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Our Concern is Quality Not Quantity



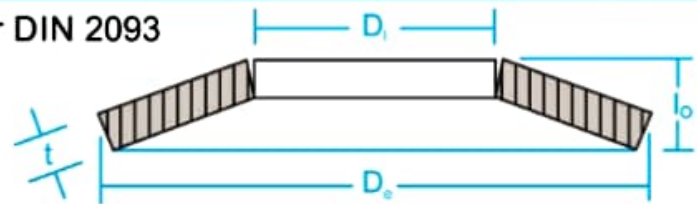
Mahalaxmi
Spring Industries

www.crusherspring.com, www.elevatorspring.in



Disc Spring As Per DIN 2093

D_o : Outside Diameter
 D_i : Inside Diameter
 t : Thickness
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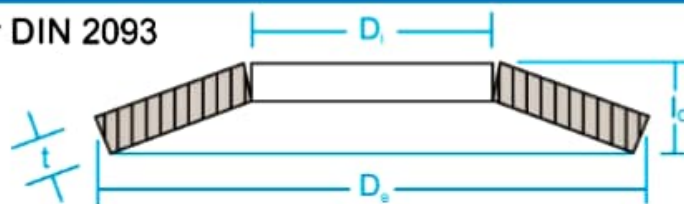


ITEM CODE	Metric Dimensions					Defl. $S = .75 l_o$	Force N
	D_o	D_i	t	h	l_o		
MDS 060303	6	3.2	0.3	0.15	0.45	0.11	119
MDS 080302	8	3.2	0.2	0.2	0.4	0.15	26
MDS 080303	8	3.2	0.3	0.25	0.55	0.19	104
MDS 080304	8	3.2	0.4	0.2	0.6	0.15	186
MDS 080305	8	3.2	0.5	0.2	0.7	0.15	357
MDS 080402	8	4.2	0.2	0.25	0.45	0.19	39
MDS 080403	8	4.2	0.3	0.25	0.55	0.19	118
MDS 080404	8	4.2	0.4	0.2	0.6	0.15	210
MDS 100303	10	3.2	0.3	0.35	0.65	0.26	98
MDS 100304	10	3.2	0.4	0.3	0.7	0.23	179
MDS 100305	10	3.2	0.5	0.25	0.75	0.19	279
MDS 100404	10	4.2	0.4	0.3	0.7	0.23	189
MDS 100405	10	4.2	0.5	0.25	0.75	0.19	294
MDS 100406	10	4.2	0.6	0.25	0.85	0.19	502
MDS 100502	10	5.2	0.25	0.3	0.55	0.23	58
MDS 100504	10	5.2	0.4	0.3	0.7	0.23	209
MDS 100505	10	5.2	0.5	0.25	0.75	0.19	325
MDS 120404	12	4.2	0.4	0.4	0.8	0.3	178
MDS 120405	12	4.2	0.5	0.35	0.85	0.26	284
MDS 120406	12	4.2	0.6	0.4	1	0.3	557
MDS 120505	12	5.2	0.5	0.4	0.9	0.3	350
MDS 120506	12	5.2	0.6	0.35	0.95	0.26	506
MDS 120605	12	6.2	0.5	0.35	0.85	0.26	326
MDS 120606	12	6.2	0.6	0.35	0.95	0.26	552
MDS 130505	12.5	5.2	0.5	0.35	0.85	0.26	272
MDS 130603	12.5	6.2	0.35	0.45	0.8	0.34	151
MDS 130605	12.5	6.2	0.5	0.35	0.85	0.26	293
MDS 130607	12.5	6.2	0.7	0.3	1	0.26	660
MDS 140703	14	7.2	0.35	0.45	0.8	0.34	123
MDS 140705	14	7.2	0.5	0.4	0.9	0.3	279
MDS 140708	14	7.2	0.8	0.3	1.1	0.23	797
MDS 150504	15	5.2	0.4	0.55	0.95	0.41	176
MDS 150505	15	5.2	0.5	0.5	1	0.38	278
MDS 150506	15	5.2	0.6	0.45	1.05	0.34	407
MDS 150507	15	5.2	0.7	0.4	1.1	0.3	555
MDS 150605	15	6.2	0.5	0.5	1	0.38	289
MDS 150606	15	6.2	0.6	0.45	1.05	0.34	424
MDS 150607	15	6.2	0.7	0.4	1.1	0.3	578
MDS 150807	15	8.2	0.7	0.4	1.1	0.38	666
MDS 150808	15	8.2	0.8	0.4	1.2	0.3	892
MDS 160804	16	8.2	0.4	0.5	0.9	38	154



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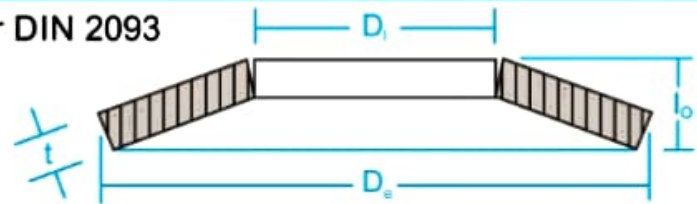


ITEM CODE	Metric Dimensions					Defl. $S=0.75 l_o$	Force N
	D_o	D_i	t	h	l_o		
MDS 160806	16	8.2	0.6	0.45	1.05	0.34	410
MDS 160807	16	8.2	0.7	0.45	1.15	0.34	637
MDS 160808	16	8.2	0.8	0.4	1.2	0.3	825
MDS 160809	16	8.2	0.9	0.35	1.25	0.26	1013
MDS 180604	18	6.2	0.4	0.6	1	0.45	139
MDS 180605	18	6.2	0.5	0.6	1.1	0.5	245
MDS 180606	18	6.2	0.6	0.6	1.2	0.45	400
MDS 180607	18	6.2	0.7	0.55	1.25	0.41	553
MDS 180608	18	6.2	0.8	0.5	1.3	0.38	726
MDS 180805	18	8.2	0.5	0.6	1.1	0.45	265
MDS 180807	18	8.2	0.7	0.55	1.25	0.41	596
MDS 180808	18	8.2	0.8	0.5	1.3	0.38	783
MDS 180810	18	8.2	1	0.4	1.4	0.3	1181
MDS 180904	18	9.2	0.45	0.6	1.05	0.45	214
MDS 180907	18	9.2	0.7	0.5	1.2	0.38	566
MDS 180910	18	9.2	1	0.4	1.4	0.3	1254
MDS 200806	20	8.2	0.6	0.7	1.3	0.53	412
MDS 200807	20	8.2	0.7	0.65	1.35	0.49	569
MDS 200808	20	8.2	0.8	0.6	1.4	0.45	751
MDS 200809	20	8.2	0.9	0.55	1.45	0.41	954
MDS 200810	20	8.2	1	0.55	1.55	0.41	1294
MDS 201005	20	10.2	0.5	0.65	1.15	0.49	254
MDS 201008	20	10.2	0.8	0.55	1.35	0.41	748
MDS 201009	20	10.2	0.9	0.55	1.45	0.41	1050
MDS 201010	20	10.2	1	0.55	1.55	0.41	1425
MDS 201011	20	10.2	1.1	0.45	1.55	0.34	1521
MDS 201012	20	10.2	1.2	0.35	1.55	0.38	2477
MDS 201015	20	10.2	1.5	0.3	1.8	0.23	2521
MDS 221106	22.5	11.2	0.6	0.8	1.4	0.6	425
MDS 221108	22.5	11.2	0.8	0.65	1.45	0.49	707
MDS 221112	22.5	11.2	1	0.65	1.65	0.49	1335
MDS 221112	22.5	11.2	1.25	0.5	1.75	0.38	1929
MDS 230807	23	8.2	0.7	0.8	1.5	0.6	544
MDS 230808	23	8.2	0.8	0.75	1.55	0.5	6719
MDS 230809	23	8.2	0.9	0.7	1.6	0.53	919
MDS 230810	23	8.2	1	0.7	1.7	0.53	1240
MDS 231009	23	10.2	0.9	0.75	1.65	0.56	1058
MDS 231010	23	10.2	1	0.7	1.7	0.53	1315
MDS 231012	23	10.2	1.25	0.65	1.9	0.49	2310
MDS 231210	23	12.2	1	0.6	1.6	0.45	1217
MDS 231212	23	12.2	1.25	0.6	1.85	0.45	2331
MDS 231215	23	12.2	1.5	0.6	2.1	0.38	3297
MDS 251207	25	12.2	0.7	0.9	1.6	0.68	600



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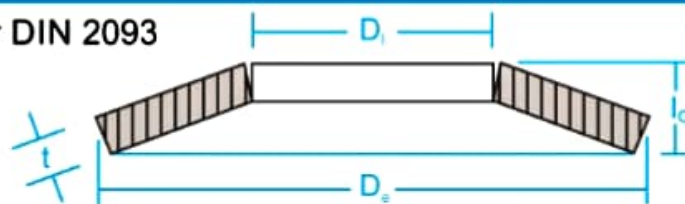


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	D_o	D_i	t	h	l_o		
MDS 251209	25	12.2	0.9	0.7	1.6	0.53	862
MDS 251210	25	12.2	1	0.8	1.8	0.6	1359
MDS 251212	25	12.2	1.25	0.7	1.95	0.53	2214
MDS 251215	25	12.2	1.5	0.55	2.05	0.41	2926
MDS 281008	28	10.2	0.8	0.95	1.75	0.71	662
MDS 281010	28	10.2	1	0.9	1.9	0.68	1130
MDS 281012	28	10.2	1.25	0.8	2.05	0.6	1853
MDS 281015	28	10.2	1.5	0.7	2.2	0.56	2723
MDS 281210	28	12.2	1	0.95	1.95	0.71	1268
MDS 281212	28	12.2	1.25	0.85	2.1	0.64	2083
MDS 281215	28	12.2	1.5	0.75	2.25	0.56	3077
MDS 281408	28	14.2	0.8	1	1.8	0.75	801
MDS 281410	28	14.2	1	0.8	1.8	0.6	1107
MDS 281412	28	14.2	1.25	0.85	2.1	0.64	2240
MDS 281415	28	14.2	1.5	0.65	2.15	0.49	2841
MDS 311608	31.5	16.3	0.8	1.05	1.85	0.79	687
MDS 311612	31.5	16.3	1.25	0.9	2.15	0.68	1913
MDS 311615	31.5	16.3	1.5	0.9	2.4	0.68	3230
MDS 311617	31.5	16.3	1.75	0.7	2.45	0.53	3871
MDS 311620	31.5	16.3	2	0.75	2.75	0.56	6173
MDS 341412	34	14.3	1.25	1.15	2.4	0.86	1989
MDS 341415	34	14.3	1.5	1.05	2.55	0.79	2984
MDS 341615	34	16.3	1.5	1.05	2.55	0.79	3155
MDS 341620	34	16.3	2	0.85	2.85	0.64	5783
MDS 351809	35.5	18.3	0.9	1.15	2.05	0.86	832
MDS 351812	35.5	18.3	1.25	1	2.25	0.75	1699
MDS 351820	35.5	18.3	2	0.8	2.8	0.6	5187
MDS 401412	40	14.3	1.25	1.4	2.65	1.05	1778
MDS 401415	40	14.3	1.5	1.25	2.75	0.94	2542
MDS 401420	40	14.3	2	1.05	3.05	0.79	4763
MDS 401615	40	16.3	1.5	1.3	2.8	0.79	2140
MDS 401620	40	16.3	2	1.1	3.1	0.83	5169
MDS 401820	40	18.3	2	1.15	3.15	0.86	5656
MDS 402010	40	20.4	1	1.3	2.3	0.98	1017
MDS 402015	40	20.4	1.5	1.15	2.65	0.86	2621
MDS 402020	40	20.4	2	1.1	3.1	0.83	5701
MDS 402022	40	20.4	2.25	0.9	3.15	0.68	6500
MDS 402025	40	20.4	2.5	0.95	3.45	0.71	9390
MDS 452212	45	22.4	1.25	1.6	2.85	1.2	1891
MDS 452217	45	22.4	1.75	1.3	3.05	0.98	3646
MDS 452225	45	22.4	2.5	1	3.5	0.75	7716



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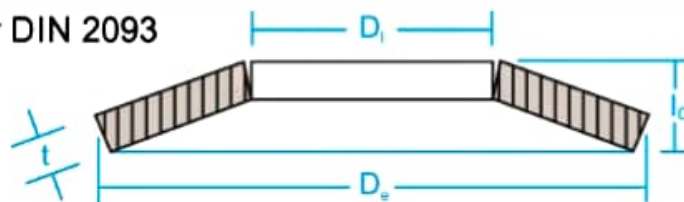


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	D_o	D_i	t	h	I_o		
MDS 501812	50	18.3	1.25	1.6	2.85	1.2	1373
MDS 501815	50	18.3	1.5	1.8	3.3	1.35	2603
MDS 501820	50	18.3	2	1.5	3.5	1.13	4567
MDS 501825	50	18.3	2.5	1.35	3.85	1.2	9305
MDS 501830	50	18.3	3	1	4	1.05	13763
MDS 502020	50	20.4	2	1.5	3.5	1.13	4687
MDS 502025	50	20.4	2.5	1.35	3.85	1.01	7919
MDS 502220	50	22.4	2	1.6	3.6	1.2	5222
MDS 502225	50	22.4	2.5	1.4	3.9	1.05	8510
MDS 502512	50	25.4	1.25	1.6	2.85	1.2	1550
MDS 502515	50	25.4	1.5	1.6	3.1	1.2	2512
MDS 502520	50	25.4	2	1.4	3.4	1.05	4762
MDS 502522	50	25.4	2.25	1.5	3.75	1.13	7217
MDS 502525	50	25.4	2.5	1.4	3.9	1.05	9063
MDS 502530	50	25.4	3	1.1	4.1	0.83	11976
MDS 562815	56	28.5	1.5	1.95	3.45	1.46	2622
MDS 562820	56	28.5	2	1.6	3.6	1.2	4438
MDS 562825	56	28.5	2.5	1.7	4.2	1.28	8978
MDS 562830	56	28.5	3	1.3	4.3	0.98	11388
MDS 602020	60	20.4	2	2.1	4.1	1.58	4727
MDS 602025	60	20.4	2.5	1.8	4.3	1.35	7297
MDS 602030	60	20.4	3	1.7	4.7	1.26	11569
MDS 602525	60	25.5	2.5	1.9	4.4	1.43	8164
MDS 602530	60	25.5	3	1.65	4.65	1.24	11768
MDS 603025	60	30.5	2.5	2	4.5	1.35	8432
MDS 603027	60	30.5	2.75	2	4.75	1.5	12356
MDS 603030	60	30.5	3	1.7	4.7	1.28	13226
MDS 603035	60	30.5	3.5	1.5	5	1.13	18153
MDS 633118	63	31	1.8	2.35	4.15	1.76	4238
MDS 633125	63	31	2.5	1.75	4.25	1.31	7189
MDS 633130	63	31	3	1.8	4.8	1.35	12536
MDS 633135	63	31	3.5	1.4	4.9	1.05	15025
MDS 702520	70	25.5	2	2.5	4.5	1.88	4437
MDS 703025	70	30.5	2.5	2.4	4.9	1.8	8031
MDS 703030	70	30.5	3	2.1	5.1	1.58	11426
MDS 703530	70	35.5	3	2.1	5.1	1.58	12287
MDS 703540	70	35.5	4	1.8	5.8	1.35	23923
MDS 704040	70	40.5	4	1.6	5.6	1.2	23351
MDS 704050	70	40.5	5	1.2	6.2	0.9	33672
MDS 713620	71	36	2	2.6	4.6	1.95	5144
MDS 713625	71	36	2.5	2	4.5	1.5	6725



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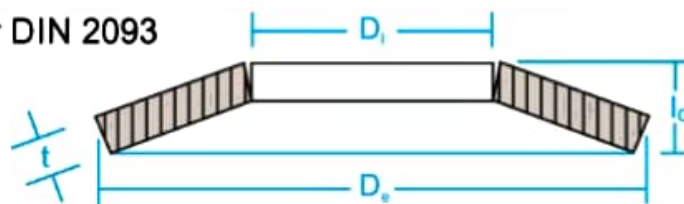


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	D_e	D_i	t	h	l_0		
MDS 713640	71	36	4	1.6	5.6	1.2	20355
MDS 803125	80	31	2.5	2.8	5.3	2.1	7239
MDS 803130	80	31	3	2.5	5.5	1.88	10352
MDS 803140	80	31	4	2.1	6.1	1.58	19394
MDS 803630	80	36	3	2.7	5.7	2.03	11919
MDS 803640	80	36	4	2.2	6.2	1.65	21400
MDS 804122	80	41	2.25	2.95	5.2	2.21	6613
MDS 804130	80	41	3	2.3	5.3	1.73	10518
MDS 804140	80	41	4	2.2	6.2	1.65	22874
MDS 804150	80	41	5	1.7	6.7	2.4	7684
MDS 904625	90	46	2.5	3.2	5.7	2.4	7684
MDS 904635	90	46	3.5	2.5	6	1.88	14161
MDS 904650	90	46	5	2	7	1.5	31354
MDS 1004140	100	41	4	3.2	7.2	2.4	20251
MDS 1004150	100	41	5	2.75	7.75	2.06	32361
MDS 1005127	100	51	2.7	3.5	6.2	2.63	8609
MDS 1005135	100	51	3.5	2.8	6.3	2.1	13070
MDS 1005140	100	51	4	3	7	2.25	20674
MDS 1005150	100	51	5	2.8	7.8	2.1	36339
MDS 1005160	100	51	6	2.2	8.2	1.65	48022
MDS 1125730	112	57	3	3.9	6.9	2.93	10489
MDS 1125740	112	57	4	3.2	7.2	2.4	17752
MDS 1125760	112	57	6	2.5	8.5	1.88	43707
MDS 1254140	125	41	4	4.2	8.2	3.15	17346
MDS 1255140	125	51	4	4.5	8.5	3.38	19847
MDS 1255150	125	51	5	3.9	8.9	2.93	30669
MDS 1255160	125	51	6	3.4	9.4	2.55	44307
MDS 1256150	125	61	5	4	9	3	33965
MDS 1256160	125	61	6	3.6	9.6	2.7	50722
MDS 1256180	125	61	8	2.9	10.9	2.18	93577
MDS 1256435	125	64	3.5	4.5	8	3.38	15416
MDS 1256450	125	64	5	3.5	8.5	2.63	29808
MDS 1256460	125	64	6	3.6	9.6	2.7	52155
MDS 1256470	125	64	7	3	10	2.25	67216
MDS 1256480	125	64	8	2.6	10.6	1.95	85926
MDS 1257160	125	71	6	3.3	9.3	2.48	5127
MDS 1257180	125	71	8	2.4	10.4	1.88	5495
MDS 1257110	125	71	10	1.8	11.8	1.35	124124
MDS 1407238	140	72	3.8	4.9	8.7	3.68	17195
MDS 1407250	140	72	5	4	9	3	27920
MDS 1407280	140	72	8	3.2	11.2	2.4	85251



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	D_e	D_i	t	h	l_0		
MDS 1506150	150	61	5	5.3	10.3	3.98	31041
MDS 1506160	150	61	6	4.8	10.8	3.6	45456
MDS 1507160	150	71	6	4.8	10.8	3.64	8155
MDS 1507180	150	71	8	4	12	3	89851
MDS 1508180	150	81	8	3.7	11.7	2.78	89352
MDS 1508110	150	81	10	3	13	2.25	139128
MDS 1608243	160	82	4.3	5.6	9.9	4.2	21843
MDS 1608260	160	82	6	4.5	10.5	3.38	41008
MDS 1608210	160	82	10	3.5	13.5	2.63	138331
MDS 1809248	180	92	4.8	6.2	11	4.65	26442
MDS 1809260	180	92	6	5.1	11.1	3.83	37252
MDS 1809210	180	92	10	4	14	3	125417
MDS 1809213	180	92	13	3.5	16.5	2.63	237883
MDS 2008280	200	82	8	6.2	14.2	4.65	78034
MDS 2008210	200	82	10	5.5	15.5	4.13	124995
MDS 2008212	200	82	12	4.6	16.6	3.45	182737
MDS 2009210	200	92	10	5.6	15.6	4.2	137688
MDS 2009212	200	92	12	4.8	16.8	3.6	199269
MDS 2009214	200	92	14	4.1	18.1	3.08	267227
MDS 20010255	200	102	5.5	7	12.5	5.25	36111
MDS 20010280	200	102	8	5.6	13.6	4.2	76378
MDS 20010210	200	102	10	5.6	15.6	4.2	145357
MDS 20010212	200	102	12	4.2	16.2	3.15	183020
MDS 20010214	200	102	14	4.2	18.2	3.15	289181
MDS 20011212	200	112	12	4.2	16.2	3.15	195830
MDS 20011214	200	112	14	3.5	17.5	2.63	256758
MDS 20011216	200	112	16	2.8	18.8	21	305100
MDS 22511265	225	112	6.5	6.2	13.6	4.88	39775
MDS 22511280	225	112	8	7.5	14.5	4.88	70749
MDS 22511212	225	112	12	11.3	17	3.75	171016
MDS 22511216	225	112	16	15	20.5		
MDS 25010210	250	102	10	9.6	18	6	126387
MDS 25010212	250	102	12	11.5	19	5.25	182962
MDS 25012770	250	127	7	6.7	14.8	5.85	5.85
MDS 25012710	250	127	10	9.4	17	5.25	104004
MDS 25012712	250	127	12	11.3	19.3	5.48	210806
MDS 25012714	250	127	14	13.1	19.6	4.2	248828
MDS 25012716	250	127	16	15	21.8	4.35	383017



DISC SPRINGS TOLERANCES

THICKNESS TOLERANCES

	t or t (mm)	Thickness for t (mm)
Group 1	0.2 to 0.6	+0.02 /- 0.06
	> 0.6 to < 1.25	+0.03 /- 0.09
Group 2	1.25 to 3.8	+0.04 /- 0.12
	> 3.8 to 6.0	+0.05 /- 0.15
Group 3	> 6.0 to 16.0	+0.10 /- 0.10

For Springs in group 3 the tolerance is applied to the reduced thickness t'.

We use the thickness to ensure that springs loads are within tolerance 7 therefore will in some cases deviate from the above figures.

DIAMETER TOLERANCES

D _o	or	D _i	Permissible Deviation in mm	
Over	3 to 6		0 /- 0.12	+0.12 / 0
Over	6 to 10		0 /- 0.15	+0.15 / 0
Over	10 to 18		0 /- 0.18	+0.18 / 0
Over	18 to 30		0 /- 0.21	+0.21 / 0
Over	30 to 50		0 /- 0.25	+0.25 / 0
Over	50 to 80		0 /- 0.30	+0.30 / 0
Over	80 to 120		0 /- 0.35	+0.35 / 0
Over	120 to 180		0 /- 0.40	+0.40 / 0
Over	180 to 250		0 /- 0.46	+0.46 / 0
Over	250 to 315		0 /- 0.52	+0.52 / 0
Over	315 to 400		0 /- 0.57	+0.57 / 0
Over	400 to 500		0 /- 0.63	+0.63 / 0

LOAD TOLERANCES

	t (mm)	Tolerance for F at the test length $P = l - 0.75 h_o$
Group 1	< 1.25	+25 % /- 7.5 %
Group 2	1.25 to 3.0	+15 % /- 7.5 %
	> 3.0 to 6.0	+10 % /- 5 %
Group 3	> 6.0 to 16.0	+5 % /- 5 %

With a single spring the spring force must be checked at the height (to - l) This should be carried out with the spring pressed between two lubricated, hardened, ground & polished plates. Measurements are always taken in loading direction.



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