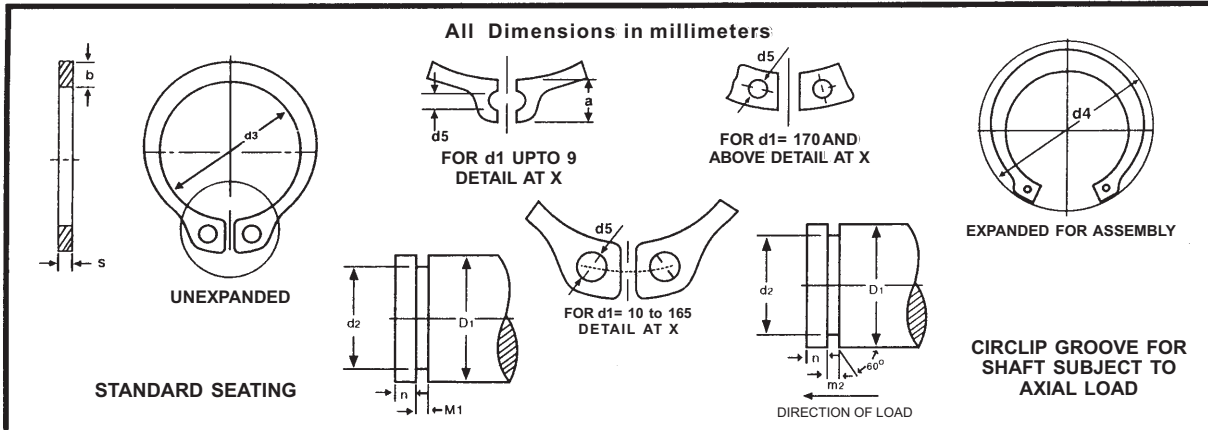




## EXTERNAL CIRCLIPS

DIN 471

IS: 3075



Shaft Dia d1	CIRCLIP							GROOVE DATA					
	S h11	a Max	b Approx	D3	Tol. On D3	D4 Expan ded	d5 Min	d2	Tol. On d2	M1 H13	M2 min	N min	Axial Force Kgf
8	0.8	3.2	1.5	7.4	+0.09	15.2	1.2	7.6	h11	0.9	1.0	0.6	120
9	1	3.3	1.7	8.4	-0.18	16.4		8.6					138
10			1.8	9.3	+0.15	17.6	9.6	153					
11		10.2	+0.18	-0.36	18.6	1.7	10.5	0.75		210			
12		11			19.6		11.5			230			
13		3.4	2	11.9	20.8	12.4	300						
14		3.5	2.1	12.9	22.0	13.4	325						
15		3.6	2.2	13.8	23.2	14.3	400						
16		3.7	2.2	14.7	24.4	15.2	490						
17		3.8	2.3	15.7	25.6	16.2	520						
18		1.2	3.9	2.4	16.5	+0.21	-0.42	26.8	17.0	1.3	1.4	1.5	690
19	2.5		17.5	27.8	18.0			725					
20	4.0		2.6	18.5	29.0			19.0	770				
21	4.1		2.7	19.5	30.2			20.0	805				
22	4.2		2.8	20.5	31.4			21.0	845				
24	4.4		3.0	22.2	33.8			22.9	1010				
25	23.2		+0.25	-0.50	34.8			23.9	1.7				1060
26	4.5				3.1			24.2					36.0
28	1.5	4.7	3.2	25.9	+0.25	-0.50	38.4	26.6	1.6	1.7	2.1	1500	
29		4.8	3.4	26.9			39.6	27.6				1560	
30		5.0	3.5	27.9			41.0	28.6				1620	
32		5.2	3.6	29.6			43.4	30.3				2100	
34		5.4	3.8	31.5			45.8	32.3				2220	
35		3.9	3.9	32.2			47.2	33.0				2670	
36		5.6	4	33.2			48.2	34.0				2760	
38		5.8	4.2	35.2			50.6	36.0				2910	
40	6.0	4.4	36.5	53.0	37.5	3810							
42	1.75	6.5	4.5	38.5	+0.39	-0.78	56.0	39.5	1.85	2.0	3.0	4000	
45		6.7	4.7	41.5			59.4	42.5				4300	
48		6.9	5	44.5			62.8	45.5				4600	

Shaft Dia d1	CIRCLIP							GROOVE DATA											
	S h11	a Max	b Approx	D3	Tol. On D3	D4 Expanded	d5 Min	d2	Tol. On d2	M1 H13	M2 min	N min	Axial Force Kgf						
48	2.0	6.9	5	44.5		62.8		45.5	h12	2.15	2.3	4.5	4600						
50			5.1	45.8		64.8		47.0					5700						
52			5.2	47.8		67.0		49.0					5950						
55			5.4	50.8		70.4		52.0					6300						
56			5.5	51.8		71.6		53.0					6400						
58			5.6	53.8		73.6		55.0					6650						
60			5.8	55.8		75.8		57.0					6900						
62			6.0	57.8		78.0		59.0					6930						
63			6.2	58.8		79.2		60.0					7020						
65			2.5	7.8		6.3		60.8					+0.46	81.6	3.0	62.2	2.65	2.8	5.3
68	6.5	63.5			-0.92	85.0	65.0	7840											
70	6.6	65.5			87.2	67.0	8050												
72	6.8	67.5			89.4	69.0	8300												
75	7.0	70.5			92.8	72.0	8600												
78	7.3	73.5			96.2	75.0	9000												
80	7.4	74.5			98.2	76.5	10700												
82	7.6	76.5			101	78.5	11000												
85	3.0	8.7			7.8	79.5		104	3.5	81.5	3.15	3.3	6	11400					
88					8.0	82.5		107		84.5				11900					
90			8.2	84.5	109	86.5		12100											
95			8.6	89.5	115	91.5		12800											
100			9	94.5	+0.54	121		96.5		13500									
105			9.3	98.0	-1.08	126		101		16200									
110			9.6	103.0	132	106		17000											
115			9.8	108.0	138	111		17800											
120			10.2	113.0	143	116		18500											
125			10.4	118.0	149	121		19300											
130	4.0	11.6	10.7	123.0		155	4.0	126	4.15	4.3	7.5	20100							
135			11	128.0		160		131				20900							
140			11.2	133.0		165		136				21700							
145			11.5	138.0		171		141				22500							
150			11.8	142.0		177		145				28900							
155			12.0	146.0		+0.63		182				150	30000						
160			12.2	151.0		-1.26		188				155	31000						
165			12.5	155.5		193		160				32000							
170			5.0	13.5		12.9		160.5					197	4.0	165	h13	5.2	5.3	32900
175						Max		165.5					202		170				33800
180	13.5	170.5			208	175	34500												
185	Max	175.5			213	180	33800												
190	14.0	Max			180.5		219	4.0	185	5.2	5.3		9.0		33500				
195					185.5		224		190						32700				
200					190.5		229		195						31900				
210					198		+0.72		239						204				48800
220					208		-1.44		249						214				51200
230					218		259		224						53500				
240			228	269	234		52900												
250			238	279	244		50300												
260			245	293	252		54400												
270			255	303	262		52500												
280	16.0	Max	265	+0.81	313	5.0	272	5.2	5.3	12.0	50800								
290			275	-1.62	323		282				49100								
300			285	333	292		47300												

Material: Spring steel HRC = 47 to 52 or HV = 480 to 558 kp / mm2 up to 38 mm bore diameter  
HRC = 44 to 49 or HV = 440 to 510 kp / mm2 from 40 to 200 mm bore diameter  
HRC = 40 to 45 or HV = 392 to 453 kp / mm2 from 210 to 300 mm bore diameter