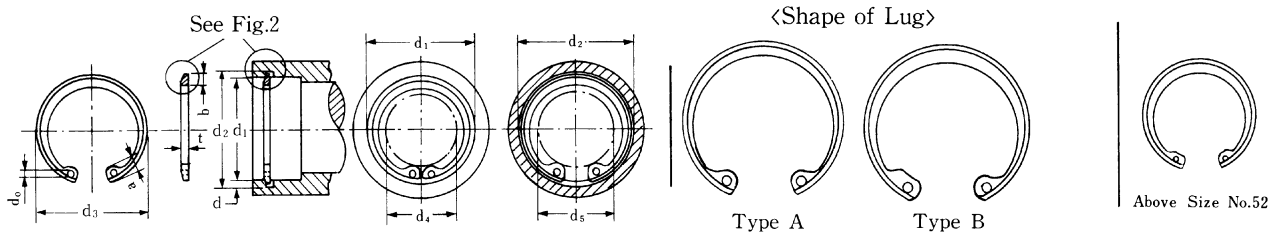
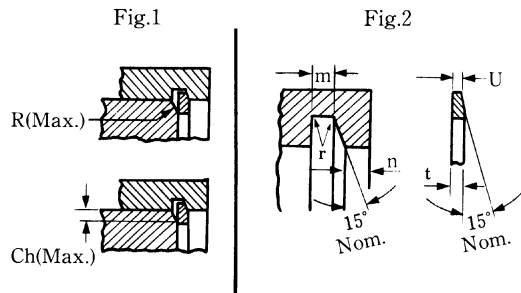


Beveled Retaining Rings (Internal)



Unit : mm

Size-No.	Ring dimension									Groove dimension							
	d ₃		t		U		a	b	d ₀	Shape of Lug	d ₁	d ₂			m		d
	Basic	Tol.	Basic	Tol.	Basic	Tol.						Basic	Tol.	T.I.R	Basic	Tol.	
MT-26	28.9	± 0.25	1	± 0.05	0.84	± 0.025	4	2.7	1.6	B	26	28	+0.1	0.1	0.85	+0.1	1.0
28	31.1	+0.65	1.27	± 0.05	1.02	± 0.03	4.6	2.95	1.9	B	28	30.1	0	0.13	1.1	0	1.05
30	33.4	-0.5									30	32.1					
32	35.35	+0.9	1.6	± 0.08	0.99	5.25	4.15	1.93	B	32	34.3	+0.13	0	1.3	+0.15	1.4	
35	38.75				0.97					35	37.5						
40	44.25	-0.65	2	± 0.08	1.22	5.75	4.25	2.31	A	40	42.8	+0.15	0.15	1.6	0	1.5	
42	46.6				1.19					42	45.						
47	52.15	+1	2.4	± 0.05	1.17	7.6	5.8	3.2	B	47	50.4	+0.15	0.15	1.6	0	1.7	
52	57.9				1.52					± 0.04	6.35						4.7
55	61.1	-0.75	2.8	± 0.06	1.5	7.9	6.65	3.2	A	55	59.1	+0.15	0.15	1.6	0	2.05	
62	68.6				1.45					7.1	5.3						2.74
72	79.6	± 1.4	2.8	± 0.06	1.8	7.6	5.8	3.2	A	72	77.2	+0.15	0.15	1.6	0	2.6	
80	89.1				2.1					± 0.06	7.9						6.65
85	94.8				2.1	± 0.06	8.65	7	3.17	B	85	91.2					3.1

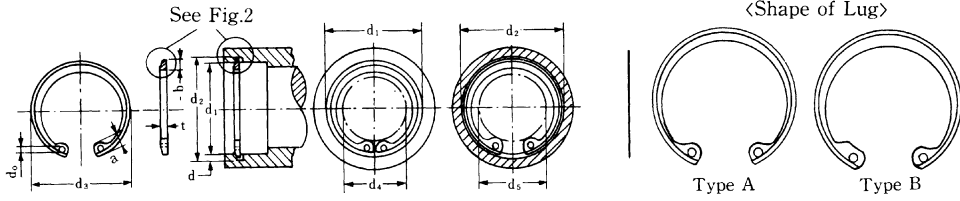


Size-No.	r(Max.)
50以下	0.12
52以上	0.25

Unit : mm

Size-No.	DATA							
	Clearance diameter		Allowable thrust load Sharp corner abutment		Maximum allowable corner radii and chamfers of retained parts (Fig.1)		Rigid end-play take-up	n (Min.)
	When sprung into d ₃	When sprung into d ₅ (φ ₅)	Rings (standard material) Safety factor=4	Grooves (cold rolled steel bars and housings) Safety factor=2	R(Max.)	Ch(Max.)		
MT-26	d ₄	d ₅	Pr (kN)	Pg (kN)	1	0.8	0.14	1.6
28	17.4	18.4	24.51	7.35	1.6	1.3	0.17	1.7
30	18.2	19.2	35.30	8.33			0.19	2.3
32	20	21	37.26	9.31			0.2	2.6
35	22	23.1	39.22	10.68			0.23	2.8
40	25	26.2	43.14	12.74	2	1.6	0.25	3.1
42	29.2	30.6	50.99	15.69			0.27	3.4
47	29.7	31.2	53.93	18.63			0.3	3.9
52	34.3	36	61.78	22.55			0.35	3.9
55	38.6	40.4	101.00	28.43	2.5	2	0.4	4.4
62	40.8	42.8	106.89	32.36			0.42	4.7
72	47	49.2	119.64	40.20				
80	55.9	58.5	163.77	53.93				
85	63	66	215.74	68.64				
	66.8	69.9	229.47	76.49				

Beveled Retaining Rings (Internal)



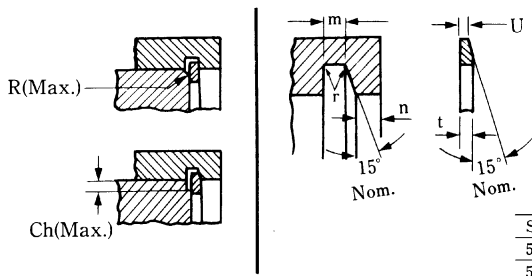
Unit : mm

Size-No.	Ring Dimension									Groove Dimension							
	d ₃		t		U		a	b	d _o	Shape of lug	d ₁	d ₂			m		d
	Basic	Tol.	Basic	Tol.	Basic	Tol.	Approx.	Approx.	Approx.		Basic	Tol.	T.I.R	Basic	Tol.		
MT-31011	34.4	+0.65 -0.5	1.27	±0.05	1.02	±0.03	4.6	3.1	1.9	B	31	33.2	+0.1	0.13	1.1	+0.1	1.1
32011	34.7	+0.5 -0.25	1.4		1.05	0	6.5	3.55	2.0		32	33.7	0		1.15	0	0.85
35011	37.8	+0.8 -0.2	1.5		1.12	-0.05	5.2	3.5	2.5	A	35	37			1.25		1.0
35012	38.8	+0.5 -0.25					6.5	3.85	2.0	B		37.6	±0.1				1.3
※1 40011	44	±0.4	2	±0.08	1.55	-0.1	5.7	4.2	-2.5	A	40	42.3	+0.1		1.7	+0.15	1.15
40012	44.25	+0.9 -0.85	1.6		1.22	±0.03	5.1	4	1.9	B		42.8	+0.13 0		1.3	0	1.4
50511	56.8	+0.9 -0.65			1.1		6.5	4.5	2.5		50.5	55	±0.06	0.15			2.25
54011	59.7	+1 -0.75	1.98		1.52	±0.04	6.6	5	2.3	A	54	57.9	±0.15		1.65	+0.04	1.95
55001	59.2	±0.45	2	±0.06	1.4	-0.1	6.5	5.1	2.5		55	58	0		1.7	+0.15	1.5
85001	94.84	±1.4	2.77	±0.08	2.08	±0.06	8.69	7.01	3.13		84.15	91.21			2.26	+0.05	3.53
88912	98.8			±0.07				7.34	3.17		88.925	95.58	±0.08	0.2	0		3.33
90011	100			±0.08			8.7	7.4	3.1		89.95	96.6	+0.15				3.33
95011	105.6	±1.65		±0.07			8.69	7.85	3.17		95.25	102	0				3.37
98011	109			±0.08			9.4	8.1	3.1		98.4	105.94					3.77
254011	277.37	±2.29	4.75	±0.13	3.51	±0.08	18.67	17.15	4.44		254.05	273	+0.2 0		3.87		9.48

※1 : Bevel-Angle 20°

Fig. 1

Fig. 2



Size-No.	r (Max.)
50 under	0.12
52 Above	0.25

Unit : mm

Size-No.	Data							
	Clearance diameter		Allowable thrust load Sharp corner abutment		Maximum allowable corner radii and chamfers of retained parts (Fig. 1)		Rigid end-play take-up	n (Min.)
	When sprung into d ₁	When sprung into d ₂ (d ₂ /2)	Rings (standard material) Safety factor=4	Grooves (cold rolled steel boxes) Safety factor=2	R (Max.)	Ch (Max.)		
d ₄	d ₂ (d ₂ /2)	Pr (kN)	Pg (kN)					
MT-31011	21	22.1	38.24	9.80	1.0	0.8	0.15	1.65
32011	18.2	19	43.63	7.84			0.12	1.3
35011	23.8	24.8	50.99	9.80			0.14	1.5
35012	21.2	22.5	50.99	13.23			0.18	1.7
※1 40011	27.8	28.9	77.47	13.23	1.6	1.3	0.16	1.8
40012	29	30.4	61.78	16.18			0.19	2.1
50511	36.7	38.9	78.45	32.85	2.0	1.6	0.30	3.4
54011	40	41.9	83.84	30.40			0.26	3.0
55001	41.2	42.7	106.89	24.02			0.20	2.3
85001	65.8	69.3	229.47	87.27	2.5	2.0	0.48	5.3
88912	70.5	73.8	239.77	86.29			0.45	5.0
90011	71.5	74.8	242.71	87.27				
95011	76.8	80.1	256.44	93.65			0.46	5.1
98011	76.8	82.5	264.28	107.87			0.51	5.7
254011	215	224	1175.81	703.62			1.27	14.3

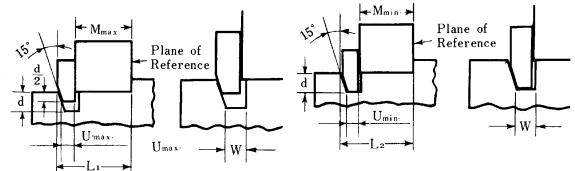
●Position of ring in groove

1. MINIMUM INSERTION OF RING IN GROOVE
2. MAXIMUM INSERTION OF RING IN GROOVE

If the maximum length of the machine part (M_{max}), the maximum thickness of the ring segment engaged in the groove (U_{max}) and the minimum distance from the edge of the outer groove wall to the plane of reference coincide, the ring must engage at least half the depth of the groove.

$$L_1 \geq M_{max} + U_{max} + \frac{d}{2} \tan 15^\circ$$

$$L_2 \leq M_{min} + U_{min} + d \tan 15^\circ$$



●Take-up

To function properly, ring take-up should be equal to or exceed the sum total of the tolerances.

$$Take-up = \frac{d}{2} \tan 15^\circ \geq \Delta L + \Delta M + \Delta U$$

$$\Delta L = L_{max} - L_{min}$$

$$\Delta M = M_{max} - M_{min}$$

$$\Delta U = U_{max} - U_{min}$$