



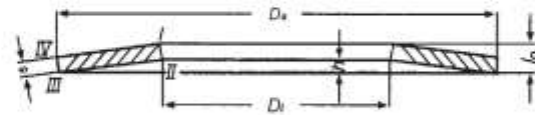
# DISC SPRING WASHERS

## TYPE-A

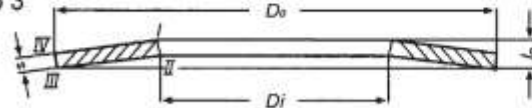
DIN 2093

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

( 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*
2	16	8.2	0.9	0.35	1.25	103	0.26	0.99	134*
	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*
3	50	25.4	3	1.1	4.10	1220	0.82	3.28	146*
	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.



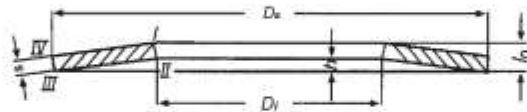
# DISC SPRING WASHERS

## TYPE-B

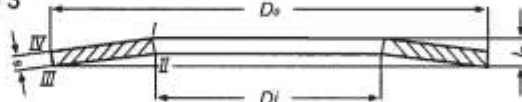
DIN 2093

### 1) MEASURE

Disc Spring  
of group  
1 & 2



### Disc Spring of group 3



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

Disc washer A 40 DIN 2093.

Range A :  $\frac{D_o}{s} = 28; \frac{h}{s} = 0.75$

**( Light )**

GROUP	$D_o$	$D_i$	$s$	$h$	$l_o$	$p$	$f$	$l_o - f$	$a'$
	h12 mm	h12 mm	mm	mm	mm	kp	mm	mm	mm <sup>2</sup>
1		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
	12.5	6.2	0.5	0.35	0.85	30	0.26	0.59	114
	14	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
	18	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
	22.5	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
	2	28	14.2	1	0.8	1.80	113	0.60	1.20
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	110
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	118
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	112
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	108
80		41	3	2.3	5.30	1070	1.72	3.58	117
3	90	46	3.5	2.5	6.00	1450	1.88	4.12	114
	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.