## Crossed Roller Bearing

RAU slim thin section crossed roller bearing-200


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

| Shaft diameter | 200 |
| :---: | :---: |
| Model No. | RAU20013 |
| Main dimensions |  |
| Inner diameter | 200 |
| Outer diameter | 226 |
| Roller pitch circle diameter | 212 |
| Width | 13 |
| Greasing hole d0 | 2 |
| rmin | 0.8 |
| Shoulder dimensions |  |
| ds(max) | 205 |
| Dh (min) | 219 |
| Basic load rating |  |
| C kN | 25.9 |
| CO kN | 54.7 |
| Mass |  |
| g | 71 |

## Micro Cross-Roller Ring RAU

## Model composition

Mode1 Number Coding


Seal symbol*
No symbol: Without seals

UT: Seal attached on one end
(unmarked side)

Radial clearance symbol CCO: 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

Considerations for model RAU (Small-diameter thin type. Width: 5mm)
*Seals are not available.* The omdyal clearance available is C0.* The only accuracy available is normal grade (grade 0).
$\square$ Micro Cross-Roller Ring with inner diameter of 10 mm and outer diameter of 21 mm
$\square$ More compact than a conventional angular contact ball bearing
$\square$ 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.


Model RAU


Angular ball bearing


Comparison of cross-sectional area and mass

| Model No. | RAU5005 | 7910 (DB) |
| :--- | :---: | :---: |
| Cross-sectional area | $27.5 \mathrm{~mm}^{2}$ | $264 \mathrm{~mm}^{2}$ |
| Mass | 32 g | 260 g |

## 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 40 mm .

Comparison of cross section and mass, 50 mm inner diameter


| Model No. | RAU5005 | RA5008 |
| :--- | :---: | :---: |
| Cross-sectional area | $27.5 \mathrm{~mm}^{2}$ | $64 \mathrm{~mm}^{2}$ |
| Mass | 32 g | 80 g |

## Accuracy standards

Rotational accuracy

- Rotational Accuracy of the Inner Ring Unit: $\mu \mathrm{m}$

| $\begin{array}{c}\text { Nominal dimension } \\ \text { of bearing inner }\end{array}$ | $\begin{array}{c}\text { Radial runout tolerancexial runout tolerance of } \\ \text { of inner ring }\end{array}$ |
| :---: | :---: |
| inner ring |  |

diameter (d) (nin)
of inner ring
inner ring
Nominal dimension

| Above | Or less | Grade <br> 0 | Grade <br> P6 | Grade <br> P5 | Grade <br> P4 | Grade | Grade <br> P6 | Grade <br> P5 | Crade |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| - | 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 |


| Above | Or less | $\begin{gathered} \text { Grade } \\ 0 \end{gathered}$ | Grade P5 | Grade P4 | Grade P6 | $\begin{gathered} \text { Grade } \\ \text { P5 } \end{gathered}$ | 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: 5 mm ) is only available in normal grade (grade 0 ).

Dimensional accuracy

## Unit: $\mu \mathrm{m}$


$-d m$ and $D m$ represent the arithm etic averages of the $m$ axin $u m$ and $m$ in $u m$ diam eters obtaned by $m$ easuring the inner and outer diameters of the bearing at two points.

## Radial clearance standard Unit: $\mu \mathrm{m}$

Roller Pitch $\underset{\substack{\text { circle diameter } \\(\mathrm{dp}) \\ \mathrm{cmm}]}}{ } \mathrm{CCO}$$\quad$ C0

| Above | Or less | Min. |  | Max. | Min. |
| ---: | ---: | :---: | :---: | :---: | :---: |
| - | 18 | - | - | 0 | Max. |
| 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 |

