



Double-Row Angular Contact Roller Ring

**RW**



Highly rigid double-row angular contact roller rings  
capable of receiving a load in any direction

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# Model **RW**

Boosts rigidity by using more rollers.  
Supports high rotational accuracy.

**Feature 1** **High Rigidity**

**Feature 2** **High Accuracy**

**Feature 3** **Easy to Install**

Achieves high rigidity and precision by increasing the number of rollers with a double-row structure. High rigidity and regulated wobbling accuracy make it optimal for rotating mechanisms in machines with multiple functions.

# Model RW

## Feature 1 High Rigidity

An increased number of rollers achieves high rigidity.

The Model RW uses multiple raceways and small-diameter rollers to increase the overall roller quantity. This achieves much higher rigidity when compared to conventional THK cross roller rings with the same inner and outer dimensions.

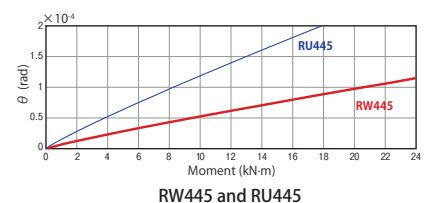
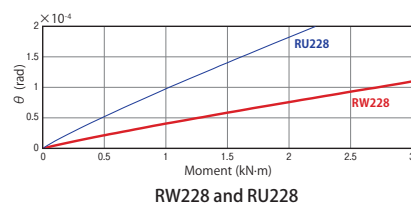
### Components/Structure

Inner ring (with mounting holes)

Double-row, single-direction rollers

Uses double-row, small-diameter rollers

Outer ring (with mounting holes)



Theoretical Rigidity Comparison

## Feature 2 High Accuracy

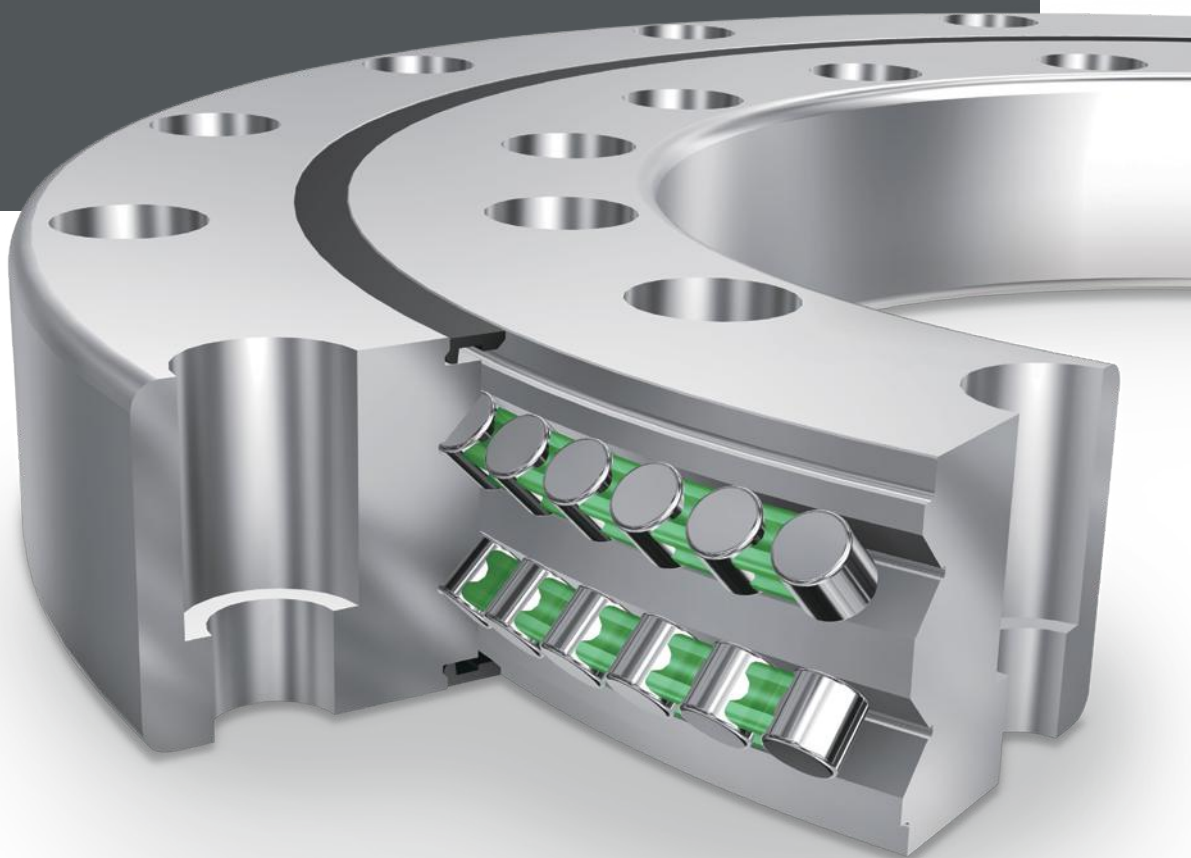
Wobbling accuracy of 2  $\mu\text{m}$  allows for high rotational accuracy.

With the Model RW, it is possible to specify the wobbling accuracy (runout accuracy) of actual expected heights of operating positions such as machining position and measurement position.

## Feature 3 Easy to Install

Mounting holes in the inner and outer rings reduce the number of design steps and components.

The Model RW has mounting holes in the inner and outer rings, eliminating the need for other mounting components and allowing it to attach directly to shafts and housings.



## Lineup

Unit: mm

| Model No. | Inner diameter | Outer diameter |
|-----------|----------------|----------------|
| RW228     | 160            | 295            |
| RW297     | 210            | 380            |
| RW445     | 350            | 540            |

Available in dimensions other than those listed above. See p. 10 for details.

## Model Number Coding

**RW297** **UU** **CC0** **P2** **B** **G** **-N**

Model No.

### Seal code

No symbol: No seal  
 UU: Seals on both sides  
 U: Seal on one side  
 (outer-ring counterbore side)  
 UT: Seal on one side  
 (outer-ring non-counterbore side)

### Radial clearance symbol

CC0: Negative clearance  
 (preload specification)

### Accuracy symbol

No symbol: Rotational accuracy grade 5  
 P4: Rotation accuracy grade 4  
 P2: Rotation accuracy grade 2  
 USP: Rotational accuracy grade USP  
 TSP: Rotational accuracy grade USP  
 + wobbling accuracy

### Option Symbols

No symbol: No attached grease nipple  
 -N: Grease nipples included (x4)  
 (Refer to p. 6 for grease nipple shape)

### Mounting hole assembly direction symbol (excludes X type)

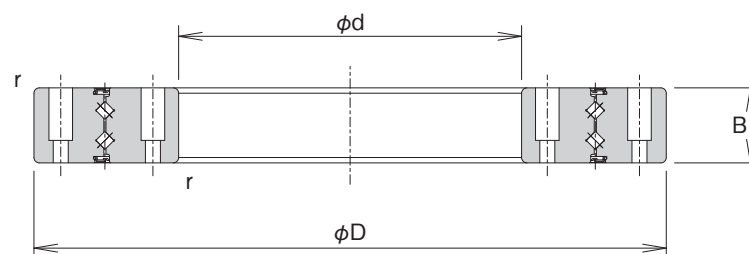
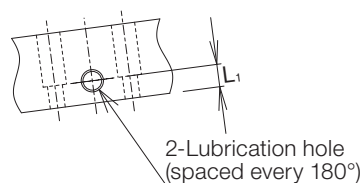
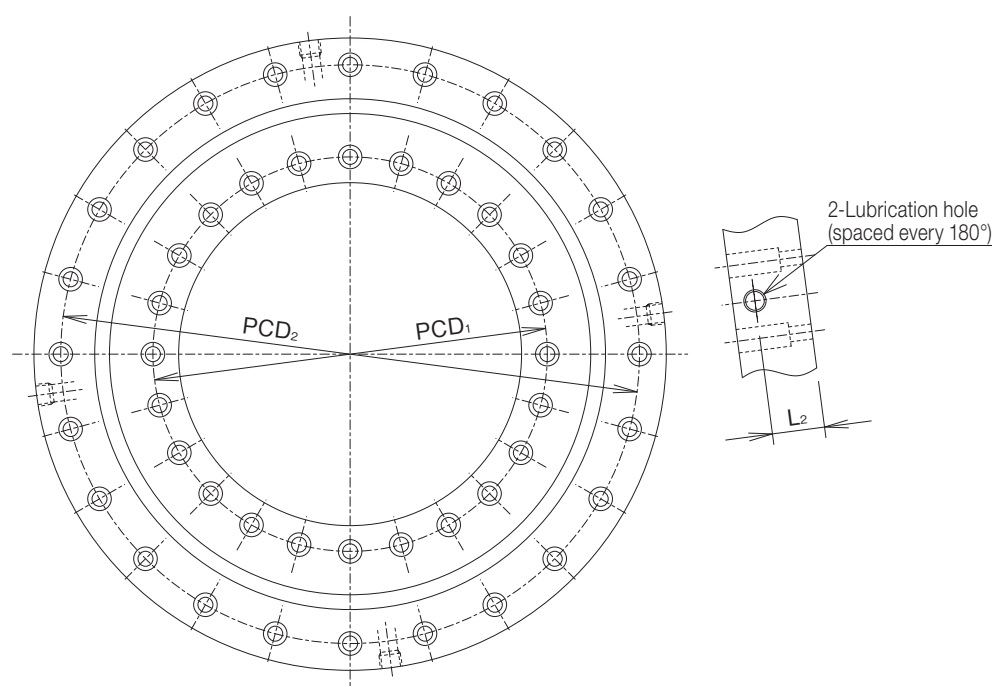
No symbol: Counterbores in inner and outer rings  
 are in the same direction  
 G: Counterbores in inner and outer rings are in  
 opposite directions  
 X: Inner ring tapped hole

### Component accuracy symbol

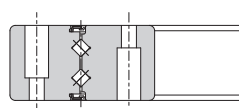
No symbol: Rotational accuracy of the inner ring  
 R: Rotational accuracy of the outer ring  
 B: Rotational accuracy of the inner and outer rings

  Select an option   Fixed symbol

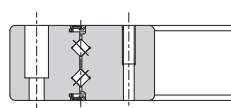
# Specification Table



RW228 to RW445

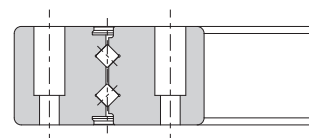
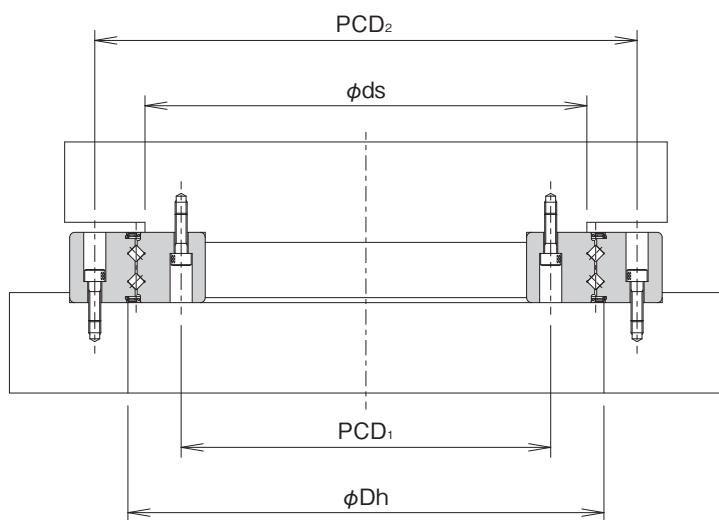


RW228G to RW445G

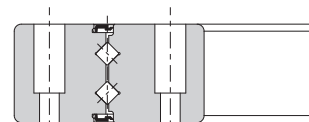


RW228X to RW445X

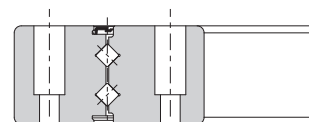
| Model No. | Main dimensions |             |                |             |                              |       |             |               |                |                |                  |  |
|-----------|-----------------|-------------|----------------|-------------|------------------------------|-------|-------------|---------------|----------------|----------------|------------------|--|
|           | Inner diameter  |             | Outer diameter |             | Roller pitch circle diameter | Width |             | Greasing hole |                |                | r <sub>min</sub> |  |
|           | d               | Tolerance*  | D              | Tolerance*  | dp                           | B     | Tolerance   | Hole diameter | L <sub>1</sub> | L <sub>2</sub> |                  |  |
| RW228 (G) | 160             | 0<br>-0.025 | 295            | 0<br>-0.035 | 228.8                        | 35    | 0<br>-0.100 | Rc1/8         | 10.5           | 24.5           | 2                |  |
| RW228X    |                 |             |                |             |                              |       |             |               |                |                |                  |  |
| RW297 (G) | 210             | 0<br>-0.030 | 380            | 0<br>-0.040 | 299.2                        | 40    | 0<br>-0.100 | Rc1/8         | 12             | 28             | 2.5              |  |
| RW297X    |                 |             |                |             |                              |       |             |               |                |                |                  |  |
| RW445 (G) | 350             | 0<br>-0.040 | 540            | 0<br>-0.050 | 445.4                        | 50    | 0<br>-0.150 | Rc1/8         | 15             | 35             | 2.5              |  |
| RW445X    |                 |             |                |             |                              |       |             |               |                |                |                  |  |



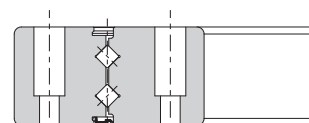
Model RW  
Without seals



Model RW (UU Type)  
With seals on both sides

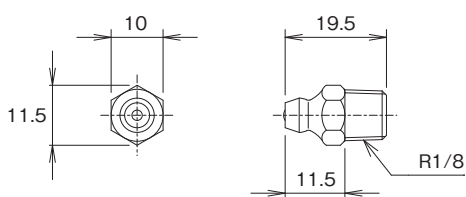


Model RW (U Type)  
With seal (outer-ring counterbore side)



Model RW (UT Type)  
With seal (outer-ring non-counterbore side)

## Options



Grease nipple (A-PT1/8)

\*Lubrication accessories (piping joints, grease nipples) other than the standard options are also available. Please contact THK if surface treatment is required. (For details about other lubrication accessories, please see the "Accessories for Lubrication" section of the catalog.)

Unit: mm

|  | Shoulder height |       | Basic load rating (radial) |                | Weight | Mounting hole dimensions |                                                                                                     |                  |                                                     |
|--|-----------------|-------|----------------------------|----------------|--------|--------------------------|-----------------------------------------------------------------------------------------------------|------------------|-----------------------------------------------------|
|  | ds              | Dh    | C                          | C <sub>0</sub> |        | Inner ring               |                                                                                                     | Outer ring       |                                                     |
|  | (max)           | (min) | (kN)                       | (kN)           |        | PCD <sub>1</sub>         | Mounting hole                                                                                       | PCD <sub>2</sub> | Mounting hole                                       |
|  | 220             | 240   | 58.4                       | 158            | 12     | 184                      | 24-φ7 drilled through, φ11 counterbore depth 24.5<br>24-M6 depth 18 (outer ring counterbore side)   | 270              | 24-φ7 drilled through, φ11 counterbore depth 24.5   |
|  | 285             | 315   | 101                        | 287            | 22     | 240                      | 24-φ9.3 drilled through, φ14.5 counterbore depth 28<br>24-M8 depth 24 (outer ring counterbore side) | 350              | 24-φ9.3 drilled through, φ14.5 counterbore depth 28 |
|  | 425             | 465   | 214                        | 647            | 47     | 385                      | 32-φ9.3 drilled through, φ14.5 counterbore depth 35<br>32-M8 depth 24 (outer ring counterbore side) | 505              | 32-φ9.3 drilled through, φ14.5 counterbore depth 35 |

\* The tolerance of the bearing inner diameter and outer diameter is the arithmetic average of the maximum and minimum diameters obtained by measuring the bearing inner diameter at two points.

## Radial Clearance

Radial clearance for the Model RW is adjusted to negative clearance (preload) at the time of shipment and is regulated by starting torque.

| Model No. | Starting torque (N·m) |      |
|-----------|-----------------------|------|
|           | Min.                  | Max. |
| RW228     | 1                     | 10   |
| RW297     | 3                     | 20   |
| RW445     | 10                    | 65   |

Note) Starting torque does not include seal resistance.

## Accuracy Standards

The Model RW is manufactured with accuracies in accordance with the following tables.

### Rotational Accuracy

#### Rotational Accuracy of the Inner Ring

Unit:  $\mu\text{m}$

| Model No. | Radial runout tolerance of the inner ring |          |          |           |           | Axial runout tolerance of the inner ring |          |          |           |           |
|-----------|-------------------------------------------|----------|----------|-----------|-----------|------------------------------------------|----------|----------|-----------|-----------|
|           | P5 Grade                                  | P4 Grade | P2 Grade | USP Grade | TSP Grade | P5 Grade                                 | P4 Grade | P2 Grade | USP Grade | TSP Grade |
| RW228     | 8                                         | 6        | 5        | 2.5       | 2.5       | 8                                        | 6        | 5        | 2.5       | 2.5       |
| RW297     | 10                                        | 8        | 5        | 3         | 3         | 10                                       | 8        | 5        | 3         | 3         |
| RW445     | 15                                        | 12       | 7        | 4         | 4         | 15                                       | 12       | 7        | 4         | 4         |

Note) The Model RW has a standard rotational accuracy grade of P5. (This is not shown in the Model No.)

#### Wobbling Accuracy (for TSP Grade inner rings only)

The rotational accuracy of the bearing excludes accuracy related to shape (circularity, flatness, etc.), and represents only the rotational deviation of the bearing.

Measurement conditions: measurement height = roller pitch diameter

#### Wobbling Accuracy

Unit:  $\mu\text{m}$

| Model No. | TSP Grade        |                 |
|-----------|------------------|-----------------|
|           | Radial direction | Axial direction |
| RW228     | 2                | 2               |
| RW297     | 2                | 2               |
| RW445     | 2                | 2               |

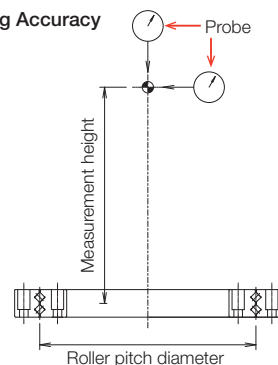
#### Rotational Accuracy of the Outer Ring

Unit:  $\mu\text{m}$

| Model No. | Radial runout tolerance of the outer ring |          |          |           | Axial runout tolerance of the outer ring |          |          |           |
|-----------|-------------------------------------------|----------|----------|-----------|------------------------------------------|----------|----------|-----------|
|           | P5 Grade                                  | P4 Grade | P2 Grade | USP Grade | P5 Grade                                 | P4 Grade | P2 Grade | USP Grade |
| RW228     | 18                                        | 11       | 7        | 4         | 18                                       | 11       | 7        | 4         |
| RW297     | 20                                        | 13       | 8        | 5         | 20                                       | 13       | 8        | 5         |
| RW445     | 25                                        | 16       | 10       | 7         | 25                                       | 16       | 10       | 7         |

Note) The Model RW has a standard rotational accuracy grade of P5. (This is not shown in the Model No.)

#### Measuring the Wobbling Accuracy



Note: Height is measured from the center of the bearing width.

## Peripheral Design

Recommended machining accuracies for peripheral attachments (shafts, housings, etc.) are displayed below.

### 1. Recommended Machining Accuracies for Paired Components

| Standard dimensions d, D (mm) |         | Circularity/perpendicularity/flatness ( $\mu\text{m}$ ) |
|-------------------------------|---------|---------------------------------------------------------|
| Above                         | Or less |                                                         |
| 120                           | 180     | 5                                                       |
| 180                           | 250     | 7                                                       |
| 250                           | 315     | 8                                                       |
| 315                           | 400     | 9                                                       |
| 400                           | 500     | 10                                                      |
| 500                           | 630     | 11                                                      |

Use the table below as a guideline for shaft and housing depths.

### 2. Shafts and Housing Depths

Unit: mm

| Application                         | Fit depth: H   |
|-------------------------------------|----------------|
| When positioning accuracy is needed | 0.15 to 0.25×B |
| When loads are large                | 0.50 to 0.75×B |
| When high rigidity is needed        | 0.75 to 1.00×B |

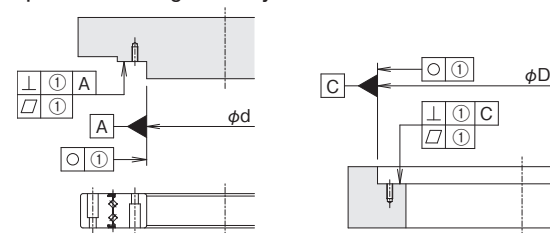
The values below are recommended for the bolt holes used to secure paired components.

### 3. Recommended Bolt Hole Dimensions for Paired Components

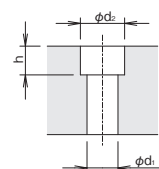
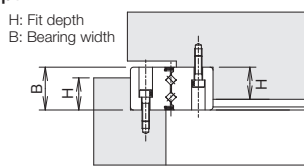
Unit: mm

| Model No. | Bolt size | Recommended bolt hole dimensions |                |     |
|-----------|-----------|----------------------------------|----------------|-----|
|           |           | d <sub>1</sub>                   | d <sub>2</sub> | h   |
| RW228     | M6        | 7                                | 11             | 6.5 |
| RW297     | M8        | 9.3                              | 14.5           | 8.6 |
| RW445     | M8        | 9.3                              | 14.5           | 8.6 |

#### Peripheral Machining Accuracy



#### Housing Fit Depth



## Fit

The Model RW does not normally need a fitting, but when precise positioning accuracy is required, or if it will operate under a heavy load, we recommend inserting it in a shaft and housing with a fit tolerance of g6 for the shaft and H7 for the hole. If higher rigidity is needed, we recommend measuring the inner and outer diameters of the bearings and applying a slightly tighter fit (about 0 to 5  $\mu\text{m}$ ).

\*When applying a tight fit, add a removal tap to the shaft and housing.

## Lubrication

Recommended lubrication specifications for the Model RW are given in the table below. With standard specifications, the Model RW uses grease lubrication and is filled with THK AFB-LF Grease.

### Lubrication Specifications

| Lubrication specifications | Lubricant                                   |
|----------------------------|---------------------------------------------|
| Grease lubricant           | THK AFB-LF grease (standard sealing grease) |
| Oil lubricant              | ISO VG68 oil                                |

\*Non-standard greases are also available. Contact THK for details.

### AFB-LF Representative Physical Properties

| Item                                                       | Representative property | Testing method |
|------------------------------------------------------------|-------------------------|----------------|
| Consistency enhancer                                       | Lithium-based           |                |
| Base oil                                                   | Refined mineral oil     |                |
| Base oil kinematic viscosity $\text{mm}^2/\text{s}$ (40°C) | 170                     | JIS K 2220 23  |
| Worked penetration (25°C, 60 W)                            | 275                     | JIS K 2220 7   |
| Mixing stability (100,000 W)                               | 345                     | JIS K 2220 15  |
| Dropping point: °C                                         | 193                     | JIS K 2220 8   |
| Evaporation volume: mass% (99°C, 22 h)                     | 0.4                     | JIS K 2220 10  |
| Oil separation rate: mass% (100°C, 24 h)                   | 0.6                     | JIS K 2220 11  |
| Copper plate corrosion (B method, 100°C, 24 h)             | Passed                  | JIS K 2220 9   |
| Low-temperature torque $\text{mN}\cdot\text{m}$ (-20°C)    | Starting                | JIS K 2220 18  |
|                                                            | Rotational              |                |
| 4-ball testing (welding load): N                           | 3089                    | ASTM D2596     |
| Operating temperature range: °C                            | -15 to 100              |                |
| Color                                                      | Yellowish brown         |                |

## Installation Procedure

Follow this procedure to install the Model RW.

### ■ Inspecting Components before Installation

Thoroughly clean the housing and other assembly parts, and make sure there are no burrs.

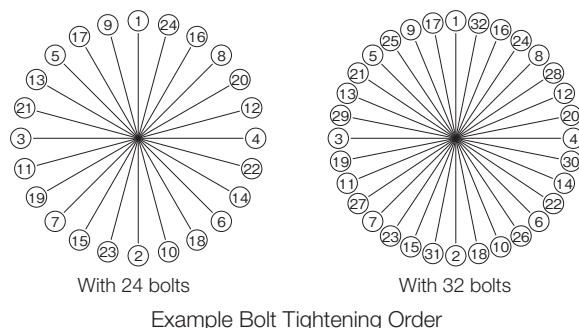
### ■ Installing the Cross Roller Ring onto a Housing or Shaft

As it is easy for the product to tilt during installation, use a plastic mallet to gradually insert the product by tapping around its outside edge. Continue to hammer carefully until you hear the sound of it making direct contact with the reference surface.

Note) When inserting the inner ring, hammer the inner ring. When inserting the outer ring, hammer the outer ring.

### ■ Tightening Mounting Bolts

- (1) Installation to devices is done from the raceway wheel on the rotating side.
- (2) After attaching the Model RW to paired components, align the mounting bolts while rotating the Model RW several times.
- (3) Install the mounting bolts. When manually turning the bolts, make sure they do not show skewing caused by misalignment of the holes.
- (4) Bolt tightening should be divided into three or four steps, from temporary tightening to final tightening, moving diagonally between bolts in order. (See figure on right.)
- (5) Tighten the bolts evenly, using a torque wrench set to the values in the table to the right.



### Bolt Tightening Torque

| Model No. | Bolt size | Tightening torque (N·m) |
|-----------|-----------|-------------------------|
| RW228     | M6        | 14                      |
| RW297     | M8        | 30                      |
| RW445     | M8        | 30                      |

## Static Safety Factor

During actual operation, damage may occur from an unexpectedly large load acting on the cross-roller ring that is caused in particular by sudden starting and stopping, vibrations due to a cutting load, or a large moment created by an overhang. Therefore, a static safety factor ( $f_s$ ) must be considered. The static safety factor ( $f_s$ ) is obtained from the following formula based on the relationship between the applied load and the basic static load rating. Estimates for the static safety factor are shown below.

$$f_s = \frac{C_0}{P_0}$$

$f_s$  : Static safety factor  
 $C_0$  : Basic static load rating (N)<sup>1</sup>  
 $P_0$  : Static equivalent radial load (N)

<sup>1</sup> The basic static load rating  $C_0$  is a static load of a defined direction and size where the calculated contact stress of the roller and the raceway at the contact area under maximum load is 4,000 MPa. (If the contact stress exceeds this level, it will affect the rotation.) This load is indicated as  $C_0$  in the respective dimensional tables.

<sup>2</sup> In general, factors that cause vibration and impacts include acceleration and deceleration, sudden starts and stops, transmission of vibration and impacts from external devices and machines, and changes in processing force over time.

### Static Safety Factor ( $f_s$ ) (Guideline)

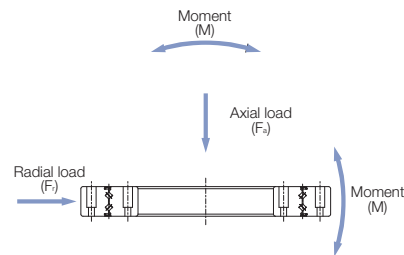
| Load conditions <sup>2</sup>  | Lower limit of $f_s$ |
|-------------------------------|----------------------|
| Without vibrations or impacts | 2                    |
| With vibrations or impacts    | 5                    |

### Static Equivalent Radial Load: $P_0$

The static equivalent radial load of the Model RW is obtained from the following formula.

$$P_0 = X_0 \cdot \left( F_r + \frac{2M}{dp} \right) + Y_0 \cdot F_a$$

$P_0$  : Static equivalent radial load (N)  
 $F_r$  : Radial load (N)  
 $F_a$  : Axial load (N)  
 $M$  : Moment (N·mm)  
 $X_0$  : Static radial factor ( $X_0=1$ )  
 $Y_0$  : Static axial factor ( $Y_0=0.44$ )  
 $dp$  : Roller pitch circle diameter (mm)



## Nominal Life and Service Life Time

### Calculating the Nominal Life

The nominal life ( $L_{10}$ ) is obtained from the following formula using the basic dynamic load rating ( $C$ ) and the load applied to the RW ( $P_c$ ).

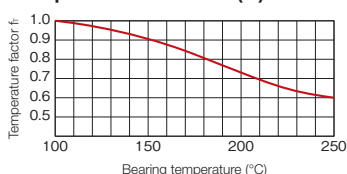
$$L_{10} = \left( \frac{C}{P_c} \right)^{\frac{10}{3}} \times 10^6$$

$L_{10}$  : Nominal life<sup>1</sup> (rev)  
 $C$  : Basic dynamic load rating<sup>2</sup> (N)  
 $P_c$  : Dynamic equivalent radial load (N)

### Calculating the modified nominal life

During use, the Model RW may be subjected to vibrations and shocks as well as fluctuating loads, which are difficult to detect. In addition, the operating temperature will have a decisive impact on the service life. Taking these factors into account, the modified nominal life ( $L_{10m}$ ) can be calculated according to the following formula.

#### Temperature Factor ( $f_t$ )



Note) The normal service temperature is 80°C or below. If the product is to be used at a higher temperature, contact THK.

#### Load Factor ( $f_w$ )

| Usage conditions                  | $f_w$      |
|-----------------------------------|------------|
| With smooth motion and no impacts | 1 to 1.2   |
| With normal motion                | 1.2 to 1.5 |
| With severe impacts               | 1.5 to 3   |

### Modified Factor $\alpha$

$$\alpha = \frac{f_t}{f_w}$$

$\alpha$  : Modified factor  
 $f_t$  : Temperature factor  
 $f_w$  : Load factor

### Modified Nominal Life $L_{10m}$

$$L_{10m} = \left( \alpha \times \frac{C}{P_c} \right)^{\frac{10}{3}} \times 10^6$$

$L_{10m}$  : Modified nominal life<sup>1</sup> (rev)  
 $C$  : Basic dynamic load rating<sup>2</sup> (N)  
 $P_c$  : Dynamic equivalent radial load (N)

<sup>1</sup> Nominal life is determined by load calculations assuming adequate lubrication and ideal assembly conditions. Service conditions such as rocking motion or low-speed motion can have an impact on lubrication status. Consult with THK about the calculation of service life under rocking motion or low-speed motion.

<sup>2</sup> The basic dynamic load rating ( $C$ ) indicates the radial load for which the nominal life is one million rotations when a group of identical Model RW units independently operate under that load when it is applied with a constant direction and magnitude. The basic dynamic load ratings ( $C$ ) are indicated in the specification tables.

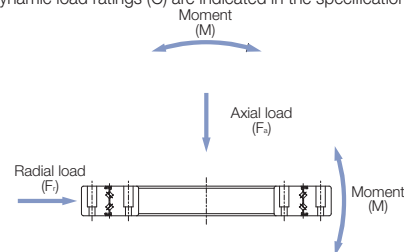
### Dynamic Equivalent Radial Load $P_c$

The dynamic equivalent radial load of the Model RW is obtained from the following formula.

$$P_c = X \cdot \left( F_r + \frac{2M}{dp} \right) + Y \cdot F_a$$

$P_c$  : Dynamic equivalent radial load (N)  
 $F_r$  : Radial load (N)  
 $F_a$  : Axial load (N)  
 $M$  : Moment (N·mm)  
 $X$  : Dynamic radial factor  
 $Y$  : Dynamic axial factor  
 $dp$  : Roller pitch circle diameter (mm)

- When  $F_r = 0$  (N) and  $M = 0$  (N·mm), perform the calculation assuming that  $X = 0.67$  and  $Y = 0.67$ .
- For service life calculation with a preload taken into account, contact THK.



### Dynamic Radial Factor and Dynamic Axial Factor

| Category                           | X    | Y    |
|------------------------------------|------|------|
| $\frac{F_a}{F_r + 2M/dp} \leq 1.5$ | 1    | 0.45 |
| $\frac{F_a}{F_r + 2M/dp} > 1.5$    | 0.67 | 0.67 |

### For Rotary Motion

$$L_h = \frac{L_{10}}{n_r \times 60}$$

$L_h$  : Service life time (h)  
 $n_r$  : Revolutions per minute (min<sup>-1</sup>)

### Calculating the Service Life Time

The nominal life of the Model RW is obtained using the following formula.

## Production by Special Order

The following dimensions are also available from THK. Contact THK for details.

Dimensions Available for Production by Special Order Unit: mm

| Inner diameter | Outer diameter |
|----------------|----------------|
| 100            | 185            |
| 120            | 210            |
| 150            | 240            |
| 180            | 280            |
| 200            | 300            |
| 260            | 385            |
| 325            | 450            |
| 395            | 525            |
| 460            | 600            |
| 580            | 750            |
| 650            | 870            |

## Handling

- (1) Please use at least two people to move any product weighing 20 kg or more, or use a dolly or another method of conveyance. Otherwise, it may cause injury or damage the unit.
- (2) Do not disassemble the double-row angular contact roller ring.
- (3) Make sure the double-row angular contact roller ring is not dropped or subjected to any sudden impact. Otherwise, it may cause injury or damage the unit. Even if there is no outward indication of damage, a sudden impact could prevent the unit from functioning properly.
- (4) Wear appropriate safety gear, such as protective gloves and safety shoes, when handling the product.

## Precautions on Use

- (1) Prevent foreign materials, such as cutting chips or coolant, from entering the product. Failure to do so could damage the product.
- (2) Prevent foreign materials, such as cutting chips, coolant, corrosive solvents, or water from getting in the product by using a bellows or cover when the product is used in an environment where such a thing is likely.
- (3) Do not use this product if the external temperature exceeds 80°C. If used above this temperature, there is a risk that the resin and rubber parts may deform or become damaged.
- (4) If foreign materials such as cutting chips adhere to the product, replenish the lubricant after washing the product.
- (5) Slight oscillations can inhibit the formation of an oil film between the raceways and the area of contact for the balls, resulting in fretting. We recommend periodically rotating the double-row angular contact roller ring several times to help ensure that a film forms on the surfaces and rolling elements.
- (6) Please be aware that the double-row angular contact roller ring seals are dust seals and may be unable to prevent the ingress of very fine particles and liquids.
- (7) Do not forcibly drive a pin, key, or other positioning device into the product. This could create indentations on the raceway and impair the product's function.
- (8) When installing the double-row angular contact roller ring to a housing, if the inner ring is fixed, hammer the inner ring to insert it. If the outer ring is fixed, hammer the outer ring. Hammering the non-fixed side may cause damage to the unit.
- (9) If the mounting material lacks sufficient rigidity or accuracy, the bearing load may be focused in one area, and bearing functionality will dramatically decrease. Therefore, consider carefully the rigidity and accuracy of the housing and base, and the strength of the securing bolts.

## Lubrication

- (1) Do not mix different lubricants. Even grease containing the same type of thickening agent may, if mixed, interact negatively due to disparate additives or other ingredients.
- (2) When using the product in locations exposed to constant vibrations or in special environments such as in clean rooms, vacuums, and low/high temperatures, use a lubricant suitable for its use/environment.
- (3) Grease viscosity can vary depending on the temperature. Please keep in mind that the torque of the double-row angular contact roller ring may be affected by changes in viscosity.
- (4) Since the double-row angular contact roller ring unit contains lithium soap group grease No. 2, you can start using the product without replenishing grease. However, the product requires regular lubrication, since it has a smaller internal space than ordinary roller bearings and because the rollers need frequent lubrication due to their rolling contact structure. To replenish grease, it is necessary to provide greasing holes that lead to the oil grooves formed on the inner and outer rings. Regularly resupply grease of the same group so that it is distributed throughout the interior of the bearing at least every three to six months. The final greasing interval/amount should be set at the actual machine. When the bearing is filled up with grease, the initial rotational torque temporarily increases. However, surplus grease will run off of the seals and the torque will return to a normal level after a short period of time.
- (5) Excess grease may protrude from the outside edge of the double-row angular contact roller ring. The structure of peripheral components will require careful consideration if contamination due to grease around the edges of the device is a concern.
- (6) When planning to use a special grease or a lubricant other than grease, please contact THK.

## Storage

When storing the double-row angular contact roller ring, enclose it in a package designated by THK and store it in a room in a horizontal orientation while avoiding high temperatures, low temperatures, and high humidity. Please note that if the product has been kept in storage for an extended period, the lubricant inside may have deteriorated. Please ensure that you replenish the lubricant before using.

## Disposal

The product should be treated as industrial waste and disposed of appropriately.

## Double-Row Angular Contact Roller Ring **RW**

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