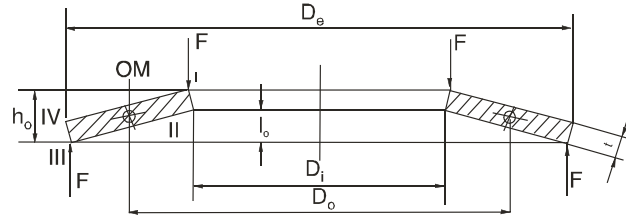


DS Series Precision Metric Disc Springs

GROUP CLASSIFICATION OF DISC SPRING

In accordance with DIN 2093 Standard, Disc Springs are classified into 3 groups as given in the table:

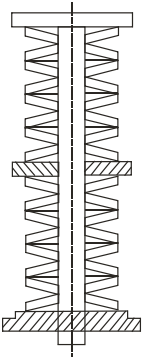
Group	Thickness of single disc in mm
1	Less than 1.25
2	From 1.25 to 6
3	Over 6 upto 14



INTRODUCTION

Disc Springs are conically formed annular discs, which are loaded in the axial direction. Disc Springs offer a well-developed solution to many engineering problems through a unique combination of high force in a small space. Disc Springs can be used as single disc or arranged in stacks. A spring stack can consist of either single springs or parallel spring sets. Disc Springs are available with or without contact flats. Disc Springs conform to DIN 2093. Heavy series Disc Springs are manufactured from forgings. We have computerized design program to assist our customers for their specific applications. Disc Springs are mainly manufactured from Spring Steel material.

Our Disc Springs are AUSTEMPERED. This method of heat treatment is particularly effective for springs, as it gives the maximum toughness and therefore considerable durability.



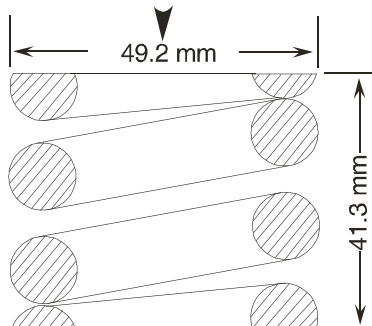
STACK LENGTH

When stacking Disc Springs, effort should be made to keep the stacks as short as possible. Friction and other influences make a stack more uneven. It influences more on the side of the loading. This effect usually can be neglected for a "normal" spring stack, but not for long stacks. If it is longer, the stack can be stabilized by dividing it with guide washers, which as a rule of thumb should have a thickness of at least one and a half times the guide diameter.

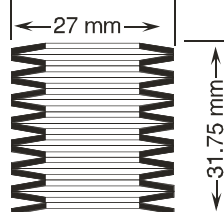
DISC SPRING STACK COMPARED TO HELICAL SPRING.

Note that the same load can be achieved at substantial reduction in space, Disc Stacks may be designed for extremely high loads where coil springs are not feasible at all.

Coil Spring weight : 0.26kg
Volume : 78.5cm³
Load : 409kg.



Disc Spring weight : 0.8kg
Volume : 18.2cm³
Load : 409kg.



ADVANTAGES OF DISC SPRINGS

- 1) No Deformation of Fatigue under normal loads.
- 2) High Energy Storage Capacity.
- 3) Long Service Life.
- 4) Stock keeping is minimized as the individual spring sizes can be combined universally.
- 5) Space saving.
- 6) Largely Self-damping, giving good shock absorption and energy dissipation.
- 7) Efficient use of space and high spring force with small deflections.
- 8) Adaptable to stacking in numerous configurations, Thus having modular spring element.
- 9) Low cost & Greater Security.

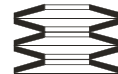
DISC SPRINGS IN SERIES & PARALLEL COMBINATIONS.

STACKED IN PARALLEL :



Total Deflection	=	Deflection 1 disc
Total Load	=	Load on 1 disc X no. of discs.

STACKED IN SERIES :



Total Deflection	=	Deflection of 1 disc X No. of discs in stack.
Total Load	=	Load on 1 disc.

STACKED IN PARALLEL SERIES :



COMBINATIONS can be designed to accommodate virtually any load or deflection and to obtain progressive or regressive characteristics.

Precision Metric Disc Springs

IIS Part No.	Dimensions						Group	Dimensions					Characteristic Values				
	D _o (in)	d _i (in)	t (in)	h _o (in)	t' (in)	-		D _o (mm)	d _i (mm)	t (mm)	h _o (mm)	t' (mm)	-	0.50h _o		0.75h _o	
														F (N)	s (mm)	F (N)	s (mm)
DS-060303	0.24	0.13	0.01	0.02	-	1	6.0	3.2	0.30	0.45	-	84	0.075	117	0.110		
DS-080302	0.31	0.13	0.01	0.02	-	1	8.0	3.2	0.20	0.40	-	20	0.100	26	0.150		
DS-080303	0.31	0.13	0.01	0.02	-	1	8.0	3.2	0.30	0.55	-	79	0.125	105	0.190		
DS-080304	0.31	0.13	0.02	0.02	-	1	8.0	3.2	0.40	0.60	-	130	0.100	186	0.150		
DS-080305	0.31	0.13	0.02	0.03	-	1	8.0	3.2	0.50	0.70	-	246	0.100	357	0.150		
DS-080402	C 0.31	0.17	0.01	0.02	-	1	8.0	4.2	0.20	0.45	-	33	0.125	39	0.190		
DS-080403	B 0.31	0.17	0.01	0.02	-	1	8.0	4.2	0.30	0.55	-	89	0.125	119	0.190		
DS-080404	A 0.31	0.17	0.02	0.02	-	1	8.0	4.2	0.40	0.60	-	147	0.100	210	0.150		
DS-100303	0.39	0.13	0.01	0.03	-	1	10.0	3.2	0.30	0.65	-	82	0.175	98	0.260		
DS-100304	0.39	0.13	0.02	0.03	-	1	10.0	3.2	0.40	0.70	-	133	0.150	182	0.230		
DS-100305	0.39	0.13	0.02	0.03	-	1	10.0	3.2	0.50	0.75	-	195	0.125	282	0.190		
DS-100404	0.39	0.17	0.02	0.03	-	1	10.0	4.2	0.40	0.70	-	140	0.150	192	0.230		
DS-100405	0.39	0.17	0.02	0.03	-	1	10.0	4.2	0.50	0.75	-	206	0.125	297	0.190		
DS-100406	0.39	0.17	0.02	0.03	-	1	10.0	4.2	0.60	0.85	-	360	0.125	508	0.190		
DS-100502	C 0.39	0.20	0.01	0.02	-	1	10.0	5.2	0.25	0.55	-	48	0.150	58	0.230		
DS-100504	B 0.39	0.20	0.02	0.03	-	1	10.0	5.2	0.40	0.70	-	155	0.150	213	0.230		
DS-100505	A 0.39	0.20	0.02	0.03	-	1	10.0	5.2	0.50	0.75	-	228	0.125	329	0.190		
DS-120404	0.47	0.17	0.02	0.03	-	1	12.0	4.2	0.40	0.80	-	141	0.200	178	0.300		
DS-120405	0.47	0.17	0.02	0.03	-	1	12.0	4.2	0.50	0.85	-	208	0.175	282	0.260		
DS-120406	0.47	0.17	0.02	0.04	-	1	12.0	4.2	0.60	1.00	-	405	0.200	557	0.300		
DS-120505	0.47	0.20	0.02	0.04	-	1	12.0	5.2	0.50	0.90	-	263	0.200	350	0.300		
DS-120506	0.47	0.20	0.02	0.04	-	1	12.0	5.2	0.60	0.95	-	361	0.175	502	0.260		
DS-120605	0.47	0.24	0.02	0.03	-	1	12.0	6.2	0.50	0.85	-	239	0.175	324	0.260		
DS-120606	0.47	0.24	0.02	0.04	-	1	12.0	6.2	0.60	0.95	-	394	0.175	547	0.260		
DS-130505	0.49	0.20	0.02	0.03	-	1	12.5	5.2	0.50	0.85	-	200	0.175	270	0.260		
DS-130603	C 0.49	0.24	0.01	0.03	-	1	12.5	6.2	0.35	0.80	-	130	0.225	152	0.340		
DS-130605	B 0.49	0.24	0.02	0.03	-	1	12.5	6.2	0.50	0.85	-	215	0.175	291	0.260		
DS-130607	A 0.49	0.24	0.03	0.04	-	1	12.5	6.2	0.70	1.00	-	457	0.150	673	0.230		
DS-140703	C 0.55	0.28	0.01	0.03	-	1	14.0	7.2	0.35	0.80	-	106	0.225	123	0.340		
DS-140705	B 0.55	0.28	0.02	0.04	-	1	14.0	7.2	0.50	0.90	-	210	0.200	279	0.300		
DS-140708	A 0.55	0.28	0.03	0.04	-	1	14.0	7.2	0.80	1.10	-	547	0.150	813	0.230		
DS-150504	0.59	0.20	0.02	0.04	-	1	15.0	5.2	0.40	0.95	-	154	0.275	175	0.410		
DS-150505	0.59	0.20	0.02	0.04	-	1	15.0	5.2	0.50	1.00	-	221	0.250	280	0.380		
DS-150506	0.59	0.20	0.02	0.04	-	1	15.0	5.2	0.60	1.05	-	302	0.225	409	0.340		
DS-150507	0.59	0.20	0.03	0.04	-	1	15.0	5.2	0.70	1.10	-	395	0.200	555	0.300		
DS-150605	0.59	0.24	0.02	0.04	-	1	15.0	6.2	0.50	1.00	-	229	0.250	291	0.380		
DS-150606	0.59	0.24	0.02	0.04	-	1	15.0	6.2	0.60	1.05	-	314	0.225	426	0.340		
DS-150607	0.59	0.24	0.03	0.04	-	1	15.0	6.2	0.70	1.10	-	411	0.200	578	0.300		
DS-150807	0.59	0.32	0.03	0.04	-	1	15.0	8.2	0.70	1.10	-	474	0.200	666	0.300		
DS-150808	0.59	0.32	0.03	0.05	-	1	15.0	8.2	0.80	1.20	-	689	0.200	982	0.300		
DS-160804	C 0.63	0.32	0.02	0.04	-	1	16.0	8.2	0.40	0.90	-	131	0.250	155	0.380		
DS-160806	B 0.63	0.32	0.02	0.04	-	1	16.0	8.2	0.60	1.05	-	304	0.225	412	0.340		
DS-160807	0.63	0.32	0.03	0.05	-	1	16.0	8.2	0.70	1.15	-	461	0.225	641	0.340		
DS-160808	0.63	0.32	0.03	0.05	-	1	16.0	8.2	0.80	1.20	-	579	0.200	825	0.300		
DS-160809	A 0.63	0.32	0.04	0.05	-	1	16.0	8.2	0.90	1.25	-	697	0.175	1 004	0.260		



Precision Metric Disc Springs

IIS Part No.	Dimensions						Group	Dimensions					Characteristic Values			
	D _e (in)	d _i (in)	t (in)	h _o (in)	t' (in)			D _e (mm)	d _i (mm)	t (mm)	h _o (mm)	t' (mm)	0.50h _o		0.75h _o	
													F (N)	s (mm)	F (N)	s (mm)
DS-180604	0.71	0.24	0.02	0.04	-	1	18.0	6.2	0.40	1.00	-	126	0.300	139	0.450	
DS-180605	0.71	0.24	0.02	0.04	-	1	18.0	6.2	0.50	1.10	-	206	0.300	245	0.450	
DS-180606	0.71	0.24	0.02	0.05	-	1	18.0	6.2	0.60	1.20	-	317	0.300	400	0.450	
DS-180607	0.71	0.24	0.03	0.05	-	1	18.0	6.2	0.70	1.25	-	414	0.275	550	0.410	
DS-180608	0.71	0.24	0.03	0.05	-	1	18.0	6.2	0.80	1.30	-	523	0.250	733	0.380	
DS-180805	0.71	0.32	0.02	0.04	-	1	18.0	8.2	0.50	1.10	-	222	0.300	265	0.450	
DS-180807	0.71	0.32	0.03	0.05	-	1	18.0	8.2	0.70	1.25	-	446	0.275	594	0.410	
DS-180808	0.71	0.32	0.03	0.05	-	1	18.0	8.2	0.80	1.30	-	564	0.250	791	0.380	
DS-180810	0.71	0.32	0.04	0.06	-	1	18.0	8.2	1.00	1.40	-	814	0.200	1 181	0.300	
DS-180904	C 0.71	0.36	0.02	0.04	-	1	18.0	9.2	0.45	1.05	-	186	0.300	214	0.450	
DS-180907	B 0.71	0.36	0.03	0.05	-	1	18.0	9.2	0.70	1.20	-	417	0.250	572	0.380	
DS-180910	A 0.71	0.36	0.04	0.06	-	1	18.0	9.2	1.00	1.40	-	865	0.200	1 254	0.300	
DS-200805	0.79	0.32	0.02	0.05	-	1	20.0	8.2	0.50	1.15	-	200	0.325	231	0.490	
DS-200806	0.79	0.32	0.02	0.05	-	1	20.0	8.2	0.60	1.30	-	342	0.350	413	0.530	
DS-200807	0.79	0.32	0.03	0.05	-	1	20.0	8.2	0.70	1.35	-	442	0.325	570	0.490	
DS-200808	0.79	0.32	0.03	0.06	-	1	20.0	8.2	0.80	1.40	-	557	0.300	751	0.450	
DS-200809	0.79	0.32	0.04	0.06	-	1	20.0	8.2	0.90	1.45	-	685	0.275	949	0.410	
DS-200810	0.79	0.32	0.04	0.06	-	1	20.0	8.2	1.00	1.55	-	917	0.275	1 288	0.410	
DS-201004	0.79	0.40	0.02	0.04	-	1	20.0	10.2	0.40	0.90	-	84	0.250	99	0.380	
DS-201005	C 0.79	0.40	0.02	0.05	-	1	20.0	10.2	0.50	1.15	-	219	0.325	254	0.490	
DS-201008	B 0.79	0.40	0.03	0.05	-	1	20.0	10.2	0.80	1.35	-	547	0.275	745	0.410	
DS-201009	0.79	0.40	0.04	0.06	-	1	20.0	10.2	0.90	1.45	-	754	0.275	1 045	0.410	
DS-201010	0.79	0.40	0.04	0.06	-	1	20.0	10.2	1.00	1.55	-	1 010	0.275	1 418	0.410	
DS-201011	A 0.79	0.40	0.04	0.06	-	1	20.0	10.2	1.10	1.55	-	1 050	0.225	1 531	0.340	
DS-201012	0.79	0.40	0.05	0.07	-	1	20.0	10.2	1.25	1.75	-	1 708	0.250	2 507	0.380	
DS-201015	0.79	0.40	0.06	0.07	-	2	20.0	10.2	1.50	1.80	-	1 695	0.150	2 576	0.230	
DS-221106	C 0.89	0.44	0.02	0.06	-	1	22.5	11.2	0.60	1.40	-	370	0.400	425	0.600	
DS-221108	B 0.89	0.44	0.03	0.06	-	1	22.5	11.2	0.80	1.45	-	533	0.325	710	0.490	
DS-221112	A 0.89	0.44	0.05	0.07	-	2	22.5	11.2	1.25	1.75	-	1 330	0.250	1 952	0.380	
DS-230807	0.91	0.32	0.03	0.06	-	1	23.0	8.2	0.70	1.50	-	448	0.400	544	0.600	
DS-230808	0.91	0.32	0.03	0.06	-	1	23.0	8.2	0.80	1.55	-	560	0.375	717	0.560	
DS-230809	0.91	0.32	0.04	0.06	-	1	23.0	8.2	0.90	1.60	-	687	0.350	925	0.530	
DS-230810	0.91	0.32	0.04	0.07	-	1	23.0	8.2	1.00	1.70	-	909	0.350	1 249	0.530	
DS-231009	0.91	0.40	0.04	0.06	-	1	23.0	10.2	0.90	1.65	-	802	0.375	1 055	0.560	
DS-231010	0.91	0.40	0.04	0.07	-	1	23.0	10.2	1.00	1.70	-	964	0.350	1 325	0.530	
DS-231012	0.91	0.40	0.05	0.07	-	2	23.0	10.2	1.25	1.90	-	1 627	0.325	2 320	0.490	
DS-231210	0.91	0.48	0.04	0.06	-	1	23.0	12.2	1.00	1.60	-	872	0.300	1 217	0.450	
DS-231212	0.91	0.48	0.05	0.07	-	2	23.0	12.2	1.25	1.85	-	1 630	0.300	2 331	0.450	
DS-231215	0.91	0.48	0.06	0.08	-	2	23.0	12.2	1.50	2.00	-	2 250	0.250	3 338	0.380	
DS-251010	0.98	0.40	0.04	0.07	-	1	25.0	10.2	1.00	1.75	-	870	0.375	1 168	0.560	
DS-251207	C 0.98	0.48	0.03	0.06	-	1	25.0	12.2	0.70	1.60	-	515	0.450	601	0.680	
DS-251209	B 0.98	0.48	0.04	0.06	-	1	25.0	12.2	0.90	1.60	-	644	0.350	868	0.530	
DS-251210	0.98	0.48	0.04	0.07	-	1	25.0	12.2	1.00	1.80	-	1 021	0.400	1 359	0.600	
DS-251212	0.98	0.48	0.05	0.08	-	2	25.0	12.2	1.25	1.95	-	1 573	0.350	2 232	0.530	
DS-251215	A 0.98	0.48	0.06	0.08	-	2	25.0	12.2	1.50	2.05	-	2 007	0.275	2 910	0.410	
DS-281008	1.10	0.40	0.03	0.07	-	1	28.0	10.2	0.80	1.75	-	553	0.475	661	0.710	
DS-281010	1.10	0.40	0.04	0.07	-	1	28.0	10.2	1.00	1.90	-	872	0.450	1 135	0.680	
DS-281012	1.10	0.40	0.05	0.08	-	2	28.0	10.2	1.25	2.05	-	1 339	0.400	1 853	0.600	
DS-281015	1.10	0.40	0.06	0.09	-	2	28.0	10.2	1.50	2.20	-	1 899	0.350	2 745	0.530	

Precision Metric Disc Springs

IIS Part No.	Dimensions						Group	Dimensions					Characteristic Values			
	D _e (in)	d _i (in)	t (in)	h _o (in)	t' (in)	D _e (mm)		d _i (mm)	t (mm)	h _o (mm)	t' (mm)	0.50h _o		0.75h _o		
												F (N)	s (mm)	F (N)	s (mm)	
DS-281210	1.10	0.48	0.04	0.08	-	1	28.0	12.2	1.00	1.95	-	992	0.475	1 266	0.710	
DS-281212	1.10	0.48	0.05	0.08	-	2	28.0	12.2	1.25	2.10	-	1 519	0.425	2 089	0.640	
DS-281215	1.10	0.48	0.06	0.09	-	2	28.0	12.2	1.50	2.25	-	2 159	0.375	3 065	0.560	
DS-281408	C 1.10	0.56	0.03	0.07	-	1	28.0	14.2	0.80	1.80	-	681	0.500	801	0.750	
DS-281410	B 1.10	0.56	0.04	0.07	-	1	28.0	14.2	1.00	1.80	-	832	0.400	1 107	0.600	
DS-281412	1.10	0.56	0.05	0.08	-	2	28.0	14.2	1.25	2.10	-	1 634	0.425	2 246	0.640	
DS-281415	A 1.10	0.56	0.06	0.08	-	2	28.0	14.2	1.50	2.15	-	1 970	0.325	2 854	0.490	
DS-311210	1.24	0.48	0.04	0.08	-	1	31.5	12.2	1.00	2.10	-	951	0.550	1 170	0.830	
DS-311212	1.24	0.48	0.05	0.09	-	2	31.5	12.2	1.25	2.20	-	1 343	0.475	1 800	0.710	
DS-311215	1.24	0.48	0.06	0.09	-	2	31.5	12.2	1.50	2.35	-	1 912	0.425	2 697	0.640	
DS-311608	C 1.24	0.64	0.03	0.07	-	1	31.5	16.3	0.80	1.85	-	594	0.525	687	0.790	
DS-311612	B 1.24	0.64	0.05	0.08	-	2	31.5	16.3	1.25	2.15	-	1 409	0.450	1 923	0.680	
DS-311615	1.24	0.64	0.06	0.09	-	2	31.5	16.3	1.50	2.40	-	2 314	0.450	3 249	0.680	
DS-311617	A 1.24	0.64	0.07	0.10	-	2	31.5	16.3	1.75	2.45	-	2 669	0.350	3 905	0.530	
DS-311620	1.24	0.64	0.08	0.11	-	2	31.5	16.3	2.00	2.75	-	4 239	0.375	6 148	0.560	
DS-341210	1.34	0.48	0.04	0.09	-	1	34.0	12.3	1.00	2.25	-	998	0.625	1 175	0.940	
DS-341212	1.34	0.48	0.05	0.09	-	2	34.0	12.3	1.25	2.35	-	1 395	0.550	1 825	0.830	
DS-341215	1.34	0.48	0.06	0.10	-	2	34.0	12.3	1.50	2.50	-	1 982	0.500	2 725	0.750	
DS-341412	1.34	0.56	0.05	0.09	-	2	34.0	14.3	1.25	2.40	-	1 546	0.575	1 990	0.860	
DS-341415	1.34	0.56	0.06	0.10	-	2	34.0	14.3	1.50	2.55	-	2 192	0.525	2 997	0.790	
DS-341615	1.34	0.64	0.06	0.10	-	2	34.0	16.3	1.50	2.55	-	2 313	0.525	3 163	0.790	
DS-341620	1.34	0.64	0.08	0.11	-	2	34.0	16.3	2.00	2.85	-	4 003	0.425	5 803	0.640	
DS-351809	C 1.40	0.72	0.04	0.08	-	1	35.5	18.3	0.90	2.05	-	712	0.575	831	0.860	
DS-351812	B 1.40	0.72	0.05	0.09	-	2	35.5	18.3	1.25	2.25	-	1 277	0.500	1 699	0.750	
DS-351820	A 1.40	0.72	0.08	0.11	-	2	35.5	18.3	2.00	2.80	-	3 576	0.400	5 187	0.600	
DS-401412	1.57	0.56	0.05	0.10	-	2	40.0	14.3	1.25	2.65	-	1 459	0.700	1 780	1.050	
DS-401415	1.57	0.56	0.06	0.11	-	2	40.0	14.3	1.50	2.75	-	1 929	0.625	2 550	0.940	
DS-401420	1.57	0.56	0.08	0.12	-	2	40.0	14.3	2.00	3.05	-	3 363	0.525	4 781	0.790	
DS-401615	1.57	0.64	0.06	0.11	-	2	40.0	16.3	1.50	2.80	-	2 102	0.650	2 758	0.980	
DS-401620	1.57	0.64	0.08	0.12	-	2	40.0	16.3	2.00	3.10	-	3 663	0.550	5 195	0.830	
DS-401820	1.57	0.72	0.08	0.12	-	2	40.0	18.3	2.00	3.15	-	4 030	0.575	5 642	0.860	
DS-402010	C 1.57	0.80	0.04	0.09	-	1	40.0	20.4	1.00	2.30	-	876	0.650	1 018	0.980	
DS-402015	B 1.57	0.80	0.06	0.10	-	2	40.0	20.4	1.50	2.65	-	1 953	0.575	2 616	0.860	
DS-402020	1.57	0.80	0.08	0.12	-	2	40.0	20.4	2.00	3.10	-	4 041	0.550	5 730	0.830	
DS-402022	A 1.57	0.80	0.09	0.12	-	2	40.0	20.4	2.25	3.15	-	4 481	0.450	6 544	0.680	
DS-402025	1.57	0.80	0.10	0.14	-	2	40.0	20.4	2.50	3.45	-	6 453	0.475	9 359	0.710	
DS-452212	C 1.77	0.88	0.05	0.11	-	2	45.0	22.4	1.25	2.85	-	1 620	0.800	1 891	1.200	
DS-452217	B 1.77	0.88	0.07	0.12	-	2	45.0	22.4	1.75	3.05	-	2 701	0.650	3 659	0.980	
DS-452225	A 1.77	0.88	0.10	0.14	-	2	45.0	22.4	2.50	3.50	-	5 320	0.500	7 716	0.750	
DS-501812	1.97	0.72	0.05	0.11	-	2	50.0	18.4	1.25	2.85	-	1 178	0.800	1 375	1.200	
DS-501815	1.97	0.72	0.06	0.13	-	2	50.0	18.4	1.50	3.30	-	2 184	0.900	2 606	1.350	
DS-501820	1.97	0.72	0.08	0.14	-	2	50.0	18.4	2.00	3.50	-	3 392	0.750	4 586	1.130	
DS-501825	1.97	0.72	0.10	0.16	-	2	50.0	18.4	2.50	4.10	-	6 733	0.800	9 315	1.200	
DS-501830	1.97	0.72	0.12	0.17	-	2	50.0	18.4	3.00	4.40	-	9 546	0.700	13 688	1.050	
DS-502020	1.97	0.80	0.08	0.14	-	2	50.0	20.4	2.00	3.50	-	3 478	0.750	4 702	1.130	
DS-502025	1.97	0.80	0.10	0.15	-	2	50.0	20.4	2.50	3.85	-	5 601	0.675	7 902	1.010	
DS-502220	1.97	0.88	0.08	0.14	-	2	50.0	22.4	2.00	3.60	-	3 924	0.800	5 222	1.200	
DS-502225	1.97	0.88	0.10	0.15	-	2	50.0	22.4	2.50	3.90	-	6 044	0.700	8 510	1.050	



Precision Metric Disc Springs

IIS Part No.	Dimensions						Group	Dimensions					Characteristic Values			
	D _e (in)	d _i (in)	t (in)	h _o (in)	t' (in)	D _e (mm)		d _i (mm)	t (mm)	h _o (mm)	t' (mm)	0.50h _o		0.75h _o		
												F (N)	s (mm)	F (N)	s (mm)	
DS-502512	C	1.97	1.00	0.05	0.11	-	2	50.0	25.4	1.25	2.85	-	1 328	0.800	1 550	1.200
DS-502515		1.97	1.00	0.06	0.12	-	2	50.0	25.4	1.50	3.10	-	2 028	0.800	2 512	1.200
DS-502520	B	1.97	1.00	0.08	0.13	-	2	50.0	25.4	2.00	3.40	-	3 491	0.700	4 762	1.050
DS-502522		1.97	1.00	0.09	0.15	-	2	50.0	25.4	2.25	3.75	-	5 249	0.750	7 241	1.130
DS-502525		1.97	1.00	0.10	0.15	-	2	50.0	25.4	2.50	3.90	-	6 437	0.700	9 063	1.050
DS-502530	A	1.97	1.00	0.12	0.16	-	2	50.0	25.4	3.00	4.10	-	8 214	0.550	12 044	0.830
DS-562815	C	2.20	1.12	0.06	0.14	-	2	56.0	28.5	1.50	3.45	-	2 259	0.975	2 621	1.460
DS-562820	B	2.20	1.12	0.08	0.14	-	2	56.0	28.5	2.00	3.60	-	3 335	0.800	4 438	1.200
DS-562825		2.20	1.12	0.10	0.17	-	2	56.0	28.5	2.50	4.20	-	6 550	0.850	9 004	1.280
DS-562830	A	2.20	1.12	0.12	0.17	-	2	56.0	28.5	3.00	4.30	-	7 895	0.650	11 441	0.980
DS-602020		2.36	0.81	0.08	0.16	-	2	60.0	20.5	2.00	4.10	-	3 802	1.050	4 737	1.580
DS-602025		2.36	0.81	0.10	0.17	-	2	60.0	20.5	2.50	4.30	-	5 379	0.900	7 302	1.350
DS-602030		2.36	0.81	0.12	0.19	-	2	60.0	20.5	3.00	4.70	-	8 234	0.850	11 615	1.280
DS-602525		2.36	1.00	0.10	0.17	-	2	60.0	25.5	2.50	4.40	-	6 081	0.950	8 195	1.430
DS-602530		2.36	1.00	0.12	0.18	-	2	60.0	25.5	3.00	4.65	-	8 352	0.825	11 803	1.240
DS-603025		2.36	1.20	0.10	0.17	-	2	60.0	30.5	2.50	4.30	-	6145	0.900	8 342	1.350
DS-603027		2.36	1.20	0.11	0.19	-	2	60.0	30.5	2.75	4.75	-	9 117	1.000	12 360	1.500
DS-603030		2.36	1.20	0.12	0.19	-	2	60.0	30.5	3.00	4.70	-	9 407	0.850	13 269	1.280
DS-603035		2.36	1.20	0.14	0.20	-	2	60.0	30.5	3.50	5.00	-	12 574	0.750	18 225	1.130
DS-633118	C	2.48	1.22	0.07	0.16	-	2	63.0	31.0	1.80	4.15	-	3 658	1.175	4 237	1.760
DS-633125	B	2.48	1.22	0.10	0.17	-	2	63.0	31.0	2.50	4.25	-	5 270	0.875	7 179	1.310
DS-633130		2.48	1.22	0.12	0.19	-	2	63.0	31.0	3.00	4.80	-	8 981	0.900	12 536	1.350
DS-633135	A	2.48	1.22	0.14	0.19	-	2	63.0	31.0	3.50	4.90	-	10 359	0.700	15 025	1.050
DS-702520		2.76	1.00	0.08	0.18	-	2	70.0	25.5	2.00	4.50	-	3 771	1.250	4 441	1.880
DS-703025		2.76	1.20	0.10	0.19	-	2	70.0	30.5	2.50	4.90	-	6 297	1.200	8 031	1.800
DS-703030		2.76	1.20	0.12	0.20	-	2	70.0	30.5	3.00	5.10	-	8 376	1.050	11 453	1.580
DS-703530		2.76	1.40	0.12	0.20	-	2	70.0	35.5	3.00	5.10	-	9 007	1.050	12 316	1.580
DS-703535		2.76	1.40	0.14	0.21	-	2	70.0	35.5	3.50	5.30	-	11 380	0.900	16 180	1.350
DS-703540		2.76	1.40	0.16	0.23	-	2	70.0	35.5	4.00	5.80	-	16 634	0.900	23 923	1.350
DS-704040		2.76	1.59	0.16	0.22	-	2	70.0	40.5	4.00	5.60	-	16 099	0.800	23 351	1.200
DS-704050		2.76	1.59	0.20	0.24	-	2	70.0	40.5	5.00	6.20	-	22 728	0.600	33 672	0.900
DS-713620	C	2.80	1.42	0.08	0.18	-	2	71.0	36.0	2.00	4.60	-	4 432	1.300	5 144	1.950
DS-713625	B	2.80	1.42	0.10	0.18	-	2	71.0	36.0	2.50	4.50	-	5 054	1.000	6 725	1.500
DS-713640	A	2.80	1.42	0.16	0.22	-	2	71.0	36.0	4.00	5.60	-	14 157	0.800	20 535	1.200
DS-803125		3.15	1.22	0.10	0.21	-	2	80.0	31.0	2.50	5.30	-	5 933	1.400	7 239	2.100
DS-803130		3.15	1.22	0.12	0.22	-	2	80.0	31.0	3.00	5.50	-	7 847	1.250	10 369	1.880
DS-803140		3.15	1.22	0.16	0.24	-	2	80.0	31.0	4.00	6.10	-	13 677	1.050	19 447	1.580
DS-803630		3.15	1.42	0.12	0.22	-	2	80.0	36.0	3.00	5.70	-	9 196	1.350	11 936	2.030
DS-803640		3.15	1.42	0.16	0.24	-	2	80.0	36.0	4.00	6.20	-	15 168	1.100	21 400	1.650
DS-804122	C	3.15	1.61	0.09	0.20	-	2	80.0	41.0	2.25	5.20	-	5 715	1.475	6 611	2.210
DS-804130	B	3.15	1.61	0.12	0.21	-	2	80.0	41.0	3.00	5.30	-	7 838	1.150	10 539	1.730
DS-804140		3.15	1.61	0.16	0.24	-	2	80.0	41.0	4.00	6.20	-	16 213	1.100	22 874	1.650
DS-804150	A	3.15	1.61	0.20	0.26	-	2	80.0	41.0	5.00	6.70	-	22 928	0.850	33 682	1.280
DS-904625	C	3.54	1.81	0.10	0.22	-	2	90.0	46.0	2.50	5.70	-	6 585	1.600	7 684	2.400
DS-904635	B	3.54	1.81	0.14	0.24	-	2	90.0	46.0	3.50	6.00	-	10 416	1.250	14 189	1.880
DS-904650	A	3.54	1.81	0.20	0.28	-	2	90.0	46.0	5.00	7.00	-	21 617	1.000	31 354	1.500
DS-1004140		3.94	1.61	0.16	0.28	-	2	100.0	41.0	4.00	7.20	-	15 219	1.600	20 251	2.400
DS-1004150		3.94	1.61	0.20	0.31	-	2	100.0	41.0	5.00	7.75	-	22 937	1.375	32 328	2.060

Precision Metric Disc Springs

IIS Part No.	Dimensions						Group	Dimensions					Characteristic Values			
	D _e (in)	d _i (in)	t (in)	h _o (in)	t' (in)	D _e (mm)		d _i (mm)	t (mm)	h _o (mm)	t' (mm)	0.50h _o		0.75h _o		
												F (N)	s (mm)	F (N)	s (mm)	
DS-1005127	C	3.94	2.01	0.11	0.24	-	2	100.0	51.0	2.70	6.20	-	7 410	1.750	8 613	2.630
DS-1005135	B	3.94	2.01	0.14	0.25	-	2	100.0	51.0	3.50	6.30	-	9 823	1.400	13 070	2.100
DS-1005140		3.94	2.01	0.16	0.28	-	2	100.0	51.0	4.00	7.00	-	15 341	1.500	20 674	2.250
DS-1005150		3.94	2.01	0.20	0.31	-	2	100.0	51.0	5.00	7.80	-	25 810	1.400	36 339	2.100
DS-1005160	A	3.94	2.01	0.24	0.32	-	2	100.0	51.0	6.00	8.20	-	32 937	1.100	48 022	1.650
DS-1125730	C	4.41	2.24	0.12	0.27	-	2	112.0	57.0	3.00	6.90	-	9 038	1.950	10 493	2.930
DS-1125740	B	4.41	2.24	0.16	0.28	-	2	112.0	57.0	4.00	7.20	-	13 341	1.600	17 752	2.400
DS-1125760	A	4.41	2.24	0.24	0.33	-	2	112.0	57.0	6.00	8.50	-	30 215	1.250	43 812	1.880
DS-1254140		4.92	1.61	0.16	0.32	-	2	125.0	41.0	4.00	8.20	-	13 943	2.100	17 346	3.150
DS-1255140		4.92	2.01	0.16	0.33	-	2	125.0	51.0	4.00	8.50	-	16 265	2.250	19 829	3.380
DS-1255150		4.92	2.01	0.20	0.35	-	2	125.0	51.0	5.00	8.90	-	22 931	1.950	30 705	2.930
DS-1255160		4.92	2.01	0.24	0.37	-	2	125.0	51.0	6.00	9.40	-	31 514	1.700	44 307	2.550
DS-1256150		4.92	2.40	0.20	0.35	-	2	125.0	61.0	5.00	9.00	-	25 526	2.000	33 965	3.000
DS-1256160		4.92	2.40	0.24	0.38	-	2	125.0	61.0	6.00	9.60	-	36 336	1.800	50 722	2.700
DS-1256180		4.92	2.40	0.31	0.43	0.30	3	125.0	61.0	8.00	10.90	7.50	65 305	1.450	93 765	2.180
DS-1256435	C	4.92	2.52	0.14	0.31	-	2	125.0	64.0	3.50	8.00	-	13 231	2.250	15 422	3.380
DS-1256450	B	4.92	2.52	0.20	0.33	-	2	125.0	64.0	5.00	8.50	-	21 924	1.750	29 950	2.630
DS-1256460		4.92	2.52	0.24	0.34	-	2	125.0	64.0	6.00	9.60	-	37 360	1.800	52 150	2.700
DS-1256480	A	4.92	2.52	0.31	0.42	0.30	3	125.0	64.0	8.00	10.60	7.50	59 520	1.300	85 926	1.950
DS-1257160		4.92	2.80	0.24	0.37	-	2	125.0	71.0	6.00	9.30	-	36 302	1.650	51 304	2.480
DS-1257180		4.92	2.80	0.31	0.41	0.29	3	125.0	71.0	8.00	10.40	7.40	59 149	1.200	85 494	1.800
DS-1257110		4.92	2.80	0.39	0.46	0.36	3	125.0	71.0	10.00	11.80	9.20	84 219	0.900	124 124	1.350
DS-1407238	C	5.51	2.83	0.15	0.34	-	2	140.0	72.0	3.80	8.70	-	14 773	2.450	17 201	3.680
DS-1407250	B	5.51	2.83	0.20	0.35	-	2	140.0	72.0	5.00	9.00	-	20 982	2.000	27 920	3.000
DS-1407280	A	5.51	2.83	0.31	0.44	0.30	3	140.0	72.0	8.00	11.20	7.50	59 967	1.600	85 251	2.400
DS-1506150		5.91	2.40	0.20	0.41	-	2	150.0	61.0	5.00	10.30	-	25 021	2.650	31 059	3.980
DS-1506160		5.91	2.40	0.24	0.43	0.00	2	150.0	61.0	6.00	10.80	-	34 161	2.400	45 456	3.600
DS-1507160		5.91	2.80	0.24	0.43	-	2	150.0	71.0	6.00	10.80	-	36 189	2.400	48 155	3.600
DS-1507180		5.91	2.80	0.31	0.47	0.30	3	150.0	71.0	8.00	12.00	7.50	64 684	2.000	89 851	3.000
DS-1508180		5.91	3.19	0.31	0.46	0.30	3	150.0	81.0	8.00	11.70	7.50	63 876	1.850	89 663	2.780
DS-1508110		5.91	3.19	0.39	0.51	0.37	3	150.0	81.0	10.00	13.00	9.30	96 120	1.500	139 128	2.250
DS-1608243	C	6.30	3.23	0.17	0.39	-	2	160.0	82.0	4.30	9.90	-	18 832	2.800	21 843	4.200
DS-1608260	B	6.30	3.23	0.24	0.41	-	2	160.0	82.0	6.00	10.50	-	30 431	2.250	41 051	3.380
DS-1608210	A	6.30	3.23	0.39	0.53	0.37	3	160.0	82.0	10.00	13.50	9.40	96 216	1.750	138 564	2.630
DS-1809248	C	7.09	3.62	0.19	0.43	-	2	180.0	92.0	4.80	11.00	-	22 731	3.100	26 442	4.650
DS-1809260	B	7.09	3.62	0.24	0.44	-	2	180.0	92.0	6.00	11.10	-	28 552	2.550	37 533	3.830
DS-1809210	A	7.09	3.62	0.39	0.55	0.37	3	180.0	92.0	10.00	14.00	9.40	88 141	2.000	125 417	3.000
DS-1809213		7.09	3.62	0.51	0.65	0.48	3	180.0	92.0	13.00	16.50	12.10	163 400	1.750	238 300	2.630
DS-2008280		7.87	3.23	0.31	0.56	0.30	3	200.0	82.0	8.00	14.20	7.60	60 013	3.100	78 034	4.650
DS-2008210		7.87	3.23	0.39	0.61	0.38	3	200.0	82.0	10.00	15.50	9.60	93 357	2.750	129 569	4.130
DS-2008212		7.87	3.23	0.47	0.65	0.45	3	200.0	82.0	12.00	16.60	11.50	127 191	2.300	182 737	3.450
DS-2009210		7.87	3.62	0.39	0.61	0.37	3	200.0	92.0	10.00	15.60	9.50	100 014	2.800	137 688	4.200
DS-2009212		7.87	3.62	0.47	0.66	0.45	3	200.0	92.0	12.00	16.80	11.40	139 548	2.400	199 269	3.600
DS-2009214		7.87	3.62	0.55	0.71	0.52	3	200.0	92.0	14.00	18.10	13.10	184 092	2.050	267 623	3.080



Precision Metric Disc Springs

IIS Part No.		Dimensions					Group	Dimensions					Characteristic Values			
		D _e	d _i	t	h _o	t'		D _e	d _i	t	h _o	t'	0.50h _o		0.75h _o	
		(in)	(in)	(in)	(in)	(in)		(mm)	(mm)	(mm)	(mm)	(mm)	F (N)	s (mm)	F (N)	s (mm)
DS-20010255	C	7.87	4.02	0.22	0.49	-	2	200.0	102.0	5.50	12.50	-	30 882	3.500	36 111	5.250
DS-20010280	B	7.87	4.02	0.31	0.54	0.30	3	200.0	102.0	8.00	13.60	7.50	57 955	2.800	76 378	4.200
DS-20010210		7.87	4.02	0.39	0.61	0.37	3	200.0	102.0	10.00	15.60	9.40	106 099	2.800	145 357	4.200
DS-20010212	A	7.87	4.02	0.47	0.64	0.44	3	200.0	102.0	12.00	16.20	11.25	127 401	2.100	183 020	3.150
DS-20010214		7.87	4.02	0.55	0.72	0.52	3	200.0	102.0	14.00	18.20	13.10	199 476	2.100	289 181	3.150
DS-20011212		7.87	4.41	0.47	0.64	0.44	3	200.0	112.0	12.00	16.20	11.10	136 873	2.100	195 830	3.150
DS-20011214		7.87	4.41	0.55	0.69	0.51	3	200.0	112.0	14.00	17.50	12.90	176 156	1.750	257 208	2.630
DS-20011216		7.87	4.41	0.63	0.74	0.58	3	200.0	112.0	16.00	18.80	14.80	206 697	1.400	305 100	2.100
DS-22511260	**	8.86	4.41	0.24	0.54	0.24	3	225.0	112.0	6.00	13.60	6.00	39 660	3.800	45 500	5.700
DS-22511265	C	8.86	4.41	0.26	0.54	0.24	3	225.0	112.0	6.50	13.60	6.20	37 417	3.550	44 594	5.330
DS-22511280	B	8.86	4.41	0.31	0.57	0.30	3	225.0	112.0	8.00	14.50	7.50	55 412	3.250	70 788	4.880
DS-22511212	A	8.86	4.41	0.47	0.67	0.44	3	225.0	112.0	12.00	17.00	11.25	120 738	2.500	171 016	3.750
DS-22511216		8.86	4.41	0.63	0.81	0.59	3	225.0	112.0	16.00	20.50	15.00	247 100	2.250	360 100	3.380
DS-25010210		9.84	4.02	0.39	0.71	0.38	3	250.0	102.0	10.00	18.00	9.60	97 282	4.000	126 387	6.000
DS-25010212		9.84	4.02	0.47	0.75	0.45	3	250.0	102.0	12.00	19.00	11.50	133 130	3.500	182 962	5.250
DS-25012765	**	9.84	5.00	0.26	0.58	0.26	3	250.0	127.0	6.50	14.80	6.50	45 420	4.150	51 970	6.230
DS-25012770	C	9.84	5.00	0.28	0.58	0.26	3	250.0	127.0	7.00	14.80	6.70	42 527	3.900	50 466	5.850
DS-25012710	B	9.84	5.00	0.39	0.67	0.37	3	250.0	127.0	10.00	17.00	9.40	90 206	3.500	119 053	5.250
DS-25012712		9.84	5.00	0.47	0.75	0.44	3	250.0	127.0	12.00	19.30	11.25	156 021	3.650	210 942	5.480
DS-25012714	A	9.84	5.00	0.55	0.77	0.52	3	250.0	127.0	14.00	19.60	13.10	175 145	2.800	248 828	4.200
DS-25012716		9.84	5.00	0.63	0.86	0.59	3	250.0	127.0	16.00	21.80	15.00	267 295	2.900	383 017	4.350