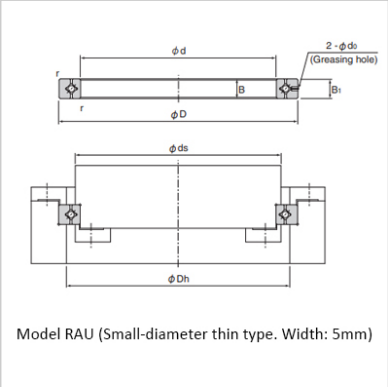
Crossed Roller Bearing

RAU slim thin section crossed roller bearing-170



Model RAU (Small-diameter thin type. Width: 5mm)

Shaft diameter	**170**
Model No.	RAU17013
Main dimensions	
Inner diameter	**170**
Outer diameter	196
Roller pitch circle diameter	182
Width	13
Greasing hole d0	2
rmin	0.8
Shoulder dimensions	
ds(max)	175
Dh (min)	189
Basic load rating	
C kN	23.5
C0 kN	46.5
Mass	
g	64

Micro Cross-Roller Ring RAU

Model composition

Model Number Coding

RAU5008 UU CC0 P4 B

Model No.

Seal symbol*
No symbol: Without seals
UU: Seals attached on both ends
U: Seal attached on one end (marked side)
UT: Seal attached on one end (unmarked side)

Radial clearance symbol
CC0: Negative clearance (preload)
C0: Positive clearance (no preload)

Accuracy symbol
No symbol: Normal grade (grade 0)
P6: Rotational accuracy grade 6
P5: Rotational accuracy grade 5
P4: Rotational accuracy grade 4

Accuracy target symbol
No symbol: Rotational accuracy of the inner ring
R: Rotational accuracy of the outer ring
B: Rotational accuracy of both the inner ring and outer ring

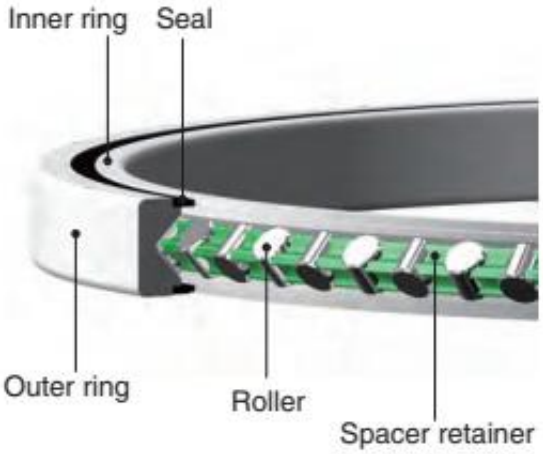
Considerations for model RAU (Small-diameter thin type. Width: 5mm)
Seals are not available. The only radial clearance available is C0.* The only accuracy available is normal grade (grade 0).

For a compact and lightweight system

Micro Cross-Roller Ring with inner diameter of 10 mm and outer diameter of 21 mm

More compact than a conventional angular contact ball bearing

Spacer retainer enables smooth movement and high rotation accuracy.



Structure

In the RAU, the rollers travel on the V-shaped raceways ground into the inner and outer rings.

Alternating rollers are arrayed orthogonally so that one bearing can support loads and moments in any direction.

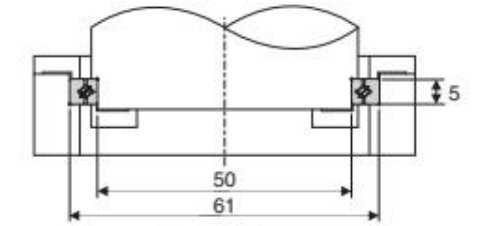
Also, because of the integrated structure, the RAU can be used for either inner ring or outer ring rotation.

Fig. 1 Structure of Cross Roller-Ring Model RAU

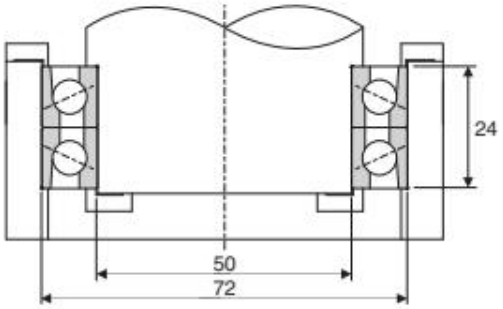
1. Compact and Rigid

The RAU is more compact and lighter weight than a double row angular contact ball bearing. It is also more rigid, even though it is made as compact as possible.

●Comparison, 50 mm inner diameter

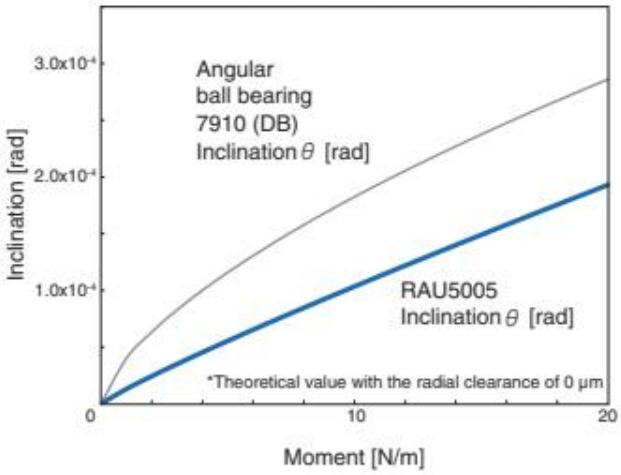


Model RAU



Angular ball bearing

Moment Rigidity Comparison



Comparison of cross-sectional area and mass

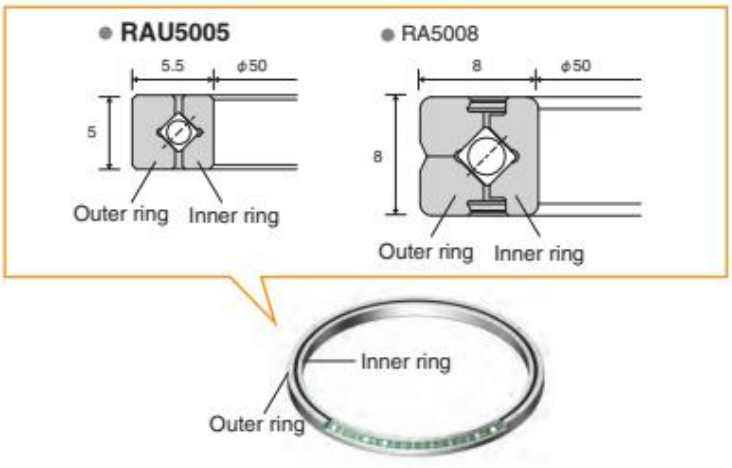
Model No.	RAU5005	7910 (DB)
Cross-sectional area	27.5mm²	264mm²
Mass	32g	260g

2. Light Weight

The cross-sectional area of the model RAU is 57% smaller than theCross-Roller Ring model RA, which was previously the thinnest ever. This enables further weight reduction. The line-up also includes other models

whose inner diameters are the smallest to date: 10, 15, 20, 30, and 40mm.

●Comparison of cross section and mass, 50 mm inner diameter



Model No.	RAU5005	RA5008
Cross-sectional area	27.5mm²	64mm²
Mass	32g	80g

Accuracy standards

Rotational accuracy

- Rotational Accuracy of the Inner Ring

Unit: μm

Nominal dimension of bearing inner diameter (d) (mm)		Radial runout tolerance of inner ring				Axial runout tolerance of inner ring			
Above	Or less	Grade 0	Grade P6	Grade P5	Grade P4	Grade 0	Grade P6	Grade P5	Grade P4
—	18	10	—	—	—	10	—	—	—
18	40	13	—	—	—	13	—	—	—
40	65	13	10	5	4	13	10	5	4
65	80	15	10	5	4	15	10	5	4
80	100	15	13	6	5	15	13	6	5
100	120	20	13	6	5	20	13	6	5
120	140	25	18	8	6	25	18	8	6
140	180	25	18	8	6	25	18	8	6
180	200	30	20	10	8	30	20	10	8

- Rotational Accuracy of the Outer Ring

Unit: μm

Nominal dimension of bearing outer diameter (D) (mm)		Radial runout tolerance of outer ring			Axial runout tolerance of outer ring		
Above	Or less	Grade 0	Grade P5	Grade P4	Grade P6	Grade P5	Grade P4
—	65	13	—	—	13	—	—
65	80	13	8	5	13	8	5
80	100	15	10	6	15	10	6
100	120	15	10	6	15	10	6
120	140	20	11	7	20	11	7
140	180	25	11	7	25	11	7
180	200	25	15	10	25	15	10
200	250	30	15	10	30	15	10

- The rotational accuracy of model RAU (Small-diameter thin type. Width: 5mm) is only available in normal grade (grade 0).

Dimensional accuracy

Unit: μm

Basic dimension d, D [mm]		Bearing inner diameter: Dimensional tolerance of dm		Bearing outer diameter: Dimensional tolerance of Dm		Bearing width: Dimensional tolerance of B, B1	
Above	Or less	Upper limit	Lower limit	Upper limit	Lower limit	Upper limit	Lower limit
—	18	0	-8	—	—	0	-120
18	30	0	-10	0	-9	0	-120
30	50	0	-12	0	-11	0	-120
50	80	0	-15	0	-13	0	-120
80	120	0	-20	0	-15	0	-120
120	150	0	-25	0	-18	0	-120
150	180	0	-25	0	-25	0	-120
180	250	0	-30	0	-30	0	-120

- dm and Dm represent the arithmetic averages of the maximum and minimum diameters obtained by measuring the inner and outer diameters of the bearing at two points.

Radial clearance standard

Unit: μm

Roller Pitch circle diameter (dp) [mm]		CC0		C0	
Above	Or less	Min.	Max.	Min.	Max.
—	18	—	—	0	15
18	30	—	—	0	15
30	50	—	—	0	15
50	80	-8	0	0	15
80	120	-8	0	0	15
120	140	-8	0	0	15
140	160	-8	0	0	15
160	180	-10	0	0	20
180	200	-10	0	0	20
200	225	-10	0	0	20