茂銓企業股份有限公司
MK Spring Co., Ltd.

標準止輪扣環・彈簧銷・華司系列目錄

Retaining Rings,Washers and Spring Pins Overview

符合JIS日本工業規格標準

TEL：+886-2-2990-1599　FAX：+886-2-2990-1596　24252 新北市新莊區化成路211巷16號

茂銓企業股份有限公司
MK Spring Co., Ltd.

裝配示意圖

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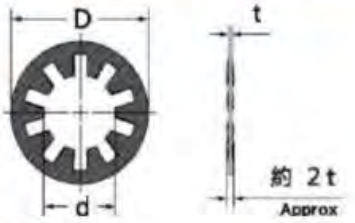

AW型-內齒型墊圈
AW Series Internal Toothed Lock Washer

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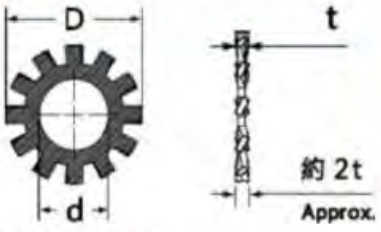

BW型-外齒型墊圈
BW Series External Toothed Lock Washer

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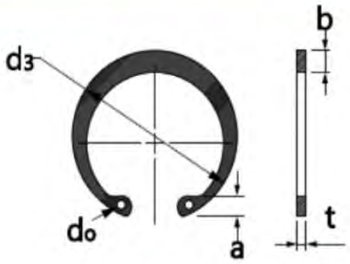
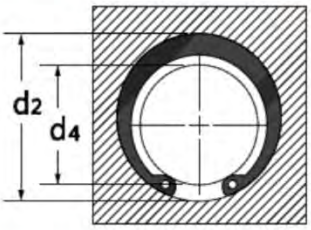
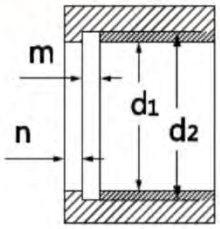
R型-孔用止輪扣環
R Series Internal Retaining Rings (Housing)







單位Unit : mm

品號	止輪尺寸 Ring Dimension (mm)							d_4	適用孔徑 Groove Dimension (Reference Only)					
	d_3		t		b	a	d_o		d_1	d_2		m		n
Ring No.	扣環直徑 Free Dia.	公差 Tol.	厚度 Thickness	公差 Tol.	寬度(約) App.	凸出(約) App.	孔(最小) Min.	Clearance Dia.	開孔徑 Bore Dia.	溝槽直徑 Groove Dia.	公差 Tol.	溝槽寬 Width	公差 Tol.	最小 Min.
R- 6	6.7		0.4		0.7	1.6	0.8	2.5	6	6.25	+0.04	0.5		0.5
7	7.7		0.4	±0.03	0.8	1.8	0.8	3	7	7.3		0.5	+0.1	0.5
8	8.8		0.4		0.9	1.7	0.8	3.5	8	8.4	+0.06 -0	0.5	-0	0.6
9	9.8		0.6	±0.04	1.1	2.2	0.8	5	9	9.4		0.7		0.6
10	10.7		1.0		1.5	2.8	1.2	3	10	10.4		1.15		0.6
11	11.8	±0.18	1.0		1.5	3	1.2	4	11	11.4		1.15		0.6
12	13		1.0		1.7	3.1	1.5	5	12	12.5		1.15		0.8
13	14.1		1.0		1.7	3.1	1.5	6	13	13.6	+0.11	1.15		0.9
14	15.1		1.0		1.9	3.6	1.7	7	14	14.6	-0	1.15		0.9
15	16.2		1.0	±0.05	1.9	3.6	1.7	8	15	15.7		1.15		1.1
16	17.3		1.0		1.9	3.7	1.7	8	16	16.8		1.15		1.2
17	18.3		1.0		1.9	3.8	1.7	9	17	17.8		1.15		1.2
18	19.5		1.0		2.4	4	1.7	10	18	19		1.15		1.5
19	20.5		1.0		2.5	4	2.0	11	19	20		1.15		1.5
20	21.5		1.0		2.5	4	2.0	12	20	21		1.15		1.5
21	22.5	±0.2	1.0		2.5	4.1	2.0	12	21	22		1.15		1.5
22	23.5		1.0		2.5	4.1	2.0	13	22	23	+0.21	1.15		1.5
23	24.5		1.2		2.5	4.1	2.0	14	23	24.1	-0	1.35		1.5
24	25.9		1.2		2.5	4.3	2.0	15	24	25.2		1.35		1.8
25	26.9		1.2		3	4.4	2.0	16	25	26.2		1.35		1.8
26	27.9		1.2		3	4.6	2.0	16	26	27.2		1.35		1.8
27	29		1.2		3	4.6	2.0	17	27	28.3		1.35		1.8
28	30.1		1.2		3	4.6	2.0	18	28	29.4		1.35		2.1
29	31.4		1.2		3	4.6	2.0	19	29	30.4		1.35		2.1
30	32.1		1.2		3	4.7	2.0	20	30	31.4		1.35	+0.14	2.1
31	32.9		1.2	±0.06	3.25	5	2.5	20.5	31	32.55		1.35	-0	2.1
32	34.4		1.2		3.5	5.2	2.5	21	32	33.7		1.35		2.6
33	35.5		1.2		3.8	4.2	2.0	22	33	34.7		1.65		2.6
34	36.5	±0.25	1.5		3.5	5.2	2.5	23	34	35.7		1.65		2.6
35	37.8		1.5		3.5	5.2	2.5	24	35	37		1.65		3.0
36	38.8		1.5		3.5	5.2	2.5	25	36	38		1.65		3.0
37	39.8		1.5		3.5	5.2	2.5	26	37	39	+0.25	1.65		3.0
38	40.8		1.5		4	5.3	2.5	27	38	40	-0	1.65		3.0
39	42		1.8(1.75)		4	5.4	2.5	27	39	41.2		1.9		3.0
40	43.5		1.8(1.75)		4	5.7	2.5	28	40	42.5		1.9		3.8
42	45.5	±0.4	1.8(1.75)	±0.07	4	5.8	2.5	30	42	44.5		1.9		3.8
43	46.5		1.8(1.75)		4.3	6	2.5	31	43	45.5		1.9		3.8
45	48.5		1.8(1.75)		4.5	5.9	2.5	33	45	47.5		1.9		3.8

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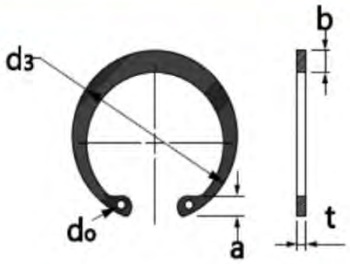
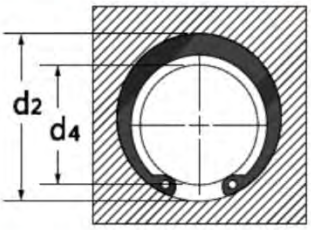
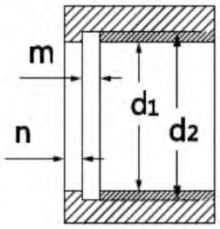
R型-孔用止輪扣環
R Series Internal Retaining Rings (Housing)







單位Unit : mm

品號	止輪尺寸 Ring Dimension (mm)							d_4	適用孔徑 Groove Dimension (Reference Only)					
	d_3		t		b	a	d_o		d_1	d_2		m		n
Ring No.	扣環直徑 Free Dia.	公差 Tol.	厚度 Thickness	公差 Tol.	寬度(約) App.	凸出(約) App.	孔(最小) Min.	Clearance Dia.	開孔徑 Bore Dia.	溝槽直徑 Groove Dia.	公差 Tol.	溝槽寬 Width	公差 Tol.	最小 Min.
R- 46	49.7		1.8(1.75)		5	6.1	2.5	33	46	48.5	+0.25 -0	1.9		3.8
47	50.5		1.8(1.75)		4.5	6.1	2.5	34	47	49.5		1.9		3.8
48	51.5		1.8(1.75)		4.5	6.2	2.5	35	48	50.5		1.9		3.8
50	54.2		2.0		4.5	6.5	2.5	37	50	53		2.2		4.5
52	56.2		2.0		5.1	6.5	2.5	39	52	55		2.2		4.5
55	59.2		2.0	±0.07	5.1	6.5	2.5	41	55	58		2.2		4.5
56	60.2		2.0		5.1	6.6	2.5	42	56	59		2.2		4.5
58	62.2	±0.45	2.0		5.1	6.8	2.5	44	58	61	+0.3	2.2		4.5
60	64.2		2.0		5.5	6.8	2.5	46	60	63	-0	2.2		4.5
62	66.2		2.0		5.5	6.9	2.5	48	62	65		2.2		4.5
63	67.2		2.0		5.5	6.9	2.5	49	63	66		2.2		4.5
65	69.2		2.5		5.5	7	2.5	50	65	68		2.7	+0.14	4.5
68	72.5		2.5		6	7.4	2.5	53	68	71		2.7	-0	4.5
70	74.5		2.5		6	7.4	2.5	55	70	73		2.7		4.5
72	76.5		2.5	±0.08	6.6	7.4	2.5	57	72	75		2.7		4.5
75	79.5		2.5		6.6	7.8	2.5	60	75	78		2.7		4.5
78	82.5		2.5		6.6	8	2.5	62	78	81		2.7		4.5
80	85.5		2.5		7	8	2.5	64	80	83.5		2.7		5.3
82	87.5		2.5		7	8	3.0	66	82	85.5		2.7		5.3
85	90.5		3.0		7	8	3.0	69	85	88.5		3.2		5.3
88	93.5		3.0		7.6	8.2	3.0	71	88	91.5	+0.35	3.2		5.3
90	95.5		3.0		7.6	8.3	3.0	73	90	93.5	-0	3.2		5.3
92	97.5		3.0		8	8.3	3.0	74	92	95.5		3.2		5.3
95	100.5	±0.55	3.0		8	8.5	3.0	77	95	98.5		3.2		5.3
98	103.5		3.0		8.3	8.7	3.0	80	98	101.5		3.2	+0.18	5.3
100	105.5		3.0		8.3	8.8	3.0	82	100	103.5		3.2	-0	5.3
102	108		4.0		8.9	9	3.0	83	102	106		4.2		6.0
105	112		4.0		8.9	9.1	3.0	86	105	109		4.2		6.0
108	115		4.0		8.9	9.5	3.0	87	108	112	+0.54	4.2		6.0
110	117		4.0	±0.09	8.9	10.2	3.0	89	110	114	-0	4.2		6.0
112	119		4.0		8.9	10.2	3.0	90	112	116		4.2		6.0
115	122		4.0		9.5	10.2	3.0	94	115	119		4.2		6.0
120	127	±0.65	4.0		9.5	10.7	3.0	98	120	124		4.2		6.0
125	132		4.0		10	10.7	3.5	103	125	129		4.2		6.0
130	137		4.0		10	10.7	3.5	108	130	134		4.2		6.0
135	142	+1.26	4.0		10.8	11	3.5	113	135	139	+0.63	4.2	+0.2	6.0
140	147	-0.63	4.0		10.8	11	3.5	118	140	144	-0	4.2	-0	6.0
145	152		4.0		10.8	11	3.5	123	145	149		4.2		6.0

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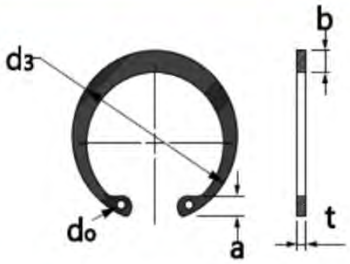
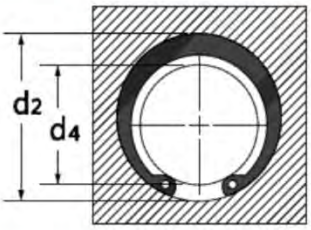
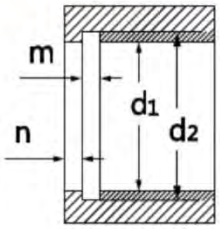
R型-孔用止輪扣環
R Series Internal Retaining Rings (Housing)







單位Unit : mm

品號 Ring No.	止輪尺寸 Ring Dimension (mm)							d_4 Clearance Dia.	適用孔徑 Groove Dimension (Reference Only)					
	d_3		t		b	a	d_o		d_1	d_2		m		n
	扣環直徑 Free Dia.	公差 Tol.	厚度 Thickness	公差 Tol.	寬度(約) App.	凸出(約) App.	孔(最小) Min.		開孔徑 Bore Dia.	溝槽直徑 Groove Dia.	公差 Tol.	溝槽寬 Width	公差 Tol.	最小 Min.
R- 150	158		4.0		11.5	11.8	3.5	126	150	155		4.2		7.5
155	164	+1.26	4.0		11.5	11.8	3.5	130	155	160		4.2		7.5
160	169	-0.63	4.0		12	12.5	3.5	134	160	165		4.2		7.5
165	174.5		4.0		12	12.7	3.5	139	165	170	+0.63	4.2		7.5
170	179.5		4.0		12	-	3.5	145	170	175	-0	4.2		7.5
175	184.5		4.0	±0.09	12.5	-	3.5	149	175	180		4.2	+0.2	7.5
180	189.5		4.0		13	-	4.0	153	180	185		4.2	-0	7.5
185	194.5		4.0		13.5	-	4.0	157	185	190		4.2		7.5
190	199.5	+1.44	4.0		13.5	-	4.0	162	190	195		4.2		7.5
195	204.5	-0.72	4.0		13.5	-	4.0	167	195	200		4.2		7.5
200	209.5		4.0		14	-	4.0	171	200	205	+0.72	4.2		7.5
210	222		5.0		14	-	4.0	181	210	216	-0	5.2		9.0
220	232		5.0		14	-	4.0	191	220	226		5.2		9.0
230	242		5.0		14	-	4.0	201	230	236		5.2		9.0
240	252		5.0		14	-	4.0	211	240	246		5.2		9.0
250	262		5.0	±0.15	14	-	4.0	221	250	256		5.2	+0.25	9.0
260	275		5.0		16	-	4.0	227	260	268		5.2	-0	12
270	285	+1.62	5.0		16	-	4.0	237	270	278	+0.81	5.2		12
280	295	-0.81	5.0		16	-	4.0	247	280	288	0	5.2		12
290	305		5.0		16	-	4.0	257	290	298		5.2		12
300	315		5.0		16	-	4.0	267	300	308		5.2		12

*未顯示於表格之規格歡迎來電洽詢
*Other sizes may be available upon request

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JIS

✓ 規格標準 Standard Reference
日本工業規格 JIS B 2804
約略德國工業規格 Similar to DIN 472

✓ 材質、硬度 & 表面處理 Material, Hardness Ranges & Finish

材質 Material	硬度 Hardness Ranges	表面 Finish
彈簧鋼 SAE1050~SAE1090 Carbon Spring Steel	HRC 44-53 (Rockwell scale)	染黑 Black Oxide
		磷酸鹽 Black Phosphate (ACP)
不鏽鋼 SUS420 Stainless Steel Type 420	HRC 44-52 (Rockwell scale)	原色 Plain

✓ 包裝方式 Packaging
散裝 Bulk
條裝 Stacked
收縮塑膠膜 Plastic Shrink Wrapped
條裝&收縮塑膠膜包裝僅接受訂購，暫無現貨供應 Not all sizes in Stacked and Plastic Shrink Wrapped in stock

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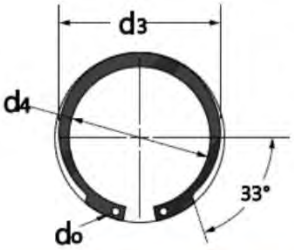
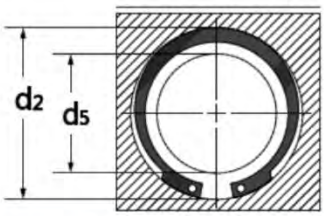
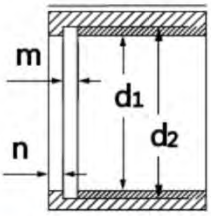
IR型-孔用止輪扣環
IR Series Internal Inverted Rings (Housing)







單位Unit : mm

品號 Ring No.	止輪尺寸 Ring Dimension								d_5 適用孔徑 Groove Dimension (Reference Only)						
	d_3		d_4	t		h	d_o	公差		d_1	d_2		m		n
	扣環直徑 Free Dia.	公差 Tol.		厚度 Thickness	公差 Tol.	寬度(約) App.	孔 Hole Dia.		Clearance Dia.	開孔徑 Bore Dia.	溝槽直徑 Groove Dia.	公差 Tol.	溝槽寬 Width	公差 Tol.	最小 Min.
IR- 11	12.2	±0.18	8.6	1.0	±0.05	1.8	0.9	±0.3	6.6	11	11.4	+0.11 -0	1.15	+0.14 -0	1.5
~~14~~	~~14.1~~		~~10.9~~	1.0		~~1.7~~	0.9		~~9.6~~	~~14~~	~~14.6~~		~~1.15~~		~~1.5~~
15	16.2		12.6	1.0		1.8	0.9		10.6	15	15.7		1.15		1.5
16	17.3		13.5	1.0		1.9	0.9		11.4	16	16.8		1.15		1.5
17	18.3	±0.2	14.3	1.0		2.0	0.9		12.2	17	17.8		1.15		1.5
18	19.5		15.3	1.0		2.1	1.0		13	18	19.0	+0.21 -0	1.15		1.5
19	20.5		16.1	1.0		2.2	1.0		13.8	19	20.0		1.15		1.5
20	21.5		16.9	1.0		2.3	1.0		14.5	20	21.0		1.15		1.5
21	22.5		17.7	1.0		2.4	1.2	±0.4	15	21	22.0		1.15		1.5
22	23.5		18.7	1.0		2.4	1.2		16	22	23.0		1.15		1.5
24	25.9		20.7	1.2	±0.06	2.6	1.2		17.5	24	25.2		1.35		1.8
26	27.9		22.3	1.2		2.8	1.2		19	26	27.2		1.35		1.8
27	29.1		23	1.2		3.0	1.2		19	27	27.2		1.35		2.1
28	30.1		24.1	1.2		3.0	1.2		20.5	28	29.4		1.35		2.1
30	32.1		25.7	1.2		3.2	1.4		22.5	30	31.4	+0.25 -0	1.35		2.1
32	34.4		27.4	1.2		3.5	1.6		23.5	32	33.7		1.35		2.55
33	35.2	±0.25	28.9	1.5		3.15	1.6		25	33	35.7		1.35		2.55
35	37.8		30.0	1.5		3.9	1.6		26	35	37.0		1.65		3.0
36	38.8		30.8	1.5		4.0	1.6		26.5	36	38.0		1.65		3.0
37	39.8		31.6	1.5		4.1	1.6		27.5	37	39.0		1.65		3.0
38	40.8		32.4	1.5		4.2	1.6		28	38	40.0		1.65		3.0
40	43.5	±0.4	34.7	1.75		4.4	2.0		30	40	42.5		1.9		3.75
42	45.5		36.3	1.75		4.6	2.0		31	42	44.5		1.9		3.75
47	50.5		40.7	1.75		4.9	2.0		35	47	49.5		1.9		3.75
48	51.5		41.5	1.75	±0.07	5.0	2.0	±0.5	36	48	50.5		1.9		3.75
~~50~~	~~54.2~~	±0.45	~~44.0~~	~~2.0~~		~~5.1~~	~~2.2~~		~~38~~	~~50~~	~~53.0~~	+0.3 -0	~~2.2~~		~~4.5~~
52	56.2		45.8	2.0		5.2	2.2		40	52	55.0		2.2		4.5
58	62.2		50.4	2.0		5.9	2.5		44	58	61		2.2		4.5
~~85~~	~~90.5~~	±0.55	~~75.7~~	~~3.0~~	±0.09	~~8.9~~	~~4~~	±0.7	~~84~~	~~85~~	~~88.5~~	+0.35/-0	~~3.2~~	+0.18/-0	~~5.25~~

*未顯示於表格之規格歡迎來電洽詢
*Other sizes may be available upon request

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✓ **規格標準 Standard Reference**
日本工業規格 JIS B 2804

✓ **材質、硬度 & 表面處理 Material, Hardness Ranges & Finish**

材質 Material	硬度 Hardness Ranges	表面 Finish
彈簧鋼 SAE1050~SAE1090 Carbon Spring Steel	HRC 44-53 (Rockwell scale)	染黑 Black Oxide

✓ **包裝方式 Packaging**
散裝 Bulk

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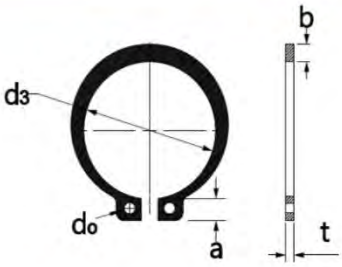
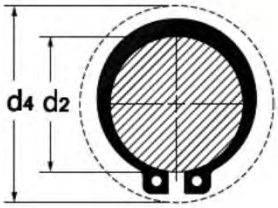
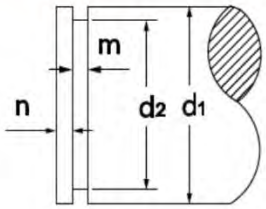
S型-軸用止輪扣環
S Series External Retaining Rings (Shaft)







單位Unit : mm

品 號	止 輪 尺 寸 Ring Dimension							d_4	適 用 軸 尺 寸 Shaft Dimension (Reference Only)					
	d_3		t		b	a	d_o		d_1	d_2		m		n
Ring No.	扣環直徑 Free Dia.	公差 Tol.	厚度 Thickness	公差 Tol.	寬度(約) App.	凸出(約) App.	孔(最小) Min.	Clearance Dia.	軸直徑 Shaft Dia.	溝槽直徑 Groove Dia.	公差 Tol.	溝槽寬 Width	公差 Tol.	最小 Min.
S- 3	2.7	+0.04 -0.15	0.3	±0.025	0.5	1.7	0.7	7	3	2.85		0.35		0.3
4	3.7		0.4	±0.03	0.9	2.2	0.8	9	4	3.8	+0	0.5		0.3
5	4.7		0.6	±0.04	1.1	2.4	0.8	10.5	5	4.8	-0.04	0.7	+0.1	0.3
6	5.6	+0.06 -0.2	0.7		1.3	2.8	1.0	12	6	5.7		0.8	-0	0.5
7	6.5		0.8		1.4	3	1.0	14	7	6.7	+0	0.9		0.5
8	7.4		0.8		1.6	3	1.0	15	8	7.6	-0.06	0.9		0.6
9	8.4		1.0	±0.05	1.8	3.2	1.0	16	9	8.6		1.15		0.6
10	9.3	±0.15	1.0		1.8	3	1.2	17	10	9.6	+0/-0.09	1.15		1.5
11	10.2		1.0		2	3.1	1.2	18	11	10.5		1.15		1.5
12	11.1	±0.18	1.0		2.1	3.2	1.5	19	12	11.5		1.15		1.5
13	12		1.0		2.1	3.3	1.5	20	13	12.4		1.15		1.5
14	12.9		1.0		2.2	3.4	1.7	22	14	13.4	+0	1.15		1.5
15	13.8		1.0		2.2	3.5	1.7	23	15	14.3	-0.11	1.15		1.5
16	14.7		1.0		2.2	3.6	1.7	24	16	15.2		1.15		1.5
17	15.7		1.0		2.2	3.7	1.7	25	17	16.2		1.15		1.5
18	16.5		1.2	±0.06	2.6	3.8	1.7	26	18	17		1.35	+0.14	1.5
19	17.5		1.2		2.7	3.8	2.0	27	19	18		1.35	-0	1.5
20	18.5	±0.2	1.2		2.7	3.9	2.0	28	20	19		1.35		1.5
21	19.5		1.2		2.7	4	2.0	30	21	20		1.35		1.5
22	20.5		1.2		2.7	4.1	2.0	31	22	21		1.35		1.5
23	21.4		1.2		2.9	4.5	2.0	32.5	23	22		1.35		1.5
24	22.2		1.2		3.1	4.2	2.0	33	24	22.9	+0	1.35		1.7
25	23.2		1.2		3.1	4.3	2.0	34	25	23.9	-0.21	1.35		1.7
26	24.2		1.2		3.1	4.4	2.0	35	26	24.9		1.35		1.7
27	25		1.2		3.3	4.5	2.0	36	27	25.8		1.35		1.8
28	25.9		1.5		3.1	4.6	2.0	38	28	26.6		1.65		2.1
29	26.9		1.5		3.5	4.7	2.0	39	29	27.6		1.65		2.1
30	27.9		1.5		3.5	4.8	2.0	40	30	28.6		1.65		2.1
31	28.9		1.5		3.5	4.8	2.5	41	31	29.6		1.65		2.6
32	29.6		1.5		3.5	5	2.5	43	32	30.3		1.65		2.6
33	30.6	±0.25	1.5		3.8	5	2.5	44	33	31.3		1.65		2.6
34	31.5		1.5		4	5.3	2.5	45	34	32.3		1.65		2.6
35	32.2		1.5		4	5.4	2.5	46	35	33		1.65		3.0
36	33.2		1.8(1.75)	±0.07	4	5.4	2.5	47	36	34	+0	1.9		3.0
37	34.2		1.8(1.75)		4.3	5.4	2.5	48	37	35	-0.25	1.9	+0.14	3.0
38	35.2		1.8(1.75)		4.5	5.6	2.5	50	38	36		1.9	-0	3.0
40	37	±0.4	1.8(1.75)		4.5	5.8	2.5	53	40	38		1.9		3.8
42	38.5		1.8(1.75)		4.5	6.2	2.5	55	42	39.5		1.9		3.8

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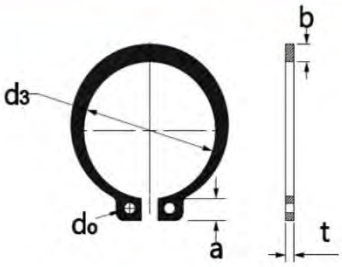
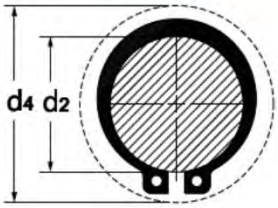
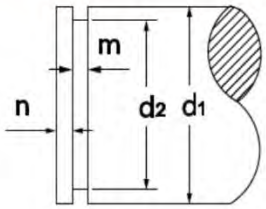
S型-軸用止輪扣環
S Series External Retaining Rings (Shaft)







單位Unit : mm

品號	止輪尺寸 Ring Dimension							d_4	適用軸尺寸 Shaft Dimension (Reference Only)					
	d_3		t		b	a	d_o		d_1	d_2		m		n
Ring No.	扣環直徑 Free Dia.	公差 Tol.	厚度 Thickness	公差 Tol.	寬度(約) App.	凸出(約) App.	孔(最小) Min.	Clearance Dia.	軸直徑 Shaft Dia.	溝槽直徑 Groove Dia.	公差 Tol.	溝槽寬 Width	公差 Tol.	最小 Min.
S- 45	41.5	±0.4	1.8(1.75)	±0.07	4.8	6.3	2.5	58	45	42.5	+0 -0.25	1.9	+0.14 -0	3.8
46	42.5		1.8(1.75)		5	6.3	2.5	60	46	43.5		1.9		3.8
47	43.4		1.8(1.75)		5	6.6	2.5	61	47	44.5		1.9		3.8
48	44.5		1.8(1.75)		4.8	6.5	2.5	62	48	45.5		1.9		3.8
50	45.8		2.0		5	6.7	2.5	64	50	47		2.2		4.5
52	47.8		2.0		5	6.8	2.5	66	52	49		2.2		4.5
55	50.8	±0.45	2.0	±0.08	5	7	2.5	70	55	52		2.2		4.5
56	51.8		2.0		5	7	2.5	71	56	53		2.2		4.5
58	53.8		2.0		5.5	7.1	2.5	73	58	55		2.2		4.5
60	55.8		2.0		5.5	7.2	2.5	75	60	57		2.2		4.5
62	57.8		2.0		5.5	7.2	2.5	77	62	59		2.2		4.5
63	58.8		2.0		5.5	7.3	2.5	78	63	60		2.2		4.5
65	60.8		2.5		6.4	7.4	2.5	81	65	62		2.7		4.5
68	63.5		2.5		6.4	7.8	2.5	84	68	65		2.7		4.5
70	65.5		2.5		6.4	7.8	2.5	86	70	67		2.7		4.5
72	67.5		2.5		7	7.9	2.5	88	72	69		2.7		4.5
75	70.5		2.5		7	7.9	2.5	92	75	72		2.7		4.5
78	73.5		2.5		7.4	8.1	2.5	95	78	75		2.7		4.5
80	74.5		2.5		7.4	8.2	2.5	97	80	76.5		2.7		5.3
82	76.5		2.5		7.4	8.3	3.0	99	82	78.5		2.7		5.3
85	79.5		3.0	±0.09	8	8.4	3.0	103	85	81.5	+0 -0.35	3.2	+0.18 -0	5.3
88	82.5	±0.55	3.0		8	8.6	3.0	106	88	84.5		3.2		5.3
90	84.5		3.0		8	8.7	3.0	108	90	86.5		3.2		5.3
95	89.5		3.0		8.6	9.1	3.0	114	95	91.5		3.2		5.3
100	94.5		3.0		9	9.5	3.0	119	100	96.5		3.2		5.3
105	98		4.0		9.5	9.8	3.0	125	105	101		4.2		6
110	103		4.0		9.5	10	3.0	131	110	106	+0 -0.54	4.2		6
115	108		4.0		9.5	10.5	3.0	137	115	111		4.2		6
120	113		4.0		10.3	10.9	3.0	143	120	116		4.2		6
125	118		4.0		10.3	11.3	3.5	148	125	121		4.2		6
130	123	+0.63 -1.26	4.0		11	11.5	3.5	154	130	126	+0 -0.63	4.2	+0.2 -0	6
135	128		4.0		11	11.5	3.5	159	135	131		4.2		6
140	133		4.0		11	11.8	3.5	164	140	136		4.2		6
145	138		4.0		11.6	11.8	3.5	170	145	141		4.2		6
150	142		4.0		11.6	12.3	3.5	175	150	145		4.2		7.5
155	146		4.0		12.2	12.7	3.5	181	155	150		4.2		7.5
160	151		4.0		12.2	12.9	3.5	186	160	155		4.2		7.5
165	155.5		4.0		12.9	13.1	3.5	192	165	160		4.2		7.5

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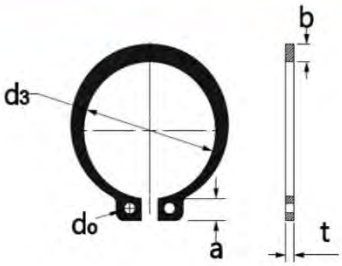
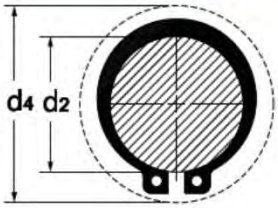
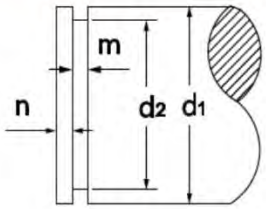
S型-軸用止輪扣環
S Series External Retaining Rings (Shaft)







單位Unit : mm

品 號	止 輪 尺 寸 Ring Dimension							d_4	適 用 軸 尺 寸 Shaft Dimension (Reference Only)						
	d_3		t		b	a	d_o		d_1	d_2		m		n
Ring No.	扣環直徑 Free Dia.	公差 Tol.	厚度 Thickness	公差 Tol.	寬度(約) App.	凸出(約) App.	孔(最小) Min.	Clearance Dia.	軸直徑 Shaft Dia.	溝槽直徑 Groove Dia.	公差 Tol.	溝槽寬 Width	公差 Tol.	最小 Min.
S- 170	160.5	+0.63 -1.26	4.0	±0.09	12.9	-	4.0	197	170	165	+0 -0.63	4.2	+0.2 -0	7.5
175	165.5		4.0		12.9	-	4.0	202	175	170		4.2		7.5
180	170.5		4.0		13.5	-	4.0	208	180	175		4.2		7.5
185	175.5	+0.72 -1.44	4.0		13.5	-	4.0	213	185	180		4.2		7.5
190	180.5		4.0		14	-	4.0	219	190	185	+0 -0.72	4.2		7.5
195	185.5		4.0		14	-	4.0	224	195	190		4.2		7.5
200	190.5		4.0		14	-	4.0	229	200	195		4.2		7.5
210	198.5		5.0	±0.15	14	-	4.0	239	210	204		5.2	+0.25 -0	9
220	208		5.0		14	-	4.0	249	220	214		5.2		9
230	218		5.0		14	-	4.0	259	230	224		5.2		9
240	228		5.0		14	-	4.0	269	240	234		5.2		9
250	238		5.0		14	-	4.0	279	250	244		5.2		9
260	245		5.0		16	-	4.0	293	260	252	+0 -0.81	5.2		12
270	255	+0.81 -1.62	5.0		16	-	4.0	303	270	262		5.2		12
280	265		5.0		16	-	4.0	313	280	272		5.2		12
290	275		5.0		16	-	4.0	323	290	282		5.2		12
300	285		5.0		16	-	4.0	333	300	292		5.2		12

*未顯示於表格之規格歡迎來電洽詢
*Other sizes may be available upon request

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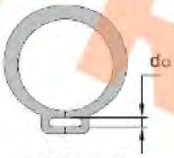
JIS

✓ 小尺寸規格 Alternative Design
S-7以下僅有單孔, S-8、S-9單雙孔皆有, S-10以上僅有雙孔
Special Lug for ring sizes S-3 thru S-9



▲ 單孔形式

✓ 規格標準 Standard Reference
日本工業規格 JIS B 2804
約略德國工業規格 Similar to DIN 471

✓ 材質、硬度 & 表面處理 Material, Hardness Ranges & Finish

材質 Material	硬度 Hardness Ranges	表面 Finish
彈簧鋼 SAE1050~SAE1090 Carbon Spring Steel	HRC 44-53 (Rockwell scale)	染黑 Black Oxide
		磷酸鹽 Black Phosphate (ACP)
不鏽鋼 SUS420 Stainless Steel Type 420	HRC 44-52 (Rockwell scale)	原色 Plain

✓ 包裝方式 Packaging
散裝 Bulk
條裝 Stacked
收縮塑膠膜 Plastic Shrink Wrapped
*條裝&收縮塑膠膜包裝僅接受訂購，暫無現貨供應 Not all sizes in stacked and plastic shrink wrapped in stock

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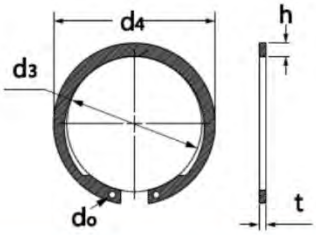
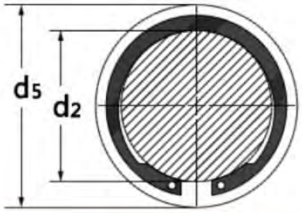
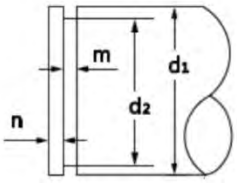
IS型-軸用止輪扣環
IS Series External Inverted Rings (Shaft)







單位Unit : mm

品號 Ring No.	止輪尺寸 Ring Dimension								d_5 Clearance Dia.	適用軸尺寸 Shaft Dimension (Reference Only)					
	d_3		d_4	t		h	d_o	公差		d_1	d_2		m		n
	扣環直徑 Free Dia.	公差 Tol.		厚度 Thickness	公差 Tol.	寬度 App.	孔 Hole Dia.	Tol.		Shaft Dia.	溝槽直徑 Groove Dia.	公差 Tol.	溝槽寬 Width	公差 Tol.	最小 min.
IS- 6	5.6	+0.1 -0.2	8	0.5	±0.03	1.2	2.2	±0.2	8.9	6	5.7	+0/-0.04	0.6	+0.1 -0	1.5
7	6.5		9.3	0.6	±0.04	1.4	2.4		10.3	7	6.7	+0 -0.6	0.7		1.5
8	7.4		10.6	0.7		1.6	3.0		11.7	8	7.6		0.8		1.5
9	8.4		12	0.8		1.8	3.4		13.1	9	8.6		0.95		1.5
10	9.3	±0.15	13.3	1.0	±0.05	2.0	1.2	±0.3	14.5	10	9.6	+0/-0.09	1.15	+0.14 -0	1.5
11	10.2		14.4	1.0		2.1	1.2		16	11	10.5	+0 -0.11	1.15		1.5
12	11.1	±0.18	15.5	1.0		2.2	1.2		17.2	12	11.5		1.15		1.5
13	12		16.6	1.0		2.3	1.2		18.4	13	12.4		1.15		1.5
14	12.9		17.5	1.0		2.3	1.2		19.4	14	13.4		1.15		1.5
15	13.8		18.6	1.0		2.4	1.2		20.6	15	14.3		1.15		1.5
16	14.7		19.7	1.0		2.5	1.2		21.8	16	15.2		1.15		1.5
17	15.7		20.9	1.0		2.6	1.2		23	17	16.2		1.15		1.5
18	16.5		21.9	1.2	±0.06	2.7	1.5		24.2	18	17.0		1.35		1.5
19	17.5		23.1	1.2		2.8	1.5		25.4	19	18.0		1.35		1.5
20	18.5		24.3	1.2		2.9	1.5		27	20	19.0		1.35		1.5
~~21~~	~~19.5~~		~~25.5~~	~~1.2~~		~~3.0~~	~~1.5~~	±0.4	~~28~~	~~21~~	~~20.0~~		~~1.35~~		~~1.5~~
22	20.5		26.5	1.2		3.0	1.5		29	22	21.0		1.35		1.5
24	22.2		28.6	1.2		3.2	1.5		31.5	24	22.9	+0 -0.21	1.35		1.7
25	23.2		29.8	1.2		3.3	1.5		33	25	23.9		1.35		1.7
26	24.2		31	1.2		3.4	1.5		34	26	24.9		1.35		1.7
28	25.9		33.1	1.5		3.6	1.8		36.5	28	26.6		1.65		2.1
30	27.9		35.3	1.5		3.7	1.8		38.5	30	28.6		1.65		2.1
35	32.2	±0.25	40.6	1.5		4.2	1.8		45	35	33.0		1.65		3.0
36	33.2		41.6	1.75	±0.07	4.2	2.0		46	36	34	+0 -0.25	1.9		3.0
38	35.2		44.0	1.75		4.4	2.0		48	38	36.0		1.9		3
42	38.5	±0.4	48.1	1.75		4.8	2.0	±0.5	54	42	39.5		1.9		3.8
60	55.8	±0.45	68.4	2.0		6.3	2.5		75	60	57.0	+0/-0.3	2.2		4.5

*未顯示於表格之規格歡迎來電洽詢
*Other sizes may be available upon request

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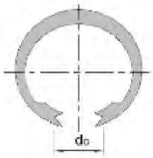
✓ **小尺寸規格 Alternative Design**
IS-9以下為無孔設計
Special Lug for ring sizes IS-6 thru IS-9



✓ **規格標準 Standard Reference**
日本工業規格 JIS B 2804

✓ **材質、硬度 & 表面處理 Material, Hardness Ranges & Finish**

材質 Material	硬度 Hardness Ranges	表面 Finish
彈簧鋼 SAE1050~SAE1090 Carbon Spring Steel	HRC 44-53 (Rockwell scale)	染黑 Black Oxide

✓ **包裝方式 Packaging**
散裝 Bulk

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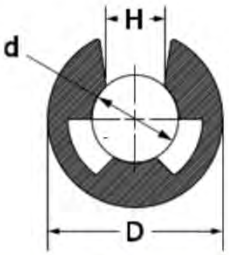
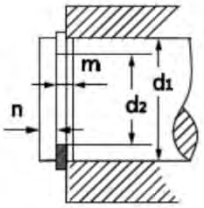
E型軸用止輪扣環
E Series External Rings (Shaft, Radial)





單位Unit : mm

品 號	止 輪 尺 寸 Ring Dimension								適 用 軸 尺 寸 Shaft Dimension (Reference Only)						
	d		D		H		t		d_1		d_2		m		n
Ring No.	扣環內徑 Free Dia.	公差 Tol.	扣環直徑 Clearance Dia.	公差 Tol.	缺口 Gap	公差 Tol.	厚度 Thickness	公差 Tol.	軸徑(以上) Shaft Min.	軸徑(以下) Shaft Max.	溝槽直徑 Groove Dia.	公差 Tol.	溝槽寬 Width	公差 Tol.	最小 Min.
E- 1.0	0.98	+0 -0.09	2.8	±0.1	0.88	+0 -0.25	0.2	±0.02	1.3	1.7	1	+0.05/-0	0.3	+0.05 -0	0.5
1.2	1.2		3		1.0		0.3	±0.025	1.4	2	1.23	+0.06 -0	0.4		0.6
1.5	1.5		4	±0.2	1.3		0.4	±0.03	2	2.5	1.53		0.5		0.8
2	2		5		1.7		0.4		2.5	3.2	2.05		0.5		1.0
2.3	2.3		6		2.0		0.4		3	4	2.35		0.5		1.0
2.5	2.5		6		2.1		0.4		3.2	4	2.55		0.5		1.0
3	3		7		2.6		0.6	±0.04	4	5	3.05		0.7	+0.1 -0	1.0
3.2	3.2	+0 -0.12	7		2.8	+0 -0.3	0.6		4	5	3.25	+0.075 -0	0.7		1.2
4	4		9		3.5		0.6		5	7	4.05		0.7		1.2
5	5		11		4.3		0.6		6	8	5.05		0.7		1.2
6	6		12		5.2		0.8		7	9	6.05		0.9		1.2
7	7	+0 -0.15	14		6.1	+0 -0.35	0.8		8	11	7.1	+0.09 -0	0.9		1.5
8	8		16		6.9		0.8		9	12	8.1		0.9		1.8
9	9		18		7.8		0.8		10	14	9.1		0.9		2
10	10		20	±0.3	8.7		1.0	±0.05	11	15	10.15		1.1	+0.14 -0	2
12	12	+0 -0.18	23		10.4	+0 -0.45	1.0		13	18	12.15	+0.11 -0	1.1		2.5
13	12.9		24.6		11.2		1.0		14	18	13.15		1.1		2.5
15	15		29		13.0		1.5	±0.06	16	24	15.15		1.6		3
19	19	+0 -0.21	37		16.5		1.5		20	31	19.15	+0.13 -0	1.6		3.5
24	24		44		20.8	+0/-0.5	2.0	±0.07	25	38	24.15		2.2		4

*未顯示於表格之規格歡迎來電洽詢
*Other sizes may be available upon request

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JIS

✓ 規格標準 Standard Reference

◎**公制: Metric**
日本工業規格 JIS B 2804 (JIS B 2805)
約略德國工業規格 Similar to DIN 6799
約略美國機械標準 Similar to ASME/ANSI B18.27.1

◎**英制: Inch**
英制尺寸規格歡迎來電洽詢 Inch sizes may be available upon request

✓ 材質、硬度 & 表面處理 Material, Hardness Ranges & Finish

材質 Material	硬度 Hardness Ranges	表面 Finish
彈簧鋼 SAE1050~SAE1090 Carbon Spring Steel	HRC 44-53 (Rockwell scale)	染黑 Black Oxide
		鍍鎳 Nickel Plating
		磷酸鹽 Black Phosphate (ACP)
不鏽鋼 SUS301 & SUS304 Stainless Steel Type 301 & 304	HV 250-420 (Vickers scale)	原色 Plain
不鏽鋼 SUS420 Stainless Steel Type 420	HRC 44-52 (Rockwell scale)	原色 Plain

✓ 包裝方式 Packaging

散裝 Bulk
條裝 Stacked
*條裝包裝限量現貨供應 Not all sizes in stacked in stock

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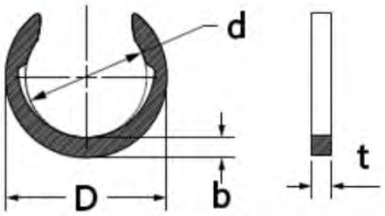
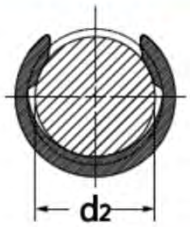
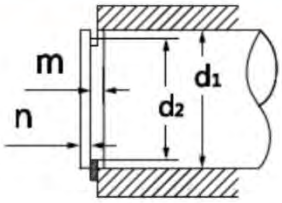
CT型軸用止輪扣環
CT Series Crescent External Rings (Shaft, Radial)







單位Unit : mm

品 號	止 輪 尺 寸 Ring Dimension						適 用 軸 尺 寸 Shaft Dimension (Reference Only)					
	d		D	b	t		d_1	d_2		m		n
Ring No.	扣環內徑 Free Dia.	公差 Tol.	扣環直徑 Clearance Dia.	寬度 App.	厚度 Thickness	公差 Tol.	軸直徑 Shaft Dia.	溝槽直徑 Groove Dia.	公差 Tol.	溝槽寬 Width	公差 Tol.	最小 Min.
CT- 12	2.59	+0.05 -0.1	4.17	0.79	0.4	±0.03	3.2	2.69	±0.04	0.48	+0.04	0.5
18	4.09		6.19	1.05	0.4		4.8	4.19		0.48	-0	0.6
21	4.75	+0.07 -0.13	6.99	1.12	0.6	±0.04	5.6	4.9	±0.05	0.7	+0.06 -0	0.7
25	5.36		7.90	1.27	0.6		6.4	5.59		0.7		0.8
31	6.86		9.56	1.35	0.6		7.9	7.01		0.7		0.9
37	8.33		11.37	1.52	0.6		9.5	8.51		0.7		1.0
40	9.12		12.32	1.60	0.6		10.3	9.25		0.7		1.1
43	9.8		13.10	1.65	0.6		11.1	9.98		0.7		1.1
46	10.54		14.00	1.73	0.6		11.9	10.69		0.7		1.2
50	11.2	±0.15	14.76	1.78	0.9	±0.05	12.7	11.43	±0.07	1.0	+0.08 -0	1.3
56	12.62		16.56	1.98	0.9		14.3	12.88		1.0		1.4
62	14.05		18.16	2.06	0.9		15.9	14.3		1.0		1.6
81	18.31	±0.18	23.23	2.46	1.4	±0.06	20.6	18.59		1.5		2.3

*未顯示於表格之規格歡迎來電洽詢
*Other sizes may be available upon request

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✓ 規格標準 Standard Reference
WALDES TRUARC, series 5103
Arcon, series N1800

✓ 材質、硬度 & 表面處理 Material, Hardness Ranges & Finish

材質 Material	硬度 Hardness Ranges	表面 Finish
彈簧鋼 SAE1050~SAE1090 Carbon Spring Steel	HRC 44-53 (Rockwell scale)	染黑 Black Oxide
		鍍鎳 Nickel Plating
不鏽鋼 SUS301 & SUS304 Stainless Steel Type 301 & 304	HV 250-420 (Vickers scale)	原色 Plain
不鏽鋼 SUS420 Stainless Steel Type 420	HRC 44-52 (Rockwell scale)	原色 Plain

✓ 包裝方式 Packaging
散裝 Bulk
條裝 Stacked
*條裝包裝僅少量現貨供應 Not all sizes in stacked in stock

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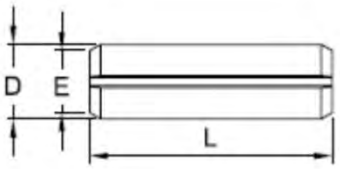
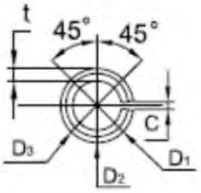
SPP型-空心彈簧銷(公制)
SPP Series Slotted Spring Pins (Metric)





Unit : mm

公稱直徑 Nominal Dia.			1.0	1.2	1.5	1.6	2	2.5	3	3.5	4	4.5	5	6	8	10	12	13
基本尺寸	D Free Dia.	最大Max.	1.2	1.4	1.71	1.80	2.25	2.75	3.30	3.84	4.40	4.84	5.40	6.40	8.60	10.60	12.50	13.70
		最小Min.	1.1	1.3	1.60	1.70	2.15	2.70	3.20	3.70	4.20	4.70	5.20	6.20	8.30	10.30	12.30	13.40
	t	厚度 Thickness	0.2	0.25	0.3	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.6	2.0	2.0	2.5
	E	最大Max.	0.9	1.1	1.4	1.5	1.9	2.4	2.9	3.4	3.9	4.3	4.8	5.8	7.8	9.8	11.7	12.7
適用孔徑 Hole Dimension		直徑 Dia.	1	1.2	1.5	1.6	2.0	2.5	3.0	3.5	4.0	4.5	5	6	8	10	12	13
		公差 Tol.	+0.08 -0				+0.09 -0			+0.12 -0					+0.15 -0		+ 0.2 -0	

品號 Pin No.		公差 Tol.	公稱直徑 Nominal Dia. (Recommended Hole Size) 1.0	1.2	1.5	1.6	2	2.5	3	3.5	4	4.5	5	6	8	10	12	13
總長度 Length	SPP- 4	+0.5 -0	◆	◆	◆	◆	◆											
	5		◆	◆	◆	◆	◆	◆	◆									
	6		◆	◆	◆	◆	◆	◆	◆	◆	◆							
	8		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆					
	10		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆				
	12	+1.0 -0		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆				
	14				◆	◆	◆	◆	◆	◆	◆	◆	◆	◆				
	16				◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆			
	18				◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆			
	20				◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
	22				◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
	24				◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
	25				◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
	28						◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
	30						◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
	32						◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
	36						◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
	40						◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
	45						◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
	50						◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
	55	+1.5 -0									◆	◆	◆	◆	◆	◆	◆	◆
	60										◆	◆	◆	◆	◆	◆	◆	◆
	63													◆	◆	◆	◆	◆
	65											◆		◆		◆		
	70											◆	◆	◆	◆	◆	◆	◆
	75											◆				◆	◆	◆
	80											◆	◆	◆	◆	◆	◆	◆
	85															◆	◆	◆
	90														◆	◆	◆	◆
	100														◆	◆	◆	◆
	110															◆	◆	◆
	120															◆	◆	◆
	125																◆	◆
	130																	◆
	140																◆	◆
	150																	◆

*未顯示於表格之規格歡迎來電洽詢
*Other sizes may be available upon request

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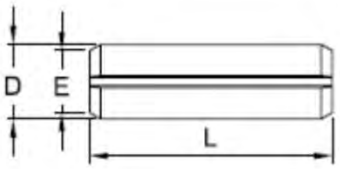
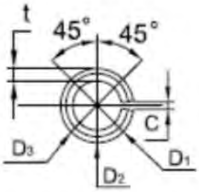
SPP型-空心彈簧銷(公制)
SPP Series Slotted Spring Pins (Metric)





✓ **規格標準 Standard Reference**

日本工業規格 JIS B 2808

約略ISO 8752重負荷規格

Equivalent to ISO 8752 (Heavy Duty) but with reduced free diameter for easier assembly

✓ **材質、硬度 & 表面處理 Material, Hardness Ranges & Finish**

材質 Material	硬度 Hardness Ranges	表面 Finish
彈簧鋼 SAE1050~SAE1090	HRC 40-50 (Rockwell scale)	染黑 Black Oxide
不鏽鋼SUS304 Stainless Steel Type 304	HV 160-310 (Vickers scale)	原色 Plain

*不鏽鋼製品僅接受訂購，暫無現貨供應 Stainless Steel pins for custom made only.

✓ **包裝方式 Packaging**

散裝 Bulk

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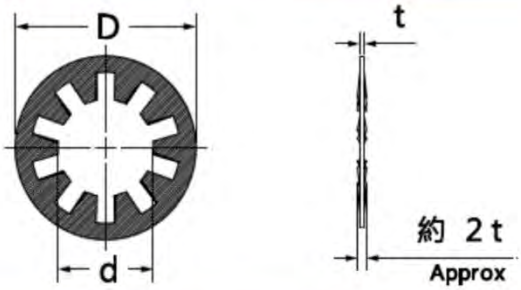
茂銓企業股份有限公司
MK Spring Co., Ltd.
Tel: +886-2-29901599 | service@mkspring.com.tw

AW型-內齒型墊圈
AW Series Internal Toothed Lock Washers



品 號 Washer No.	適用螺絲直徑 Screw/Thread Size			墊圈尺寸 Lock Washer Dimension (mm)							包裝 Packing
				d		D		t		n	
內齒AW Internal	公制 mm	英制 Inch	美規番號 US Code(#)	內徑 ID.	公差 Tol.	外徑 OD.	公差 Tol.	厚度 Thickness	公差 Tol.	齒數 Nos of Teeth	最低訂購數 MOQ/MPQ
AW- 2.5(2.6)	2.5(2.6)	—		2.7		5.7	-0.3	0.3	±0.025	7	20,000
3	3	—		3.2		6.5		0.45		6	10,000
3	3	—		3.2		6.5		0.45		7	10,000
3.5	3.5	—	6#	3.7		7.5		0.45		8	10,000
6#	—	0.138	6#	3.8	+0.2	7.5		0.45	±0.035	8	10,000
4	4	—		4.3	-0	8.5	+0	0.45		8	10,000
8#	—	0.164	8#	4.4		8.3	-0.4	0.45		8	10,000
8#	—	0.164	8#	4.4		8.3		0.5		8	10,000
10#	—	0.186	10#	5		9.6		0.5		8	5,000
5	5	—		5.3		10		0.5	±0.04	8	5,000
5	5	—		5.3		10		0.6		8	5,000
6	6	—		6.4		11		0.6		9	5,000
1/4"	—	1/4		6.5		12		0.6		9	5,000
7	7	—		7.4	+0.3	13		0.8		10	5,000
5/16"	—	5/16		8.3	-0	15.4	+0	0.7		10	5,000
8	8	—		8.4		15	-0.5	0.8	±0.05	9	5,000
3/8"	—	3/8		9.8		17.5		0.8		9	4,000
3/8"	—	3/8		9.8		17.5		0.8		10	4,000
10	10	—		10.5		18		0.9		9	4,000
7/16"	—	7/16		11.4		19.6		0.8		12	2,000
12	12	—		12.5	+0.4	21		1.0	±0.055	10	2,000
1/2"	—	1/2		13	-0	22.5	+0	1.0		12	2,000
5/8"	—	5/8		16.5		27	-0.6	1.1		12	1,000
18	18	—		19		29		1.2	±0.065	12	1,000
3/4"	—	3/4		19.6	+0.5	32		1.2		12	500
7/8"	—	7/8		23.1	-0	35.5	+0	1.3	±0.07	12	500
1"	—	1		26		41	-0.8	1.5		12	500
1-1/8"	—	1 1/8		29.6		46		1.5	±0.08	12	500
1-1/4"	—	1 1/4		33		49		1.5		10	200

*未顯示於表格之規格歡迎來電洽詢/規格表僅供參考
*Other sizes may be available upon request

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✓ **規格標準 Standard Reference**
日本工業規格 JIS B 1251
美國標準規格 ASME B18. 21.1
德國工業規格 DIN 6797 Form J

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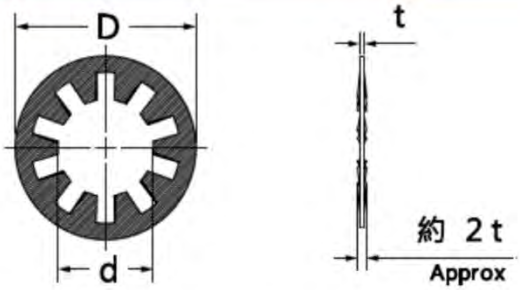
AW型-內齒型墊圈
AW Series Internal Toothed Lock Washers



✓ **材質、硬度 & 表面處理 Material, Hardness Ranges & Finish**

材質 Material	硬度 Hardness Ranges	表面 Finish
彈簧鋼 SAE1050~SAE1070 Carbon Spring Steel	HRC 40-50 (Rockwell scale)	染黑 Black Oxide
		鍍三價白鋅 Zinc Plating, Cr6+ free (Blue)
		鍍三價五彩鋅 Zinc Plating, Cr6+ free (Yellow)
		鍍鎳 Nickel Plating

✓ **包裝方式 Packaging**

散裝 Bulk

*最低訂購數量詳見本規格表右側 MOQ/MPQ limit required

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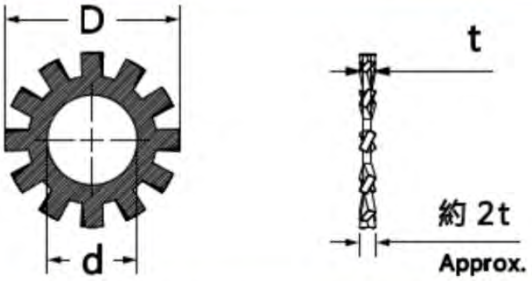
BW型-外齒型墊圈
BW Series External Toothed Lock Washers



品 號 Washer No.	適用螺絲直徑 Screw/Thread Size			墊圈尺寸 Lock Washer Dimension (mm)							包裝 Packing
				d		D		t		n	
外齒BW External	公制 mm	英制 Inch	美規番號 US Code(#)	內徑 ID.	公差 Tol.	外徑 OD.	公差 Tol.	厚度 Thickness	公差 Tol.	齒數 Nos of Teeth	最低訂購數 MOQ/MPQ
BW- 2	2	—		2.2		4.8	+0	0.3	±0.025	8	20,000
2.5(2.6)	2.5(2.6)	—		2.7		5.7	-0.35	0.3		8	20,000
3	3	—		3.2		6.5		0.45		8	10,000
3.5	3.5	—		3.7		7.5		0.45		8	10,000
6#	—	0.138	6#	3.6	+0.2	8.1		0.45	±0.035	8	10,000
4	4	—		4.3	-0	8.5		0.45		8	10,000
8#	—	0.164	8#	4.3		9.6	+0	0.6		9	5,000
10#	—	0.190	10#	5		10.4	-0.4	0.5		9	5,000
10#	—	0.190	10#	5		10.4		0.5		10	5,000
10#	—	0.190	10#	5		10.4		0.6	±0.04	9	5,000
5	5	—		5.3		10		0.6		10	5,000
6	6	—		6.4		11		0.6		12	5,000
1/4"	—	1/4		6.6		12.9		0.6		12	5,000
1/4"	—	1/4		6.6		12.9		0.7		10	5,000
1/4"	—	1/4		6.6	+0.3	12.9		0.8		10	5,000
5/16"	—	5/16		8.3	-0	15.4		0.7		12	2,000
5/16"	—	5/16		8.3		15.4		0.8	±0.05	12	2,000
8	8	—		8.4		15		0.8		12	2,000
3/8"	—	3/8		9.8	+0.35	17.5		0.9		12	2,000
3/8"	—	3/8		9.8	-0	17.5	+0	1.0		12	2,000
10	10	—		10.5		18	-0.5	0.9		12	2,000
~~7/16"~~	~~—~~	~~7/16~~	~~—~~	~~11.1~~		~~19.5~~		~~0.9~~		~~12~~	~~2,000~~
12	12	—		12.5	+0.4	21		1.0	±0.055	12	1,000
1/2"	—	1/2		13	-0	22.5		1.0		12	2,000
14	14	—		14.5		23		1.0		12	1,000
9/16"	—	9/16		14.7		24.9	+0	1.1		12	2,000
5/8"	—	5/8		16.5		27	-0.6	1.2	±0.065	14	1,000
3/4"	—	3/4		19.6	+0.5	32		1.2		14	1,000
7/8"	—	7/8		23	-0	35	+0	1.5	±0.07	12	500
1"	—	1		26		41	-0.8	1.5	±0.08	16	500

*未顯示於表格之規格歡迎來電洽詢/規格表僅供參考
*Other sizes may be available upon request

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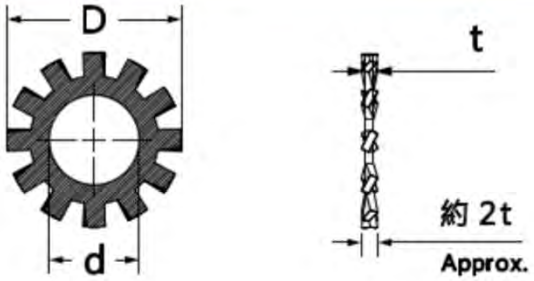
BW型-外齒型墊圈
BW Series External Toothed Lock Washers



✓ **規格標準 Standard Reference**

日本工業規格 JIS B 1251
美國標準規格 ASME B18. 21.1
德國工業規格 DIN 6797 Form A

✓ **材質、硬度 & 表面處理 Material, Hardness Ranges & Finish**

材質 Material	硬度 Hardness Ranges	表面 Finish
✓ 彈簧鋼 SAE1050~SAE1070 Carbon Spring Steel	HRC 40-50 (Rockwell scale)	染黑 Black Oxide
		鍍三價白鋅 Zinc Plating, Cr6+ free (Blue)
		鍍三價五彩鋅 Zinc Plating, Cr6+ free (Yellow)
		鍍鎳 Nickel Plating

✓ **包裝方式 Packaging**

散裝 Bulk
*最低訂購數量詳見本規格表右側 MOQ/MPQ limit required

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