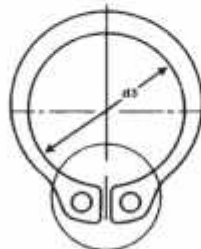




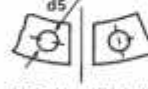
# EXTERNAL CIRCLIPS

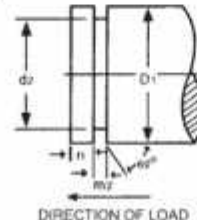
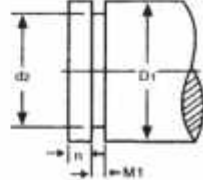
**DIN 471  
IS: 3075**


UNEXPANDED

STANDARD SEATING

All Dimensions in millimeters


 FOR d1 UPTO 9  
DETAIL AT X

 FOR d1= 170 AND  
ABOVE DETAIL AT X

 FOR d1= 10 to 165  
DETAIL AT X


DIRECTION OF LOAD



EXPANDED FOR ASSEMBLY

 CIRCLIP GROOVE FOR  
SHAFT SUBJECT TO  
AXIAL LOAD

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
11			11	11.9	+0.18	18.6	1.7	10.5	11.5	1.1	1.2	0.75	210
12		19.6											11.5
13		3.4	2	11.9	-0.36	20.8	1.7	12.4	0.9	300			
14		3.5	2.1	12.9	22.0	13.4		1.1	400				
15		3.6	2.2	13.8	23.2	14.3	1.2	490					
16		3.7	2.3	14.7	24.4	15.2	1.2	16.2	1.3	1.4	1.5	520	
17		3.8	2.4	15.7	25.6	16.2		690					
18		1.2	3.9	2.4	16.5	26.8	2.0	17.0	1.3	1.4	1.5	725	
19	2.5			17.5	27.8	18.0		770					
20	4.0		2.6	18.5	29.0	19.0	1.7	1.060					
21	4.1		2.7	19.5	30.2	20.0			1100				
22	4.2		2.8	20.5	31.4	21.0	1.5	1500					
24	4.4		3.0	22.2	33.8	22.9			1560				
25	4.5		3.1	23.2	34.8	23.9	1.7	1620					
26	4.7		3.2	24.2	36.0	24.9			2100				
28	1.5		4.7	3.2	25.9	38.4	2.0	26.6	1.6	1.7	2.6	2220	
29				3.4	26.9	39.6		27.6				2670	
30		5.0	3.5	27.9	41.0	28.6	1.6	1.7	2.6	2760			
32		5.2	3.6	29.6	43.4	30.3				2910			
34		5.4	3.8	31.5	45.8	32.3	1.85	2.0	3.0	3810			
35		5.6	3.9	32.2	47.2	33.0				4000			
36		5.8	4.2	35.2	50.6	36.0	1.75	4.7	3.8	4300			
38		6.0	4.4	36.5	53.0	37.5				4600			
40		6.5	4.5	38.5	56.0	39.5	2.5	45.5	3.8	4300			
42		6.7	4.7	41.5	59.4	42.5				4600			
45	1.75	6.9	5	44.5	+0.39	62.8	2.5	45.5	1.85	2.0	3.8	4300	
48												-0.78	42.5

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		8.6	89.5	115		91.5		12800												
100		9.0	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				180.5	219	185		33500												
195	16.0 Max		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