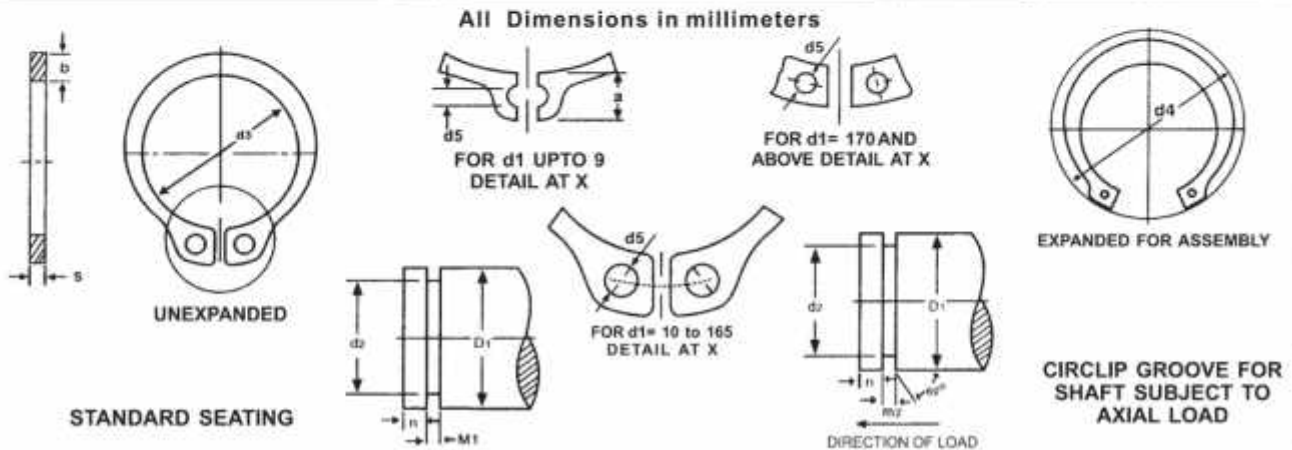


EXTERNAL CIRCLIPS

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	1.5	9.6		153			
11				11	10.2	+0.18 -0.36		18.6		1.7	10.5	210	
12		11.9	19.6		11.5		230						
13		3.4	2	11.9	20.8		12.4	0.9		300			
14		3.5	2.1	12.9	22.0		13.4	1.1		325			
15		3.6	2.2	13.8	23.2		14.3	1.2		400			
16		3.7		14.7	24.4		15.2	490					
17		3.8	2.3	15.7	25.6		16.2	1.5		520			
18		1.2	3.9	2.4	16.5		26.8	1.7	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	1.7	1010					
25				23.2	34.8	23.9		1060					
26	4.5		3.1	24.2	+0.21 -0.42	36.0	24.9	1100					
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	2.6	2100				
34				31.5	45.8		32.3			2220			
35		5.6	3.9	32.2	+0.25 -0.50		47.2	33.0	3.0	2670			
36				4	33.2		48.2	34.0			2760		
38		5.8	4.2	35.2	+0.39 -0.78		50.6	36.0	3.8	2910			
40				4.4			36.5	53.0			37.5	3810	
42		6.0	4.4	36.5			56.0	39.5	1.85	2.0	3.0	4000	
45	4.5			38.5		59.4	42.5	4300					
48	6.7	4.7	41.5	+0.39 -0.78		62.8	2.5	45.5	4600				

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							
48			5	44.5		62.8		45.5					4600							
50	2.0	6.9	5.1	45.8		64.8		47.0	h12				5700							
52		7.7	5.2	47.8		67.0		49.0					5950							
55		7.2	5.4	50.8		70.4		52.0					6300							
56		7.3	5.5	51.8		71.6		53.0					6400							
58			5.6	53.8		73.6		55.0					6650							
60		7.4	5.8	55.8		75.8		57.0					6900							
62		7.5	6.0	57.8		78.0		59.0					6930							
63		7.6	6.2	58.8		79.2		60.0					7020							
65		2.5	7.8	6.3		60.8		+0.46 -0.92					81.6	3.0	62.2					7500
68			8.0	6.5		63.5							85.0		65.0					7840
70	8.1		6.6	65.5	87.2	67.0	8050													
72	8.2		6.8	67.5	89.4	69.0	8300													
75	8.4		7.0	70.5	92.8	72.0	8600													
78	8.6		7.3	73.5	96.2	75.0	9000													
80			7.4	74.5	98.2	76.5	10700													
82	8.7		7.6	76.5	101	78.5	11000													
85	3.0		7.8	79.5		104	3.5		81.5											11400
88			8.0	82.5		107			84.5											11900
90		8.2	84.5	109		86.5		12100												
95		9.4	89.5	115		91.5		12800												
100		9.6	94.5	121		96.5		13500												
105	4.0	9.9	98.0	+0.54 -1.08	126	4.0	101	h13					16200							
110		10.1	103.0		132		106						17000							
115		10.6	108.0		138		111						17800							
120		11.0	113.0		143		116						18500							
125		11.4	118.0		149		121						19300							
130		11.6	123.0		155		126						20100							
135		11.8	128.0		160		131						20900							
140		12.0	133.0		165		136						21700							
145		12.2	138.0		171		141						22500							
150		5.0	13.0		142.0		+0.63 -1.26						177	5.0	145					
155	12.0		146.0	182	150	30000														
160	13.3		151.0	188	155	31000														
165	13.5		155.5	193	160	32000														
170	14.0 Max		12.9	160.5	197	165		32900												
175			Max	165.5	202	170		33800												
180			13.5	170.5	208	175		34500												
185			Max	175.5	213	180		33800												
190			16.0 Max	180.5	219	185		33500												
195	185.5			224	190	32700														
200	190.5	229		195	31900															
210	198	239		204	48800															
220	208	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	313	272	50800															
290		275	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