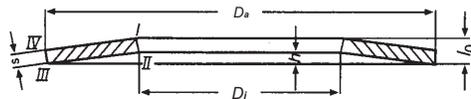




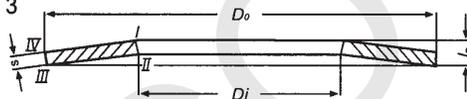
DISC SPRING WASHERS TYPE-A

DIN 2093

1) MEASURE Disc Spring of group 1 & 2



Disc Spring of group 3



Unit reference to disc washer of Range A
with outer diameter $D_o = 40$ mm

Disc washer A 40 DIN 2093.

Range B : $\frac{D_o}{s} \approx 18; \frac{h}{s} \approx 0.4$

(Heavy)

GROUP	D_o	D_i	s	h	l_o	p	f	$l_o - f$	
	h12 mm	h12 mm	mm	mm	mm	kp	mm	mm	
1	8	4.2	0.4	0.2	0.60	21	0.15	0.45	
	10	5.2	0.5	0.25	0.75	34	0.19	0.56	
	12.5	6.2	0.7	0.3	1.00	67	0.22	0.78	142*
	14	7.2	0.8	0.3	1.10	81	0.22	0.88	134*
	16	8.2	0.9	0.35	1.25	103	0.26	0.99	134*
2	18	9.2	1	0.4	1.40	128	0.30	1.10	133*
	20	10.2	1.1	0.45	1.55	155	0.34	1.21	132*
	22.5	11.2	1.25	0.5	1.75	195	0.37	1.38	133*
	25	12.2	1.5	0.55	2.05	298	0.41	1.64	146*
	28	14.2	1.5	0.65	2.15	290	0.49	1.66	131*
	31.5	16.3	1.75	0.7	2.45	398	0.52	1.93	133*
	35.5	18.3	2	0.8	2.80	528	0.60	2.20	137*
	40	20.4	2.25	0.9	3.15	660	0.67	2.48	136*
	45	22.4	2.5	1	3.50	790	0.75	2.75	133*
	50	25.4	3	1.1	4.10	1220	0.82	3.28	146*
3	56	28.5	3	1.3	4.30	1150	0.97	3.33	131*
	63	31	3.5	1.4	4.90	1530	1.05	3.85	133*
	71	36	4	1.6	5.60	2100	1.20	4.40	124
	80	41	5	1.7	6.70	3500	1.28	5.42	127
	90	46	5	2	7.00	3200	1.50	5.50	122
	100	51	6	2.2	8.20	4900	1.65	6.55	127
	112	57	6	2.5	8.50	4500	1.38	6.62	117
	125	64	8	2.6	10.60	8800	1.95	8.65	126
	140	72	8	3.2	11.20	8700	2.40	8.80	130
	160	82	10	3.5	13.50	14000	2.60	10.90	132
180	92	10	4	14.00	12800	3.00	11.00	122	
200	102	12	4.2	16.20	18700	3.15	13.05	120	
225	112	12	5	17.00	17500	3.75	13.25	115	
250	127	14	5.6	19.60	25000	4.20	15.40	123	

1) In each case, the actual maximum arithmetical tensile stress on the underside of the loose cup (disc) are mentioned. In case of numerical values marked with an asterisk, the maximum tensile stress is calculated as per column 2. Where numerical values without asterisk are concerned, these are calculated as per col. 3.



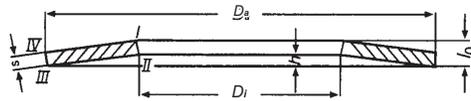
DISC SPRING WASHERS

TYPE-B

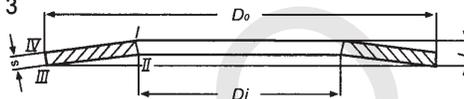
DIN 2093

1) MEASURE

Disc Spring
of group
1 & 2



Disc Spring of group 3



Unit reference to disc washer of Range A
with outer diameter $D_a = 40$ mm

Disc washer A 40 DIN 2093.

$$\text{Range A : } \frac{D_a}{s} \approx 28; \frac{h}{s} 0.75$$

(Light)

GROUP	D_a	D_i	s	h	l_0	p	f	$l_0 - f$	$a')$
	h12 mm	h12 mm	mm	mm	mm	kp	mm bei $f \approx 0,75 h$	mm	kp mm ²
1	12.5	4.2	0.3	0.25	0.55	12	0.19	0.36	135
		5.2	0.4	0.3	0.70	21	0.22	0.48	131
	14	6.2	0.5	0.35	0.85	30	0.26	0.59	114
		7.2	0.5	0.4	0.90	28	0.30	0.60	113
	16	8.2	0.6	0.45	1.05	42	0.34	0.71	114
		9.2	0.7	0.5	1.20	58	0.37	0.83	114
	20	10.2	0.8	0.55	1.35	76	0.41	0.94	115
		11.2	0.8	0.65	1.45	72	0.49	0.96	111
	25	12.3	0.9	0.7	1.60	88	0.52	1.08	105
		28	14.2	1	0.8	1.80	113	0.60	1.20
2	31.5	16.3	1.25	0.9	2.15	194	0.67	1.48	122
		35.5	18.3	1.25	1	2.25	173	0.75	1.50
	40	20.4	1.5	1.15	2.65	267	0.86	1.79	117
		45	22.4	1.75	1.3	3.05	372	0.97	2.08
	50	25.4	2	1.4	3.40	485	1.05	2.35	117
		56	28.5	2	1.6	3.60	452	1.20	2.40
	63	31	2.5	1.75	4.25	730	1.31	2.94	112
		71	36	2.5	2	4.50	690	1.50	3.00
	80	41	3	2.3	5.30	1070	1.72	3.58	117
		90	46	3.5	2.5	6.00	1450	1.88	4.12
100	51	3.5	2.8	6.30	1330	2.10	4.20	108	
	112	57	4	3.2	7.20	1830	2.40	4.80	119
125		64	5	3.5	8.50	3100	2.65	5.85	127
	140	72	5	4	9.00	2850	3.00	6.00	122
160		82	6	4.5	10.50	4200	3.40	7.10	122
	180	92	6	5.1	11.10	3800	3.80	7.30	115
200		102	8	5.6	13.60	7800	4.20	9.40	125
	225	112	8	6.5	14.50	7200	4.85	9.65	119
250		127	10	7	17.50	12200	5.25	11.75	126

1) In each case, the actual maximum arithmetical tensile stress on the underside of the loose cup (disc) are mentioned. In case of numerical values marked with an asterisk, the maximum tensile stress is calculated as per column 2. Where numerical values without asterisk are concerned, these are calculated as per col. 3.