



Standard Part

Internal Retaining Rings Metric – Preferred and Non-Preferred

STPN590

87399905

Rev BA

Page 1 of 9

1. SCOPE

The fasteners described in this standard are Internal Retaining Rings which conform essentially to Standard DIN 472. For reference dimensions refer to Table 1.

2. DEFINITIONS

DIN—German Standards Organization

3. RELATED DOCUMENTS

3.1 RELATED STANDARDS

DIN 472—Internal Metric Series Retaining Rings
STPA020—Fastener Finishes and Material Specifications
Fiat 12242—Concentric Internal Retaining Rings Axially Assembled
Fiat 12246—Internal Retaining Rings

3.2 REPLACED STANDARDS

Case NM-030—Retaining Rings-General Spec.
Case NM-033—Internal Regular Retaining Rings
Case NM-034—Internal Heavy Retaining Rings
NH FNHA-1-A-810.00—Internal Retaining Rings

4. CROSS REFERENCE

For cross reference listing of company part numbers, go to [PARTsolutions](#).

5. REQUIREMENTS

5.1 MATERIAL

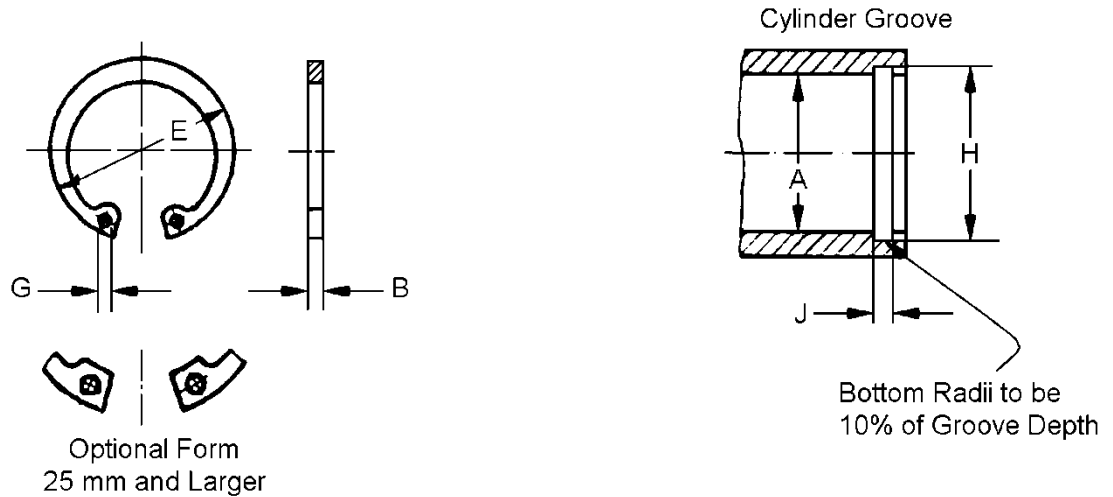
Retaining Rings shall be made from spring steel processed to meet the specified hardness ranges and be capable of meeting test requirements of the bend and fracture test set forth in DIN 472.

5.2 FINISH

Retaining Rings shall be furnished coated or plated per STPA020. Plating of rings must be applied by a mechanical plating process to avoid the risk of hydrogen embrittlement.

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FIGURE 1: Internal Retaining Ring
TABLE 1: Reference Dimensions (mm)

Bore Size	Ring Dimensions				Groove Dimensions				
	A	B		E		G	H		J
Nom	Max	Min	Max	Min	Min	Max	Min	Max	Min
8	0.8	0.75	9.06	8.6	1	8.49	8.4	1.04	0.9
9	0.8	0.75	10.16	9.7	1	9.49	9.4	1.04	0.9
10	1	0.94	11.16	10.7	1.2	10.51	10.4	1.24	1.1
11	1	0.94	12.16	11.7	1.2	11.51	11.4	1.24	1.1
12	1	0.94	13.36	12.9	1.5	12.61	12.5	1.24	1.1
13	1	0.94	14.46	14.0	1.5	13.71	13.6	1.24	1.1
14	1	0.94	15.46	15.0	1.7	14.71	14.6	1.24	1.1
15	1	0.94	16.56	16.1	1.7	15.81	15.7	1.24	1.1
16	1	0.94	17.66	17.2	1.7	16.91	16.8	1.24	1.1
17	1	0.94	18.72	18.17	1.7	17.91	17.8	1.24	1.1
18	1	0.94	19.92	19.37	2	19.13	19	1.24	1.1
19	1	0.94	20.92	20.37	2	20.13	20	1.24	1.1
20	1	0.94	21.92	21.37	2	21.13	21	1.24	1.1
21	1	0.94	22.92	22.37	2	22.13	22	1.24	1.1
22	1	0.94	23.92	23.37	2	23.13	23	1.24	1.1
24	1.2	1.14	26.32	25.69	2	25.41	25.2	1.44	1.3
25	1.2	1.14	27.32	26.69	2	26.41	26.2	1.44	1.3
**25	1.5	1.44	27.32	26.69	2	26.41	26.2	1.74	1.6

** Heavy Duty Internal Retaining Ring



Standard Part

Internal Retaining Rings Metric – Preferred and Non-Preferred

STPN590

87399905

Rev BA

Page 3 of 9

TABLE 1: Reference Dimensions (mm) (Continued)

Bore Size	Ring Dimensions					Groove Dimensions			
	A	B		E		G	H		J
Nom	Max	Min	Max	Min	Min	Max	Min	Max	Min
26	1.2	1.14	28.32	27.69	2	27.41	27.2	1.44	1.3
27	1.2	1.14	29.6	28.85	2	28.61	28.4	1.44	1.3
28	1.2	1.14	30.6	29.85	2	29.61	29.4	1.44	1.3
30	1.2	1.14	32.6	31.85	2	31.65	31.4	1.44	1.3
**30	1.5	1.44	32.6	31.85	2	31.65	31.4	1.74	1.6
31	1.2	1.14	33.9	33.15	2.5	32.95	32.7	1.44	1.3
32	1.2	1.14	34.9	34.15	2.5	33.95	33.7	1.44	1.3
34	1.5	1.44	37	36.25	2.5	35.95	35.7	1.74	1.6
35	1.5	1.44	38.3	37.55	2.5	37.25	37	1.74	1.6
**35	1.75	1.69	38.3	37.55	2.5	37.25	37	1.99	1.85
36	1.5	1.44	39.3	38.55	2.5	38.25	38	1.74	1.6
37	1.5	1.44	40.3	39.55	2.5	39.25	39	1.74	1.6
38	1.5	1.44	41.3	40.55	2.5	40.25	40	1.74	1.6
**38	1.75	1.69	41.3	40.55	2.5	40.25	40	1.99	1.85
39	1.5	1.44	42.9	41.61	2.5	41.25	41	1.74	1.6
40	1.75	1.69	44.4	43.11	2.5	42.75	42.5	1.99	1.85
42	1.75	1.69	46.4	45.11	2.5	44.75	44.5	1.99	1.85
45	1.75	1.69	49.4	48.11	2.5	47.75	47.5	1.99	1.85
47	1.75	1.69	51.6	50.04	2.5	49.75	49.5	1.99	1.85
**47	2	1.93	51.6	50.04	2.5	49.75	49.5	2.33	2.15
48	1.75	1.69	52.6	51.04	2.5	50.8	50.5	1.99	1.85
50	2	1.93	55.3	53.74	2.5	53.3	53	2.33	2.15
52	2	1.93	57.3	55.74	2.5	55.3	55	2.33	2.15
**52	2.5	2.43	57.3	55.74	2.5	55.3	55	2.83	2.65
55	2	1.93	60.3	58.74	2.5	58.3	58	2.33	2.15
**55	2.5	2.43	60.3	58.74	2.5	58.3	58	2.83	2.65
56	2	1.93	61.3	59.74	2.5	59.3	59	2.33	2.15
58	2	1.93	63.3	61.74	2.5	61.3	61	2.33	2.15
60	2	1.93	65.3	63.74	2.5	63.3	63	2.33	2.15
62	2	1.93	67.3	65.74	2.5	65.3	65	2.33	2.15
**62	3	2.92	67.3	65.74	2.5	65.3	65	3.33	3.15
63	2	1.93	68.3	66.74	2.5	66.3	66	2.33	2.15
65	2.5	2.43	70.3	68.74	3	68.3	68	2.83	2.65
68	2.5	2.43	73.6	72.04	3	71.3	71	2.83	2.65
70	2.5	2.43	75.6	74.04	3	73.3	73	2.83	2.65
72	2.5	2.43	77.6	76.04	3	75.3	75	2.83	2.65
**72	3	2.92	77.6	76.04	3	75.3	75	3.33	3.15
75	2.5	2.43	80.6	79.04	3	78.3	78	2.83	2.65
78	2.5	2.43	83.8	81.96	3	81.35	81	2.83	2.65
80	2.5	2.43	86.8	84.96	3	83.85	83.5	2.83	2.65
**80	4	3.9	86.8	84.96	3	83.85	83.5	4.33	4.15
82	2.5	2.43	88.8	86.96	3	85.85	85.5	2.83	2.65
85	3	2.92	91.8	89.96	3.5	88.85	88.5	3.33	3.15

** Heavy Duty Internal Retaining Ring



Standard Part

Internal Retaining Rings Metric – Preferred and Non-Preferred

STPN590

87399905

Rev BA

Page 4 of 9

TABLE 1: Reference Dimensions (mm) (Continued)

Bore Size	Ring Dimensions					Groove Dimensions			
	B		E		G	H		J	
A Nom	Max	Min	Max	Min	Min	Max	Min	Max	Min
88	3	2.92	94.8	92.96	3.5	91.85	91.5	3.33	3.15
90	3	2.92	96.8	94.96	3.5	93.85	93.5	3.33	3.15
**90	4	3.9	96.8	94.96	3.5	93.85	93.5	4.33	4.15
92	3	2.92	98.8	96.96	3.5	95.85	95.5	3.33	3.15
95	3	2.92	101.8	99.96	3.5	98.85	98.5	3.33	3.15
98	3	2.92	104.8	102.96	3.5	101.85	101.5	3.33	3.15
100	3	2.92	106.8	104.96	3.5	103.85	103.5	3.33	3.15
**100	4	3.9	106.8	104.96	3.5	103.85	103.5	4.33	4.15
102	4	3.9	109.3	107.46	3.5	106.54	106	4.33	4.15
105	4	3.9	113.3	111.46	3.5	109.54	109	4.33	4.15
108	4	3.9	116.3	114.46	3.5	112.54	112	4.33	4.15
110	4	3.9	118.3	116.46	3.5	114.54	114	4.33	4.15
112	4	3.9	120.3	118.46	3.5	116.54	116	4.33	4.15
115	4	3.9	123.5	121.37	3.5	119.54	119	4.33	4.15
120	4	3.9	128.5	126.37	3.5	124.63	124	4.33	4.15
125	4	3.9	133.5	131.37	4	129.63	129	4.33	4.15
130	4	3.9	138.5	136.37	4	134.63	134	4.33	4.15
135	4	3.9	143.5	141.37	4	139.63	139	4.33	4.15
140	4	3.9	148.5	146.37	4	144.63	144	4.33	4.15
145	4	3.9	153.5	151.37	4	149.63	149	4.33	4.15
150	4	3.9	159.5	157.37	4	155.63	155	4.33	4.15
155	4	3.9	165.5	163.37	4	160.63	160	4.33	4.15
160	4	3.9	170.5	168.37	4	165.63	165	4.33	4.15
165	4	3.9	176.0	173.87	4	170.63	170	4.33	4.15
170	4	3.9	181.0	178.87	4	175.63	175	4.33	4.15
175	4	3.9	186.2	183.78	4	180.63	180	4.33	4.15
180	4	3.9	191.2	188.78	4	185.72	185	4.33	4.15
185	4	3.9	196.2	193.78	4	190.72	190	4.33	4.15
190	4	3.9	201.2	198.78	4	195.72	195	4.33	4.15
195	4	3.9	206.2	203.78	4	200.72	200	4.33	4.15
200	4	3.9	211.2	208.78	4	205.72	205	4.33	4.15
210	5	4.88	223.7	221.28	4	216.72	216	5.33	5.15
220	5	4.88	233.7	231.28	4	226.72	226	5.33	5.15
#225	5	4.88	238.7	236.28	4	231.72	231	5.33	5.15
230	5	4.88	243.7	241.28	4	236.72	236	5.33	5.15
240	5	4.88	254.0	251.19	4	246.72	246	5.33	5.15
250	5	4.88	264.0	261.19	4	256.81	256	5.33	5.15
260	5	4.88	277.0	274.19	5	268.81	268	5.33	5.15
270	5	4.88	287.0	284.19	5	278.81	278	5.33	5.15
280	5	4.88	297.0	294.19	5	288.81	288	5.33	5.15
290	5	4.88	307.0	304.19	5	298.81	298	5.33	5.15
300	5	4.88	317.0	314.19	5	308.81	308	5.33	5.15

** Heavy Duty Internal Retaining Ring
Size not included in DIN 472



Standard Part

Internal Retaining Rings Metric – Preferred and Non-Preferred

STPN590

87399905

Rev BA

Page 5 of 9

TABLE 2: Regular Internal Retaining Rings – Preferred

Bore Dia.	Finish	Part Number
9	PHC	84559731
12	PHC	370025
18	PHC	370023
19	PHC	412235
22	PHC	84078050
24	PHC	278643
27	PHC	274234
28	PHC	301642
30	PHC	301644
32	PHC	301646
35	PHC	300642
36	PHC	86625141
37	PHC	86536802
38	PHC	300643
39	PHC	92083374
40	PHC	300644
41	PHC	535317
42	PHC	300645
45	PHC	300646
47	PHC	300647
50	PHC	86639140
52	PHC	370011
55	PHC	86536801
**55	PHC	51582330
58	PHC	84163829
62	PHC	370012
**62	PHC	87040216
65	PHC	300649
68	PHC	9823834
72	PHC	370018
**72	PHC	84819109
75	PHC	382103
**75	PHC	84270868
80	PHC	300633
82	PHC	9842402
85	PHC	370021
90	PHC	370013
100	PHC	370026
110	PHC	301652
120	PHC	412270
125	PHC	388294
130	PHC	370014
155	PHC	92767410
160	PHC	90407662

** HEAVY DUTY per DIN 472

Refer to Table 1 for Dimensions



Standard Part
**Internal Retaining Rings Metric – Preferred
and Non-Preferred**

STPN590
87399905
Rev BA
Page 6 of 9

TABLE 2: Regular Internal Retaining Rings – Preferred (Continued)

Bore Dia.	Finish	Part Number
180	PHC	12565
200	PHC	48168754
210	PHC	87747864
220	PHC	92244524
230	PHC	92808438
250	PHC	92130763

Refer to Table 1 for Dimensions



Standard Part

Internal Retaining Rings Metric – Preferred and Non-Preferred

STPN590

87399905

Rev BA

Page 7 of 9

TABLE 3: Regular Internal Retaining Rings – Non-Preferred

Bore Dia.	Finish	Part Number
8	BLO	11064876
10	BLO	11063076
10	PLN	82982
11	ZNM	11063175
12	BLO	11057076
13	BLO	11057176
14	BLO	11057276
15	BLO	11057376
16	PLN	11057470
16	BLO	11057476
17	DAC	11057574
17	BLO	11057576
19	BLO	11057776
20	BLO	11057876
21	BLO	11057976
21	DAC	11057974
22	PLN	11058070
22	DAC	11058074
22	BLO	11058076
25	PLN	11058370
25	BLO	11058376
**25	ZNM	92167869
26	BLO	11058476
28	DAC	11058674
30	DAC	90392738
30	PLN	11058870
**30	PLN	47409032
**30	ZND	47409035
31	BLO	11058976
32	DAC	11059074
32	BLO	11059076
34	BLO	11059376
**35	PLN	84537975
36	BLO	11059576
38	BLO	11059776
**38	ZNM	87038806
40	DAC	11059974
40	ZNM	11059975
**47	PLN	84537976
48	BLO	11060376
52	BLO	11060576

** HEAVY DUTY per DIN 472

Size not included in DIN 472

Refer to Table 1 for Dimensions



Standard Part

Internal Retaining Rings Metric – Preferred and Non-Preferred

STPN590

87399905

Rev BA

Page 8 of 9

TABLE 3: Regular Internal Retaining Rings – Non-Preferred (Continued)

Bore Dia.	Finish	Part Number
**52	PLN	47888293
55	DAC	11060674
55	BLO	11060676
60	ZNM	11060975
60	BLO	11060976
62	ZND	11061071
62	ZNM	11061075
62	BLO	11061076
63	BLO	11061276
68	BLO	11061376
68	BLO	84528491
70	BLO	11061476
72	ZNM	11061575
72	BLO	11061576
75	ZND	11061671
78	DAC	11061874
78	BLO	11061876
80	DAC	##84246778
80	ZND	11061971
**80	PLN	47888301
82	BLO	11062076
85	BLO	11062176
90	BLO	11062476
**90	PLN	86623594
92	BLO	11062576
95	BLO	11062676
100	BLO	11062976
100	DAC	47496484
**100	PLN	47888304
100	ZNM	11062975
105	BLO	11075176
105	ZNM	11075175
110	PLN	11075470
110	BLO	11075476
115	BLO	11075676
125	ZND	11076171
135	ZNM	11076675
135	BLO	92130189
140	BLO	11076976
145	BLO	11077176
150	BLO	11077476
160	BLO	11077976

** HEAVY DUTY

Size not included in DIN 472

Refer to Table 1 for Dimensions

Refer to Fiat Standard 12242 for dimensions



Standard Part
**Internal Retaining Rings Metric – Preferred
and Non-Preferred**

STPN590

87399905

Rev BA

Page 9 of 9

TABLE 3: Regular Internal Retaining Rings – Non-Preferred (Continued)

Bore Dia.	Finish	Part Number
170	BLO	11078476
175	BLO	11078676
180	ZNM	11078975
185	BLO	91827393
#225	PHC	87733383

Size not included in DIN 472
Refer to Table 1 for Dimensions