8.20	18.00	0.70		0.55	1.25	0.79	1.11	0.08	161	0.17	297	0.25	412	0.33	510	0.41	596	0.5	674
DS8.2X18X0.8	8.20	18.00	0.80		0.50	1.30	0.63	1.27	0.08	193	0.15	364	0.23	516	0.3	655	0.38	783	0.45	904
DS8.2X18X1	8.20	18.00	1.00		0.40	1.40	0.40	1.58	0.06	260	0.12	505	0.18	739	0.24	963	0.3	1181	0.36	1395
DS9.2X18X0.45	9.20	18.00	0.45		0.60	1.05	1.33	0.66	0.09	80	0.18	138	0.27	176	0.36	200	0.45	214	0.54	220
DS9.2X18X0.7	9.20	18.00	0.70		0.50	1.20	0.71	1.03	0.08	147	0.15	274	0.23	383	0.3	480	0.38	566	0.45	647
DS9.2X18X1	9.20	18.00	1.00		0.40	1.40	0.40	1.48	0.06	276	0.12	536	0.18	784	0.24	1023	0.3	1254	0.36	1481
DS8.2X20X0.6	8.20	20.00	0.60		0.70	1.30	1.17	1.20	0.11	141	0.21	246	0.32	322	0.42	375	0.53	412	0.63	438
DS8.2X20X0.7	8.20	20.00	0.70		0.65	1.35	0.93	1.40	0.08	168	0.2	303	0.29	411	0.39	498	0.49	569	0.59	630
DS8.2X20X0.8	8.20	20.00	0.80		0.60	1.40	0.75	1.60	0.09	199	0.18	369	0.27	514	0.36	639	0.45	751	0.54	854
DSX8.2X20X0.9	8.20	20.00	0.90		0.55	1.45	0.61	1.80	0.08	233	0.17	441	0.25	627	0.33	796	0.41	954	0.5	1103
DS8.2X20X1	8.20	20.00	1.00		0.55	1.55	0.55	2.10	0.08	306	0.17	583	0.25	837	0.33	1073	0.41	1294	0.5	1508
DS10.2X20X0.4	10.20	20.00	0.40		0.50	0.90	1.25	0.70	0.08	35	0.15	61	0.23	79	0.3	91	0.38	99	0.45	103
DS10.2X20X0.5	10.20	20.00	0.50		0.65	1.15	1.30	0.90	0.1	94	0.2	161	0.29	208	0.39	237	0.89	254	0.59	264
DS10.2X20X0.8	10.20	20.00	0.80		0.55	1.35	0.69	1.50	-15	261	8	498	69	711	168	899	305	1063	479	1203
DS10.2X20X0.9	10.20	20.00	0.90		0.55	1.45	0.61	1.60	0.08	191	0.17	357	0.25	502	0.33	631	0.41	748	0.5	858
DS10.2X20X1	10.20	20.00	1.00		0.55	1.55	0.55	1.80	0.08	257	0.17	485	0.25	690	0.33	877	0.41	1050	0.5	1215
DS10.2X20X1.1	10.20	20.00	1.10		0.45	1.55	0.41	2.00	166	277	359	537	580	780	828	1005	1102	1212	1405	1403
DS10.2X20X1.25	10.20	20.00	1.25		0.50	1.75	0.40	2.30	0.08	337	0.17	642	0.25	922	0.33	1181	0.41	1425	0.5	1660
DS10.2X20X1.5	10.20	20.00	1.50		0.30	1.80	0.20	2.70	203	296	434	575	691	836	976	1080	1288	1307	1627	1516
DS11.2X22.5X0.6	11.20	22.50	0.60		0.80	1.40	1.33	1.40	0.07	335	0.14	652	0.2	953	0.27	1241	0.34	1521	0.41	1795
DS11.2X22.5X0.8	11.20	22.50	0.80		0.65	1.45	0.81	1.90	222	242	461	472	719	691	995	898	1290	1093	1602	1277
DS11.2X22.5X1	11.20	22.50	1.00		0.65	1.65	0.65	2.30	0.08	544	0.15	1059	0.23	1549	0.3	2020	0.38	2477	0.45	2925
DS11.2X22.5X1.25	11.20	22.50	1.25		0.50	1.75	0.40	2.90	283	303	588	592	916	867	1266	1127	1639	1373	2034	1605
DS8.2X23X0.7	8.20	23.00	0.70		0.80	1.50	1.14	2.00	0.05	517	0.09	1026	0.14	1529	0.18	2027	0.23	2521	0.27	3013
									254	187	515	368	785	544	1063	715	1349	881	1643	1042
									0.12	160	0.24	274	0.36	351	0.48	399	0.6	425	0.72	439
									-23	302	-1	576	66	821	178	1038	336	1227	538	1387
									0.1	195	0.2	357	0.29	493	0.39	608	0.49	707	0.59	798
									93	253	215	488	368	704	550	901	762	1079	1004	1239
									0.1	334	0.2	627	0.29	887	0.39	1121	0.49	1335	0.59	1538
									162	288	354	557	575	807	827	1039	1108	1251	1419	1445
									0.08	424	0.15	824	0.23	1206	0.3	1573	0.38	1929	0.45	2278
									224	234	465	457	724	669	1001	869	1296	1059	1608	1237
									0.12	183	0.24	321	0.36	422	0.48	493	0.6	544	0.72	581
									37	245	119	469	244	670	413	850	626	1007	882	1143

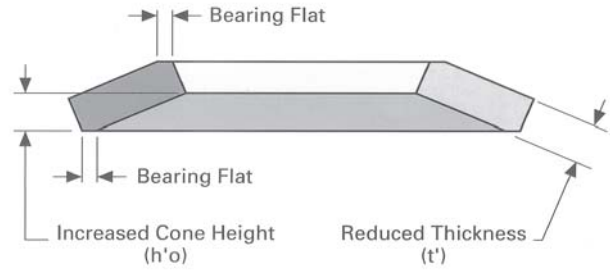
Disc Springs to DIN 2093



Disc Spring without Bearing Flats



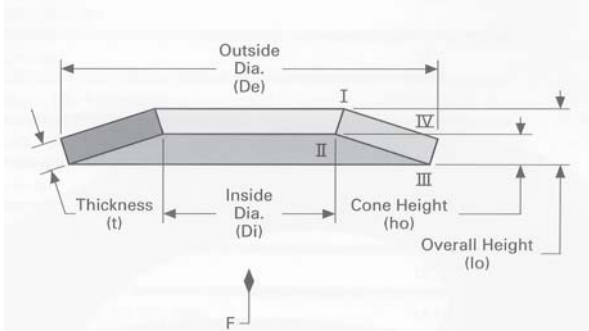
Disc Spring with Bearing Flats



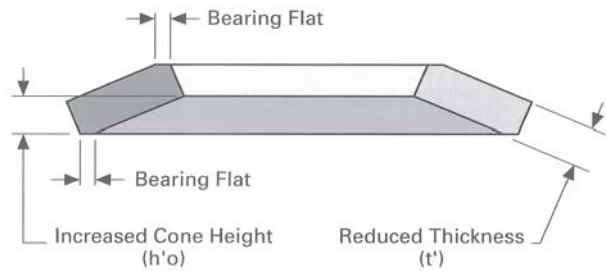
Product Code	Inner Dia. (Di) mm	Outer Dia. (De) mm	Thick. (t) mm	Reduced Thick. (t') mm	Cone Ht. (ho) mm	Overall Ht. (lo) mm	Cone Ht. To Thickness Ratio	Weight per 1000 pieces	15% Deflection		30% Deflection		45% Deflection		60% Deflection		75% Deflection		90% Deflection			
									Defl. Force		Defl. Force		Defl. Force		Defl. Force		Defl. Force		Defl. Force			
									mm	N	mm	N	mm	N	mm	N	mm	N	mm	N	mm	N
									Stress		Stress		Stress		Stress		Stress		Stress			
									δII	δIII	δII	δIII	δII	δIII	δII	δIII	δII	δIII	δII	δIII		
									N/mm2		N/mm2		N/mm2		N/mm2		N/mm2		N/mm2			
DS8.2X23X0.8	8.20	23.00	0.80		0.75	1.55	0.94	2.30	0.11	214	0.23	385	0.34	521	0.45	630	0.56	719	0.68	795	0.92	1131
DS8.2X23X0.9	8.20	23.00	0.90		0.70	1.60	0.78	2.60	0.11	248	0.21	457	0.32	634	0.42	785	0.53	919	0.63	1041	0.139	1340
DS8.2X23X1	8.20	23.00	1.00		0.70	1.70	0.70	2.80	0.11	309	0.21	595	0.32	835	0.42	1048	0.53	1240	0.63	1419	0.178	1194
DS10.2X23X0.9	10.20	23.00	0.90		0.75	1.65	0.83	2.40	0.11	295	0.23	539	0.34	742	0.45	912	0.56	1058	0.68	1189	0.115	1404
DS10.2X23X1	10.20	23.00	1.00		0.70	1.70	0.70	2.60	0.11	339	0.21	631	0.32	886	0.42	1112	0.53	1315	0.63	1506	0.158	1377
DS10.2X23X1.25	10.20	23.00	1.25		0.65	1.90	0.52	3.30	0.1	537	0.2	1029	0.29	1483	0.39	1907	0.49	2310	0.59	1699	0.244	1473
DS12.2X23X1	12.20	23.00	1.00		0.60	1.60	0.60	2.30	0.09	296	0.18	560	0.27	797	0.36	1015	0.45	1217	0.54	1410	0.155	1334
DS12.2X23X1.25	12.20	23.00	1.25		0.60	1.85	0.48	2.90	0.09	532	0.18	1023	0.27	1483	0.36	1916	0.45	2331	0.54	2734	0.231	1579
DS12.2X23X1.5	12.20	23.00	1.50		0.50	2.00	0.33	3.50	0.08	705	0.15	1382	0.23	2036	0.3	2673	0.38	3297	0.45	3912	0.278	1470
DS10.2X25X1	10.20	25.00	1.00		0.75	1.75	0.75	3.20	0.11	311	0.23	575	0.34	801	0.45	997	0.56	1172	0.68	1333	0.136	1201
DS12.2X25X0.7	12.20	25.00	0.70		0.90	1.60	1.29	2.10	0.14	219	0.27	378	0.41	487	0.54	558	0.68	600	0.81	624	-13	1425
DS12.2X25X0.9	12.20	25.00	0.90		0.70	1.60	0.78	2.60	0.11	233	0.21	429	0.32	595	0.42	737	0.53	862	0.63	977	0.99	1176
DS12.2X25X1	12.20	25.00	1.00		0.80	1.80	0.80	2.90	0.12	371	0.24	682	0.36	943	0.48	1165	0.6	1359	0.72	1534	0.120	1507
DS12.2X25X1.25	12.20	25.00	1.25		0.70	1.95	0.56	3.70	0.11	526	0.21	1002	0.32	1436	0.42	1837	0.53	2214	0.63	2577	0.205	1485
DS12.2X25X1.5	12.20	25.00	1.50		0.55	2.05	0.37	4.40	0.08	634	0.17	1238	0.25	1818	0.33	2379	0.41	2926	0.5	3464	0.249	1277
DS10.2X28X0.8	10.20	28.00	0.80		0.95	1.75	1.19	3.40	0.14	229	0.29	399	0.43	521	0.57	605	0.71	662	0.86	701	0.23	1076
DS10.2X28X1	10.20	28.00	1.00		0.90	1.90	0.90	4.20	0.14	328	0.27	595	0.41	810	0.54	984	0.68	1130	0.81	1257	0.101	1141
DS10.2X28X1.25	10.20	28.00	1.25		0.80	2.05	0.64	5.20	0.12	460	0.24	866	0.36	1227	0.48	1553	0.6	1853	0.72	2137	0.186	1134
DS10.2X28X1.5	10.20	28.00	1.50		0.70	2.20	0.47	6.30	0.11	617	0.21	1190	0.32	1726	0.42	2235	0.53	2723	0.63	3197	0.247	1097
DS12.2X28X1	12.20	28.00	1.00		0.95	1.95	0.95	3.90	0.14	380	0.29	683	0.43	923	0.57	1114	0.71	1268	0.86	1400	0.80	1379
DS12.2X28X1.25	12.20	28.00	1.25		0.85	2.10	0.68	4.90	0.13	530	0.26	991	0.38	1395	0.51	1755	0.64	2083	0.77	2390	0.169	1379
DS12.2X28X1.5	12.20	28.00	1.50		0.75	2.25	0.50	5.90	0.11	709	0.23	1361	0.34	1966	0.45	2535	0.56	3077	0.68	3603	0.235	1345
DS14.2X28X0.8	14.20	28.00	0.80		1.00	1.80	1.25	2.90	0.15	287	0.3	497	0.45	644	0.6	741	0.75	801	0.9	839	-7	1477
DS14.2X28X1	14.20	28.00	1.00		0.80	1.80	0.80	3.60	0.12	303	0.24	556	0.36	769	0.48	949	0.6	1107	0.72	1250	0.94	1247
DS14.2X28X1.25	14.20	28.00	1.25		0.85	2.10	0.68	4.50	0.13	570	0.26	1065	0.38	1500	0.51	1887	0.64	2240	0.77	2570	0.161	1574
DS14.2X28X1.5	14.20	28.00	1.50		0.65	2.15	0.43	5.40	0.1	633	0.2	1227	0.29	1789	0.39	2324	0.49	2841	0.59	3346	0.216	1291



Disc Spring without Bearing Flats



Disc Spring with Bearing Flats

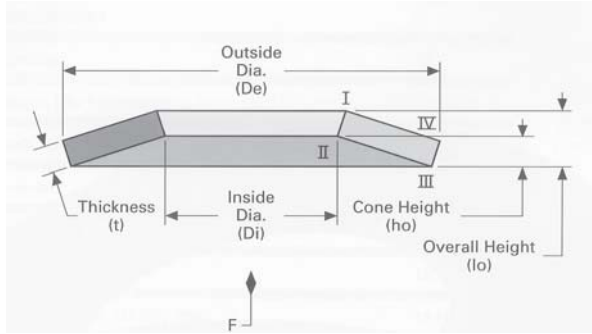


Product Code	Inner Dia. (Di) mm	Outer Dia. (De) mm	Thick. (t) mm	Reduced Thick. (t') mm	Cone Ht. (ho) mm	Overall Ht. (lo) mm	Cone Ht. To Thickness Ratio	Weight per 1000 pieces	15% Deflection		30% Deflection		45% Deflection		60% Deflection		75% Deflection		90% Deflection					
									Defl. mm		Defl. mm		Defl. mm		Defl. mm		Defl. mm		Defl. mm		Defl. mm		Defl. mm	
									Force N	Stress δII N/mm2	Force N	Stress δIII N/mm2	Force N	Stress δII N/mm2	Force N	Stress δIII N/mm2	Force N	Stress δII N/mm2	Force N	Stress δIII N/mm2	Force N	Stress δII N/mm2	Force N	Stress δIII N/mm2
DS12.2X31.5X1.25	12.20	31.50	1.25	0.95	2.20	0.76	6.50	0.14	481	0.29	890	0.43	1238	0.57	1539	0.71	1805	0.86	2050					
DS12.2X31.5X1.5	12.20	31.50	1.50	0.85	2.35	0.57	7.80	0.13	641	0.26	1219	0.38	1746	0.51	2232	0.64	2688	0.77	3126					
DS16.3X31.5X0.8	16.30	31.50	0.80	1.05	1.85	1.31	3.60	0.16	255	0.32	438	0.47	563	0.63	642	0.79	687	0.95	711					
DS16.3X31.5X1.25	16.30	31.50	1.25	0.90	2.15	0.72	5.60	0.14	498	0.27	926	0.41	1296	0.54	1621	0.68	1913	0.81	2184					
DS16.3X31.5X1.5	16.30	31.50	1.50	0.90	2.40	0.60	6.70	0.14	785	0.27	1485	0.41	2116	0.54	2693	0.68	3230	0.81	3742					
DS16.3X31.5X1.75	16.30	31.50	1.75	0.70	2.45	0.40	7.80	0.11	850	0.21	1655	0.32	2421	0.42	3157	0.53	3871	0.63	4572					
DS16.3X31.5X2	16.30	31.50	2.00	0.75	2.75	0.38	9.00	0.11	1342	0.23	2618	0.34	3841	0.45	5022	0.56	6173	0.68	7304					
DS12.2X34X1	12.20	34.00	1.00	1.25	2.25	1.25	6.20	0.19	420	0.38	727	0.56	942	0.75	1084	0.94	1172	1.13	1228					
DS12.2X34X1.25	12.20	34.00	1.25	1.10	2.35	0.88	7.80	0.17	521	0.33	946	0.5	1292	0.66	1576	0.83	1815	0.99	2026					
DS12.2X34X1.5	12.20	34.00	1.50	1.00	2.50	0.67	9.30	0.15	687	0.3	1287	0.45	1816	0.6	2288	0.75	2721	0.9	3127					
DS14.2X34X1.25	14.20	34.00	1.25	1.15	2.40	0.92	7.40	0.17	585	0.35	1056	0.52	1434	0.69	1738	0.86	1989	1.04	2206					
DS14.2X34X1.5	14.20	34.00	1.50	1.05	2.55	0.70	8.80	0.16	768	0.32	1432	0.47	2010	0.63	2521	0.79	2984	0.95	3415					
DS16.3X34X1.5	16.30	34.00	1.50	1.05	2.55	0.70	8.20	0.16	812	0.32	1514	0.47	2126	0.63	2666	0.79	3155	0.95	3612					
DS16.3X34X2	16.30	34.00	2.00	0.85	2.85	0.43	11.00	0.13	1284	0.26	2491	0.38	3634	0.51	4727	0.64	5783	0.77	6816					
DS18.3X35.5X0.9	18.30	35.50	0.90	1.15	2.05	1.28	5.10	0.17	303	0.35	523	0.52	675	0.69	773	0.86	832	1.04	867					
DS18.3X35.5X1.25	18.30	35.50	1.25	1.00	2.25	0.80	7.10	0.15	464	0.3	853	0.45	1179	0.6	1457	0.75	1699	0.9	1918					
DS18.3X35.5X2	18.30	35.50	2.00	0.80	2.80	0.40	11.40	0.12	1139	0.24	2217	0.36	3243	0.48	4230	0.6	5187	0.72	6126					
DS14.2X40X1.25	14.20	40.00	1.25	1.40	2.65	1.12	11.00	0.21	590	0.42	1038	0.63	1369	0.84	1607	1.05	1778	1.26	1907					
DS14.2X40X1.5	14.20	40.00	1.50	1.25	2.75	0.83	13.00	0.19	709	0.38	1296	0.56	1783	0.75	2191	0.94	2542	1.13	2857					
DS14.2X40X2	14.20	40.00	2.00	1.05	3.05	0.53	17.00	0.16	1111	0.32	2126	0.47	3062	0.63	3935	0.79	4763	0.95	5563					
DS16.3X40X1.5	16.30	40.00	1.50	1.05	2.55	0.70	12.00	0.16	551	0.32	1027	0.47	1442	0.63	1808	0.79	2140	0.95	2449					
DS16.3X40X2	16.30	40.00	2.00	1.10	3.10	0.55	16.00	0.17	1222	0.33	2329	0.5	3343	0.66	4283	0.83	5169	0.99	6021					
DS18.3X40X2	18.30	40.00	2.00	1.15	3.15	0.58	16.00	0.17	1355	0.35	2574	0.52	3682	0.69	4701	0.86	5656	1.04	6571					
DS20.4X40X1	20.40	40.00	1.00	1.30	2.30	1.30	7.00	0.2	375	0.39	645	0.59	830	0.78	948	0.98	1017	1.17	1055					
DS20.4X40X1.5	20.40	40.00	1.50	1.15	2.65	0.77	11.00	0.17	702	0.35	1296	0.52	1801	0.69	2237	0.86	2621	1.04	2974					
DS20.4X40X2	20.40	40.00	2.00	1.10	3.10	0.55	15.00	0.17	1348	0.33	2569	0.5	3687	0.66	4724	0.83	5701	0.99	6641					

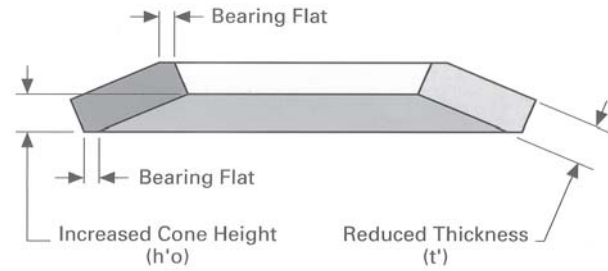
Disc Springs to DIN 2093



Disc Spring without Bearing Flats



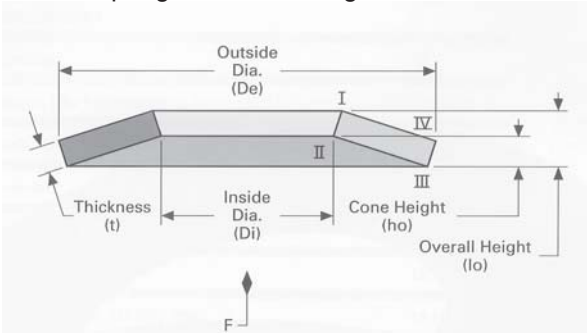
Disc Spring with Bearing Flats



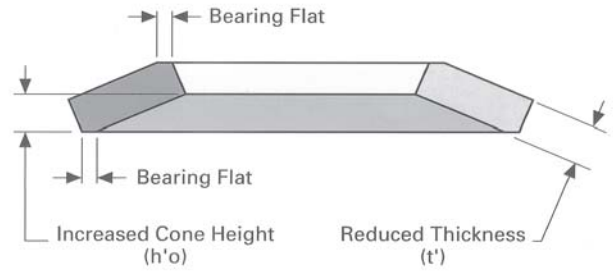
Product Code	Inner Dia. (Di) mm	Outer Dia. (De) mm	Thick. (t) mm	Reduced Thick. (t') mm	Cone Ht. (ho) mm	Overall Ht. (lo) mm	Cone Ht. To Thickness Ratio	Weight per 1000 pieces	15% Deflection		30% Deflection		45% Deflection		60% Deflection		75% Deflection		90% Deflection		
									Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm
									Stress		Stress		Stress		Stress		Stress		Stress		
									δII	δIII	δII	δIII	δII	δIII	δII	δIII	δII	δIII	δII	δIII	
									N/mm ²		N/mm ²		N/mm ²		N/mm ²		N/mm ²		N/mm ²		
DS20.4X40X2.25	20.40	40.00	2.25	0.90	3.15	0.40	16.00	0.14	1428	0.27	2778	0.41	4064	0.54	5301	0.68	6500	0.81	7677	229	246
DS20.4X40X2.5	20.40	40.00	2.50	0.95	3.45	0.38	18.00	0.14	2045	0.29	3989	0.43	5849	0.57	7643	0.71	9390	0.86	11106	275	284
DS22.4X45X1.25	22.40	45.00	1.25	1.60	2.85	1.28	12.00	0.24	689	0.48	1189	0.72	1534	0.96	1757	1.2	1891	1.44	1969	-13	307
DS22.4X45X1.75	22.40	45.00	1.75	1.30	3.05	0.74	16.00	0.2	963	0.39	1783	0.59	2488	0.78	3100	0.98	3646	1.17	4150	119	266
DS22.4X45X2.5	22.40	45.00	2.50	1.00	3.50	0.40	23.00	0.15	1695	0.3	3298	0.45	4825	0.6	6292	0.75	7716	0.9	9113	224	234
DS18.3X50X1.25	18.30	50.00	1.25	1.60	2.85	1.28	17.00	0.24	500	0.48	864	0.72	1114	0.96	1276	1.2	1373	1.44	1430	3	201
DS18.3X50X1.5	18.30	50.00	1.50	1.80	3.30	1.20	20.00	0.27	906	0.54	1578	0.81	2058	1.08	2386	1.35	2603	1.62	2752	23	261
DS18.3X50X2	18.30	50.00	2.00	1.50	3.50	0.75	27.00	0.23	1211	0.45	2241	0.68	3123	0.9	3887	1.13	4567	1.35	5193	145	229
DS18.3X50X2.5	18.30	50.00	2.50	1.60	4.10	0.64	33.00	0.24	2312	0.48	4351	0.72	6163	0.96	7799	1.2	9305	1.44	10731	233	285
DS18.3X50X3	18.30	50.00	3.00	1.40	4.40	0.47	40.00	0.21	3097	0.42	5975	0.63	8670	0.84	11224	1.05	13673	1.26	16058	309	266
DS20.4X50X2	20.40	50.00	2.00	1.50	3.50	0.75	26.00	0.23	1243	0.45	2300	0.68	3205	0.9	3990	1.13	4687	1.35	5330	136	244
DS20.4X50X2.5	20.40	50.00	2.50	1.35	3.85	0.54	32.00	0.2	1862	0.41	3555	0.61	5109	0.81	6554	1.01	7919	1.22	9234	215	240
DS22.4X50X2	22.40	50.00	2.00	1.60	3.60	0.80	25.00	0.24	1427	0.48	2622	0.72	3625	0.96	4478	1.2	5222	1.44	5897	125	286
DS22.4X50X2.5	22.40	50.00	2.50	1.40	3.90	0.56	31.00	0.21	2023	0.42	3850	0.63	5518	0.84	7060	1.05	8510	1.26	9903	209	270
DS25.4X50X1.25	25.40	50.00	1.25	1.60	2.85	1.28	14.00	0.24	565	0.48	975	0.72	1258	0.96	1440	1.2	1550	1.44	1615	-11	254
DS25.4X50X1.5	25.40	50.00	1.50	1.60	3.10	1.07	17.00	0.24	808	0.48	1431	0.72	1900	0.96	2250	1.2	2512	1.44	2719	32	276
DS25.4X50X2	25.40	50.00	2.00	1.40	3.40	0.70	23.00	0.21	1226	0.42	2285	0.63	3208	0.84	4024	1.05	4762	1.26	5451	128	264
DS25.4X50X2.25	25.40	50.00	2.25	1.50	3.75	0.67	26.00	0.23	1821	0.45	3413	0.68	4816	0.9	6070	1.13	7217	1.35	8296	165	312
DS25.4X50X2.5	25.40	50.00	2.50	1.40	3.90	0.56	29.00	0.21	2154	0.42	4101	0.63	5877	0.84	7519	1.05	9063	1.26	10546	204	302
DS25.4X50X3	25.40	50.00	3.00	1.10	4.10	0.37	34.00	0.17	2594	0.33	5067	0.5	7441	0.66	9737	0.83	11976	0.99	14180	249	249
DS28.5X56X1.5	28.50	56.00	1.50	1.95	3.45	1.30	21.00	0.29	966	0.59	1664	0.88	2141	1.17	2445	1.46	2622	1.76	2721	-17	299
DS28.5X56X2	28.50	56.00	2.00	1.60	3.60	0.80	29.00	0.24	1213	0.48	2228	0.72	3081	0.96	3806	1.2	4438	1.44	5012	94	255
DS28.5X56X2.5	28.50	56.00	2.50	1.70	4.20	0.68	36.00	0.26	2283	0.51	4270	0.77	6014	1.02	7565	1.28	8978	1.53	10303	161	316
DS28.5X56X3	28.50	56.00	3.00	1.30	4.30	0.43	43.00	0.2	2539	0.39	4920	0.59	7170	0.78	9316	0.98	11388	1.17	13414	216	247
DS20.4X60X2	20.40	60.00	2.00	2.10	4.10	1.05	39.00	0.32	1505	0.63	2671	0.95	3556	1.26	4221	1.58	4727	1.89	5132	69	252
DS20.4X60X2.5	20.40	60.00	2.50	1.80	4.30	0.72	49.00	0.27	1900	0.54	3533	0.81	4945	1.08	6184	1.35	7297	1.62	8331	168	225



Disc Spring without Bearing Flats



Disc Spring with Bearing Flats

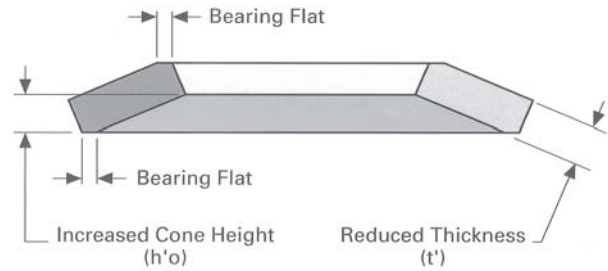
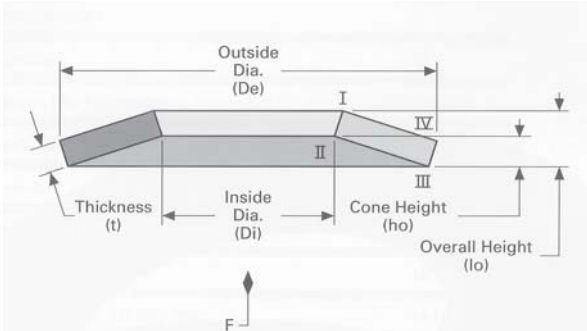


Product Code	Inner Dia. (Di) mm	Outer Dia. (De) mm	Thick. (t) mm	Reduced Thick. (t') mm	Cone Ht. (ho) mm	Overall Ht. (lo) mm	Cone Ht. To Thickness Ratio	Weight per 1000 pieces	15% Deflection		30% Deflection		45% Deflection		60% Deflection		75% Deflection		90% Deflection													
									Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N										
									Stress		Stress		Stress		Stress		Stress		Stress		Stress											
	δ_{II}	δ_{III}	N/mm ²	δ_{II}	δ_{III}	N/mm ²	δ_{II}	δ_{III}	N/mm ²	δ_{II}	δ_{III}	N/mm ²	δ_{II}	δ_{III}	N/mm ²	δ_{II}	δ_{III}	N/mm ²	δ_{II}	δ_{III}	N/mm ²											
DS20.4X60X3	20.40	60.00	3.00		1.70	4.70	0.57	59.00	0.26	2760	0.51	5248	0.77	7515	1.02	9605	1.28	11569	1.53	13453	239	231	508	448	806	651	1133	839	1490	1013	1876	1173
DS25.4X60X2.5	25.40	60.00	2.50		1.90	4.40	0.76	46.00	0.29	2178	0.57	4025	0.86	5599	1.14	6959	1.43	8164	1.71	9271	144	277	323	533	538	770	788	987	1074	1184	1395	1361
DS25.4X60X3	25.40	60.00	3.00		1.65	4.65	0.55	55.00	0.25	2782	0.5	5304	0.74	7611	0.99	9751	1.24	11768	1.49	13709	213	253	452	491	719	713	1012	921	1332	1114	1678	1291
DS30.5X60X2.5	30.50	60.00	2.50		1.80	4.30	0.72	41.00	0.27	2172	0.54	4039	0.81	5653	1.08	7070	1.35	8342	1.62	9524	138	298	308	576	510	833	745	1070	1012	1285	1311	1481
DS30.5X60X2.75	30.50	60.00	2.75		2.00	4.75	0.73	45.00	0.3	3232	0.6	6002	0.9	8391	1.2	10482	1.5	12356	1.8	14093	166	366	372	707	617	1022	903	1312	1228	1576	1594	1815
DS30.5X60X3	30.50	60.00	3.00		1.70	4.70	0.57	59.00	0.26	3155	0.51	6000	0.77	8591	1.02	10981	1.28	13226	1.53	15380	204	307	437	596	699	867	990	1119	1309	1353	1658	1569
DS30.5X60X3.5	30.50	60.00	3.50		1.50	5.00	0.43	58.00	0.23	4039	0.45	7830	0.68	11417	0.9	14843	1.13	18153	1.35	21389	255	288	532	562	832	821	1154	1066	1499	1297	1866	1514
DS31X63X1.8	31.00	63.00	1.80		2.35	4.15	1.31	33.00	0.35	1566	0.71	2697	1.06	3467	1.41	3955	1.76	4238	2.12	4393	-19	332	12	633	92	903	222	1142	402	1351	631	1528
DS31X63X2.5	31.00	63.00	2.50		1.75	4.25	0.70	46.00	0.26	1850	0.53	3450	0.79	4843	1.05	6075	1.31	7189	1.58	8229	127	252	282	487	464	704	674	905	912	1088	1176	1254
DS31X63X3	31.00	63.00	3.00		1.80	4.80	0.60	56.00	0.27	3046	0.54	5764	0.81	8214	1.08	10452	1.35	12536	1.62	14525	187	292	403	566	648	822	923	1060	1226	1280	1559	1481
DS31X63X3.5	31.00	63.00	3.50		1.40	4.90	0.40	65.00	0.21	3301	0.42	6422	0.63	9395	0.84	12253	1.05	15025	1.26	17746	224	231	466	452	725	661	1002	860	1296	1047	1608	1224
DS25.5X70X2	25.50	70.00	2.00		2.50	4.50	1.25	52.00	0.38	1590	0.75	2753	1.13	3565	1.5	4101	1.88	4437	2.25	4647	10	252	67	480	169	685	318	866	512	1024	753	1159
DS30.5X70X2.5	30.50	70.00	2.50		2.40	4.90	0.96	61.00	0.36	2421	0.72	4348	1.08	5866	1.44	7065	1.8	8031	2.16	8851	78	293	198	562	359	807	562	1028	806	1225	1092	1399
DS30.5X70X3	30.50	70.00	3.00		2.10	5.10	0.70	73.00	0.32	2941	0.63	5483	0.95	7698	1.26	9656	1.58	11426	1.89	13080	155	266	342	513	560	742	810	953	1093	1145	1407	1320
DS35.5X70X3	35.50	70.00	3.00		2.10	5.10	0.70	67.00	0.32	3162	0.63	5897	0.95	8278	1.26	10384	1.58	12287	1.89	14065	147	302	327	584	539	846	784	1087	1060	1307	1369	1507
DS35.5X70X4	35.50	70.00	4.00		1.80	5.80	0.45	90.00	0.27	5376	0.54	10393	0.81	15115	1.08	19604	1.35	23923	1.62	28137	250	294	523	573	821	837	1142	1085	1486	1319	1855	1537
DS40.5X70X4	40.50	70.00	4.00		1.60	5.60	0.40	80.00	0.24	5130	0.48	9980	0.72	14601	0.96	19042	1.2	23351	1.44	27579	240	294	500	574	780	841	1079	1094	1399	1333	1737	1558
DS40.5X70X5	40.50	70.00	5.00		1.20	6.20	0.24	100.00	0.18	6977	0.36	13806	0.54	20515	0.72	27128	0.9	33672	1.08	40173	271	244	553	460	846	709	1150	929	1465	1142	1792	1348
DS36X71X2	36.00	71.00	2.00		2.60	4.60	1.30	46.00	0.39	1895	0.78	3265	1.17	4201	1.56	4796	1.95	5144	2.34	5337	-19	330	11	629	88	897	214	1135	388	1342	610	1519
DS36X71X2.5	36.00	71.00	2.50		2.00	4.50	0.80	58.00	0.3	1838	0.6	3377	0.9	4669	1.2	5768	1.5	6725	1.8	7595	92	247	212	479	361	687	538	880	744	1055	978	1212
DS36.71X4	36.00	71.00	4.00		1.60	5.60	0.40	92.00	0.24	4511	0.48	8776	0.72	12840	0.96	16745	1.2	20535	1.44	24252	230	245	478	478	744	700	1029	911	1332	1109	1653	1296
DS31X80X2.5	31.00	80.00	2.50		2.80	5.30	1.12	84.00	0.42	2404	0.84	4228	1.26	5573	1.68	6543	2.1	7239	2.52	7764	39	263	121	502	247	718	417	911	631	1081	888	1227
DS31X80X3	31.00	80.00	3.00		2.50	5.50	0.83	101.00	0.38	2887	0.75	5279	1.13	7261	1.5	8923	1.88	10352	2.25	11634	115	242	266	466	451	671	671	857	926	1025	1215	1175
DS31X80X4	31.00	80.00	4.00		2.10	6.10	0.53	134.00	0.32	4525	0.63	8657	0.95	12467	1.26	16023	1.58	19394	1.89	22651	218	224	461	435	729	632	1021	817	1338	989	1679	1147
DS36X80X3	36.00	80.00	3.00		2.70	5.70	0.90	94.00	0.41	3464	0.81	6271	1.22	8540	1.62	10383	2.03	11919	2.43	13261	95	300	231	577	407	830	623	1060	879	1265	1176	1448
DS36X80X4	36.00	80.00	4.00		2.20	6.20	0.55	126.00	0.33	5059	0.66	9645	0.99	13841	1.32	17732	1.65	21400	1.98	24929	208	265	444	514	705	747	994	965	1310	1167	1652	1353



Disc Spring without Bearing Flats

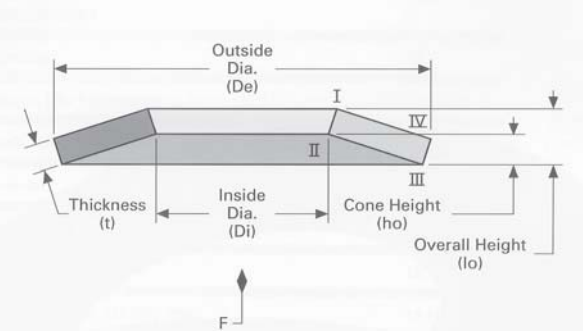
Disc Spring with Bearing Flats



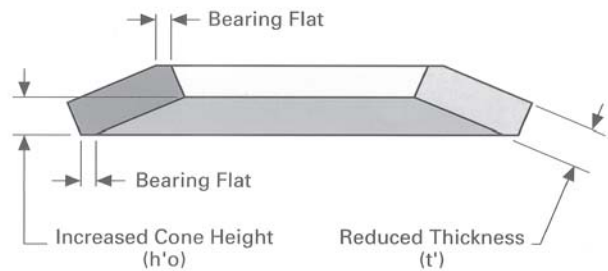
Product Code	Inner Dia. (Di) mm	Outer Dia. (De) mm	Thick. (t) mm	Reduced Thick. (t') mm	Cone Ht. (ho) mm	Overall Ht. (lo) mm	Cone Ht. To Thickness Ratio	Weight per 1000 pieces	15% Deflection		30% Deflection		45% Deflection		60% Deflection		75% Deflection		90% Deflection												
									Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N							
									Stress δ_{II} N/mm ²	Stress δ_{III} N/mm ²	Stress δ_{II} N/mm ²	Stress δ_{III} N/mm ²	Stress δ_{II} N/mm ²	Stress δ_{III} N/mm ²	Stress δ_{II} N/mm ²	Stress δ_{III} N/mm ²	Stress δ_{II} N/mm ²	Stress δ_{III} N/mm ²	Stress δ_{II} N/mm ²	Stress δ_{III} N/mm ²	Stress δ_{II} N/mm ²	Stress δ_{III} N/mm ²	Stress δ_{II} N/mm ²	Stress δ_{III} N/mm ²							
DS41X80X2.25	41.00	80.00	2.25	2.95	5.20	1.31	65.00	0.44	2452	0.89	4218	1.33	5419	1.77	6177	2.21	6613	2.66	6846	-22	337	5	642	81	916	206	1158	379	1370	602	1550
DS41X80X3	41.00	80.00	3.00	2.30	5.30	0.77	87.00	0.35	2817	0.69	5201	1.04	7228	1.38	8975	1.73	10518	2.07	11933	107	267	245	514	412	742	608	952	835	1142	1091	1313
DS41X80X4	41.00	80.00	4.00	2.20	6.20	0.55	116.00	0.33	5407	0.66	10309	0.99	14795	1.32	18953	1.65	22874	1.98	26646	203	298	433	578	691	840	976	1086	1288	1314	1627	1524
DS46X90X2.5	46.00	90.00	2.50	3.20	5.70	1.28	92.00	0.48	2800	0.96	4833	1.44	6234	1.92	7140	2.4	7684	2.88	8003	-14	315	17	602	94	859	217	1087	385	1286	598	1456
DS46X90X3.5	46.00	90.00	3.50	2.50	6.00	0.71	129.00	0.38	3675	0.75	6839	1.13	9581	1.5	11991	1.88	14131	2.25	16180	120	258	268	499	444	722	648	927	879	1114	1138	1284
DS46X90X5	46.00	90.00	5.00	2.00	7.00	0.40	184.00	0.3	6888	0.6	13401	0.9	19605	1.2	25568	1.5	31354	1.8	37031	223	240	465	469	724	687	1001	893	1295	1088	1607	1271
DS41X100X4	41.00	100.00	4.00	3.20	7.20	0.80	205.00	0.48	5535	0.96	10168	1.44	14059	1.92	17367	2.4	20251	2.88	22870	131	269	298	518	501	746	741	955	1017	1144	1329	1313
DS41X100X5	41.00	100.00	5.00	2.75	7.75	0.55	256.00	0.41	7650	0.93	14585	1.24	20931	1.65	26814	2.06	32361	2.48	37698	216	247	458	480	727	698	1023	901	1346	1089	1696	1262
DS51X100X2.7	51.00	100.00	2.70	3.50	6.20	1.30	123.00	0.53	3165	1.05	5454	1.58	7021	2.1	8021	2.63	8609	3.15	8938	-17	303	11	578	82	825	197	1044	357	1235	560	1398
DS51X100X3.5	51.00	100.00	3.50	2.80	6.30	0.80	160.00	0.42	3572	0.84	6563	1.26	9074	1.68	11209	2.1	13070	2.52	14760	91	246	209	473	356	683	531	875	734	1049	966	1204
DS51X100X4	51.00	100.00	4.00	3.00	7.00	0.75	182.00	0.45	5482	0.9	10145	1.35	14136	1.8	17597	2.25	20674	2.7	23510	124	292	281	564	469	815	691	1046	944	1255	1230	1444
DS51X100X5	51.00	100.00	5.00	2.80	7.80	0.56	228.00	0.42	8637	0.84	16442	1.26	23563	1.68	30147	2.1	36339	2.52	42287	204	303	436	589	696	856	984	1106	1301	1337	1646	1551
DS51X100X6	51.00	100.00	6.00	2.20	8.20	0.37	274.00	0.33	10401	0.66	20318	0.99	29837	1.32	39043	1.65	48022	1.98	56858	249	250	515	489	798	717	1099	934	1418	1139	1753	1334
DS51X100X7	51.00	100.00	7.00	6.55	9.20	0.40	319.00	0.33	13882	0.66	27110	0.99	39775	1.32	51972	1.65	63793	1.98	75331	258	282	533	553	825	812	1135	1061	1462	1298	1807	1524
DS57X112X3	57.00	112.00	3.00	3.90	6.90	1.30	172.00	0.59	3865	1.17	6657	1.76	8565	2.34	9779	2.93	10489	3.51	10883	-17	299	9	571	79	814	193	1030	350	1218	551	1379
DS57X112X4	57.00	112.00	4.00	3.20	7.20	0.80	229.00	0.48	4852	0.96	8914	1.44	12325	1.92	15224	2.4	17752	2.88	20048	94	255	218	492	371	710	553	909	765	1090	1006	1251
DS57X112X6	57.00	112.00	6.00	2.50	8.50	0.42	344.00	0.38	9672	0.75	18779	1.13	27421	1.5	35697	1.88	43707	2.25	51551	212	234	442	457	690	669	956	869	1239	1058	1541	1236
DS41X125X4	41.00	125.00	4.00	4.20	8.20	1.05	344.00	0.63	5525	1.26	9801	1.89	13050	2.52	15492	3.15	17346	3.78	18833	67	229	175	438	326	627	518	796	752	945	1028	1075
DS51X125X4	51.00	125.00	4.00	4.50	8.50	1.13	321.00	0.68	6602	1.35	11602	2.03	15283	2.7	17927	3.38	19817	4.05	21236	36	286	118	547	246	783	420	993	640	1178	906	1338
DS51X125X5	51.00	125.00	5.00	3.90	8.90	0.78	401.00	0.59	8281	1.17	15258	1.76	21161	2.34	26222	2.93	30669	3.51	34732	133	258	301	498	503	718	740	919	1012	1102	1318	1265
DS51X125X6	51.00	125.00	6.00	3.40	9.40	0.57	482.00	0.51	10568	1.02	20101	1.53	28779	2.04	36787	2.55	44307	3.06	51523	200	237	427	459	680	667	959	860	1264	1039	1596	1204
DS61X125X5	61.00	125.00	5.00	4.00	9.00	0.80	367.00	0.6	9283	1.2	17054	1.8	23581	2.4	29129	3	33965	3.6	38358	120	308	276	593	469	855	699	1095	965	1312	1267	1507
DS61X125X6	61.00	125.00	6.00	3.60	9.60	0.60	440.00	0.54	12323	1.08	23323	1.62	32324	2.16	42289	2.7	50722	3.24	58766	190	295	410	571	660	829	939	1069	1247	1290	1585	1494
DS61X125X8	61.00	125.00	8.00	7.50	10.90	0.45	587.00	0.435	21142	0.87	40862	1.305	59369	1.74	76871	2.175	93577	2.61	109695	242	300	506	585	792	857	1101	1115	1432	1359	1786	1589
DS64X125X3.5	64.00	125.00	3.50	4.50	8.00	1.29	249.00	0.68	5635	1.35	9721	2.03	12530	2.7	14338	3.38	15416	4.05	16038	-16	323	15	617	93	880	217	1114	388	1318	606	1492
DS64X125X5	64.00	125.00	5.00	3.50	8.50	0.70	355.00	0.53	7897	1.05	14352	1.58	20150	2.1	25274	2.63	29908	3.15	34236	128	266	285	514	469	744	682	956	923	1149	1192	1325



Disc Spring without Bearing Flats



Disc Spring with Bearing Flats

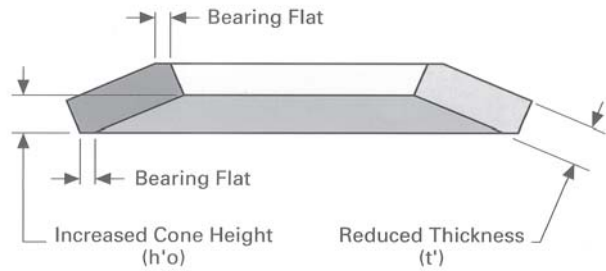
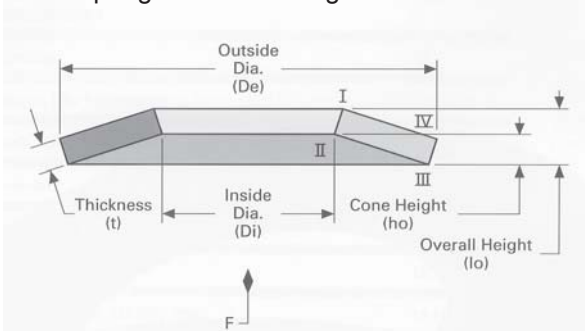


Product Code	Inner Dia. (Di) mm	Outer Dia. (De) mm	Thick. (t) mm	Reduced Thick. (t') mm	Cone Ht. (ho) mm	Overall Ht. (lo) mm	Cone Ht. To Thickness Ratio	Weight per 1000 pieces	15% Deflection		30% Deflection		45% Deflection		60% Deflection		75% Deflection		90% Deflection	
									Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N
									Stress δ_{II} N/mm ²	Stress δ_{III} N/mm ²	Stress δ_{II} N/mm ²	Stress δ_{III} N/mm ²	Stress δ_{II} N/mm ²	Stress δ_{III} N/mm ²	Stress δ_{II} N/mm ²	Stress δ_{III} N/mm ²	Stress δ_{II} N/mm ²	Stress δ_{III} N/mm ²	Stress δ_{II} N/mm ²	Stress δ_{III} N/mm ²
DS64X125X6	64.00	125.00	6.00		3.60	9.60	0.60	426.00	0.54	12671	1.08	23982	1.62	34172	2.16	43484	2.7	52155	3.24	60426
DS64X125X7	64.00	125.00	7.00	6.55	3.45	10.00	0.49	498.00	0.45	15783	0.9	30190	1.35	43427	1.8	55700	2.25	67216	2.7	78182
DS64X125X8	64.00	125.00	8.00	7.50	3.10	10.60	0.39	569.00	0.39	19037	0.78	36993	1.17	54023	1.56	70281	1.95	85926	2.34	101111
DS71X125X6	71.00	125.00	6.00		3.30	9.30	0.55	392.00	0.5	12107	0.99	23083	1.49	33127	1.98	42438	2.48	51217	2.97	59663
DS71X125X8	71.00	125.00	8.00	7.40	3.00	10.40	0.38	522.00	0.36	18866	0.72	36709	1.08	53668	1.44	69883	1.8	85494	2.16	100639
DS71X125X10	71.00	125.00	10.00	9.20	2.60	11.80	0.26	653.00	0.27	26003	0.54	51340	0.81	76087	1.08	100323	1.35	124124	1.62	147567
DS72X140X3.8	72.00	140.00	3.80		4.90	8.70	1.29	338.00	0.74	6299	1.47	10861	2.21	13994	2.94	16003	3.68	17195	4.41	17877
DS72X140X5	72.00	140.00	5.00		4.00	9.00	0.80	444.00	0.6	7631	1.2	14019	1.8	19384	2.4	23944	3	27920	3.6	31530
DS72X140X8	72.00	140.00	8.00	7.50	3.70	11.20	0.46	711.00	0.48	19662	0.96	37789	1.44	54611	1.92	70355	2.4	85251	2.88	99527
DS61X150X5	61.00	150.00	5.00		5.30	10.30	1.06	579.00	0.8	9947	1.59	17623	2.39	23431	3.18	27770	3.98	31041	4.77	33645
DS61X150X6	61.00	150.00	6.00		4.80	10.80	0.80	695.00	0.72	12424	1.44	22824	2.16	31558	2.88	38983	3.6	45456	4.32	51334
DS71X150X6	71.00	150.00	6.00		4.80	10.80	0.80	646.00	0.72	13161	1.44	24179	2.16	33432	2.88	41298	3.6	48155	4.32	54382
DS71X150X8	71.00	150.00	8.00	7.50	4.50	12.00	0.56	861.00	0.6	21981	1.2	41592	1.8	59198	2.4	75163	3	89851	3.6	103628
DS81X150X8	81.00	150.00	8.00	7.50	4.20	11.70	0.53	786.00	0.555	21412	1.11	40756	1.665	58348	2.22	74501	2.775	89532	3.33	103754
DS81X150X10	81.00	150.00	10.00	9.30	3.70	13.00	0.37	983.00	0.45	30598	0.9	59586	1.35	87189	1.8	113629	2.25	139128	2.7	163909
DS82X160X4.3	82.00	160.00	4.30		5.60	9.90	1.30	500.00	0.84	8058	1.68	13877	2.52	17850	3.36	20373	4.2	21843	5.04	22653
DS82X160X6	82.00	160.00	6.00		4.50	10.50	0.75	698.00	0.68	10873	1.35	20124	2.03	28040	2.7	34905	3.38	41008	5.05	46633
DS82X160X10	82.00	160.00	10.00	9.40	4.10	13.50	0.41	1164.00	0.525	30988	1.05	60029	1.575	87409	2.1	113414	2.625	138331	3.15	162444
DS92X180X4.8	92.00	180.00	4.80		6.20	11.00	1.29	708.00	0.93	9698	1.86	16718	2.79	21534	3.72	24618	4.65	26442	5.58	27479
DS91X180X6	91.00	180.00	6.00		5.10	11.10	0.85	892.00	0.77	10498	1.53	19145	2.3	26269	3.06	32196	3.83	37252	4.59	41764
DS92X180X10	92.00	180.00	10.00	9.40	4.60	14.00	0.46	1476.00	0.6	28864	1.2	55504	1.8	80254	2.4	103447	3	125417	3.6	146498
DS92X180X13	92.00	180.00	13.00	12.10	4.40	16.50	0.34	1918.00	0.525	51515	1.05	100753	1.575	148021	2.1	193628	2.625	237883	3.15	281094
DS82X200X8	82.00	200.00	8.00	7.50	6.70	14.20	0.84	1641.00	0.93	22758	1.86	41253	2.79	56173	3.72	68204	4.65	78034	5.58	86350
DS82X200X10	82.00	200.00	10.00	9.40	6.10	15.50	0.61	2052.00	0.825	32576	1.65	61189	2.475	86458	3.3	109003	4.125	129445	4.95	148403
DS82X200X12	82.00	200.00	12.00	11.25	5.35	16.60	0.45	2462.00	0.69	41757	1.38	80456	2.07	116551	2.76	150494	3.45	182737	4.14	213734
DS92X200X10	92.00	200.00	10.00	9.40	6.20	15.60	0.62	1944.00	0.84	34868	1.68	65390	2.52	92246	3.36	116118	4.2	137688	5.04	157635



Disc Spring without Bearing Flats

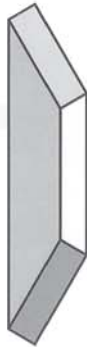
Disc Spring with Bearing Flats



Product Code	Inner Dia. (Di) mm	Outer Dia. (De) mm	Thick. (t) mm	Reduced Thick. (t') mm	Cone Ht. (ho) mm	Overall Ht. (lo) mm	Cone Ht. To Thickness Ratio	Weight per 1000 pieces	15% Deflection		30% Deflection		45% Deflection		60% Deflection		75% Deflection		90% Deflection													
									Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N												
									Stress		Stress		Stress		Stress		Stress		Stress													
								δ_{II}	δ_{III}	δ_{II}	δ_{III}	δ_{II}	δ_{III}	δ_{II}	δ_{III}	δ_{II}	δ_{III}	δ_{II}	δ_{III}	δ_{II}	δ_{III}											
DS92X200X12	92.00	200.00	12.00	11.25	5.55	16.80	0.46	2333.00	0.72	45959	1.44	88331	2.16	127650	2.88	164451	3.6	199269	4.32	232639	223	283	470	553	741	808	1035	1049	1354	1276	1696	1488
DS92X200X14	92.00	200.00	14.00	13.10	5.00	18.10	0.36	2722.00	0.615	58344	1.23	113839	1.845	166885	2.46	217881	3.075	267227	3.69	315322	261	262	540	513	836	754	1150	984	1481	1204	1830	1413
DS102X200X5.5	102.00	200.00	5.50		7.00	12.50	1.27	1004.00	1.05	13104	2.1	22637	3.15	29229	4.2	33510	5.25	36111	6.3	37662	-12	306	20	583	96	833	216	1054	381	1247	589	1412
DS102X200X8	102.00	200.00	8.00	7.50	6.10	13.60	0.76	1460.00	0.84	21220	1.68	38903	2.52	53614	3.36	65917	4.2	76378	5.04	85651	86	291	348	563	352	813	534	1044	747	1254	992	1443
DS102X200X10	102.00	200.00	10.00	9.40	6.20	15.60	0.62	1825.00	0.84	36810	1.26	69032	2.52	97384	3.36	122586	4.2	145357	5.04	166415	158	335	541	649	570	943	824	1216	1111	1468	1430	1700
DS102X200X12	102.00	200.00	12.00	11.25	4.95	16.20	0.41	2190.00	0.63	41077	1.26	19535	1.89	115757	2.52	150125	3.15	183020	3.78	214824	208	263	421	514	680	753	944	981	1227	1196	1528	1400
DS102X200X14	102.00	200.00	14.00	13.10	5.10	18.20	0.36	2555.00	0.63	63356	1.05	123500	1.89	180883	2.52	235959	3.15	289181	3.78	341001	261	296	469	581	839	854	1156	1114	1492	1363	1847	1600
DS112X200X12	112.00	200.00	12.00	11.10	5.10	16.20	0.43	2031.00	0.63	44382	0.84	85728	1.89	124466	2.52	161024	3.15	195830	3.78	229311	201	298	477	584	661	855	921	1113	1201	1358	1501	1589
DS112X200X14	112.00	200.00	14.00	12.90	4.60	17.50	0.33	2370.00	0.525	55407	1.05	108486	1.575	159538	2.1	208862	2.625	256758	3.15	303527	228	271	469	532	725	784	994	1026	1278	1259	1575	1483
DS112X200X16	112.00	200.00	16.00	14.80	4.00	18.80	0.25	2708.00	0.42	63667	0.84	125835	1.26	186679	1.68	246375	2.1	305100	2.52	363030	234	231	477	457	729	676	990	889	1260	1096	1539	1297
DS112X225X6.5	112.00	225.00	6.50	6.20	6.80	13.00	1.05	1526.00	0.975	13079	1.9	23081	2.925	30521	3.9	35914	4.875	39775	5.85	42618	14	242	61	463	140	664	251	845	394	1006	569	1147
DS112X225X8	112.00	225.00	8.00	7.50	7.00	14.50	0.88	1878.00	0.975	21136	1.9	38104	2.925	51580	3.9	62236	4.875	70749	5.85	77791	51	277	136	533	254	768	406	983	591	1176	810	1348
DS112X225X12	112.00	225.00	12.00	11.25	5.75	17.00	0.48	2817.00	0.75	39817	1.5	76333	2.25	110040	3	141437	3.75	171016	4.5	199275	176	253	372	493	589	721	826	935	1084	1137	1363	1326
DS102X250X10	102.00	250.00	10.00	9.40	8.60	18.00	0.86	3212.00	1.2	37336	2.4	67476	3.6	91587	4.8	110835	6	126387	7.2	139411	82	293	205	563	368	811	572	1037	817	1241	1102	1422
DS102X250X12	102.00	250.00	12.00	11.25	7.75	19.00	0.65	3854.00	1.05	47155	2.1	88047	3.15	123658	4.2	154969	5.25	182962	6.3	208618	155	273	342	529	560	767	811	987	1093	1190	1407	1376
DS127X250X7	127.00	250.00	7.00	6.70	8.10	14.80	1.16	2001.00	1.17	17689	2.34	30808	3.51	40130	4.68	46425	5.85	50466	7.02	53023	-7	271	24	518	92	741	197	940	340	1116	519	1268
DS127X250X10	127.00	250.00	10.00	9.40	7.60	17.00	0.76	2859.00	1.05	28005	2.1	51720	3.15	71833	4.2	89032	5.25	104004	6.3	117438	94	265	216	512	367	741	546	952	752	1146	987	1321
DS127X250X12	127.00	250.00	12.00	11.25	8.05	19.30	0.67	3431.00	1.195	55205	2.19	102670	3.285	143612	4.38	179251	5.475	210806	6.57	239494	139	345	313	668	522	968	766	1246	1045	1502	1359	1736
DS127X250X14	127.00	250.00	14.00	13.10	6.50	19.60	0.46	4003.00	0.84	57478	1.68	110428	2.52	159521	3.36	205431	4.2	248828	5.04	290385	190	271	401	529	633	773	886	1004	1160	1221	1455	1425
DS127X250X16	127.00	250.00	16.00	15.00	6.80	21.80	0.43	4574.00	0.87	86536	1.74	167252	2.61	243002	3.48	314639	4.35	383017	5.22	448990	241	311	504	609	789	891	1098	1160	1429	1414	1782	1663



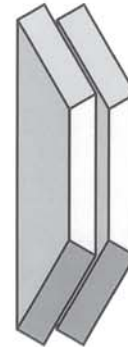
1 Single Disc Spring



Total Force = Force of single disc spring

Total Deflection = Deflection of single disc spring

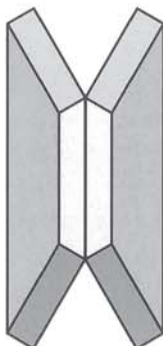
2 Disc Springs in Parallel



Total Force = 2 x Force of single disc spring

Total Deflection = Deflection of single disc spring

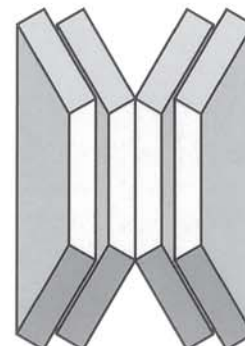
3 Disc Springs in Series



Total Force = Force of single disc spring

Total Deflection = 2 x Deflection of single disc spring

4 Disc Springs in Series and Parallel



Total Force = 2 x Force of single disc spring

Total Deflection = 2 x Deflection of single disc spring