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## Westfield Fasteners Product Specification:

### DIN 472 - Internal Circlip

This product guide contains the specification for internal circlips to the standard DIN 472. These circlips are standard parts available from Westfield Fasteners.

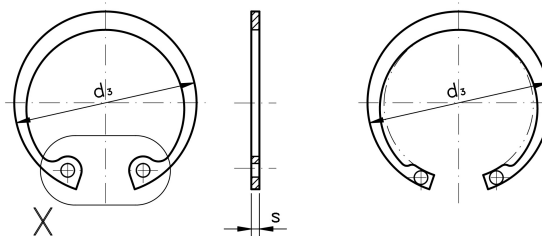
#### Product Description

An internal circlip is also known as a retaining ring for bores. Internal circlips/retaining rings are used to secure components or assemblies, such as bearings, in bore holes and to help transfer axial forces.

#### Scope of the DIN Standard.

DIN 472 gives the requirements for the design of the retaining rings and for the grooves they are fitted into. The drawings of the rings are for illustrative purposes only. The dimensions and tolerances for the important details should be adhered to, regardless of other design changes.

Made from a spring or stainless steel, retaining rings are assembled using pliers conforming to DIN 5256, or can be located with a taper.



Detail X

$d_1 \leq 9\text{mm}$

$d_1 \geq 170\text{mm}$  at manufacturer's discretion

$d_1 \geq 25\text{mm}$  at manufacturer's discretion

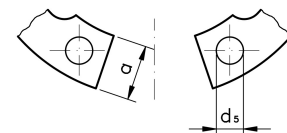
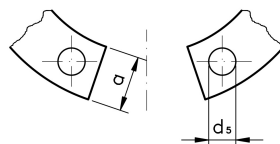
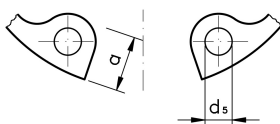
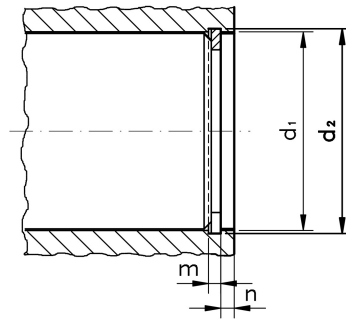


Figure 1: Internal Circlip, General Layout

## Example of installation



**Figure 2: Internal Circlip, Sectional View of Fitment**

**Table 1: Dimensions & Tolerances according to DIN 472 (mm)**

Shaft Diameter		Ring						Groove												
$d_1$	S	$d_3$	a	b	$d_5$	Mass per 1000 unit in kg	$d_2$	m	t	$n_4$										
Nom	-	perm. dev.	-	perm. dev. max	=	min	=	-	per. dev.	H13	-	min								
8	0.80	0/-0.05	8.7	2.4	1.1	1.0	0.14	8.4	+0.09/0	0.90	0.20	0.6								
9	0.80		9.8										2.5	1.3	1.0	0.15	9.4	0.90	0.20	0.6
10	1.00	0/-0.06	10.8	+0.36/-0.10	3.2	1.4	1.2	0.18	+0.11/0	1.10	0.20	0.6								
11	1.00		11.8										3.3	1.5	1.2	0.31	11.4	1.10	0.20	0.6
12	1.00		13.0										3.4	1.7	1.5	0.37	12.5	1.10	0.25	0.8
13	1.00		14.1										3.6	1.8	1.5	0.42	13.6	1.10	0.30	0.9
14	1.00		15.1										3.7	1.9	1.7	0.52	14.6	1.10	0.30	0.9
15	1.00		16.2										3.7	2.0	1.7	0.56	15.7	1.10	0.35	1.1
16	1.00		17.3										3.8	2.0	1.7	0.60	16.8	1.10	0.40	1.2
17	1.00		18.3										3.9	2.1	1.7	0.65	17.8	1.10	0.40	1.2
18	1.00		19.5										4.1	2.2	2.0	0.74	19.0	1.10	0.50	1.5
19	1.00		20.5										+0.42/-0.13	4.1	2.2	2.0	0.86	20.0	+0.13/0	1.10
20	1.00	21.5	4.2	2.3	2.0	0.90	21.0	1.10	0.50	1.5										
21	1.00	22.5	4.2	2.4	2.0	1.00	22.0	1.10	0.50	1.5										
22	1.00	23.5	4.2	2.5	2.0	1.10	23.0	1.10	0.50	1.5										
23	-	-	-	-	-	-	-	-	-	-	-	-								
24	1.20	25.9	+0.42/-0.13	4.4	2.6	2.0	1.42	25.2	+0.21/0	1.30	0.60	1.8								
25	1.20	26.9		4.5	2.7	2.0	1.50	26.2		1.30	0.60	1.8								
26	1.20	27.9		4.7	2.8	2.0	1.60	27.2		1.30	0.60	1.8								
27	-	-	-	-	-	-	-	-	-	-	-	-								
28	1.20	30.1	+0.50/-0.25	4.8	2.9	2.0	1.80	29.4	+0.25/0	1.30	0.70	2.1								
29	-	-		-	-	-	-	-		-	-	-	-							
30	1.20	32.1		4.8	3.0	2.0	2.06	31.4		1.30	0.70	2.1								
31	1.50	33.4		5.2	3.2	2.5	2.10	32.7		1.30	0.85	2.6								
32	1.50	34.4		5.4	3.2	2.5	2.21	33.7		1.30	0.85	2.6								
33	-	-		-	-	-	-	-		1.060	-	-								
34	1.50	36.5	5.4	3.3	2.5	3.20	35.7	1.60	0.85	2.6										
35	1.50	37.8	5.4	3.4	2.5	3.54	37.0	1.60	1.00	3.0										

Table 2: Dimensions & Tolerances according to DIN 472 (mm), cont.

Shaft Diameter		Ring							Groove					
d <sub>1</sub>	S		d <sub>3</sub>		a	b	d <sub>5</sub>	Mass per 1000 unit in kg	d <sub>2</sub>	m	t	n <sub>4</sub>		
Nom	-	perm. dev.	-	perm. dev.	max	=	min	=	-	per. dev.	H13	-	min	
36	1.50	0/-0.06	38.8	+0.50/-0.25	5.4	3.5	2.5	3.70	38.0	+0.25/0	1.60	1.00	3.0	
37	1.50		39.8		5.5	3.6	2.5	3.74	39.0		1.60	1.00	3.0	
38	1.50		40.8		5.5	3.7	2.5	3.90	40.0		1.60	1.00	3.0	
39	-		-	-	-	-	-	-	-		-	-	-	-
40	1.75		43.5	+0.90/-0.39	5.8	3.9	2.5	4.70	42.5		1.85	1.25	3.8	
41	-		-		-	-	-	-	-		-	-	-	-
42	1.75		45.5		5.9	4.1	2.5	5.40	44.5		1.85	1.25	3.8	
43	-		-		-	-	-	-	-		-	-	-	-
44	-		-		-	-	-	-	-		-	-	-	-
45	1.75		48.5		6.2	4.3	2.5	6.00	47.5		1.85	1.25	3.8	
47	1.75		50.5	+1.10/-0.46	6.4	4.4	2.5	6.10	49.5		1.85	1.25	3.8	
48	1.75		51.5		6.4	4.5	2.5	6.70	50.5		1.85	1.25	3.8	
50	2.00	54.2	6.5		4.6	2.5	7.30	53.0	2.15	1.50	4.5			
52	2.00	56.2	6.7		4.7	2.5	8.20	55.0	2.15	1.50	4.5			
54	-	-	-		-	-	-	-	2.15	1.50	4.5			
55	2.00	59.2	6.8		5.0	2.5	8.30	58.0	2.15	1.50	4.5			
56	2.00	60.2	6.8		5.1	2.5	8.70	59.0	2.15	1.50	4.5			
58	2.00	62.2	6.9		5.2	2.5	10.50	61.0	2.15	1.50	4.5			
60	2.00	64.2	7.3		5.4	2.5	11.10	63.0	2.15	1.50	4.5			
62	2.00	66.2	7.3		5.5	2.5	11.20	65.0	2.15	1.50	4.5			
63	2.00	67.2	7.3	5.6	2.5	12.40	66.0	2.15	1.50	4.5				
65	2.50	69.2	7.6	5.8	3.0	14.30	68.0	2.65	1.50	4.5				
68	2.50	72.5	7.8	6.1	3.0	16.00	71.0	2.65	1.50	4.5				
70	2.50	74.5	7.8	6.2	3.0	16.50	73.0	2.65	1.50	4.5				
72	2.50	76.5	7.8	6.4	3.0	18.10	75.0	2.65	1.50	4.5				
75	2.50	79.5	7.8	6.6	3.0	18.80	78.0	2.65	1.50	4.5				
78	2.50	82.5	8.5	6.8	3.0	20.40	81.0	2.65	1.50	4.5				
80	2.50	85.5	8.5	7.0	3.0	22.00	83.5	2.65	1.75	5.3				
82	2.50	87.5	8.5	7.0	3.0	24.00	85.5	2.65	1.75	5.3				
85	3.00	90.5	+1.30/-0.54	8.6	7.2	3.5	25.30	88.5	3.15	1.75	5.3			
88	3.00	93.5		8.6	7.4	3.5	28.00	91.5	3.15	1.75	5.3			
90	3.00	95.5		8.6	7.6	3.5	31.00	93.5	3.15	1.75	5.3			
92	3.00	97.5		8.7	7.8	3.5	32.00	95.5	3.15	1.75	5.3			
95	3.00	100.5		8.8	8.1	3.5	35.00	98.5	3.15	1.75	5.3			
98	3.00	103.5		9.0	8.3	3.5	37.00	101.5	3.15	1.75	5.3			
100	3.00	105.5		9.2	8.4	3.5	38.00	103.5	3.15	1.75	5.3			

For verification of details, and for further information, please refer to the ISO/DIN standard document for this item.