

### DIN 2093 Series Disc Springs

Sr. No.	Outside diameter mm (De)	Inside diameter mm (Di)	Thickness mm (t)	Free cone height of spring mm (ho)	Reduced thickness mm (t')	Free cone height of spring with reduced thickness mm (ho')	Overall height mm (lo)	Load on each disc spring N (at s=0.75 ho)
1	8.00	4.20	0.20	0.25	-	-	0.45	39.19
2	10.00	5.20	0.25	0.30	-	-	0.55	57.51
3	8.00	4.20	0.30	0.25	-	-	0.55	117.85
4	14.00	7.20	0.35	0.45	-	-	0.80	123.18
5	8.00	3.20	0.40	0.20	-	-	0.60	185.41
6	8.00	4.20	0.40	0.20	-	-	0.60	209.48
7	10.00	3.20	0.40	0.30	-	-	0.70	179.09
8	10.00	4.20	0.40	0.30	-	-	0.70	189.08
9	10.00	5.20	0.40	0.30	-	-	0.70	209.21
10	12.00	4.20	0.40	0.40	-	-	0.80	178.28
11	15.00	5.20	0.40	0.55	-	-	0.95	175.51
12	16.00	8.20	0.40	0.50	-	-	0.90	154.32
13	18.00	6.20	0.40	0.60	-	-	1.00	138.59
14	20.00	10.20	0.40	0.50	-	-	0.90	98.46
15	18.00	9.20	0.45	0.60	-	-	1.05	213.6
16	8.00	3.20	0.50	0.20	-	-	0.70	357.22
17	10.00	3.20	0.50?	0.35	-	-	0.85	403.83
18	10.00	4.20	0.50	0.25	-	-	0.75	293.93
19	10.00	5.20	0.50	0.25	-	-	0.75	325.23
20	12.00	4.20	0.50	0.40	-	-	0.90	331.26
21	12.00	5.20	0.50	0.40	-	-	0.90	349.46
22	12.00	6.20	0.50	0.35	-	-	0.85	326.24
23	12.50	5.20	0.50	0.35	-	-	0.85	272.04
24	12.50	6.20	0.50	0.35	-	-	0.85	293.33
25	14.00	7.20	0.50	0.40	-	-	0.90	279.06
26	15.00	5.20	0.50	0.50	-	-	1.00	278.15
27	15.00	6.20	0.50	0.50	-	-	1.00	289.28
28	18.00	6.20	0.50	0.60	-	-	1.10	245.34
29	18.00	8.20	0.50	0.60	-	-	1.10	264.6
30	20.00	8.20	0.50	0.65	-	-	1.15	230.7
31	20.00	10.20	0.50	0.65	-	-	1.15	254.01
32	10.00	4.20	0.60	0.25	-	-	0.85	502.08
33	12.00	4.20	0.60	0.40	-	-	1.00	556.52
34	12.00	5.20	0.60	0.35	-	-	0.95	505.89
35	12.00	6.20	0.60	0.35	-	-	0.95	551.48
36	15.00	5.20	0.60	0.45	-	-	1.05	407
37	15.00	6.20	0.60	0.45	-	-	1.05	423.29
38	16.00	8.20	0.60	0.45	-	-	1.05	409.87
39	18.00	6.20	0.60	0.60	-	-	1.20	400.15
40	20.00	8.20	0.60	0.70	-	-	1.30	411.85
41	22.50	11.20	0.60	0.80	-	-	1.40	425.28
42	12.50	6.20	0.70	0.30	-	-	1.00	659.24
43	12.50	6.20	0.70	0.30	-	-	1.00	659.24
44	15.00	5.20	0.70	0.55	-	-	1.25	796.15
45	15.00	6.20	0.70	0.40	-	-	1.10	577.23
46	15.00	8.20	0.70?	0.40	-	-	1.10	665.31
47	16.00	8.20	0.70	0.45	-	-	1.15	636.91
48	18.00	6.20	0.70	0.70	-	-	1.40	741.33
49	18.00	8.20	0.70	0.55	-	-	1.25	595.72
50	18.00	9.20	0.70	0.50	-	-	1.20	566.15
51	20.00	8.20	0.70	0.65	-	-	1.35	568.26
52	23.00	8.20	0.70	0.80	-	-	1.50	543.35
53	25.00	12.20	0.70	0.90	-	-	1.60	599.39
54	12.00	5.20	0.80	0.30	-	-	1.10	997.39
55	12.00	6.20	0.80	0.30	-	-	1.10	1087.29
56	14.00	7.20	0.80	0.30	-	-	1.10	796.46
57	15.00	8.20	0.80	0.40	-	-	1.20	981.82
58	16.00	8.20	0.80	0.40	-	-	1.20	824.84
59	18.00	6.20	0.80	0.70	-	-	1.50	1071.54
60	18.00	8.20	0.80	0.50	-	-	1.30	782.28
61	20.00	8.20	0.80	0.60	-	-	1.40	750.68
62	20.00	10.20	0.80?	0.55	-	-	1.35	747.88
63	23.00	8.20	0.80	0.75	-	-	1.55	718.22
64	28.00	10.20	0.80	0.95	-	-	1.75	661.20
65	28.00	14.20	0.80	1.00	-	-	1.80	801.01
66	31.50	16.30	0.80	1.05	-	-	1.85	686.54
67	14.00	6.20	0.90	0.35	-	-	1.25	1229.18
68	16.00	8.20	0.90	0.35	-	-	1.25	1012.36
69	20.00	8.20	0.90	0.60	-	-	1.50	1050.71
70	20.00	10.20	0.90	0.55	-	-	1.45	1049.48
71	23.00	10.20	0.90	0.75	-	-	1.65	1057.41
72	25.00	12.20	0.90	0.70	-	-	1.60	861.88
73	35.50	18.30	0.90	1.15	-	-	2.05	831.56
74	18.00	8.20	1.00?	0.50	-	-	1.50	1496.26
75	18.00	9.20	1.00	0.40	-	-	1.40	1253.54
76	20.00	8.20	1.00	0.60	-	-	1.60	1423.52
77	20.00	10.20	1.00	0.55	-	-	1.55	1424.53
78	23.00	10.20	1.00	0.70	-	-	1.70	1314.78
79	25.00	10.20	1.00?	0.75	-	-	1.75	1171.24
80	25.00	12.20	1.00	0.80	-	-	1.80	1357.93
81	28.00	10.20	1.00	1.00	-	-	2.00	1287.99
82	28.00	12.20	1.00	0.95	-	-	1.95	1267.55
83	28.00	14.20	1.00	0.80	-	-	1.80	1106.58

GROUP 1

### DIN 2093 Series Disc Springs

Sr. No.	Outside diameter mm (De)	Inside diameter mm (Di)	Thickness mm (t)	Free cone height of spring mm (ho)	Reduced thickness mm (t')	Free cone height of spring with reduced thickness mm (ho')	Overall height mm (lo)	Load on each spring N (at s=0.75 ho)
84	31.50	12.20	1.00	1.10	-	-	2.10	1166.40
85	34.00	12.20	1.00	1.25	-	-	2.25	1171.66
86	40.00	20.40	1.00	1.30	-	-	2.30	1016.02
87	20.00	10.20	1.10	0.45	-	-	1.55	1520.03
88	25.00	12.20	1.25	0.70	-	-	1.95	2213.09
89	28.00	10.20	1.25	1.00	-	-	2.25	2393.23
90	28.00	12.20	1.25	0.85	-	-	2.10	2081.58
91	28.00	14.20	1.25	0.85	-	-	2.10	2238.44
92	31.50	12.20	1.25	0.95	-	-	2.20	1803.97
93	31.50	16.30	1.25	0.90	-	-	2.15	1911.98
94	34.00	12.30	1.25	1.20	-	-	2.45	2023.00
95	34.00	14.30	1.25	1.15	-	-	2.40	1992.34
96	35.50	18.30	1.25	1.00	-	-	2.25	1697.88
97	40.00	14.30	1.25	1.40	-	-	2.65	1778.97
98	45.00	22.40	1.25	1.60	-	-	2.85	1889.99
99	50.00	25.40	1.25	1.60	-	-	2.85	1549.40
100	20.00	10.20	1.50	0.30	-	-	1.80	2519.72
101	22.50	11.20	1.50	0.55	-	-	2.05	3650.44
102	23.00	12.20	1.50	0.60	-	-	2.10	3983.49
103	25.00	12.20	1.50	0.55	-	-	2.05	2924.56
104	28.00	10.20	1.50	0.70	-	-	2.20	2721.23
105	28.00	12.20	1.50	0.75	-	-	2.25	3075.57
106	28.00	14.20	1.50	0.65	-	-	2.15	2839.53
107	28.00	12.20	1.50	0.85	-	-	2.35	2686.59
108	31.50	16.30	1.50	0.90	-	-	2.40	3228.26
109	31.50	12.30	1.50?	1.20	-	-	2.70	3361.30
110	34.00	14.30	1.50	1.05	-	-	2.55	2988.80
111	34.00	16.30	1.50	1.05	-	-	2.55	3153.58
112	34.00	14.30	1.50	1.30	-	-	2.80	2666.79
113	40.00	16.30	1.50	1.30	-	-	2.80	2748.00
114	40.00	20.40	1.50	1.15	-	-	2.65	2620.13
115	50.00	18.40	1.50	1.65	-	-	3.15	2317.65
116	50.00	25.40	1.50	1.60	-	-	3.10	2510.61
117	56.00	28.50	1.50	1.95	-	-	3.45	2620.89
118	28.00	10.20	1.75	0.90	-	-	2.65	5595.06
119	31.50	16.30	1.75	0.70	-	-	2.45	3869.21
120	34.00	16.30	1.75	0.90	-	-	2.65	4151.89
121	40.00	16.30	1.75	1.35	-	-	3.10	4432.69
122	45.00	22.40	1.75	1.30	-	-	3.05	3644.16
123	63.00	31.00	1.80	2.35	-	-	4.15	4236.24
124	31.50	16.30	2.00	0.75	-	-	2.75	6169.88
125	34.00	16.30	2.00	0.85	-	-	2.85	5779.60
126	35.50	18.30	2.00	0.80	-	-	2.80	5184.27
127	40.00	14.30	2.00	1.05	-	-	3.05	4766.17
128	40.00	16.30	2.00	1.10	-	-	3.10	5165.89
129	40.00	18.30	2.00	1.15	-	-	3.15	5653.00
130	40.00	20.40	2.00	1.10	-	-	3.10	5698.12
131	50.00	18.40	2.00	1.65	-	-	3.65	5111.53
132	50.00	20.40	2.00	1.50	-	-	3.50	4684.97
133	50.00	22.40	2.00	1.60	-	-	3.60	5218.96
134	50.00	25.40	2.00	1.40	-	-	3.40	4759.70
135	56.00	28.50	2.00	1.60	-	-	3.60	4435.83
136	60.00	20.50	2.00	2.20	-	-	4.20	5023.64
137	71.00	36.00	2.00	2.60	-	-	4.60	5141.37
138	45.00	22.40	2.20	1.15	-	-	3.35	6148.13
139	40.00	20.40	2.25	0.90	-	-	3.15	6496.89
140	50.00	25.40	2.25	1.50	-	-	3.75	7213.06
141	80.00	41.00	2.25	2.95	-	-	5.20	6609.20
142	40.00	20.40	2.50	0.95	-	-	3.45	9384.80
143	45.00	22.40	2.50	1.00	-	-	3.50	7711.94
144	50.00	18.30	2.50	1.35	-	-	3.85	7711.33
145	50.00	18.40	2.50	1.65	-	-	4.15	963798.00
146	50.00	20.40	2.50	1.35	-	-	3.85	7914.88
147	50.00	22.40	2.50	1.40	-	-	3.90	8505.60
148	50.00	25.40	2.50	1.40	-	-	3.90	9058.29
149	56.00	28.50	2.50	1.70	-	-	4.20	8973.00
150	60.00	20.50	2.50	2.20	-	-	4.70	9250.16
151	60.00	25.50	2.50	1.90	-	-	4.40	8170.54
152	60.00	30.50	2.50	2.00	-	-	4.50	9427.08
153	63.00	31.00	2.50	1.75	-	-	4.25	7185.35
154	70.00	30.50	2.50	2.40	-	-	4.90	8026.49
155	71.00	36.00	2.50	2.00	-	-	4.50	6721.86
156	80.00	31.00	2.50	2.80	-	-	5.30	7235.23
157	90.00	46.00	2.50	3.20	-	-	5.70	7680.21
158	100.00	51.00	2.70	3.50	-	-	6.20	8604.45
159	60.00	30.50	2.75	2.00	-	-	4.75	12349.47
160	50.00	18.30	3.00	1.00	-	-	4.00	9604.24
161	50.00	18.40	3.00	1.20	-	-	4.20	11623.96
162	50.00	25.40	3.00	1.10	-	-	4.10	11970.38
163	56.00	28.50	3.00	1.30	-	-	4.30	11382.53
164	60.00	20.50	3.00	2.20	-	-	5.20	15457.10

GROUP 2

### DIN 2093 Series Disc Springs

Sr. No.	Outside diameter mm (De)	Inside diameter mm (Di)	Thickness mm (t)	Free cone height of spring mm (ho)	Reduced thickness mm (t')	Free cone height of spring with reduced thickness mm (ho')	Overall height mm (lo)	Load on each disc spring N (at s=0.75 ho)
165	60.00	25.50	3.00	1.65	-	-	4.65	11777.57
166	60.00	30.50	3.00	1.70	-	-	4.70	13219.29
167	63.00	31.00	3.00	1.70	-	-	4.70	11765.87
168	70.00	30.50	3.00	2.10	-	-	5.10	11420.65
169	70.00	35.50	3.00	2.10	-	-	5.10	12281.24
170	80.00	31.00	3.00	2.50	-	-	5.50	10346.31
171	80.00	36.00	3.00	2.70	-	-	5.70	11912.75
172	80.00	41.00	3.00	2.30	-	-	5.30	10512.52
173	112.00	57.00	3.00	3.90	-	-	6.90	10483.58
174	60.00	30.50	3.50	1.50	-	-	5.00	18143.35
175	63.00	31.00	3.50	1.40	-	-	4.90	15017.79
176	70.00	35.50	3.50	1.80	-	-	5.30	16169.01
177	90.00	46.00	3.50	2.50	-	-	6.00	14153.65
178	100.00	51.00	3.50	2.80	-	-	6.30	13063.71
179	125.00	64.00	3.50	4.50	-	-	8.00	15408.05
180	140.00	72.00	3.80	4.90	-	-	8.70	17186.38
181	70.00	35.50	4.00	1.80	-	-	5.80	23911.17
182	71.00	36.00	4.00	1.60	-	-	5.60	20524.42
183	80.00	41.00	4.00	2.20	-	-	6.20	22862.07
184	100.00	41.00	4.00	3.20	-	-	7.20	20240.86
185	100.00	51.00	4.00	3.00	-	-	7.00	20663.23
186	112.00	57.00	4.00	3.20	-	-	7.20	17743.33
187	125.00	41.00	4.00	4.20	-	-	8.20	17336.88
188	125.00	51.00	4.00	4.50	-	-	8.50	19807.09
189	160.00	82.00	4.30	5.60	-	-	9.90	21831.46
190	180.00	92.00	4.80	6.20	-	-	11.00	26428.74
191	70.00	40.50	5.00	1.40	-	-	6.40	39390.43
192	80.00	41.00	5.00	1.70	-	-	6.70	33542.04
193	90.00	46.00	5.00	2.00	-	-	7.00	31338.44
194	100.00	41.00	5.00	2.75	-	-	7.75	32344.91
195	100.00	51.00	5.00	2.80	-	-	7.80	36320.79
196	125.00	51.00	5.00	3.90	-	-	8.90	30653.08
197	125.00	61.00	5.00	4.00	-	-	9.00	33948.26
198	125.00	64.00	5.00	3.50	-	-	8.50	29892.82
199	140.00	72.00	5.00	4.00	-	-	9.00	27906.00
200	150.00	61.00	5.00	5.30	-	-	10.30	31025.36
201	100.00	51.00	6.00	2.20	-	-	8.20	47997.31
202	112.00	57.00	6.00	2.50	-	-	8.50	43684.80
203	160.00	82.00	6.00	4.50	-	-	10.50	40987.14
204	180.00	92.00	6.00	5.00	-	-	11.00	36602.92
205	225.00	112.00	6.50	7.10	6.20	7.40	13.60	44557.36
206	100.00	51.00	7.00	2.20	6.55	2.65	9.20	75801.90
207	125.00	64.00	7.00	3.00	6.55	3.45	10.00	67182.11
208	150.00	61.00	7.00	4.80	6.55	5.25	11.80	70406.10
209	250.00	127.00	7.00	7.80	6.70	8.10	14.80	50440.30
210	125.00	61.00	8.00	2.90	7.50	3.40	10.90	93529.68
211	125.00	64.00	8.00	2.60	7.50	3.10	10.60	85882.04
212	125.00	71.00	8.00	2.90	7.45	3.45	10.90	103911.50
213	140.00	72.00	8.00	3.20	7.50	3.70	11.20	85207.66
214	150.00	71.00	8.00	4.05	7.50	4.55	12.05	91014.28
215	150.00	81.00	8.00	4.00	7.50	4.50	12.00	97269.94
216	200.00	82.00	8.00	6.20	7.50	6.70	14.20	77994.65
217	200.00	102.00	8.00	5.60	7.50	6.10	13.60	76339.44
218	225.00	112.00	8.00	6.50	7.50	7.00	14.50	70712.71
219	250.00	127.00	8.00	8.00	7.50	8.50	16.00	74781.55
220	125.00	71.00	10.00	1.80	9.30	2.50	11.80	12060.78
221	150.00	81.00	10.00	3.40	9.40	4.00	13.40	158219.63
222	160.00	82.00	10.00	3.50	9.40	4.10	13.50	138260.54
223	180.00	92.00	10.00	4.00	9.40	4.60	14.00	125353.76
224	200.00	82.00	10.00	5.50	9.40	6.10	15.50	118992.62
225	200.00	92.00	10.00	5.60	9.40	6.20	15.60	137617.82
226	200.00	102.00	10.00	5.60	9.40	6.20	15.60	145283.15
227	250.00	102.00	10.00	8.00	9.40	8.60	18.00	126323.23
228	250.00	127.00	10.00	7.00	9.40	7.60	17.00	118992.62
229	160.00	82.00	11.00	3.50	10.20	4.30	14.50	183424.94
230	200.00	82.00	12.00	4.60	11.25	5.35	16.60	182644.50
231	200.00	92.00	12.00	4.80	11.25	5.55	16.80	199168.21
232	200.00	102.00	12.00	4.20	11.25	4.95	16.20	182927.45
233	200.00	112.00	12.00	4.20	11.25	4.95	16.20	195730.50
234	225.00	112.00	12.00	5.00	11.25	5.75	17.00	170929.73
235	250.00	102.00	12.00	7.00	11.25	7.75	19.00	182869.03
236	250.00	127.00	12.00	7.30	11.30	8.00	19.30	210699.01
237	180.00	92.00	13.00	3.50	12.10	4.40	16.50	237762.14
238	200.00	92.00	14.00	4.10	13.05	5.05	18.10	267091.70
239	200.00	102.00	14.00	4.20	13.05	5.15	18.20	289034.62
240	200.00	112.00	14.00	3.50	13.05	4.45	17.50	256628.03
241	250.00	127.00	14.00	5.60	13.10	6.50	19.60	248701.69
242	200.00	112.00	16.00	3.80	14.80	5.00	19.80	415514.11
243	225.00	112.00	16.00	4.50	14.90	5.60	20.50	359407.48
244	250.00	127.00	16.00	5.80	14.90	6.90	21.80	382822.46
245	250.00	127.00	16.00	5.80	14.90	6.90	21.80	382822.46