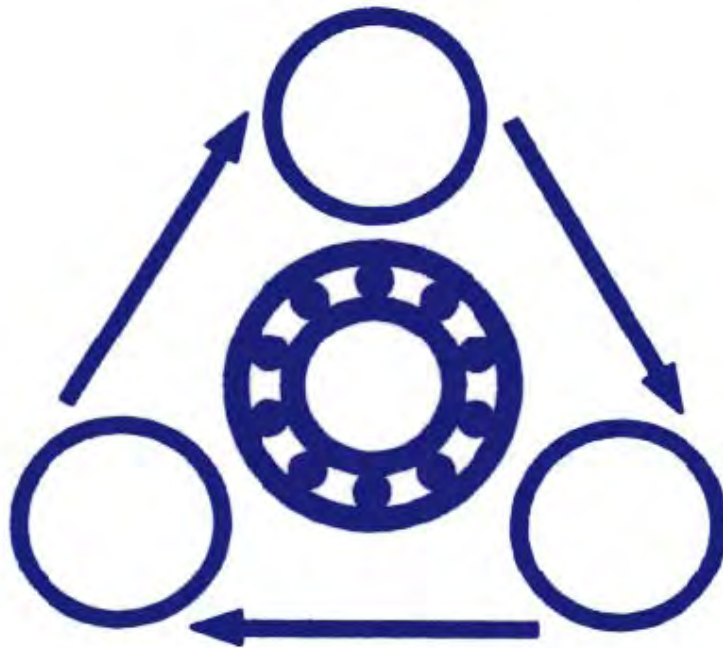


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DISC SPRINGS CATALOGUE



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Disc Spring Contents

Disc Springs to DIN 2039.....L4

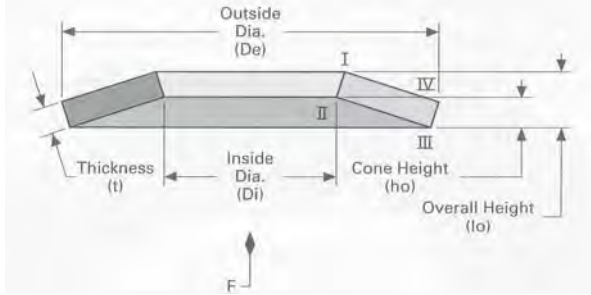
Disc Springs: Stacking Examples.....L14

Stainless Steel Disc Springs Available On Request.

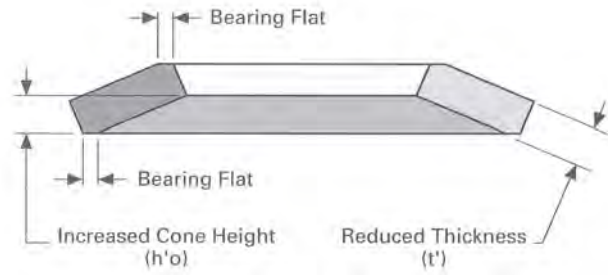
Please note: At Ashley Power we take care to ensure that all information is correct at time of printing however some errors and omissions excepted.



Disc Spring without Bearing Flats



Disc Spring with Bearing Flats

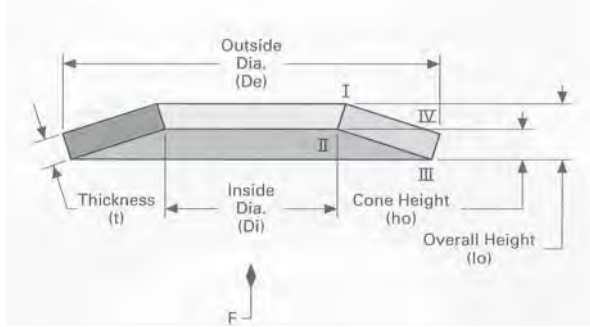


Product Code	Inner Dia. (Di) mm	Outer Dia. (De) mm	Thick. (t) mm	Reduced Thick. (t') mm	Cone Ht. (ho) mm	Overall Ht. (lo) mm	Cone Ht. To Thickness Ratio	Weight per 1000 pieces	15% Deflection		30% Deflection		45% Deflection		60% Deflection		75% Deflection		90% Deflection									
									Defl. mm		Force N		Defl. mm		Force N		Defl. mm		Force N		Defl. mm		Force N		Defl. mm		Force N	
									Stress δII N/mm2	δIII N/mm2	Stress δII N/mm2	δIII N/mm2	Stress δII N/mm2	δIII N/mm2	Stress δII N/mm2	δIII N/mm2	Stress δII N/mm2	δIII N/mm2	Stress δII N/mm2	δIII N/mm2	Stress δII N/mm2	δIII N/mm2	Stress δII N/mm2	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								

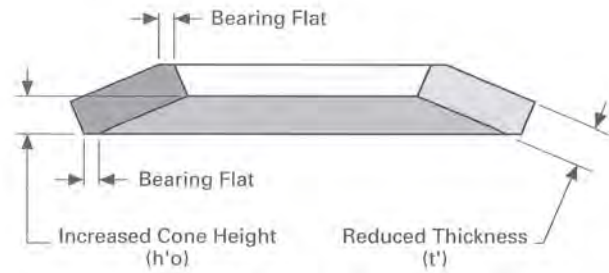
Disc Springs to DIN 2093



Disc Spring without Bearing Flats



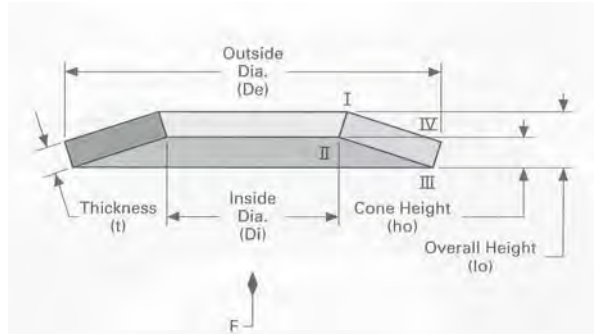
Disc Spring with Bearing Flats



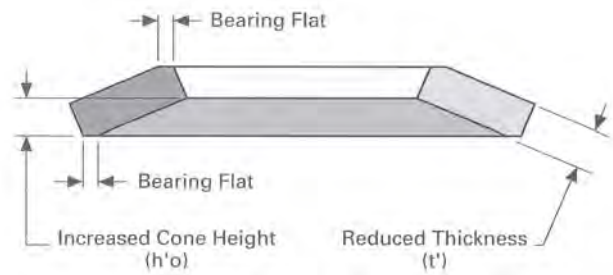
Product Code	Inner Dia. (Di) mm	Outer Dia. (De) mm	Thick. (t) mm	Reduced Thick. (t') mm	Cone Ht. (ho) mm	Overall Ht. (lo) mm	Cone Ht. To Thickness Ratio	Weight per 1000 pieces	15% Deflection		30% Deflection		45% Deflection		60% Deflection		75% Deflection		90% Deflection	
									Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N
									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	N/mm ²	N/mm ²	N/mm ²	N/mm ²	N/mm ²	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

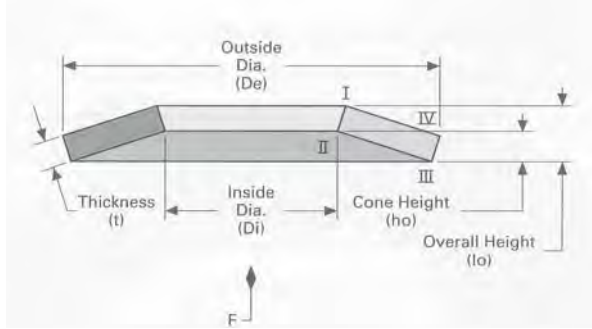


Product Code	Inner Dia. (Di) mm	Outer Dia. (De) mm	Thick. (t) mm	Reduced Thick. (t') mm	Cone Ht. (ho) mm	Overall Ht. (lo) mm	Cone Ht. To Thickness Ratio	Weight per 1000 pieces	15% Deflection		30% Deflection		45% Deflection		60% Deflection		75% Deflection		90% Deflection	
									Defl. Force		Defl. Force		Defl. Force		Defl. Force		Defl. Force		Defl. Force	
									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	
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	0.09	199	0.18	369	0.27	514	0.36	639	0.45	751	0.54	854
DS8.2X20X0.8	8.20	20.00	0.80		0.60	1.40	0.75	1.60	0.08	233	0.17	441	0.25	627	0.33	796	0.41	954	0.5	1103
DSX8.2X20X0.9	8.20	20.00	0.90		0.55	1.45	0.61	1.80	0.08	306	0.17	583	0.25	837	0.33	1073	0.41	1294	0.5	1508
DS8.2X20X1	8.20	20.00	1.00		0.55	1.55	0.55	2.10	0.08	337	0.17	642	0.25	922	0.33	1181	0.41	1425	0.5	1660
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	0.08	191	0.17	357	0.25	502	0.33	631	0.41	748	0.5	858
DS10.2X20X0.9	10.20	20.00	0.90		0.55	1.45	0.61	1.60	0.08	257	0.17	485	0.25	690	0.33	877	0.41	1050	0.5	1215
DS10.2X20X1	10.20	20.00	1.00		0.55	1.55	0.55	1.80	0.08	337	0.17	642	0.25	922	0.33	1181	0.41	1425	0.5	1660
DS10.2X20X1.1	10.20	20.00	1.10		0.45	1.55	0.41	2.00	0.07	335	0.14	652	0.2	953	0.27	1241	0.34	1521	0.41	1795
DS10.2X20X1.25	10.20	20.00	1.25		0.50	1.75	0.40	2.30	0.08	544	0.15	1059	0.23	1549	0.3	2020	0.38	2477	0.45	2925
DS10.2X20X1.5	10.20	20.00	1.50		0.30	1.80	0.20	2.70	0.05	517	0.09	1026	0.14	1529	0.18	2027	0.23	2521	0.27	3013
DS11.2X22.5X0.6	11.20	22.50	0.60		0.80	1.40	1.33	1.40	0.12	160	0.24	274	0.36	351	0.48	399	0.6	425	0.72	439
DS11.2X22.5X0.8	11.20	22.50	0.80		0.65	1.45	0.81	1.90	0.1	195	0.2	357	0.29	493	0.39	608	0.49	707	0.59	798
DS11.2X22.5X1	11.20	22.50	1.00		0.65	1.65	0.65	2.30	0.1	334	0.2	627	0.29	887	0.39	1121	0.49	1335	0.59	1538
DS11.2X22.5X1.25	11.20	22.50	1.25		0.50	1.75	0.40	2.90	0.08	424	0.15	824	0.23	1206	0.3	1573	0.38	1929	0.45	2278
DS8.2X23X0.7	8.20	23.00	0.70		0.80	1.50	1.14	2.00	0.12	183	0.24	321	0.36	422	0.48	493	0.6	544	0.72	581

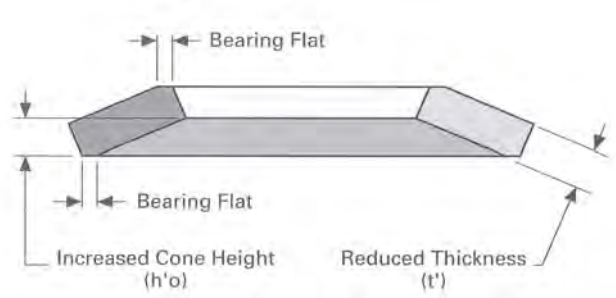
Disc Springs to DIN 2093



Disc Spring without Bearing Flats



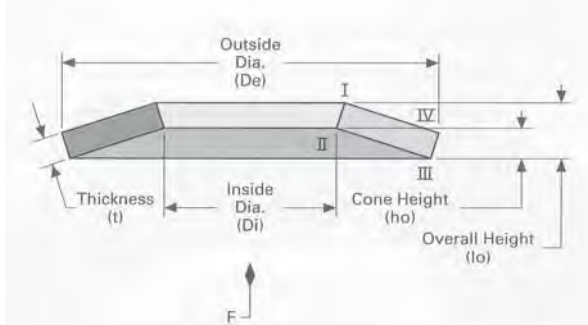
Disc Spring with Bearing Flats



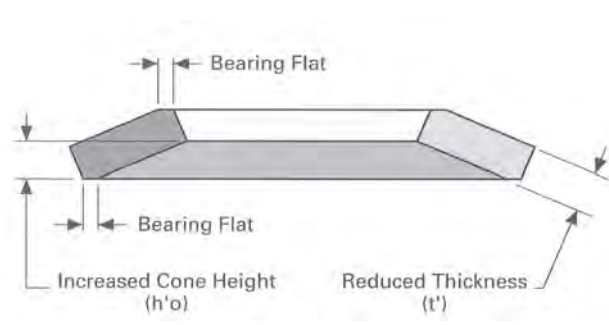
Product Code	Inner Dia. (Di) mm	Outer Dia. (De) mm	Thick. (t) mm	Reduced Thick. (t') mm	Cone Ht. (ho) mm	Overall Ht. (lo) mm	Cone Ht. To Thickness Ratio	Weight per 1000 pieces	15% Deflection		30% Deflection		45% Deflection		60% Deflection		75% Deflection		90% Deflection		
									Defl. Force		Defl. Force		Defl. Force		Defl. Force		Defl. Force		Defl. Force		
									mm	N	mm	N	mm	N	mm	N	mm	N	mm	N	mm
									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	0.81	911
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	0.74	1212
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	0.74	1612
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	0.81	1337
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	0.74	1707
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	2699	0.7	3088
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	0.65	1603
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	0.65	3137
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	0.55	4527
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	0.81	1494
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	0.92	648
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	0.74	1092
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	0.83	1709
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	0.74	2940
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	0.6	4002
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	0.97	740
DS10.2X28X1	10.20	28.00	1.00	0.90	1.90	0.90	4.20	0.13	328	0.27	595	0.41	810	0.54	984	0.68	1130	0.81	1257	0.92	1334
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	0.83	2417
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	0.74	3660
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	0.97	1487
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	0.88	2697
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	0.79	4130
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	1.0	877
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	0.83	1393
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	0.88	2900
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	0.7	3861



Disc Spring without Bearing Flats



Disc Spring with Bearing Flats

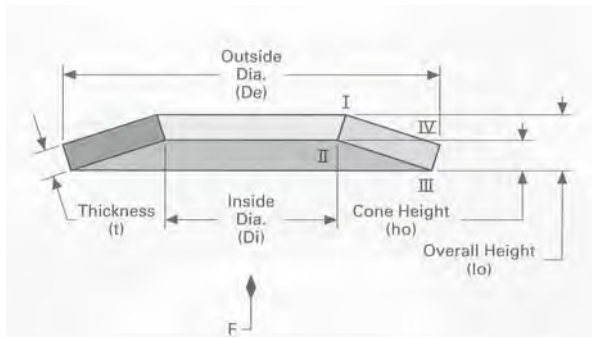


Product Code	Inner Dia. (Di) mm	Outer Dia. (De) mm	Thick. (t) mm	Reduced Thick. (t') mm	Cone Ht. (ho) mm	Overall Ht. (lo) mm	Cone Ht. To Thickness Ratio	Weight per 1000 pieces	15% Deflection		30% Deflection		45% Deflection		60% Deflection		75% Deflection		90% Deflection					
									Defl. mm		Defl. 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	842	0.79	989	0.95	1145					
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					

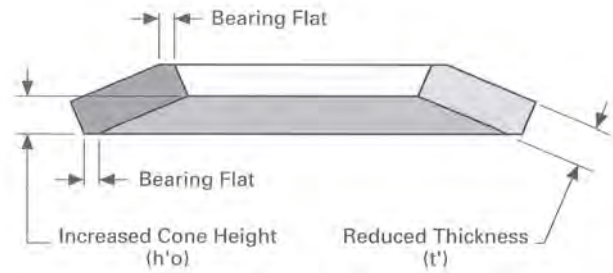
Disc Springs to DIN 2093



Disc Spring without Bearing Flats



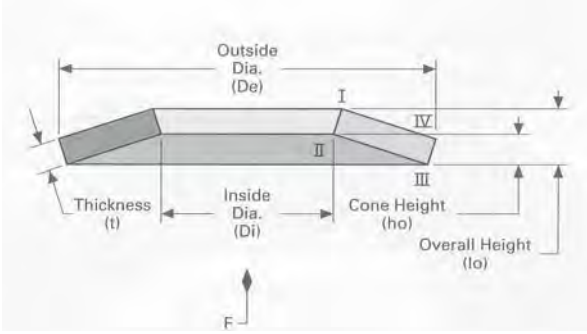
Disc Spring with Bearing Flats



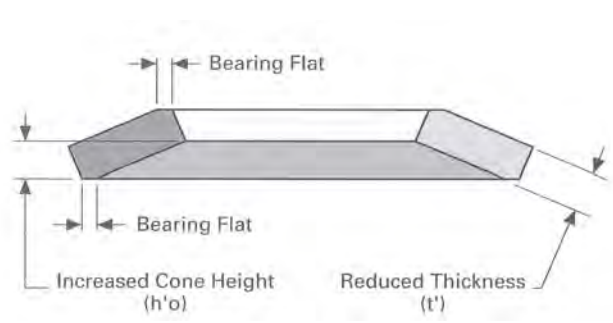
Product Code	Inner Dia. (Di) mm	Outer Dia. (De) mm	Thick. (t) mm	Reduced Thick. (t') mm	Cone Ht. (ho) mm	Overall Ht. (lo) mm	Cone Ht. To Thickness Ratio	Weight per 1000 pieces	15% Deflection		30% Deflection		45% Deflection		60% Deflection		75% Deflection		90% Deflection												
									Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N									
Stress		Stress		Stress		Stress		Stress		Stress		Stress		Stress		Stress		Stress													
δII		δIII		δII		δIII		δII		δIII		δII		δIII		δII		δIII		δII											
N/mm2		N/mm2		N/mm2		N/mm2		N/mm2		N/mm2		N/mm2		N/mm2		N/mm2		N/mm2		N/mm2											
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	476	480	742	702	1026	913	1328	1112	1648	1300
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	571	555	887	813	1223	1058	1579	1290	1956	1510
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	20	586	98	837	221	1060	389	1253	602	1419
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	267	514	446	742	654	952	892	1144	1160	1316
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	465	457	724	669	1001	869	1296	1059	1608	1237
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	42	382	118	545	232	689	382	814	569	920
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	92	498	208	711	371	900	581	1066	837	1208
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	323	441	533	636	776	815	1051	977	1358	1123
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	503	551	809	798	1153	1026	1533	1236	1951	1426
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	647	518	1013	755	1407	977	1829	1186	2280	1379
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	304	470	504	679	736	871	1000	1045	1295	1201
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	456	467	723	679	1015	876	1334	1060	1678	1229
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	285	552	482	796	715	1018	985	1220	1290	1401
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	447	525	711	763	1004	984	1324	1190	1672	1379
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	15	484	77	691	176	875	312	1035	485	1172
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	101	528	207	757	349	963	528	1145	744	1304
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	285	510	470	738	682	948	923	1140	1193	1315
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	362	603	591	874	853	1124	1147	1353	1473	1562
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	436	587	696	853	984	1102	1301	1332	1646	1545
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	515	487	798	714	1099	930	1418	1135	1753	1328
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	9	571	79	814	193	1030	350	1218	551	1379
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	218	492	371	710	553	909	765	1090	1006	1251
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	356	611	583	885	844	1138	1138	1369	1464	1580
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	451	481	706	703	980	913	1274	1110	1586	1296
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	184	483	343	692	547	878	796	1044	1090	1187
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	368	434	602	627	868	804	1168	965	1501	1110



Disc Spring without Bearing Flats



Disc Spring with Bearing Flats



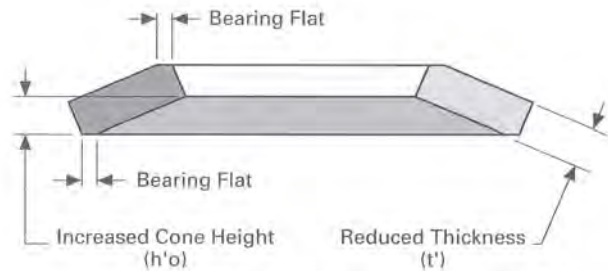
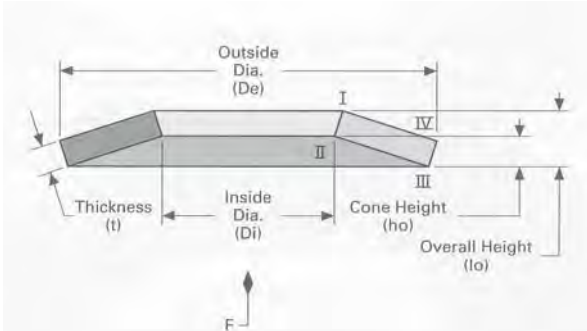
Product Code	Inner Dia. (Di) mm	Outer Dia. (De) mm	Thick. (t) mm	Reduced Thick. (t') mm	Cone Ht. (ho) mm	Overall Ht. (lo) mm	Cone Ht. To Thickness Ratio	Weight per 1000 pieces	15% Deflection		30% Deflection		45% Deflection		60% Deflection		75% Deflection		90% Deflection	
									Defl. mm	Force N	Defl. 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	
δII	δIII	δII	δIII	δII	δIII	δII	δIII	δII	δIII	δII	δIII	δII	δIII	δII	δIII	δII	δIII	δII	δIII	
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

Disc Springs to DIN 2093



Disc Spring without Bearing Flats

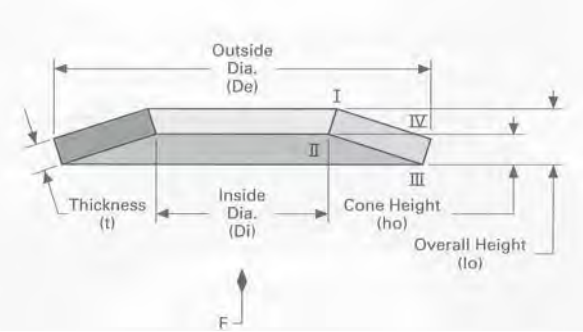
Disc Spring with Bearing Flats



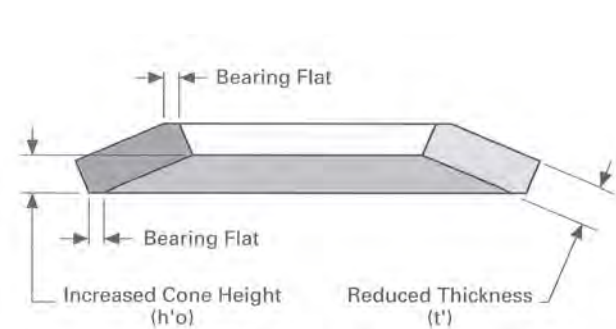
Product Code	Inner Dia. (Di) mm	Outer Dia. (De) mm	Thick. (t) mm	Reduced Thick. (t') mm	Cone Ht. (ho) mm	Overall Ht. (lo) mm	Cone Ht. To Thickness Ratio	Weight per 1000 pieces	15% Deflection		30% Deflection		45% Deflection		60% Deflection		75% Deflection		90% Deflection									
									Defl. mm		Force N		Defl. mm		Force N		Defl. mm		Force N		Defl. mm		Force N		Defl. mm		Force N	
									δII	δIII	Stress N/mm2	Stress N/mm2	δII	δIII	Stress N/mm2	Stress N/mm2	δII	δIII	Stress N/mm2	Stress N/mm2	δII	δIII	Stress N/mm2	Stress N/mm2	δII	δIII	Stress N/mm2	Stress N/mm2
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							
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							
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							
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							
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							
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							
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							
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							
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							
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							
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							
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							
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							
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							
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							
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							
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							
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							
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							
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							
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							
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							
DS61X125X6	61.00	125.00	6.00	3.60	9.60	0.60	440.00	0.54	12323	1.08	23323	1.62	33234	2.16	42289	2.7	50722	3.24	58766	190	295							
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							
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							
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							



Disc Spring without Bearing Flats



Disc Spring with Bearing Flats

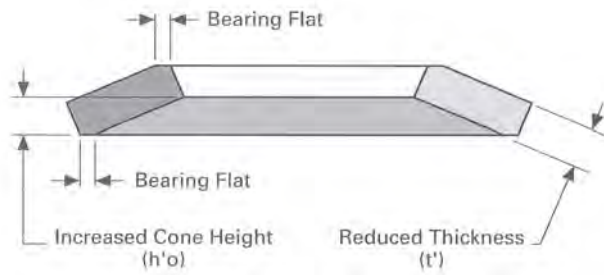
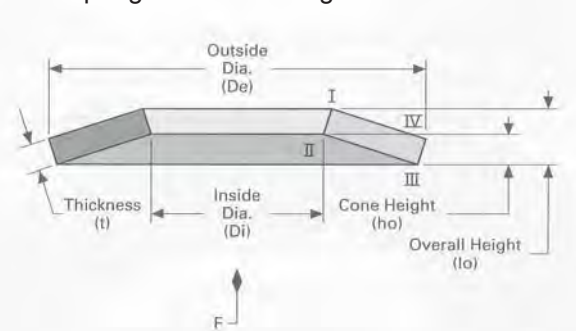


Product Code	Inner Dia. (Di) mm	Outer Dia. (De) mm	Thick. (t) mm	Reduced Thick. (t') mm	Cone Ht. (ho) mm	Overall Ht. (lo) mm	Cone Ht. To Thickness Ratio	Weight per 1000 pieces	15% Deflection		30% Deflection		45% Deflection		60% Deflection		75% Deflection		90% Deflection			
									Defl. mm	Force N	Defl. 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	
	δII	δIII	δII	δIII	δII	δIII	δII	δIII	δII	δIII	δII	δIII	δII	δIII	δII	δIII	δII	δIII	δII	δIII		
	N/mm2		N/mm2		N/mm2		N/mm2		N/mm2		N/mm2		N/mm2		N/mm2		N/mm2		N/mm2			
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	0.96	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	
δII		δIII		δII		δIII		δII		δIII		δII		δIII		δII		δIII		
N/mm2		N/mm2		N/mm2		N/mm2		N/mm2		N/mm2		N/mm2		N/mm2		N/mm2		N/mm2		
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
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
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
DS102X200X8	102.00	200.00	8.00	7.50	6.10	13.60	0.76	1460.00	-12	306	20	583	96	833	216	1054	381	1247	589	1412
DS102X200X10	102.00	200.00	10.00	9.40	6.20	15.60	0.62	1825.00	0.84	21220	1.68	38903	2.52	53614	3.36	65917	4.2	76378	5.04	85661
DS102X200X12	102.00	200.00	12.00	11.25	4.95	16.20	0.41	2190.00	86	291	348	563	352	813	534	1044	747	1254	992	1443
DS102X200X14	102.00	200.00	14.00	13.10	5.10	18.20	0.36	2555.00	0.84	36810	1.26	69032	2.52	97384	3.36	122586	4.2	145357	5.04	166415
DS102X200X16	102.00	200.00	16.00	14.80	4.00	18.80	0.25	2708.00	158	335	541	649	570	943	824	1216	1111	1468	1430	1700
DS112X200X12	112.00	200.00	12.00	11.10	5.10	16.20	0.43	2031.00	0.63	41077	1.26	19535	1.89	115757	2.52	150125	3.15	183020	3.78	214824
DS112X200X14	112.00	200.00	14.00	12.90	4.60	17.50	0.33	2370.00	208	263	421	514	680	753	944	981	1227	1196	1528	1400
DS112X200X16	112.00	200.00	16.00	14.80	4.00	18.80	0.25	2708.00	0.63	63356	1.05	123500	1.89	180883	2.52	235959	3.15	289181	3.78	341001
DS112X225X6.5	112.00	225.00	6.50	6.20	6.80	13.00	1.05	1526.00	261	296	469	581	839	854	1156	1114	1492	1363	1847	1600
DS112X225X8	112.00	225.00	8.00	7.50	7.00	14.50	0.88	1878.00	0.63	44382	0.84	85728	1.89	124466	2.52	161024	3.15	195830	3.78	229311
DS112X225X12	112.00	225.00	12.00	11.25	5.75	17.00	0.48	2817.00	201	298	477	584	661	855	921	1113	1201	1358	1501	1589
DS102X250X10	102.00	250.00	10.00	9.40	8.60	18.00	0.86	3212.00	0.525	55407	1.05	108486	1.575	159538	2.1	208862	2.625	256758	3.15	303527
DS102X250X12	102.00	250.00	12.00	11.25	7.75	19.00	0.65	3854.00	228	271	469	532	725	784	994	1026	1278	1259	1575	1483
DS127X250X7	127.00	250.00	7.00	6.70	8.10	14.80	1.16	2001.00	0.42	63667	0.84	125835	1.26	186679	1.68	246375	2.1	305100	2.52	363030
DS127X250X10	127.00	250.00	10.00	9.40	7.60	17.00	0.76	2859.00	0.975	13079	1.9	23081	2.925	30521	3.9	35914	4.875	39775	5.85	42618
DS127X250X12	127.00	250.00	12.00	11.25	8.05	19.30	0.67	3431.00	14	242	61	463	140	664	251	845	394	1006	569	1147
DS127X250X14	127.00	250.00	14.00	13.10	6.50	19.60	0.46	4003.00	0.975	21136	1.9	38104	2.925	51580	3.9	62236	4.875	70749	5.85	77791
DS127X250X16	127.00	250.00	16.00	15.00	6.80	21.80	0.43	4574.00	51	277	136	533	254	768	406	983	591	1176	810	1348
									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
									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
									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
									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
									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
									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
									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
									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

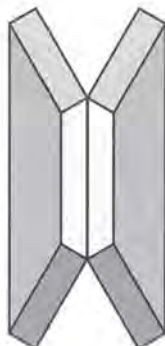
2 Disc Springs in Parallel



Total Force = 2 x Force of single disc spring

Total Deflection = Deflection of single disc spring

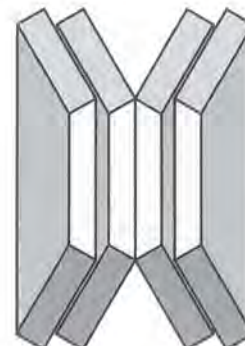
3 Disc Springs in Series



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