



NEEDLE ROLLER BEARINGS  
**STAINLESS STEEL**



**NEEDLE ROLLER BEARINGS**

**NEEDLE  
ROLLER  
BEARINGS**



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*A Specialist in  
Needle Roller Bearing Manufacturing*



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#### Cam Followers (STAINLESS STEEL)

A durable stainless-steel bearing that is rust- and corrosion-resistant. Used in cutting-edge technological fields for anticorrosive, clean, and vacuum applications.



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# NEEDLE ROLLER BEARINGS



# 1 Bearing Life and Load Rating

## 1-1 Bearing life

Bearings are subjected to certain intensity of repeating stress on their track ring and rolling element even during operation under proper loading, appropriate mounting and sufficient lubrication. The stress may cause scaly damage formed on surface after certain time period due to its concentration at shallow vicinity under the surface. This phenomenon is called flaking (peeling-off of surface). Phenomenon that causes bearing to be unusable due to flaking caused by repeating cyclic stress under normal operating condition is called "life" of the bearing. Generally, bearing life is defined by total number of rotation of the bearing until flaking is generated on track surface. However, recognizing average life as criteria of bearing life is not appropriate for actual selection of bearing since fatigue limit of material varies. It shall be practical to consider the life guaranteed to most bearings (basic rating life) as a criterion. Phenomenon that bearing becomes inoperative due to heat-seizure, wear, fracture, scoring are regarded as "failure" caused by operating conditions and selection of bearing so that they and the life should be considered as different phenomena.

## 1-2 Basic rating life

Basic rating life of bearing shall be defined as a total number of rotation that 90% of the group of the same bearings can run without causing flaking due to rolling fatigue when they are operated under the same conditions.

In the case of rotation in certain constant speed, the basic rating life can be expressed in a total rotation time as well.

## 1-3 Basic dynamic load rating

A given static radial load under which a bearing theoretically endures basic rating life of one million rotations is referred to as a basic dynamic load rating.

## 1-4 Dynamic equivalent load

### Dynamic equivalent radial load

A load that is virtually applied to the center of a bearing under which to obtain a life equivalent to that when both radial load and axial load are subjected to the bearing at the same time is called the dynamic equivalent radial load. In the case of needle bearing, its radial type is capable for loading radial load only so that just a radial load will be applied.

## 1-5 Bearing life calculation formula

The following relationship is applied to basic rating life, basic dynamic load rating and dynamic equivalent load of bearing.

$$L_{10} = (Cr / Pr)^{10/3} \dots\dots\dots (1.1)$$

$L_{10}$  : Basic rating life  $10^6$ rotation

$Cr$  : Basic dynamic load rating N

$Pr$  : Dynamic equivalent radial load N

Basic rating life time can be expressed as total rotation time with given rotation per minute by the following formula.

$$L_h = 10^6 L_{10} / 60n = 500 f_h^{10/3} \dots\dots\dots (1.2)$$

$$f_h = f_n Cr / Pr \dots\dots\dots (1.3)$$

$$f_n = (33.3 / n)^{3/10} \dots\dots\dots (1.4)$$

$L_h$  : Basic rating life expressed in hour h

$n$  : Rotation per minute rpm

$f_h$  : Bearing life factor

$f_n$  : Speed factor

## 1-6 Operating conditions and bearing life factor of bearing

### Operating machinery and demanded life

Bearings should be selected based on setting up demanded life in accordance with operating machinery and operating condition.

Demanded life is determined by endurance duration for operating machinery and reliable operating periods.

Table-1 indicates demanded life that can be a typical reference.

Table-1 Operating condition and demanded life time factor (reference)

Operating conditions	Bearing life factor $f_h$				
	~3	2~4	3~5	4~7	6~
Short duration or occasional operation	Home appliance Electrical tools	Agricultural machinery Office equipment			
Short duration or occasional operation, but necessity for ensuring reliable operation	Medical equipment Measuring instrument	Home air conditioning Construction machinery Crane	Elevator	Crane (sheave wheel)	
Long duration operation but not full time		Small size motor General gear system Woodworking machinery Passenger car	Machine tools Factory general purpose motor Crusher	Important gear system Calendar roller for rubber and plastic Printing machine	
Continuous operation over eight hours a day		Rolling machine Escalator Conveyer Centrifugal separator	Air conditioner Large size motor Compressor, pump	Mine hoist Press machine	Pulp, papermaking machine
Operate 24 hours a day and must be non stop without accident					Water-work system Power generator system

## 1-7 Corrected rating life

Formula for basic rating life described above is applied to bearings whose reliability is 90%, whose material is for general purpose bearing and are manufactured in general quality standard as well as those operated under standard operating conditions. Corrected rating life should be calculated using correction factor  $a_1$ ,  $a_2$  and  $a_3$  in the case that the reliability is over 90% or that life needs to be obtained for special bearing properties or for special operating conditions.

$$L_{na} = a_1 a_2 a_3 L_{10} \dots \dots \dots (1.5)$$

$L_{na}$  : Adjustment rating life  $10^6$  rotation

$a_1$  : Reliability factor

$a_2$  : Bearing special properties factor

$a_3$  : Operating conditions factor

### 1-7-1 Reliability factor

#### Reliability factor $a_1$

This is the bearing life corrected factor for reliability (100-n) % when probability of failure is n %. Value of the reliability factor  $a_1$  is shown in Table-2.

Table-2 Reliability factor  $a_1$

Reliability (%)	$L_n$	$a_1$
90	$L_{10}$	1
95	$L_5$	0.62
96	$L_4$	0.53
97	$L_3$	0.44
98	$L_2$	0.33
99	$L_1$	0.21

### 1-7-2 Bearing special properties factor

#### Bearing special properties factor $a_2$

Bearing special properties factor  $a_2$  is used for adjusting variation of properties concerning life in the case that material type, quality or manufacturing process is special. This factor shall be  $a_2=1$  for standard material and manufacturing method. It can be  $a_2 > 1$  when special modified material or manufacturing method is used due to improved quality of bearing material or progress of manufacturing technology.



### 1-7-3 Operating conditions factor

#### Operating conditions factor $a_3$

This is a factor to adjust impact of operating conditions of bearing, especially effect of lubrication to fatigue life. Bearing life is essentially a fatigue phenomenon of surface layer which is subjected to repeating cyclic load. Therefore, this factor will be  $a_3=1$  under ideal lubrication condition when rolling element and track surface are completely isolated by oil film and surface failure can be ignored. Under poor lubrication condition such as low lubricant viscosity or under significantly slow rotation speed of rolling element, it would be  $a_3 < 1$ .

On the contrary, it can be  $a_3 > 1$  under especially excellent lubrication condition. Generally, the bearing special properties factor  $a_2$  can not be set to value exceeding 1 when  $a_3 < 1$ .

## 1-8 Adjustment of Basic Dynamic Load Rating for temperature and hardness factors

### 1-8-1 Temperature factor

While operating temperature of bearing is individually defined in accordance with material and structure, bearing is capable to be used at temperatures higher than 150 °C by applying special treatment for thermal resistance. However this will cause reduction of basic dynamic load rating as a result of reduction of permissive contact stress. Basic dynamic load rating with consideration for temperature increase is given by the following formula.

$$C_1 = f_1 Cr \dots \dots \dots (1.6)$$

- $C_1$  : Basic dynamic load rating with consideration for temperature increase N
- $f_1$  : Temperature factor (Refer to Figure-1)
- $Cr$  : Basic dynamic load rating N

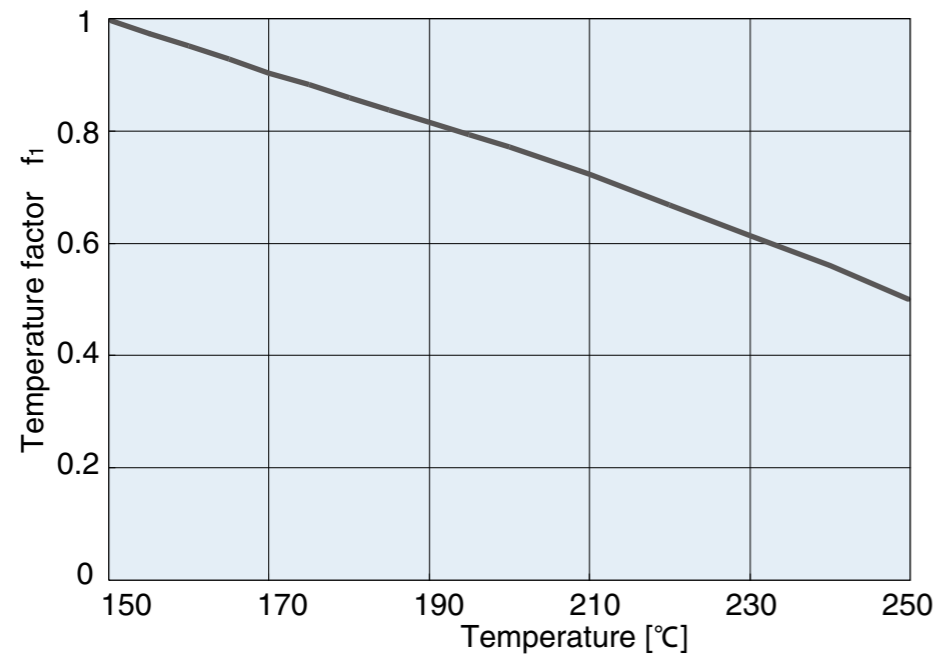


Figure-1

### 1-8-2 Hardness factor

The raceway surface should be HRC58 to 64 in the case of using shaft or housing as raceway instead of bearing inner ring or outer ring respectively. Basic dynamic load rating may be reduced in the case the surface hardness is lower than HRC58. Basic dynamic load rating with consideration for surface hardness is given by the following formula.

$$C_2 = f_2 Cr \dots \dots \dots (1.7)$$

- $C_2$  : Basic dynamic load rating with consideration for hardness N
- $f_2$  : Hardness factor (Refer to Figure-2)
- $Cr$  : Basic dynamic load rating N

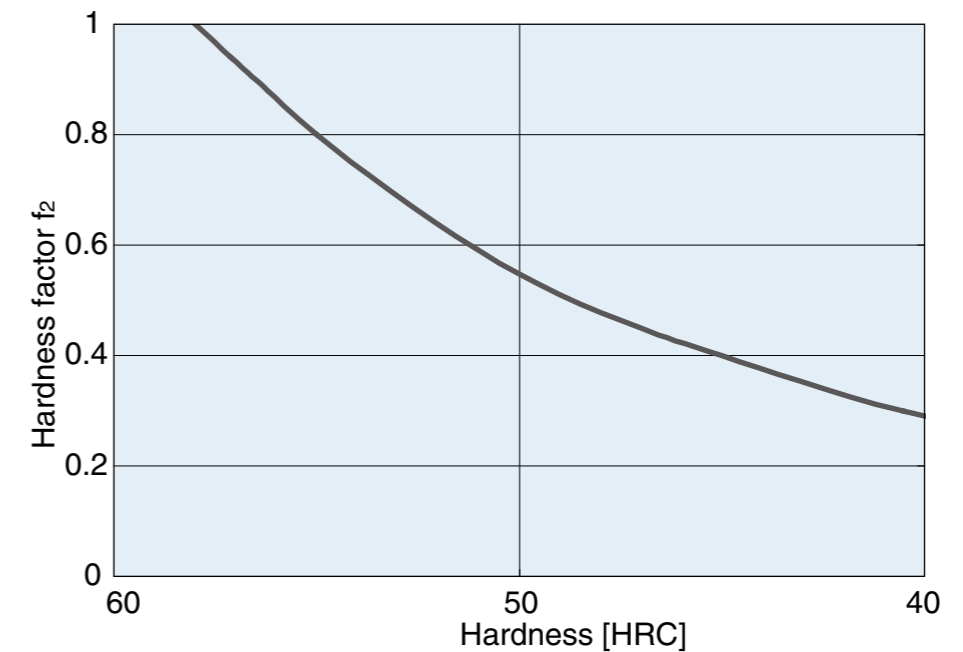


Figure-2

### 1-9 Basic static load rating

Basic static load rating is specified as a static load which corresponds to contact stress indicated in the table below at rolling element and the center of contact of track that are subjected to the maximum load. Total permanent deformation of rolling element and track occurred by the contact stress may be approximately 0.0001 times of diameter of the rolling element.

Type of bearing	Contact stress MPa
Roller bearing	4000

## 1-10 Static equivalent load

A load that is virtually applied to the center of a bearing under which to obtain a contact stress equivalent to the maximum contact stress that occurs at contact surface between rolling element and track, when both radial load and axial load are subjected to the bearing at the same time, is called a static equivalent load.

In the case of needle bearing, its radial type is capable for loading radial load only so that just a radial load will be applied.

$$P_{Or} = F_r \dots\dots\dots (1.8)$$

$P_{Or}$  : Static equivalent radial load N

## 1-11 Static safety factor

Although permissive limit of static equivalent load is typically regarded as basic static load rating, its limit shall be set with consideration for safety since conditions required for bearings broadly vary. The static safety factor  $f_s$  is given by the following formula (1.9). Table-3 shows its typical values.

$$f_s = \frac{C_{Or}}{P_{Or}} \dots\dots\dots (1.9)$$

$f_s$  : Safety factor

$C_{Or}$  : Basic static load rating N

Table-3 Static safety factor

Operating conditions of bearing	$f_s$
With high rotation accuracy With impact load	$\geq 3$
With standard rotation accuracy	$\geq 1.5$
With standard rotation accuracy and low speed	$\geq 1$

## 1-12 Permissive rotation speed

Increasing bearing rotation speed may cause a rise in bearing temperature due to abrasion heat generated inside of the bearing, which results in failure with heat-seizure. A threshold rotation speed up to which long duration of safe operation is enabled is referred to as a permissive rotation speed.

Permissive rotation speed varies depending on type, size and load of bearing, lubrication method and its radial clearance. It is an experimental value at which operation is enabled without causing heat generation exceeding certain limit.

# 2 Bearing load

## 2-1 Load factor

Operation in actual machinery is subjected to a load larger than theoretical axial directional load due to vibration and impact shock.

Actual load is given by calculation of load applied to axes system using load factor shown in Table-4.

$$K = f_w \cdot K_c \dots\dots\dots (2.1)$$

$K$  : Actual load applied to axes system N

$K_c$  : Theoretical calculation value N

$f_w$  : Load factor (Table-4)

Table-4 Load factor

Degree of load	Examples	$f_w$
Smooth motion without any impacts	Air conditioner, measurement instruments, office equipment	1 ~1.2
With standard rotation	Gear box, vehicle, paper-making machine	1.2~1.5
Operation with vibration and impact shock	Rolling machine, construction machinery, crusher	1.5~3

## 2-2 Load distribution

### Load distribution to bearing

Axis system is assumed as a static beam supported by bearings in order to distribute load acting on the axes system to the bearings. Table-5 shows calculation example of load distribution.

Table-5 Example of calculation of load distribution

Examples	Load calculation
	$F_1 = \frac{W_1(b+c) + W_2c}{a+b+c}$ $F_2 = \frac{W_1a + W_2(a+b)}{a+b+c}$
	$F_1 = \frac{W_1(a+b+c) + W_2c}{b+c}$ $F_2 = \frac{W_2b - W_1a}{b+c}$

## 2-3 Load transmission

### Bearing loads in belt or chain transmission

The force acting on pulley or sprocket wheel when power is transmitted by a belt or chain is given by the following formula.

$$T = 9550P/N \dots \dots \dots (2.2)$$

$$F_t = 2000 \cdot T/d \dots \dots \dots (2.3)$$

- T** : Torque acting on pulley or sprocket wheel N·m
- F<sub>t</sub>** : Effective force transmitted by belt or chain N
- P** : Transmitted power kW
- N** : Rotation per minute rpm
- d** : Effective diameter of pulley or sprocket wheel mm

Load  $F_r$  acting on pulley shaft is given by multiplying effective transmitted force  $F_t$  by belt factor  $f_b$  shown in Table-6 in the case of belt transmission.

$$F_r = f_b F_t \dots \dots \dots (2.4)$$

Table-6 Belt factor

Type of belt	$f_b$
V belt	2 ~2.5
Flat belt (with tension pulley)	2.5~3
Flat belt (without tension pulley)	4 ~5

In the case of chain transmission, load acting on sprocket wheel shaft is given by the formula (2.4) as same as that of belt transmission using value between 1.2 and 1.5 as chain factor corresponding to  $f_b$ .

### Bearing loads in gear transmission

In the case of power transmission by gear, methods of calculation vary depending on the type of gear since force acting on the gear is divided into radial load and axial load and their direction and ratio vary depending on the type of gear. In the case of the simplest flat gear, direction of load is radial load only and it is given by the following formula.

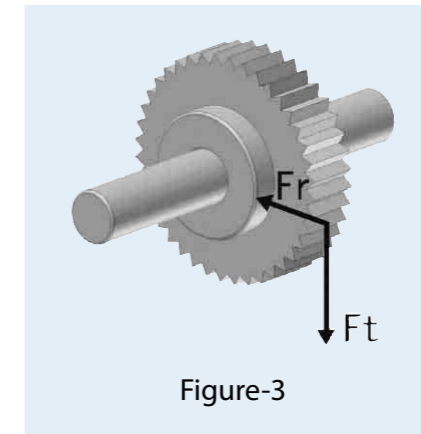
$$T = 9550P/N \dots \dots \dots (2.5)$$

$$F_t = 2000 \cdot T/d \dots \dots \dots (2.6)$$

$$F_r = F_t \cdot \tan \alpha \dots \dots \dots (2.7)$$

$$F_c = \sqrt{F_t^2 + F_r^2} \dots \dots \dots (2.8)$$

- T** : Torque acting on gear N·m
- F<sub>t</sub>** : Force in tangent direction of gear N
- F<sub>r</sub>** : Force in radial direction of gear N
- F<sub>c</sub>** : Combine force acting perpendicular to gear N
- P** : Transmitted power kW
- N** : Rotation per minute rpm
- d** : Pitch circle diameter of drive gear mm
- α** : Pressure angle of gear



Value that is given by multiplying theoretical load by gear factor  $f_z$  in Table-7 shall be used as actual load since degree of vibration and impact shock affecting the theoretical load obtained by the formula above varies depending on the type of gear and accuracy of gear surface finish.

$$F = f_z F_c \dots \dots \dots (2.9)$$

Table-7 Gear factor

Type of gear	$f_z$
Precision gear (Both of pitch error and geometric error is 0.02 mm or less)	1.05~1.1
Ordinary machined gear (Both of pitch error and geometric error is between 0.02 mm and 0.1 mm)	1.1 ~1.3

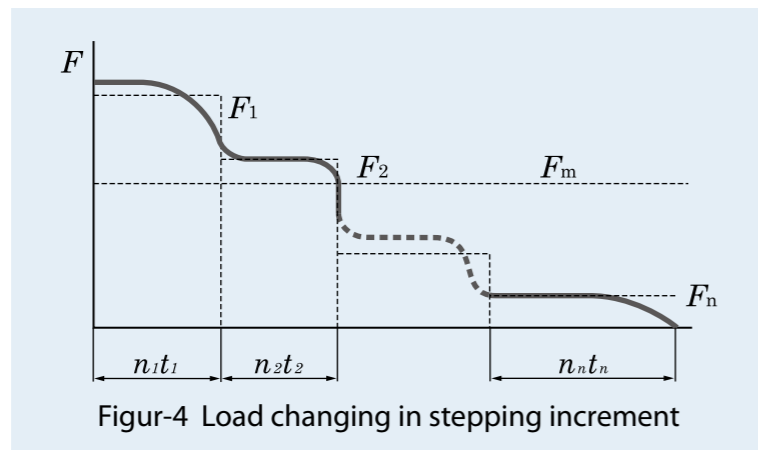
### Average load

Average load  $F_m$  which is converted so as to apply even life to each bearing may be used in the case that load acting on bearing is unstable and changes in various cycle.

#### (1) Fluctuating step load

Average load  $F_m$  is given by formula (2.10) in the case that bearing load  $F_1, F_2, F_3 \dots$  is applied with rotation speed and operation duration of  $n_1, n_2, n_3 \dots$  and  $t_1, t_2, t_3 \dots$  respectively.

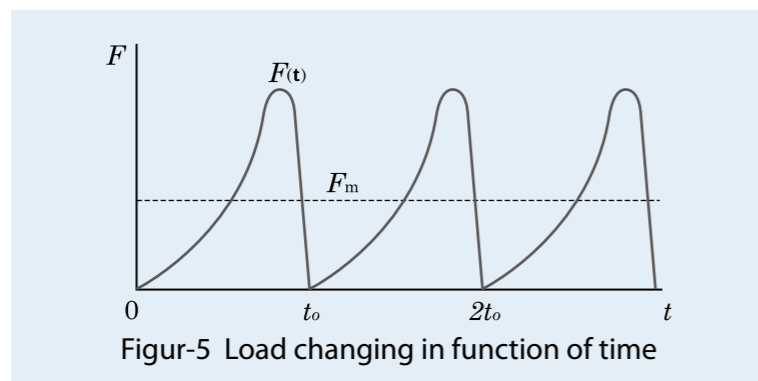
$$F_m = [(F_1^{10/3} \cdot n_1 t_1 + F_2^{10/3} \cdot n_2 t_2 + \dots + F_n^{10/3} \cdot n_n t_n) / (n_1 t_1 + n_2 t_2 + \dots + n_n t_n)]^{3/10} \dots \dots \dots (2.10)$$



#### (2) Continuously fluctuating load

Average load is given by formula (2.11) in the case that the load can be expressed in function  $F(t)$  of time  $t$  with cycle  $t_0$ .

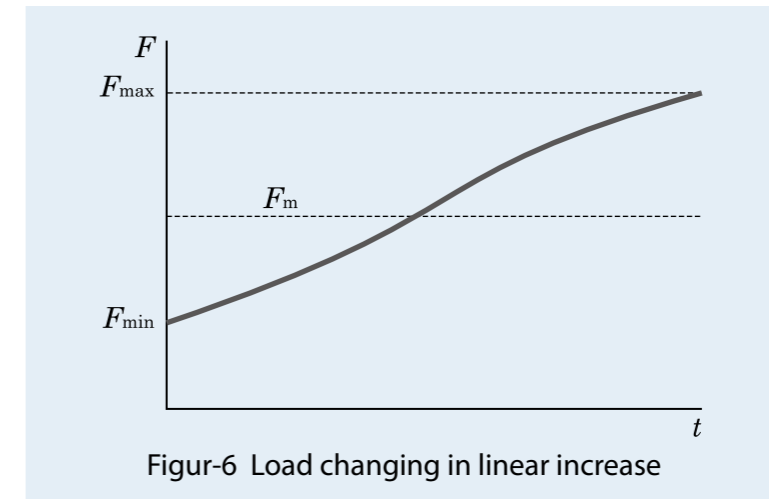
$$F_m = \left[ \frac{1}{t_0} \int_0^{t_0} F(t)^{10/3} dt \right]^{3/10} \dots \dots \dots (2.11)$$



#### (3) Roughly linear load

Average load  $F_m$  is approximately given by formula (2.12).

$$F_m = \frac{F_{min} + 2F_{max}}{3} \dots \dots \dots (2.12)$$

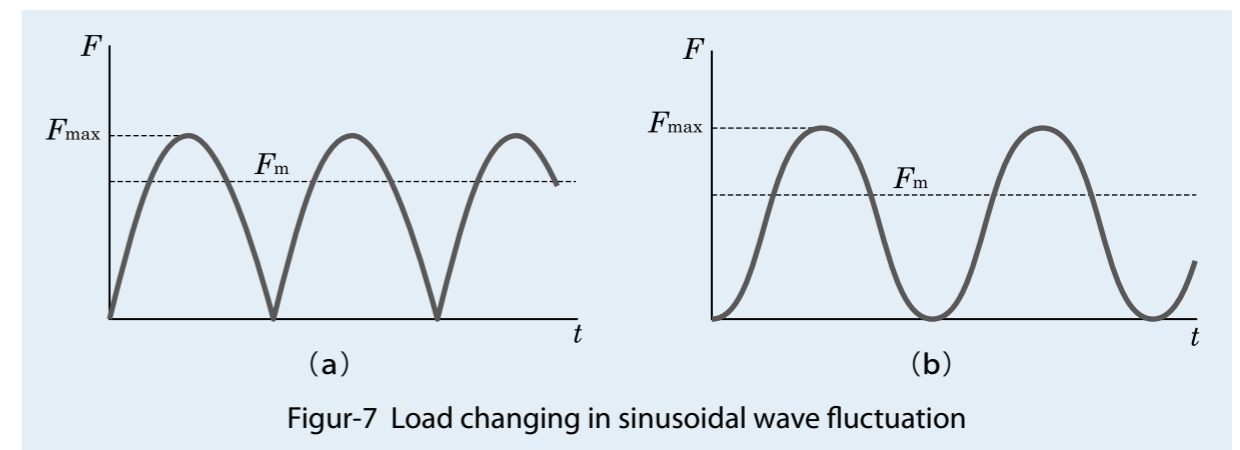


#### (4) Sinusoidal fluctuating load

Average load  $F_m$  is approximately given by formula (2.13) and formula (2.14).

$$(a): F_m = 0.75 F_{max} \dots \dots \dots (2.13)$$

$$(b): F_m = 0.65 F_{max} \dots \dots \dots (2.14)$$



### 3 Bearing accuracy

#### 3-1 Accuracy

Dimensional accuracy, geometrical accuracy and rotation accuracy of bearing are specified in ISO standards and JIS B 1514 (Rolling bearings - Tolerances of bearings).

Accuracy class of needle bearing is specified by four classes from lowest class 0 to 6th, 5th and 4th class in the highest. While high accuracy bearing in 5th or 4th class may be used in application for the case high rotation accuracy is demanded or high speed rotation, class 0 is used in most of general purpose application.

Table-8 Accuracy of inner ring

Unit:  $\mu\text{m}$

d Nominal bearing bore diameter (mm)	$\Delta_{dmp}$ Deviation of mean bore diameter in a single plane								$V_{dsp}$ Variation of bore diameter in a single plane				$V_{dmp}$ Variation of mean bore diameter in a single plane				$K_{ia}$ Radial runout of inner ring of assembled bearing				$S_d$ Reference face runout with bore (Inner ring)		$\Delta_{Bs}$ Deviation of a single inner ring width				$V_{Bs}$ Variation of inner rings width				d Nominal bearing bore diameter (mm)	
	0	6	5	4	0	6	5	4	0	6	5	4	0	6	5	4	0	6	5	4	5	4	0,6	5,4	0	6	5	4	Over	Incl.		
Over Incl.	high low	high low	high low	high low	max.				max.				max.				max.		high low	high low	max.				Over Incl.							
2.5 <sup>1)</sup> 10	0 -8	0 -7	0 -5	0 -4	10 9 5 4	6 5 3 2	10 6 4 2.5	7 3	0 -120	0 -40	15 15 5 2.5	2.5 <sup>1)</sup> 10																				
10 18	0 -8	0 -7	0 -5	0 -4	10 9 5 4	6 5 3 2	10 7 4 2.5	7 3	0 -120	0 -80	20 20 5 2.5	10 18																				
18 30	0 -10	0 -8	0 -6	0 -5	13 10 6 5	8 6 3 2.5	13 8 4 3	8 4	0 -120	0 -120	20 20 5 2.5	18 30																				
30 50	0 -12	0 -10	0 -8	0 -6	15 13 8 6	9 8 4 3	15 10 5 4	8 4	0 -120	0 -120	20 20 5 3	30 50																				
50 80	0 -15	0 -12	0 -9	0 -7	19 15 9 7	11 9 5 3.5	20 10 5 4	8 5	0 -150	0 -150	25 25 6 4	50 80																				
80 120	0 -20	0 -15	0 -10	0 -8	25 19 10 8	15 11 5 4	25 13 6 5	9 5	0 -200	0 -200	25 25 7 4	80 120																				
120 150	0 -25	0 -18	0 -13	0 -10	31 23 13 10	19 14 7 5	30 18 8 6	10 6	0 -250	0 -250	30 30 8 5	120 150																				
150 180	0 -25	0 -18	0 -13	0 -10	31 23 13 10	19 14 7 5	30 18 8 6	10 6	0 -250	0 -250	30 30 8 5	150 180																				
180 250	0 -30	0 -22	0 -15	0 -12	38 28 15 12	23 17 8 6	40 20 10 8	11 7	0 -300	0 -300	30 30 10 6	180 250																				
250 315	0 -35	0 -25	0 -18	— —	44 31 18 —	26 19 9 —	50 25 13 —	13 —	0 -350	0 -350	35 35 13 —	250 315																				

1) 2.5 mm is included in this dimension group

Table-9 Accuracy of outer ring

Unit:  $\mu\text{m}$

D Nominal bearing outside diameter (mm)	$\Delta_{Dmp}$ Deviation of mean outside diameter in a single plane								$V_{Dsp}$ Variation of outside diameter in a single plane				$V_{Dmp}$ Variation of mean outside diameter in a single plane				$K_{ea}$ Radial runout of outer ring of assembled bearing				$S_D$ Variation of outside surface generatrix inclination with face (outer ring)		$\Delta_{cs}$ Deviation of a single outer ring width		$V_{cs}$ Variation of outer ring width				D Nominal bearing outside diameter (mm)	
	0	6	5	4	0	6	5	4	0	6	5	4	0	6	5	4	0	6	5	4	5	4	0,6,5,4	0	6	5	4	Over	Incl.	
Over Incl.	high low	high low	high low	high low	max.				max.				max.				max.		high low	max.				Over Incl.						
2.5 <sup>2)</sup> 6	0 -8	0 -7	0 -5	0 -4	10 9 5 4	6 5 3 2	15 8 5 3	8 4	Depending on tolerance of $\Delta_{Bs}$ for D of the same bearing.	Depending on tolerance of $V_{Bs}$ for D of the same bearing.	5 2.5	2.5 <sup>2)</sup> 6																		
6 18	0 -8	0 -7	0 -5	0 -4	10 9 5 4	6 5 3 2	15 8 5 3	8 4			5 2.5	6 18																		
18 30	0 -9	0 -8	0 -6	0 -5	12 10 6 5	7 6 3 2.5	15 9 6 4	8 4			5 2.5	18 30																		
30 50	0 -11	0 -9	0 -7	0 -6	14 11 7 6	8 7 4 3	20 10 7 5	8 4			5 2.5	30 50																		
50 80	0 -13	0 -11	0 -9	0 -7	16 14 9 7	10 8 5 3.5	25 13 8 5	8 4			6 3	50 80																		
80 120	0 -15	0 -13	0 -10	0 -8	19 16 10 8	11 10 5 4	35 18 10 6	9 5			8 4	80 120																		
120 150	0 -18	0 -15	0 -11	0 -9	23 19 11 9	14 11 6 5	40 20 11 7	10 5			8 5	120 150																		
150 180	0 -25	0 -18	0 -13	0 -10	31 23 13 10	19 14 7 5	45 23 13 8	10 5			8 5	150 180																		
180 250	0 -30	0 -20	0 -15	0 -11	38 25 15 11	23 15 8 6	50 25 15 10	11 7			10 7	180 250																		
250 315	0 -35	0 -25	0 -18	0 -13	44 31 18 13	26 19 9 7	60 30 18 11	13 8			11 7	250 315																		

2) 2.5 mm is included in this dimension group

Table-10 Permissive tolerance of chamfer Unit: mm

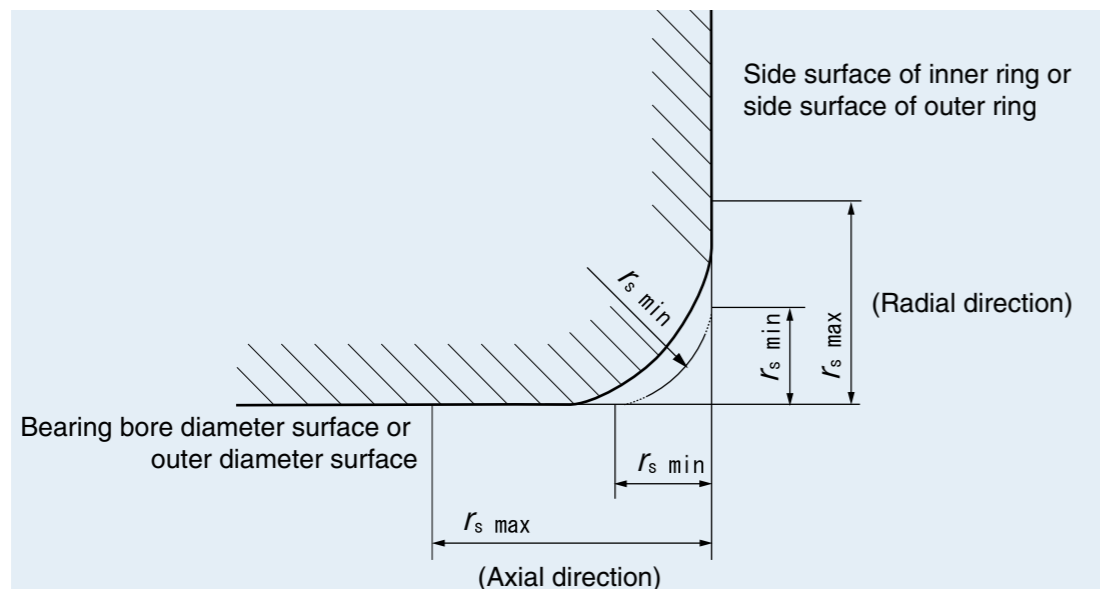
$r_s$ min	d Nominal bearing bore diameter		Radial direction	Axial direction
	Over	Incl.	$r_s$ max	
0.15	—	—	0.3	0.6
0.2	—	—	0.5	0.8
0.3	— 40	40 —	0.6 0.8	1 1
0.6	— 40	40 —	1 1.3	2 2
1	— 50	50 —	1.5 1.9	3 3
1.1	— 120	120 —	2 2.5	3.5 4
1.5	— 120	120 —	2.3 3	4 5
2	— 80 220	80 220 —	3 3.5 3.8	4.5 5 6
2.1	— 280	280 —	4 4.5	6.5 7
2.5	— 100 280	100 280 —	3.8 4.5 5	6 6 7
3	— 280	280 —	5 5.5	8 8
4	—	—	6.5	9

Table-11 Tolerance of minimum value of diameter of inscribed circle to roller Unit:  $\mu$ m

Fw (mm) Inscribed circle diameter		Dimension difference of $\Delta$ Fw min Variation of minimum value of diameter of inscribed circle to roller	
Over	Incl.	high	low
3	6	+18	+10
6	10	+22	+13
10	18	+27	+16
18	30	+33	+20
30	50	+41	+25
50	80	+49	+30
80	120	+58	+36
120	180	+68	+43
180	250	+79	+50
250	315	+88	+56

This means diameter of roller that achieves zero radial clearance in at least one radial direction in the case of using cylindrical roller instead of bearing inner ring.

\* Remark Although no particular shape is specified for chamfer surface, its outline in axial plane must be within virtual arc of  $r_s$  min radius that is tangent to slope of inner ring and inner diameter face of bearing, or tangent to side of outer ring and bearing outer diameter. (Reference diagram)



### 3-2 Measurement method

#### Measurement of single bore diameter

Table-12 Bearing bore diameter

Type and definition of accuracy	
$d_{mp}$ Mean bore diameter in a single plane	Arithmetic mean of maximum and minimum value of the single bore diameters in a single radial plane. $d_{mp} = \frac{d_{sp\ max} + d_{sp\ min}}{2}$ $d_{sp}$ : Single inner diameter in a particular radial plane.
$\Delta_{dmp}$ Deviation of mean bore diameter in a single plane	Difference between the mean bore diameter and nominal more diameter. $\Delta_{dmp} = d_{dmp} - d$ $d$ : Nominal bearing bore diameter.
$V_{dsp}$ Variation of single bore diameter in a single plane	Difference between maximum and minimum value of single bore diameter in single radial plane. $V_{dsp} = d_{sp\ max} - d_{sp\ min}$
$V_{dmp}$ Variation of mean bore diameter in a single plane	Difference between maximum and minimum value of the mean bore diameter in a single plane in individual track ring basically with cylindrical inner diameter face. $V_{dmp} = d_{mp\ max} - d_{mp\ min}$
$\Delta_{ds}$ deviation of single bore diameter	Difference between single bore diameter and nominal bore diameter. $\Delta_{ds} = d_s - d$ $d_s$ : Distance between two parallel straight lines which are tangent to intersecting line of actual bore diameter face and radial plane.

Method of measurement of bearing bore diameter

Zero the gauge indicator to the appropriate size using gauge blocks or a master ring.

In several angular directions and in a single radial plane, measure and record the largest and the smallest single bore diameters,  $d_{sp\ max}$  and  $d_{sp\ min}$ .

Repeat angular measurements and recordings in several radial planes to determine the largest and the smallest single bore diameter of an individual ring,  $d_{s\ max}$  and  $d_{s\ min}$ .

Table-13 Measurement area limit Unit: mm

r s min		a
Over	or less	
-	0.6	$r_{s\ max} + 0.5$
0.6	-	$1.2 \times r_{s\ max}$

#### Measurement of single outside diameter

Table-14 Bearing outer diameter

Type and definition of accuracy	
$D_{mp}$ mean outside diameter in a single plane	Arithmetic mean of maximum and minimum value of the single outside diameters in a single radial plane. $D_{mp} = \frac{D_{sp\ max} + D_{sp\ min}}{2}$ $D_{sp}$ : Single outside diameter in a particular radial plane
$\Delta_{Dmp}$ Deviation of mean outside diameter in a single plane	Difference between the mean outside diameter in a single plane of cylindrical outside diameter face and nominal outside diameter. $\Delta_{Dmp} = D_{mp} - D$ $D$ : Nominal bearing outside diameter.
$V_{Dsp}$ deviation of single outside diameter	Difference between maximum and minimum value of the mean outside diameter in a single radial plane. $V_{Dsp} = D_{sp\ max} - D_{sp\ min}$
$V_{Dmp}$ Variation of mean outside diameter in a single plane	Difference between maximum and minimum value of the mean outside diameter in a single plane in individual track ring with basically cylindrical outer diameter face. $V_{Dmp} = D_{mp\ max} - D_{mp\ min}$
$\Delta_{Ds}$ deviation of single bore diameter	Difference between single outside diameter in basically cylindrical outside diameter face and nominal outside diameter. $\Delta_{Ds} = D_s - D$ $D_s$ : Distance between two parallel straight lines which are tangent to intersecting line of actual outer diameter face and radial plane.

Method of measurement of bearing outer diameter

Zero the gauge indicator to the appropriate size using gauge blocks or a master.

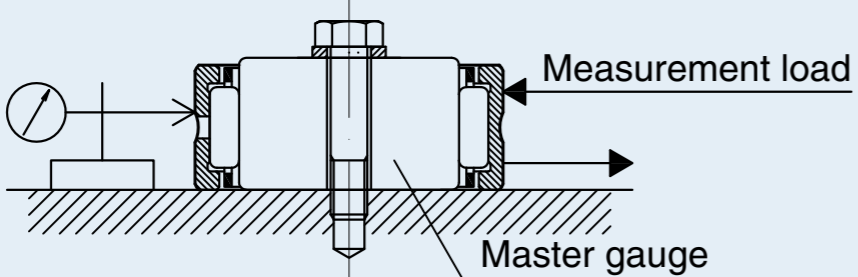
In several angular directions and in a single radial plane, measure and record the largest and the smallest single outside diameters,  $D_{sp\ max}$  and  $D_{sp\ min}$ .

Repeat and record measurements in several radial planes to determine the largest and the smallest single outside diameter of an individual ring,  $D_{s\ max}$  and  $D_{s\ min}$ .

## Measurement of single bore diameter of rolling element complement

Table-15 Measurement of single bore diameter of rolling element complement

Type and definition of accuracy	
$F_{ws}$ Nominal bore diameter of rolling element complement	Distance between two parallel straight lines which are tangent to intersecting line of inscribed circle of rolling element complement and radial plane in radial bearing without inner ring.
$F_{ws\ min}$ Minimum nominal bore diameter of rolling element complement	Minimum nominal bore diameter of rolling element complement in radial bearing without inner ring.  Remark Minimum nominal bore diameter of rolling element complement is diameter of cylinder whose radial clearance becomes zero in at least one radial direction.



Measurement of single bore diameter of rolling element complement

Fasten the master gauge to a surface plate.

Position the bearing on the master gauge and apply the indicator in the radial direction to the approximate middle of the width on the ring outside surface.

Measure the amount of movement of the outer ring in the radial direction by applying sufficient load on the outer ring in the same radial direction as that of the indicator and in the opposite radial direction.

Record indicator readings at the extreme radial positions of the outer ring. Rotate the bearing and repeat the measurement in several different angular positions to determine the largest and the smallest readings,  $F_{ws\ max}$  and  $F_{ws\ min}$ .

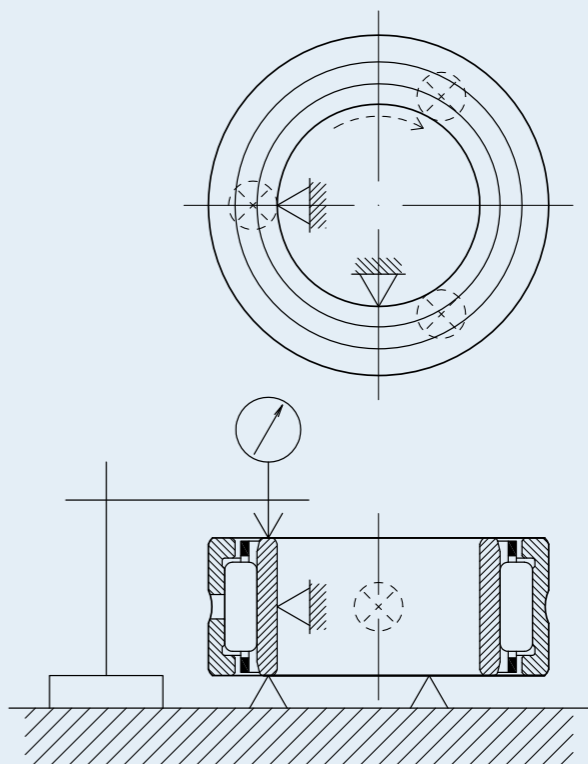
Table-16 Radial measurement load

$F_w$ mm		Measurement load N
Over	Incl.	min.
—	30	50
30	50	60
50	80	70
80	—	80

## Measurement of single inner ring width (or outer ring width)

Table-17 Measurement of single inner ring width (or outer ring width)

Type and definition of accuracy	
$\Delta_{Bs}$ Deviation of single inner ring width	Difference between single inner ring width and nominal inner ring width. $\Delta_{Bs} = B_s - B$
$V_{Bs}$ Variation of inner ring width	Difference between maximum and minimum value of the single bore diameter width in each inner ring. $V_{Bs} = B_{s\ max} - B_{s\ min}$
$\Delta_{Cs}$ Deviation of single outer ring width	Difference between single outer ring width and nominal outer ring width. $\Delta_{Cs} = C_s - C$
$V_{Cs}$ Variation of outer ring width	Difference between maximum and minimum value of the single outer ring width in each outer ring. $V_{Cs} = C_{s\ max} - C_{s\ min}$



Measurement of single inner ring width (or outer ring width)

Zero the gauge indicator to the appropriate height from the reference surface using gauge blocks or a master.

Support one face of the ring on three equally spaced fixed supports of equal height and provide two suitable radial supports on the bore surface set at 90° to each other to center the ring.

Position the indicator against the other face of the ring opposite one fixed support.

Rotate the ring one revolution and measure and record the largest and the smallest single ring width,  $B_{s\ max}$  and  $B_{s\ min}$  ( $C_{s\ max}$  and  $C_{s\ min}$ ).



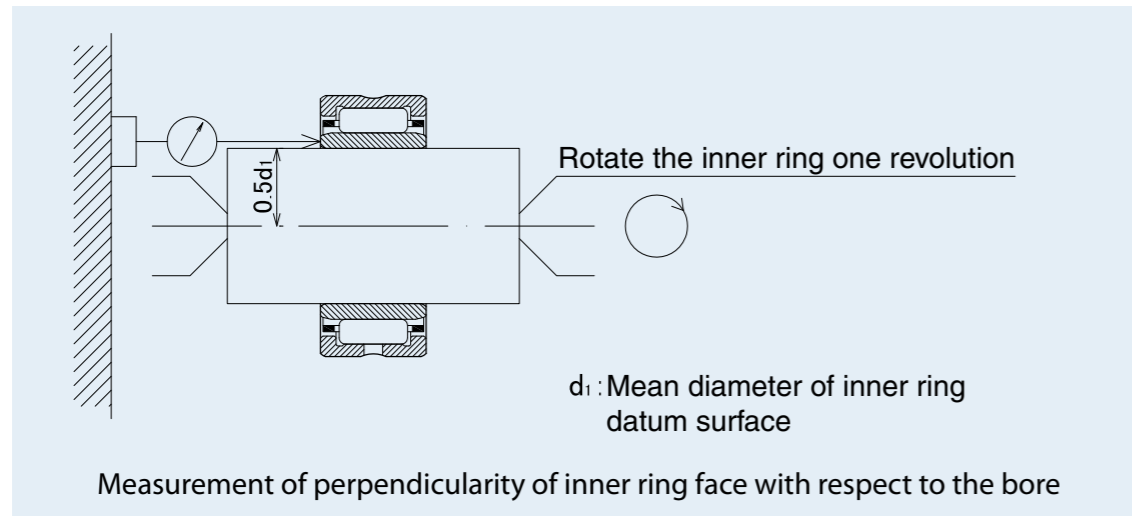
### Measurement of perpendicularity of inner ring face with respect to the bore ( $S_d$ )

Use a precision arbor having a taper of approximately 1:5000 on diameter.

Mount the bearing assembly on the tapered arbor and place the arbor between two centres so that it can be accurately rotated.

Position the indicator against the reference face of the inner ring at a radial distance from the arbor axis of half the mean diameter of the face.

Take indicator readings while rotating the inner ring one revolution.

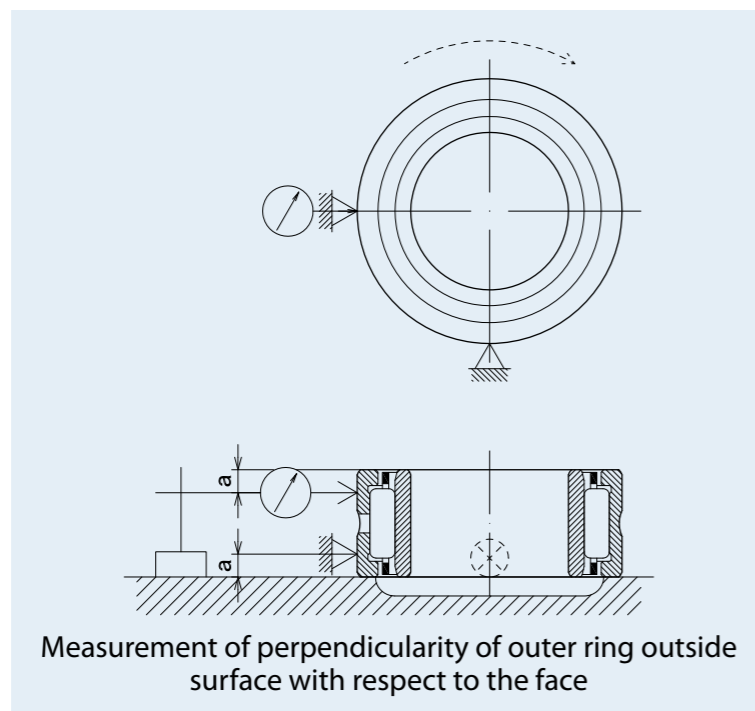


### Measurement of perpendicularity of outer ring outside surface with respect to the face ( $S_D$ )

Support the reference face of the outer ring on a surface plate leaving the inner ring, if an assembled bearing, free. Locate the outer ring cylindrical outside surface against two supports set at  $90^\circ$  to each other to centre the outer ring.

Position the indicator directly above one support. The indicator and the two supports are axially located at the extremes of the measurement zone.

Take indicator readings while rotating the outer ring one revolution.



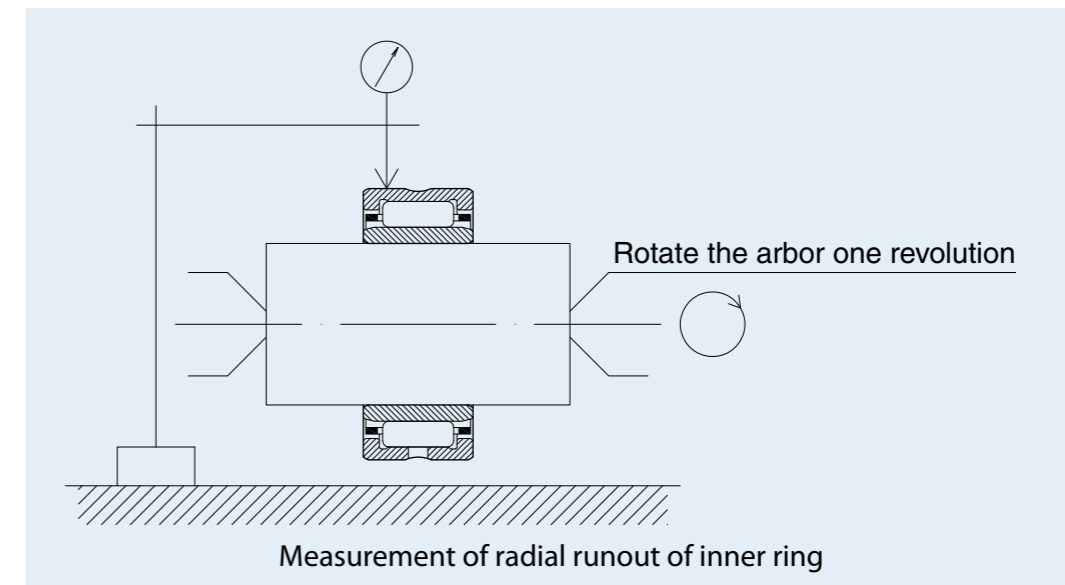
### Measurement of radial runout of inner ring ( $K_{ia}$ )

Use a precision arbor having a taper of approximately 1:5000 on diameter.

Mount the bearing assembly on the tapered arbor and place the arbor between two centres so that it can be accurately rotated.

Position the indicator against the outside surface of the outer ring as close as possible to the middle of the outer ring raceway.

Hold the outer ring to prevent rotation but ensure its weight is supported by the rolling elements. Take indicator readings while rotating the arbor one revolution.



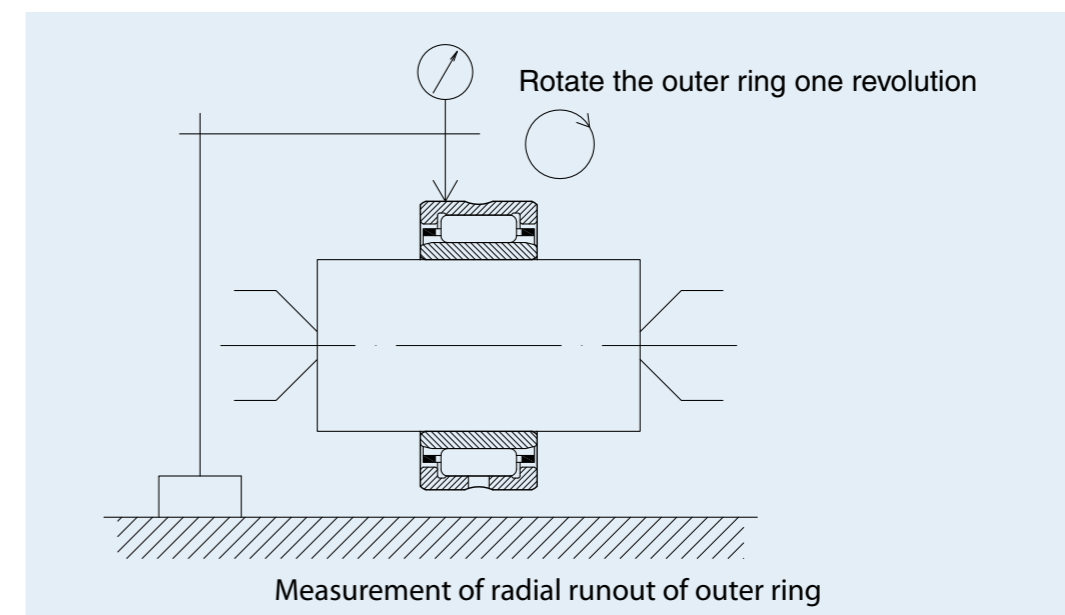
### Measurement of radial runout of outer ring ( $K_{ea}$ )

Use a precision arbor having a taper of approximately 1:5000 on diameter.

Mount the bearing assembly on the tapered arbor and place the arbor between two centres so that it can be accurately rotated.

Position the indicator against the outside surface of the outer ring as close as possible to the middle of the outer ring raceway.

Hold the inner ring stationary. Take indicator readings while rotating the outer ring one revolution.



## 4 Internal clearance of bearing

### 4-1 Radial internal clearance of bearing

Radial internal clearance of bearing means a displacement of either inner ring or outer ring, which is free side, when the specified measurement load is applied to it alternatively in radial direction while locking the opposite component in the condition before mounting the bearing on shaft or housing. This measurement loads are quite small and they are specified in JIS B 1515:2006 (Rolling bearings - Tolerances). Radial internal clearance of needle bearing with inner ring is specified in JIS B 1520:1995 (radial internal clearance of bearing). Clearances shown in Table-18 are categorized in group C2, CN, C3, C4, C5 starting from smaller clearance and group CN is applied to general application.

#### ■ Radial internal clearance of bearing

Table-18 Internal clearance of radial bearing

Category	Description
C2	Radial clearance smaller than standard clearance
CN clearance	Standard radial clearance
C3, C4, C5	Radial clearance larger than standard clearance

Table-19 Value of radial internal clearance of needle bearing

Unit:  $\mu\text{m}$

d Nominal bearing bore diameter (mm)		Clearance category									
		C2		CN		C3		C4		C5	
Over	Incl.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
-	10	0	25	20	45	35	60	50	75	-	-
10	24	0	25	20	45	35	60	50	75	65	90
24	30	0	25	20	45	35	60	50	75	70	95
30	40	5	30	25	50	45	70	60	85	80	105
40	50	5	35	30	60	50	80	70	100	95	125
50	65	10	40	40	70	60	90	80	110	110	140
65	80	10	45	40	75	65	100	90	125	130	165
80	100	15	50	50	85	75	110	105	140	155	190
100	120	15	55	50	90	85	125	125	165	180	220
120	140	15	60	60	105	100	145	145	190	200	245
140	160	20	70	70	120	115	165	165	215	225	275
160	180	25	75	75	125	120	170	170	220	250	300
180	200	35	90	90	145	140	195	195	250	275	330
200	225	45	105	105	165	160	220	220	280	305	365
225	250	45	110	110	175	170	235	235	300	330	395

Remark Nominal number C2,C3,C4 are displayed as part code suffix for these bearings (excluding CN clearance). Example) NA 4903 C2

### 4-2 Selection of radial internal clearance of bearing

#### Selection of clearance

Radial internal clearance of needle bearing in operation may generally becomes smaller than initial radial internal clearance. Temperature difference between inner and outer bearing during operation and fit cause this change. The radial internal clearance has a significant impact to life, vibration and heat generation of bearing.

Typically, larger radial internal clearance causes increase of vibration and smaller one results in heat generation or reduction of life due to excessive force between rolling element and track. Initial radial internal clearance may be selected as slightly larger than zero clearance in consideration for the internal clearance during operation. Bearing is designed to have suitable radial clearance by selecting CN clearance for general application.

#### Reduction of radial internal clearance due to fits

When bearing is installed to shaft or housing, radial internal clearance reduces due to expansion or shrinking of track with elastic deformation.

#### Reduction of radial clearance due to temperature difference between inner and outer ring

Friction heat generated by rotation of bearing will be released to outside through shaft and/or housing. In general application, radial internal clearance may be reduced as much as the difference of amount of thermal expansion between inner and outer ring since outer ring becomes cooler than inner ring due to larger heat release from housing than that from shaft.

## 5 Fits

### 5-1 Purpose of fits

Purpose of "fits" for a bearing is to fixate a bearing with sufficient "interference" between inner ring and shaft or between outer ring and housing. Insufficient "fits" may cause harmful phenomena which result in damaging bearing or shortening its life such as abnormal wear in fitting surface, abnormal heat by abrasion powder, abnormal rotation and vibration due to slip of fitting surface. Therefore, it is imperative to select proper fits for application.

### 5-2 Selection of fits

#### Condition for selection of fits

Selection of bearing "fits" needs to consider following points. Properties and size of load in application, condition of temperature, accuracy of rotation, material, finish, wall thickness of shaft and housing and easiness of assembling/disassembling.

"Fits" as shown in Table-20 is generally determined based on properties of load and condition of rotation.

Table-20 Properties of radial load and fits

Properties of bearing load		Fits		
		Inner ring	Outer ring	
Load with rotating inner ring Load with stationary outer ring		Inner ring: rotation Outer ring: stationary Loading direction: constant	Tight fit	Loose fit
		Inner ring: stationary Outer ring: rotation Loading direction: rotate together with outer ring		
Load with rotating outer ring Load with stationary inner ring		Inner ring: stationary Outer ring: rotation Loading direction: constant	Loose fit	Tight fit
		Inner ring: rotation Outer ring: stationary Loading direction: rotate together with inner ring		
Load in inconsistent direction	Direction of load is inconsistent due to varying load direction or including unbalanced load	Inner ring: rotation or stationary Outer ring: rotation or stationary Loading direction: inconsistent	Tight fit	Tight fit

#### Selection of fits

It is necessary to take condition of temperature and material of shaft and housing into consideration in addition to properties of load and rotation condition for selection of "fits" as mentioned above. Yet, it is common practice to determine "fits" based on reference to experience and past record because of difficulty for recognizing whole conditions. Table-21 and Table-22 show "fits" for general application and Table-23 shows "fits" for needle bearing without inner ring against shaft.

Table-21 Fits between needle bearing and housing hole

Conditions		Tolerance grade for housing
Load with stationary outer ring	Standard and heavy load	J7
	Split housing with standard load	H7
Load in inconsistent direction	Light load	J7
	Standard load	K7
	Heavy load and impact shock load	M7
Load with rotating outer ring	Light load	M7
	Standard load	N7
	Heavy load and impact shock load	P7
Light load and high rotation accuracy		K6

Table-22 Fits between needle bearing with inner ring and shaft

Conditions		Shaft diameter (mm)		Tolerance grade
		Over	Incl.	
Load with rotating inner ring or Load in inconsistent direction	Light load	—	50	j5
		50	100	k5
	Standard load	—	50	k5
		50	150	m5·m6
Heavy load and impact shock load	150~		m6·n6	
	~150		m6·n6	
	150~		n6·p6	
Load with stationary inner ring	Mid to low speed, light load	All dimension		g6
	Mid to low speed, standard load or heavy load			h6
	With precision rotation accuracy			h5

Remark Light load  $P_r \leq 0.06C_r$ , Standard load  $0.06C_r < P_r \leq 0.12C_r$ , Heavy load  $P_r > 0.12C_r$ ,  
 $P_r$ : Dynamic equivalent radial load,  $C_r$ : Basic dynamic load rating

Table-23 Fits between needle bearing without inner ring and shaft

Nominal diameter of inscribed circle $F_w$ (mm)		Radial internal clearance		
		Clearance smaller than CN clearance	CN clearance	Clearance larger than CN clearance
Over	Incl.	Tolerance group grade for shaft		
-	65	k5	h5	g6
65	80	k5	h5	f6
80	160	k5	g5	f6
160	180	k5	g5	e6
180	200	j5	g5	e6
200	250	j5	f6	e6
250	315	h5	f6	e6

Remark Tight fit with housing hole smaller than k7 shall be modified with smaller shaft size in considering diameter shrink of inscribed circle of roller after assembly.



## 6 Design of shaft and housing

### 6-1 Accuracy of fitting surface

Correct design and manufacturing of shaft or housing to which needle bearing is assembled are vital for adequate bearing performance since the needle bearing has thinner track ring compared to other types of rolling bearings. Table-26 shows dimension accuracy and geometric accuracy of "fitting" part of shaft and housing in standard application condition, surface roughness and tolerance of runout of shoulder against fitting surface.

Table-26 Accuracy of shaft and housing (recommended)

Item	Shaft	Housing
Roundness tolerance	IT3~IT4	IT4~IT5
Cylindricity tolerance	IT3~IT4	IT4~IT5
Shoulder runout tolerance	IT3	IT3~IT4
Roughness of fitting surface	0.8a	1.6a

### 6-2 Accuracy of track surface

Needle bearing can be directly attached to shaft or housing as track for compact bearing structure. In this case, accuracy and roughness of track surface must be equivalent to that of bearing track surface in order to ensure bearing life with high rotation accuracy. Since accuracy and roughness of shaft and housing may affect life and the cause of abnormality of the bearing.

Table-27 shows specification for accuracy and roughness of track surface.

Table-27 Accuracy of track surface (recommended)

Item	Shaft	Housing
Roundness tolerance	IT3	IT3
Cylindricity tolerance	IT3	IT3
Shoulder runout tolerance	IT3	IT3
Surface roughness	0.2a	

### 6-3 Material and heat treatment of track surface

Surface hardness of shaft and housing must be HRC58 to 64 in order to obtain sufficient loading capacity in the case of using them as direct track surface. Table-28 shows recommended heat treatment for their material.

Table-28 Material for track

Type of steel	Representative example	Related standards
High carbon-chromium bearing steel	SUJ2	JIS G 4805
Chromium molybdenum steel	SCM415~435	JIS G 4053
Carbon tool steel	SK85	JIS G 4401
Stainless steel	SUS440C	JIS G 4303

### 6-4 Skew of bearing

Skew between inner ring and outer ring generated by deflection of shaft due to external force or mounting error may result in reduction of life caused by abnormal wear or heat. While permissible amount of skew varies depending on type of bearing, load and bearing internal clearance, it is recommended to be 1/2000 or less for general application.

### 6-5 Mounting dimension for bearing

Dimension of shaft and housing for mounting needle bearing (Figure-8) is shown in dimension table for respective bearings.

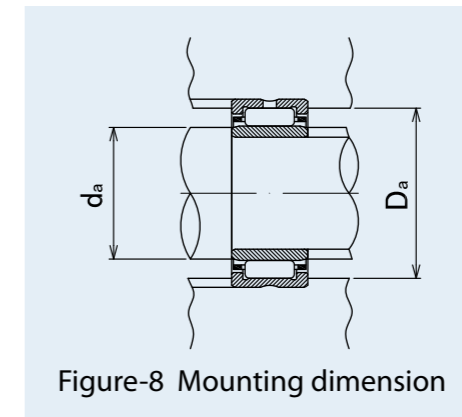


Figure-8 Mounting dimension

#### Fillet radius and height of shoulder for shaft and housing

Maximum permissible radius ( $r_{as\ max}$ ) of fillet radius for shaft and housing to which needle bearings are assembled corresponds to minimum permissible chamfer dimension ( $r_{s\ min}$ ) of the bearings.

Minimum value of shoulder diameter of the shaft ( $d_a$ ) shall be nominal bore diameter ( $d$ ) of bearing plus its shoulder height ( $h$ ) multiplied by 2. Maximum value of shoulder diameter of the housing ( $D_a$ ) shall be outer diameter ( $D$ ) of bearing minus height of its shoulder multiplied by 2.

Table-29 Maximum permissible actual radius of corner R of shaft and housing  $r_{as\ max}$

Unit: mm

$r_{s\ min}$ Minimum permissible chamfer dimension	$r_{as\ max}$ Maximum permissible actual radius of corner R of shaft and housing
0.1	0.1
0.15	0.15
0.2	0.2
0.3	0.3
0.4	0.4
0.6	0.6
1	1
1.1	1
1.5	1.5
2	2
2.1	2
2.5	2
3	2.5
4	3
5	4

Height of shoulder and corner R

## 7 Lubrication

### 7-1 Purpose of lubrication

Purpose of bearing lubrication is to prevent its heat-seizure by mitigating friction and abrasion of rolling surface and slipping surface. Followings are the detailed explanation.

**(1) Mitigation of friction and abrasion**

It prevents direct contact between track, rolling element and cage.

It also mitigates friction and abrasion as a result of slip on track surface.

**(2) Removal of frictional heat**

Lubricant removes abrasion heat inside of bearing or heat propagated from outside to prevent excessive heat-up of the bearing.

**(3) Extension of bearing life**

Separating rolling element and track by oil film results in extension of bearing life.

**(4) Prevention of rust**

Oil film of lubricant mitigates oxidation inside and surface of bearing to prevent corrosion.

**(5) Prevention of dust**

Packed grease in the case of grease lubrication prevent invasion of foreign matter.

Efficient performance of these effects requires using lubrication method suitable for the application as well as selection of proper lubricant, its adequate amount, prevention against invasion of external foreign matter and optimal sealing structure in order to avoid leakage of the lubricant.

### 7-2 Comparison of grease and oil lubrication

#### Lubrication method

Lubrication method of bearing consists of grease lubrication and oil lubrication.

Grease lubrication is so popular for broad type of bearing because of its cost efficiency due to its simple sealing structure and a long duration of operating period with single filling. However, its disadvantage is larger flow resistance than oil lubrication in light of efficiency to large cooling capability and high speed application.

Oil lubrication has advantage in large cooling capability and high speed application due to its good flow characteristics. However, it demands design with consideration to sealing structure and leakage prevention. The Table-31 compares the two lubrication methods as a guidance for lubrication method selection.

Table-31 Comparison of grease and oil lubrication

Item	Lubrication method	
	Grease	Oil
Replacement of lubricant	△	○
Lubrication performance	○	◎
Cooling efficiency	×	○
Sealing structure	○	△
Power loss	△	○
Maintenance	○	△
High speed operation	×	○

Table-30 Value of tolerance class IT for reference dimension

Unit: μm

Reference dimension mm		Tolerance class					
Over	Incl.	IT2	IT3	IT4	IT5	IT6	IT7
3	6	1.5	2.5	4	5	8	12
6	10	1.5	2.5	4	6	9	15
10	18	2	3	5	8	11	18
18	30	2.5	4	6	9	13	21
30	50	2.5	4	7	11	16	25
50	80	3	5	8	13	19	30
80	120	4	6	10	15	22	35
120	180	5	8	12	18	25	40
180	250	7	10	14	20	29	46
250	315	8	12	16	23	32	52

## 7-3 Grease lubrication

### Filling amount of grease

Grease shall be packed up to volume approximately one-third to one-half of internal space of bearing or housing. Excessive grease may cause degraded lubrication performance due to leakage of softened grease or oxidation as a result of increased temperature inside of bearing. This should be critical especially in high speed operation.

Figure-9 shows an example of grease replenishment plan from side way using a ring with grease hole. Arranging grease holes evenly on circumference of the ring allows simultaneous entry of replenished grease into bearing for replacing old grease with new one. However, this design also allows standing old grease in opposite side space, which needs to be removed periodically by removing the cover.

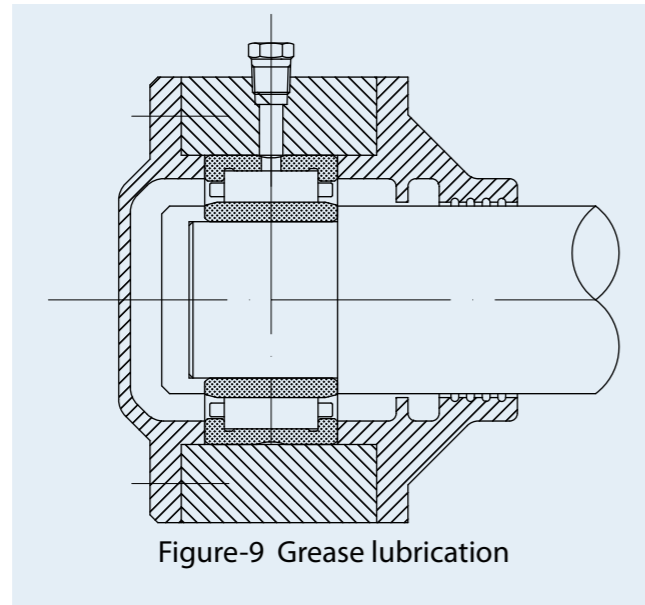


Figure-9 Grease lubrication

### Lubrication grease

Grease is a semi-solid lubricant consisting of a base oil (liquid lubrication agent) and a thickener, which are combined on heating.

Table-32 Type and properties of grease (reference)

Name	Lithium grease			Sodium grease	Calcium base grease	Aluminum grease	Non-soap grease	
Thickener	Li soap			Na soap	Ca + Na soap Ca + Li soap	Al soap	Bentonite, urea, etc	
Base oil	Mineral oil	Diester oil	Silicon oil	Mineral oil	Mineral oil	Mineral oil	Mineral oil	Synthetic oil
Dropping point °C	170~190	170~190	200~250	150~180	150~180	70~90	250 or more	250 or more
Working temperature °C	-25~+120	-50~+120	-50~+160	-20~+120	-20~+120	-10~+80	-10~+130	-50~+200
Mechanical stability	Good	Fair	Fair	Good~Fair	Good~Fair	Fair~Poor	Fair	Fair
Pressure resistance	Fair	Fair	Poor	Fair	Good~Fair	Fair	Fair	Fair
Water resistance	Fair	Fair	Fair	Fair~Poor	Fair~Poor	Fair	Fair	Fair
Application	Most various Versatile rolling bearing grease	Superior in low temperature, friction properties	Suitable for high and low temperature Unsuitable for high load due to low oil film strength	Subject to emulsifying by mixing with water Relatively good properties to high temperature	Superior in water resistance and mechanical stability Suitable for bearing being subjected to vibration	Superior in viscosity Suitable for bearing being subjected to vibration	Vast application from low to high temperature It includes types showing superior properties in resistance to high and low temperature, and to chemical by combination with base oil and thickener Versatile rolling bearing grease	

Remark Working temperature range is for general properties only and NOT for guarantee purpose.

#### 1) Base oil

Mineral oil and mixed oil are used for base oil of grease.

Diester oil and silicone oil are used as mixed oil.

Lubrication performance depends on viscosity of the base oil, and generally, low viscosity base oil is suitable for low temperature environment and high speed application, and high viscosity is for high temperature and high load application.

#### 2) Thickener

Thickener is a material to keep grease in semi-solid state. Type of thickener has impact to maximum working temperature, water resistance and mechanical stability.

Metal-soap base is popular for material of thickener. In addition, there are thickeners such as urea base thickener with high heat resistance, and sodium soap-base thickener with poor water resistance due to easiness to emulsifying by mixing with water.

### 3) Consistency

Consistency refers to the “softness” of grease and it is used as a guideline for showing flow characteristics. The larger the ASTM penetration No. is, the softer the grease is. Table-33 shows typical relationship between consistency of grease and its operating conditions.

Table-33 Consistency of grease and its operating conditions

NLGI Grade No.	ASTM Penetration (1/10mm)	Operating conditions
0	355~385	Centralized lubrication Oscillating application
1	310~340	
2	265~295	General application
3	220~250	General, high temperature application
4	175~205	Grease with sealed application

### 4) Additives

Additives are material to improve performance of grease, which include antioxidants and extreme pressure additives added as necessary. Condition to use grease for long period without any replenishment requires added antioxidants to prevent oxidation.

Also, grease in operating conditions with heavy load or impact shock shall be selected from those with extreme pressure additives added.

### 5) Mixing different type greases

In principle, different brands of grease must not be mixed. Mixing different type grease is subject to negative impact each other due to change of consistency and difference of additives.

Table-34 Brand of lubricant grease (reference)

Category	Brand	Manufacturer	Thickener or soap-base	Consistency	Dropping point °C	Working temperature °C	Remark
General purpose	Alvania Grease S1	Showa Shell Sekiyu	Lithium soap	323	180	-35~120	General purpose
	Alvania Grease S2	Showa Shell Sekiyu	Lithium soap	283	181	-25~120	General purpose
	Alvania Grease S3	Showa Shell Sekiyu	Lithium soap	242	182	-20~135	General purpose
Wide working temperature	Fomblin RT-15	Solvay Solexis	PTFE	NO.2	300 or more	-20~250	High temperature
	Fomblin Y-VAC1	Solvay Solexis	PTFE	NO.1	300 or more	-20~250	High vacuum (soft)
	Fomblin Y-VAC2	Solvay Solexis	PTFE	NO.2	300 or more	-20~250	High vacuum (normal)
	Fomblin Y-VAC3	Solvay Solexis	PTFE	NO.3	300 or more	-20~250	High vacuum (rigid)
Low temperature	Multemp PS No.2	KYODO YUSHI	Lithium soap	NO.2	190	-50~130	Low temperature
Other	LOR#101	OIL CENTER RESEARCH	PTFE	295	198	-40~188	Superior in abrasion resistance, load resistance, water resistance and chemical resistance
	HP300	Dow Corning	PTFE	280	-	-65~250	Load resistance, oil resistance, solvent resistance, chemical resistance
	BARRIERTA SUPER IS/V	NOK KLUBER	PTFE	No.2	-	-35~260	High vacuum
	BARRIERTEL/V	NOK KLUBER	PTFE	No.2	-	-65~200	High vacuum
	ISO FLEX TOPAS NB 52	NOK KLUBER	Barium soap	No.2	240 or more	-50~150	Superior in heat resistance, load resistance, water resistance and high speed
	DEMNUM L-200	DAIKIN	PTFE	280	-	-60~300	High temperature stability
	DEMNUM L-65	DAIKIN	PTFE	280	-	-70~200	High temperature stability
	G1/3Grease	The Orelube Corporation	Non-soap grease	No.2	-	-23~180	High temperature, high load
	Shell Cassida Grease RLS2	Showa Shell Sekiyu	Aluminium complex	No.2	240 or more	-30~120	Superior in water resistance, oxidation stability and mechanical stability
	Super Lube item number 82329	Henkel	PTFE	No.2	-	-42~232	Extreme pressure, high temperature
Castrol Microcote 296	Castrol	PTFE	No.2	256	-50~204	Heat stability, low volatility, shear stability, high vacuum	



## 7-4 Oil lubrication

Oil lubrication is more suitable than grease for high speed rotation with superior cooling efficiency. It is suitable for application that requests emission of heat to outside that are generated in bearing or added to the bearing.

### 1) Oil bath lubrication

Oil bath lubrication is the most popular method used in medium to low speeds. Amount of oil needs to be properly controlled with oil gauge. Most proper oil amount may be with oil level at the center of the lowest needle roller of bearing. Housing design with less variation of oil level is preferable.

### 2) Oil drop lubrication

Oil drop lubrication is broadly used in application with high speed and medium load due to its better cooling efficiency than oil bath lubrication. Oil dripping through oiler in this method removes friction heat in a method to lubricate with oil fog filling inside of housing by hitting rotating objects such as shafts and nuts. While amount of oil varies depending on type of bearing and speed, general amount should be a couple of drops per minute.

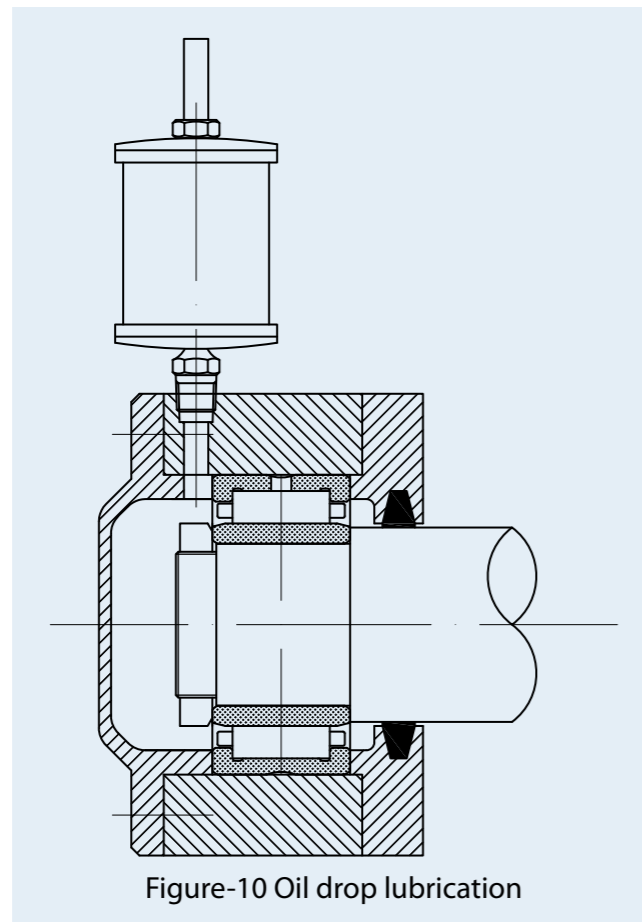


Figure-10 Oil drop lubrication

### 3) Oil splash lubrication

Oil splash lubrication is a method to splash oil with rotation of gear or disc. Unlike oil bath lubrication, it is applicable for relatively higher speed without having bearing in direct soak in oil.

### 4) Oil circulating lubrication

Oil circulating lubrication is widely used in application whose purpose is in cost efficiency for automatic lubrication with large number of lubrication spots, or is in cooling bearing. This lubrication method enables cooling or maintaining cleanness of lubricant with oil cooler and filters installed in oil circulation system. As shown in Figure-11, to make sure that lubrication oil is drained off certainly, it is important to have as much large outlet port as practical or forced outlet, setting inlet and outlet port of lubrication oil to opposite side each other to bearing.

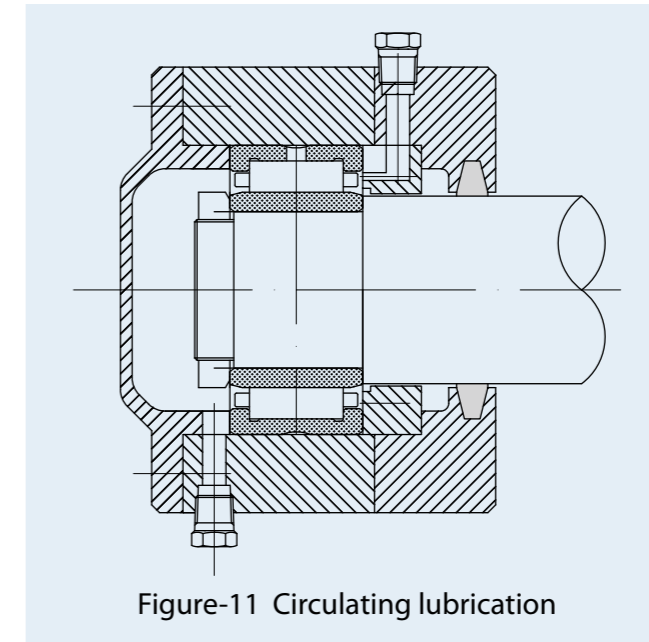


Figure-11 Circulating lubrication

### Lubrication oil

Highly refined mineral oil such as spindle oil, machine oil or turbine oil, or mixed oil are used as lubrication oil for bearing. Additives such as antioxidants, extreme pressure additives or deparant are selectively used as necessary in accordance with application.

It is important to select oil with proper viscosity for operation temperature. Too low viscosity causes insufficient formation of oil film which results in abrasion or heat-seizure. Too high viscosity causes heat generation or loss of power due to viscosity resistance. In general, oil with higher viscosity is used for higher load and lower viscosity for higher speeds.

## 8 Bearing handling

### 8-1 Precaution

Bearings are an extremely precision mechanical components. Exercise great care for its handling. Followings are precautions for the handling.

#### 1) Keep bearings and surroundings clean

Foreign matters invaded inside of bearings such as dust and dirt have harmful effect in rotation or operation life on the bearings. Take extra precaution to maintain cleanness of bearing, surrounding components, work tools, lubricants, lubrications oil and working environment.

#### 2) Handle bearings carefully

Shocks such as caused by falling bearing may result in damage or impressions on track or rolling elements. They can be a cause of failure so that handle bearings carefully.

#### 3) Use proper tools

Make it sure to use work tools properly for bearing type for assembling and disassembling.

#### 4) Pay attention to rust

Although bearings are applied with anti-rust oil, handling with bare hands may cause generation of rust with perspiration from hands. Exercise care and use rubber gloves or apply mineral oil to hands when handling with bare hands.

### 8-2 Mounting

#### Preparation

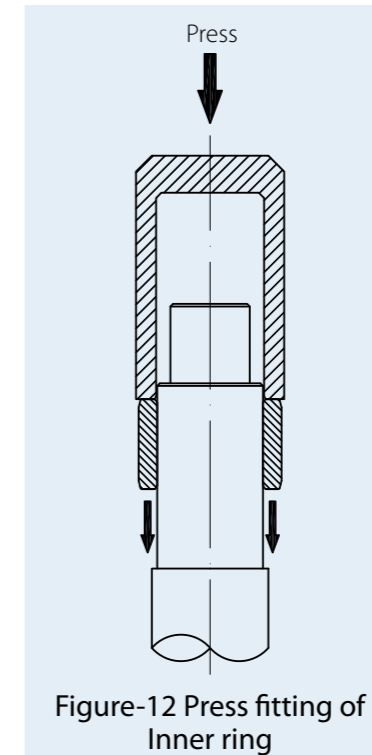
Bearings should be mounted in clean and dry circumstance. Dirt on mounting tools should be removed prior to mounting work, then verify that dimension accuracy, shaft and housing roughness and geometric accuracy are within designed tolerance.

Packing of bearings should be opened just before start mounting. Fill lubrication grease without washing bearing in the case of grease lubrication. Washing is generally not required for oil lubrication as well. Still it is recommended to thoroughly wash out oil and grease when application demands high accuracy or lubricating performance is degraded by mixing lubricant and anti-rust agents.

### Mounting method

#### 1) Press fitting

In mounting bearings from small to medium sizes which don't need large forces, press fittings in room temperature are conducted widely. In this case, use pressing fixture as shown in Figure-12 to apply force evenly at side of bearing and press it in carefully. Applying high viscosity oil on fitting surface during work may reduce friction on the surface.



#### 2) Shrink fitting

Shrink fitting is broadly used for tighter interference or mounting large size bearing. How to fit is heating housing for outer ring and inner ring for shaft respectively with pure mineral oil with less corrosivity in order to expand their inner diameter for mounting onto the shaft. Heating temperature must not exceed 120° C. During mounting, inner ring could expand toward shaft direction so that it needs to be pressed against shoulder until completion of cool down to avoid gap between the inner ring and the shoulder.

### 8-3 Operation inspection

Operation inspection needs to be performed in order to confirm that bearings is properly mounted. Power operation at given speed without operation inspection may result in damage of bearings or heat-seizure due to lubrication failure in the case that mounting is insufficient. Shaft or housing should be rotated by hand after bearing mounting to confirm if there is no abnormality followed by check (or inspection) in stepping increase of speed from no load, low speed operation with power up to loaded operation.

Followings are typical abnormal items and major causes that can be checked in the operation inspection.

#### 1) Check item in operation by hand

- Fluctuation in rotation torque, Insufficient mounting
- Sticks and abnormal noise, Impression, damage, invasion of dirt or foreign matters in track surface
- Excessive torque, Insufficiently small clearance

#### 2) Check item in operation by power

- Abnormal noise, vibration ···· Impression, invasion of dirt or foreign matters in track surface, excessive clearance
- Abnormal temperature ······ Insufficient lubrication, insufficient mounting, insufficiently small clearance

### 8-4 Removing

Bearing may be removed for periodical machine maintenance or repair for trouble. Bearing and other components should be carefully disassembled in the same manner as the mounting in the case of re-using disassembled bearing or researching trouble condition.

Bearings should be carried out in an appropriate manner in accordance with type of bearing and condition of fits. Structure design should take disassembling work into consideration at planning stage of construction around the bearing since it would be difficult to disassemble especially the tight fit bearing.

#### Removing outer ring

Installing bolts for disassembling outer ring at several locations in circumference of housing will allow removing outer ring assembled with tight fits easily by tightening-up the screws evenly as shown in Figure-13.

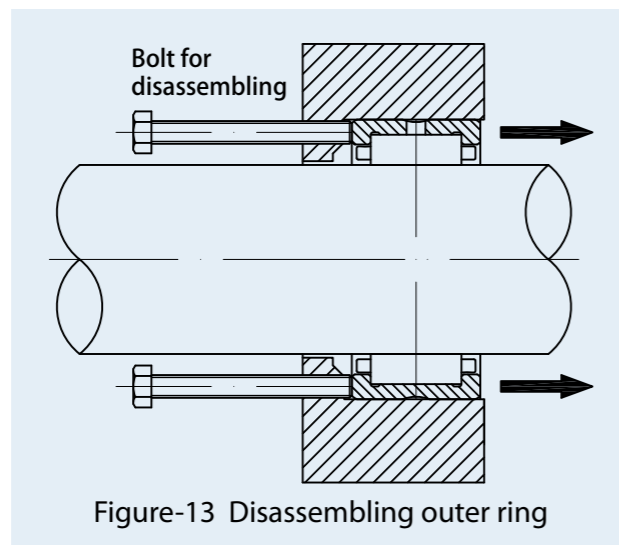


Figure-13 Disassembling outer ring

#### Disassembling inner ring

Inner rings can be carried out most easily by pulling out by press (Figure-14). Dedicated removal tool (Figure-15) designed in accordance with dimension of the bearing is in use as well.

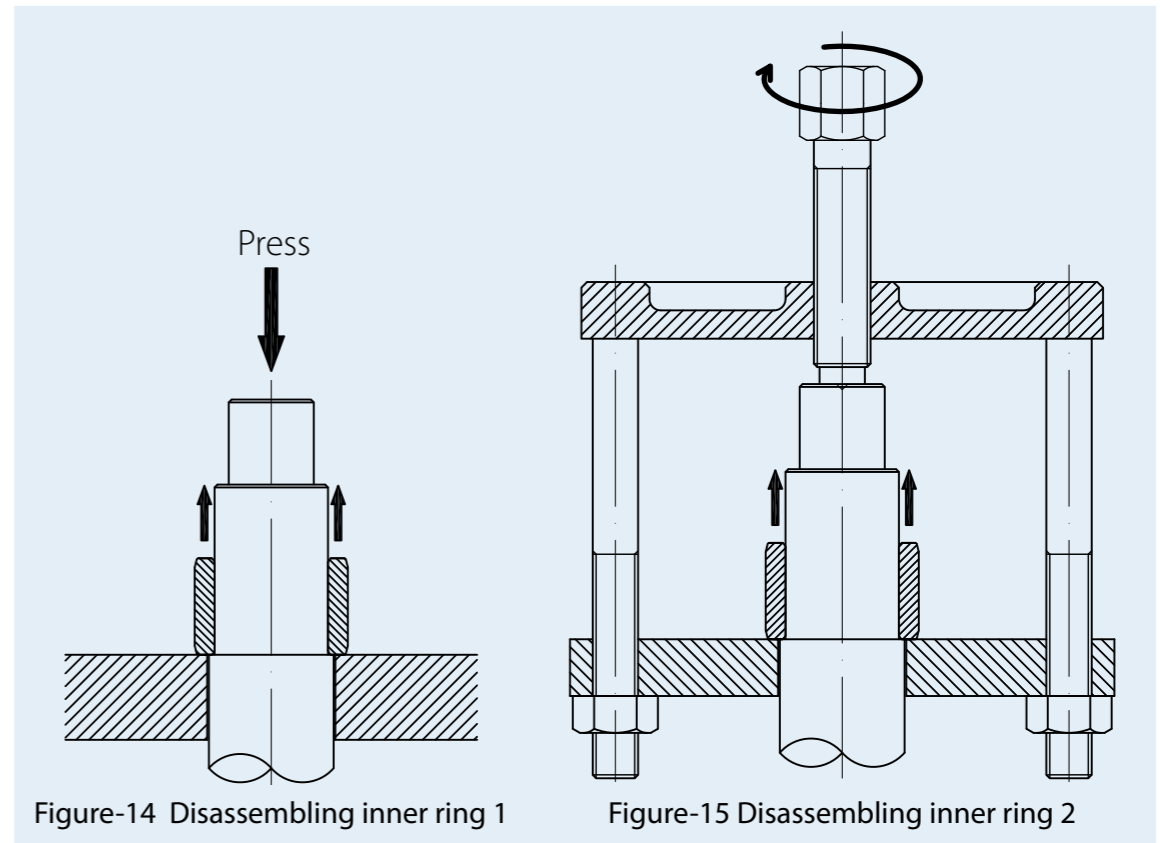


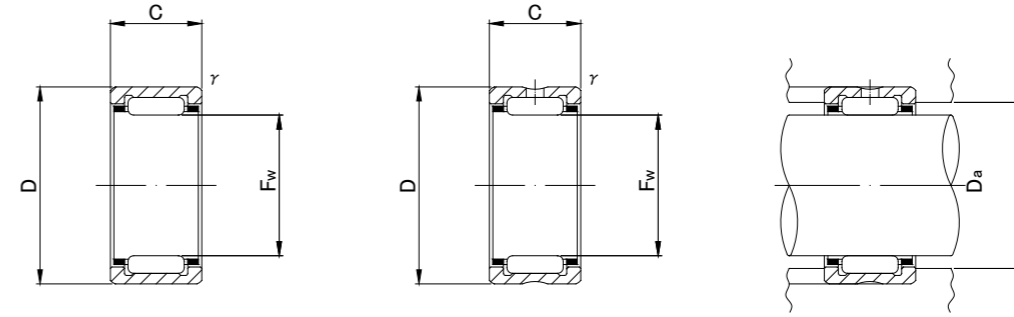
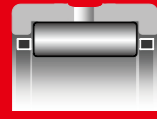
Figure-14 Disassembling inner ring 1

Figure-15 Disassembling inner ring 2

### 8-5 Maintenance and inspection

Periodical maintenance and inspection are essential for maximizing performance and prolonged usage of bearing as well as early discovery of abnormality of the bearings. Inspection items of bearings under operation include temperature, operation sound, vibration of bearings and condition of lubricant, whose observation enables judging timing of lubricant replenishment and replacement of components.

# MACHINED RING NEEDLE ROLLER BEARINGS WITHOUT INNER RING



NK( $F_w \leq 10$ )

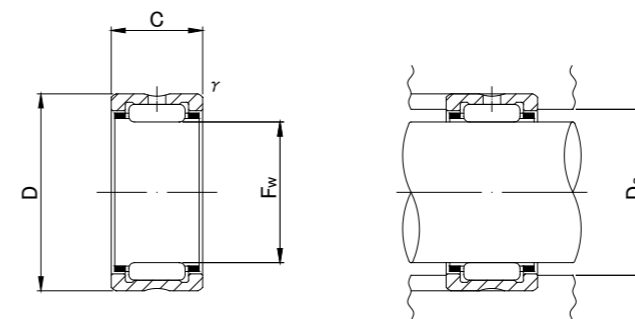
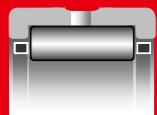
RNA49, RNA59, RNA69( $F_w \leq 35$ ), NK

## RNA49, RNA59, RNA69, RNA48, NK TYPE

Shaft Diameter (mm)	Designation					Dimensions (mm)				Standard mounting dimensions (mm)	Basic dynamic load rating	Basic static load rating	Limiting speed *	Mass	Usable bearing designation	
	RNA 49	RNA 59	RNA 69	RNA 48	NK	F <sub>w</sub>	D	C	f <sub>s</sub> min	Da MAX	Cr N	Cor N	rpm	g (approx)	INNER RING	WITH INNER RING
5	—	—	—	—	NK5/10	5 +0.018	10	10	0.15	6.5	2 420	1 950	40 000	3.4	—	—
					NK5/12	5 +0.010	10	12	0.15							
6	—	—	—	—	NK6/10	6 +0.018	12	10	0.015	7.5	2 700	2 320	37 000	5.3	—	—
					NK6/12	6 +0.010	12	12	0.15							
7	RNA 495	—	—	—	—	7 +0.022	13	10	0.15	8.5	2 960	2 690	34 000	5.9	IR5710	NA495
	—				7 +0.013	14	10	0.3	8.5	3 600	2 960	34 000	6.9	—	—	
	—				7	14	12	0.3	8.5	4 610	4 050	34 000	8.3	—	—	
8	RNA 496	—	—	—	—	8 +0.022	15	10	0.15	13.8	3 900	3 400	32 000	7.3	IR6810	NA496
	—				8 +0.013	15	12	0.3	13	5 100	4 700	32 000	9	IR5812	NKI 5/12	
	—				8	15	16	0.3	13	7 100	7 300	32 000	13	IR5816	NKI 5/16	
9	—	—	—	—	NK9/12	9 +0.022	16	12	0.3	14	5 500	5 300	30 000	10	IR6912	NKI 6/12
	—				9 +0.013	16	16	0.3	14	7 600	8 200	30 000	13.2	IR6916	NKI 6/16	
	RNA 497				9	17	10	0.15	15.8	4 500	3 600	30 000	9.3	IR7910	NA497	
10	—	—	—	—	NK10/12	10 +0.022	17	12	0.3	15	5 900	6 000	28 000	10.7	IR71012	NKI 7/12
	—				10 +0.013	17	16	0.3	15	8 200	9 200	28 000	14.3	IR71016	NKI 7/16	
	RNA 498				10	19	11	0.2	17.4	6 200	5 000	28 000	12.6	IR81011	NA498	
12	—	—	—	—	NK12/12	12 +0.027	19	12	0.3	17	6 600	7 300	26 000	12.2	IR91212	NKI 9/12
	—				12 +0.016	19	16	0.3	17	9 200	11 200	26 000	16.3	IR91216	NKI 9/16	
	RNA 499				12	20	11	0.3	18	6 600	6 300	26 000	13.6	IR91211	NA499	

\* Suitable for oil lubrication. In case of grease lubrication, down to 60% of this value.

# MACHINED RING NEEDLE ROLLER BEARINGS WITHOUT INNER RING



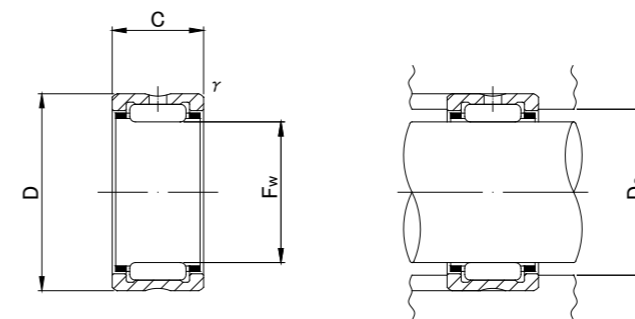
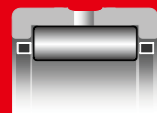
RNA49, RNA59, RNA69 (Fw ≤ 35), NK

## RNA49, RNA59, RNA69, RNA48, NK TYPE

Shaft Diameter (mm)	Designation					Dimensions (mm)				Standard mounting dimensions (mm)	Basic dynamic load rating	Basic static load rating	Limiting speed *	Mass	Usable bearing designation			
	RNA 49	RNA 59	RNA 69	RNA 48	NK	Fw	D	C	f <sub>s</sub> min	Da MAX	Cr N	Cor N	rpm	g (approx)	INNER RING	WITH INNER RING		
14	RNA 4900	—	—	—	—	14	22	13	0.3	20	9 200	10 100	24 000	16.5	IR101413	NA4900		
	—	—	—	—	NK14/16	14 <sup>+0.027</sup>		16	0.3		20	11 800	13 700	24 000		21	IR101416	NKI 10/16
	—	—	—	—	NK14/20	14 <sup>+0.016</sup>		20	0.3		20	14 800	18 500	24 000		26.5	IR101420	NKI 10/20
15	—	—	—	—	NK15/16	15 <sup>+0.027</sup>	23	16	0.3	21	12 400	14 900	23 000	22.5	—	—		
	—	—	—	—	NK15/20	15 <sup>+0.016</sup>		20	0.3		21	15 600	20 200	23 000			28	
16	RNA 4901	—	—	—	—	16	24	13	0.3	22	9 700	11 100	23 000	18.1	IR121613	NA4901		
	—	—	—	—	NK16/16	16 <sup>+0.027</sup>		16	0.3		22	12 300	15 100	23 000		23	IR121616	NKI 12/16
	—	—	—	—	NK16/20	16 <sup>+0.016</sup>		20	0.3		22	15 600	20 400	23 000		29	IR121620	NKI 12/20
	—	—	RNA 6901	—	—	16		22	0.3		22	17 100	23 000	23 000		30	IR121622	NA6901
17	—	—	—	—	NK17/16	17 <sup>+0.027</sup>	25	16	0.3	23	12 800	16 300	22 000	24.5	—	—		
	—	—	—	—	NK17/20	17 <sup>+0.016</sup>		20	0.3		23	16 300	22 100	22 000			30.5	
18	—	—	—	—	NK18/16	18 <sup>+0.027</sup>	26	16	0.3	24	13 400	17 500	21 000	25.5	—	—		
	—	—	—	—	NK18/20	18 <sup>+0.016</sup>		20	0.3		24	17 000	23 600	21 000			32	
19	—	—	—	—	NK19/16	19 <sup>+0.033</sup>	27	16	0.3	25	14 000	18 700	21 000	27	IR151916	NKI 15/16		
	—	—	—	—	NK19/20	19 <sup>+0.020</sup>		20	0.3		25	17 700	25 300	21 000		34	IR151920	NKI 15/20
20	RNA 4902	—	—	—	—	20	28	13	0.3	26	10 900	13 800	20 000	21.5	IR152013	NA4902		
	—	—	—	—	NK20/16	20		16	0.3		26	13 900	18 700	20 000		27.5	—	—
	—	RNA 5902	—	—	—	20 <sup>+0.033</sup>		18	0.3		26	15 700	22 100	20 000		33	IR152018	NA5902
	—	—	—	—	NK20/20	20 <sup>+0.020</sup>		20	0.3		26	17 600	25 400	20 000		35.5	—	—
	—	—	RNA 6902	—	—	20		23	0.3		26	19 300	28 700	20 000		37	IR152023	NA6902

\* Suitable for oil lubrication. In case of grease lubrication, down to 60% of this value.

# MACHINED RING NEEDLE ROLLER BEARINGS WITHOUT INNER RING



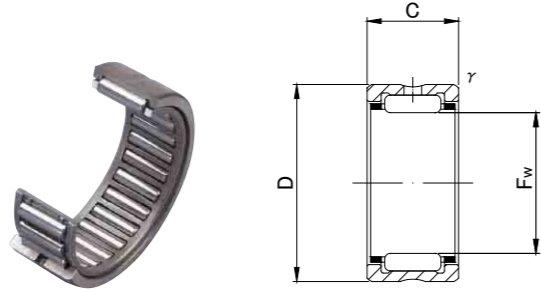
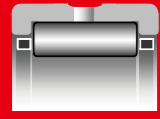
RNA49, RNA59, RNA69 (Fw ≤ 35), NK

## RNA49, RNA59, RNA69, RNA48, NK TYPE

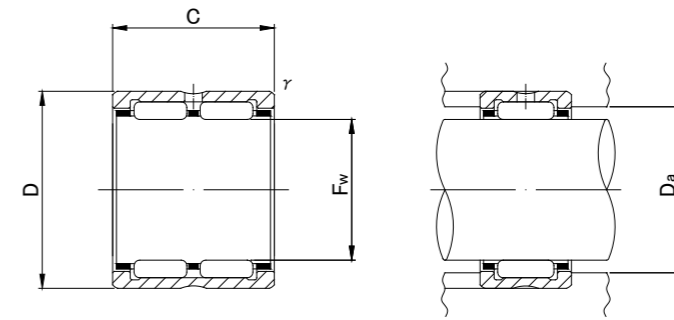
Shaft Diameter (mm)	Designation					Dimensions (mm)				Standard mounting dimensions (mm)	Basic dynamic load rating	Basic static load rating	Limiting speed *	Mass	Usable bearing designation								
	RNA 49	RNA 59	RNA 69	RNA 48	NK	Fw	D	C	f <sub>s</sub> min	Da MAX	Cr N	Cor N	rpm	g (approx)	INNER RING	WITH INNER RING							
21	—	—	—	—	NK21/16 NK21/20	21 +0.033	29	16	0.3	27	14 400	20 000	19 000	29	IR172116	NKI 17/16							
	—	—	—	—		21 +0.020	29	20	0.3								27	18 200	27 100	19 000	36	IR172120	NKI 17/20
22	RNA 4903	—	—	—	— NK22/16 — NK22/20 —	22	30	13	0.3	28	11 800	15 600	18 000	23.5	IR172213	NA4903							
	—	—	—	—		22	30	16	0.3								28	14 900	21 200	18 000	30	—	—
	—	RNA 5903	—	—		22 +0.033	30	18	0.3								28	16 900	24 900	18 000	35	IR172218	NA5903
	—	—	—	—		22 +0.020	30	20	0.3								28	18 900	28 700	18 000	37.5	—	—
	—	—	RNA 6903	—		22	30	23	0.3								28	20 800	32 500	18 000	40.5	IR172223	NA6903
24	—	—	—	—	NK24/16 NK24/20	24 +0.033	32	16	0.3	30	15 300	22 600	17 000	32	IR202416	NKI 20/16							
	—	—	—	—		24 +0.020	32	20	0.3								30	19 400	30 500	17 000	40.5	IR202420	NKI 20/20
25	—	—	—	—	NK25/16 NK25/20 — — —	25	33	16	0.3	31	15 800	23 700	16 000	33.5	—	—							
	—	—	—	—		25	33	20	0.3								31	20 000	32 200	16 000	42	—	—
	RNA 4904	—	—	—		25 +0.033	37	17	0.3								35	21 000	25 000	16 000	55.5	IR202517	NA4904
	—	RNA 5904	—	—		25 +0.020	37	23	0.3								35	29 400	38 600	16 000	84	IR202523	NA5904
	—	—	RNA 6904	—		25	37	30	0.3								35	35 400	48 800	16 000	95.5	IR202530	NA6904
26	—	—	—	—	NK26/16 NK26/20	26 +0.033	34	16	0.3	32	16 300	24 900	15 000	34.5	IR222616	NKI 22/16							
	—	—	—	—		26 +0.020	34	20	0.3								32	20 600	33 700	15 000	43.5	IR222620	NKI 22/20
28	—	—	—	—	NK28/20 NK28/30 — — —	28	37	20	0.3	35	21 700	37 100	14 000	51.5	—	—							
	—	—	—	—		28	37	30	0.3								35	31 100	58 900	14 000	83.5	—	—
	RNA 49/22	—	—	—		28 +0.033	39	17	0.3								37	21 400	28 800	14 000	56.5	IR222817	NA49/22
	—	RNA 59/22	—	—		28 +0.020	39	23	0.3								37	29 800	44 400	14 000	92	IR222823	NA59/22
	—	—	RNA 69/22	—		28	39	30	0.3								37	36 300	56 900	14 000	97.5	IR222830	NA69/22
29	—	—	—	—	NK29/20 NK29/30	29 +0.033	38	20	0.3	36	21 600	37 200	14 000	57	IR252920	NKI 25/20							
	—	—	—	—		29 +0.020	38	30	0.3								36	30 900	59 000	14 000	85	IR252930	NKI 25/30

\* Suitable for oil lubrication. In case of grease lubrication, down to 60% of this value.

# MACHINED RING NEEDLE ROLLER BEARINGS WITHOUT INNER RING



RNA49, RNA59, RNA69 (Fw ≤ 35), NK



RNA69

RNA, NK

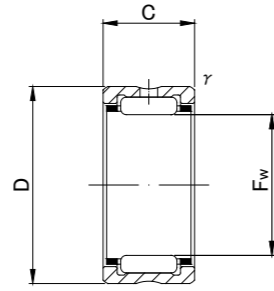
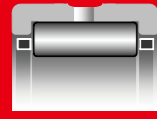
RNA, NK

## RNA49, RNA59, RNA69, RNA48, NK TYPE

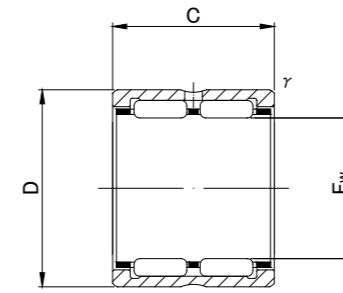
Shaft Diameter (mm)	Designation					Dimensions (mm)				Standard mounting dimensions (mm)	Basic dynamic load rating	Basic static load rating	Limiting speed *	Mass	Usable bearing designation	
	RNA 49	RNA 59	RNA 69	RNA 48	NK	Fw	D	C	r <sub>s</sub> min	Da MAX	Cr N	Cor N	rpm	g (approx)	INNER RING	WITH INNER RING
30	—	—	—	—	NK30/20	30	40	20	0.3	38	25 100	40 100	13 000	64.5	—	—
	—	—	—	—	NK30/30	30	40	30	0.3	38	36 000	63 800	13 000	97.5	—	—
	RNA 4905	—	—	—	—	30 <sup>+0.033</sup>	42	17	0.3	40	23 700	30 700	13 000	64	IR253017	NA4905
	—	RNA 5905	—	—	—	30 <sup>+0.020</sup>	42	23	0.3	40	33 200	47 500	13 000	101	IR253023	NA5905
	—	—	RNA 6905	—	—	30	42	30	0.3	40	42 100	64 200	13 000	111	IR253030	NA6905
32	—	—	—	—	NK32/20	32	42	20	0.3	40	25 700	42 200	13 000	68	IR283220	NKI 28/20
	—	—	—	—	NK32/30	32	42	30	0.3	40	36 900	67 100	13 000	102	IR283230	NKI 28/30
	RNA 49/28	—	—	—	—	32 <sup>+0.041</sup>	45	17	0.3	43	24 500	32 700	13 000	76.5	IR283217	NA49/28
	—	RNA 59/28	—	—	—	32 <sup>+0.025</sup>	45	23	0.3	43	34 300	50 500	13 000	108	IR283223	NA59/28
	—	—	RNA 69/28	—	—	32	45	30	0.3	43	41 800	64 700	13 000	133	IR283230	NA69/28
35	—	—	—	—	NK35/20	35	45	20	0.3	43	27 000	46 200	11 000	73.5	IR303520	NKI 30/20
	—	—	—	—	NK35/30	35	45	30	0.3	43	38 600	73 500	11 000	112	IR303530	NKI 30/30
	RNA 4906	—	—	—	—	35 <sup>+0.041</sup>	47	17	0.3	45	25 200	34 700	11 000	72.5	IR303517	NA4906
	—	RNA 5906	—	—	—	35 <sup>+0.025</sup>	47	23	0.3	45	35 200	53 700	11 000	108	IR303523	NA5906
	—	—	RNA 6906	—	—	35	47	30	0.3	45	43 100	69 000	11 000	125	IR303530	NA6906
37	—	—	—	—	NK37/20	37 <sup>+0.041</sup>	47	20	0.3	45	28 200	50 100	11 000	77.5	IR323720	NKI 32/20
	—	—	—	—	NK37/30	37 <sup>+0.025</sup>	47	30	0.3	45	40 500	79 800	11 000	117	IR323730	NKI 32/30
38	—	—	—	—	NK38/20	38 <sup>+0.041</sup>	48	20	0.3	46	28 100	50 200	11 000	79	—	—
	—	—	—	—	NK38/30	38 <sup>+0.025</sup>	48	30	0.3	46	40 300	80 000	11 000	119	—	—
40	—	—	—	—	NK40/20	40	50	20	0.3	48	29 400	54 100	10 000	83	IR354020	NKI 35/20
	—	—	—	—	NK40/30	40	50	30	0.3	48	42 300	86 100	10 000	125	IR354030	NKI 35/30
	RNA 49/32	—	—	—	—	40 <sup>+0.041</sup>	52	20	0.6	48	31 300	47 900	10 000	96	IR324020	NA49/32
	—	RNA 59/32	—	—	—	40 <sup>+0.025</sup>	52	27	0.6	48	41 900	69 900	10 000	149	IR324027	NA59/32
	—	—	RNA 69/32	—	—	40	52	36	0.6	48	53 500	95 700	10 000	172	IR324036	NA69/32
42	—	—	—	—	NK42/20	42	52	20	0.3	50	29 900	56 200	9 500	86.5	—	—
	—	—	—	—	NK42/30	42	52	30	0.3	50	43 000	89 500	9 500	130	—	—
	RNA 4907	—	—	—	—	42 <sup>+0.041</sup>	55	20	0.6	51	32 000	50 200	9 500	113	IR354220	NA4907
	—	RNA 5907	—	—	—	42 <sup>+0.025</sup>	55	27	0.6	51	42 900	73 200	9 500	176	IR354227	NA5907
	—	—	RNA 6907	—	—	42	55	36	0.6	51	54 800	100 000	9 500	200	IR354236	NA6907

\* Suitable for oil lubrication. In case of grease lubrication, down to 60% of this value.

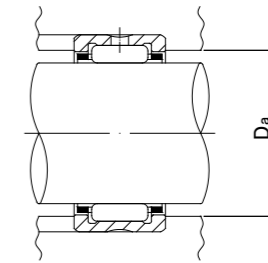
# MACHINED RING NEEDLE ROLLER BEARINGS WITHOUT INNER RING



RNA49, RNA59, RNA48, NK



RNA69



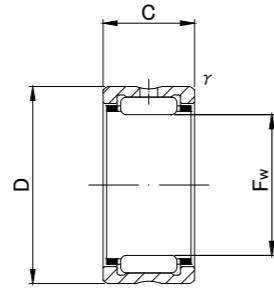
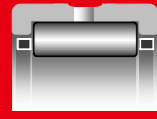
## RNA49, RNA59, RNA69, RNA48, NK TYPE

Shaft Diameter (mm)	Designation					Dimensions (mm)				Standard mounting dimensions (mm)	Basic dynamic load rating	Basic static load rating	Limiting speed *	Mass	Usable bearing designation	
	RNA 49	RNA 59	RNA 69	RNA 48	NK	Fw	D	C	fs min	Da MAX	Cr N	Cor N	rpm	g (approx)	INNER RING	WITH INNER RING
43	—	—	—	—	NK43/20 NK43/30	43 +0.041	53	20	0.3	51	30 500 43 700	58 100 92 500	9 500 9 500	88.5 133	IR384320 IR384330	NKI 38/20 NKI 38/30
	—	—	—	—		43 +0.025	53	30	0.3							
45	—	—	—	—	NK45/20 NK45/30	45 +0.041	55	20	0.3	53	31 100 44 500	60 100 95 700	9 000 9 000	92 138	IR404520 IR404530	NKI 40/20 NKI 40/30
	—	—	—	—		45 +0.025	55	30	0.3							
47	—	—	—	—	NK47/20 NK47/30	47 +0.041	57	20	0.3	55	31 500 45 200	62 300 99 000	8 500 8 500	95 144	IR424720 IR424730	NKI 42/20 NKI 42/30
	—	—	—	—		47 +0.025	57	30	0.3							
48	RNA 4908	—	—	—	—	48 +0.041	62	22	0.6	58	41 600 58 000 71 300	67 400 103 000 134 400	8 500 8 500 8 500	152 225 275	IR404822 IR404830 IR404840	NA4908 NA5908 NA6908
	—	RNA 5908	—	—		48 +0.025	62	30	0.6							
	—	—	RNA 6908	—		48	62	40	0.6							
50	—	—	—	—	NK50/25 NK50/35	50 +0.041	62	25	0.6	58	43 000 58 100	85 200 125 500	8 000 8 000	159 225	IR455025 IR455035	NKI 45/25 NKI 45/35
	—	—	—	—		50 +0.025	62	35	0.6							
52	RNA 4909	—	—	—	—	52 +0.049	68	22	0.6	64	43 500 60 700 74 600	73 400 112 000 147 100	7 500 7 500 7 500	197 232 355	IR455222 IR455230 IR455240	NA4909 NA5909 NA6909
	—	RNA 5909	—	—		52 +0.030	68	30	0.6							
	—	—	RNA 6909	—		52	68	40	0.6							
55	—	—	—	—	NK55/25 NK55/35	55 +0.049	68	25	0.6	64	45 400 61 300	94 100 138 300	7 500 7 500	193 255	IR505525 IR505535	NKI 50/25 NKI 50/35
	—	—	—	—		55 +0.030	68	35	0.6							

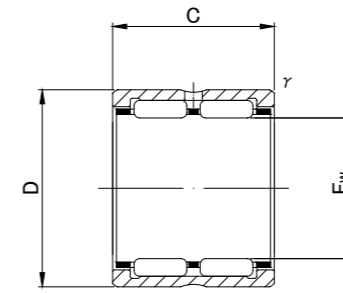
\* Suitable for oil lubrication. In case of grease lubrication, down to 60% of this value.



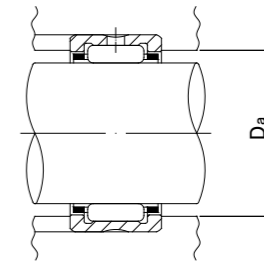
# MACHINED RING NEEDLE ROLLER BEARINGS WITHOUT INNER RING



RNA49, RNA59, RNA48, NK



RNA69

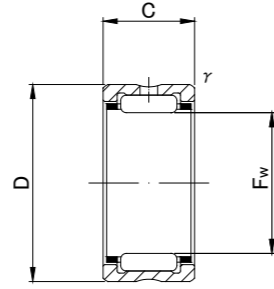
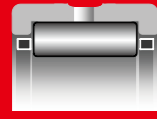


## RNA49, RNA59, RNA69, RNA48, NK TYPE

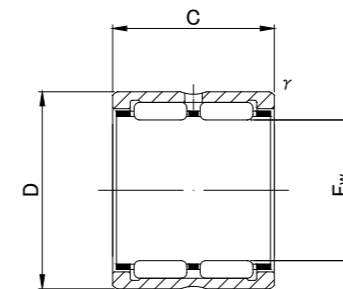
Shaft Diameter (mm)	Designation					Dimensions (mm)				Standard mounting dimensions (mm)	Basic dynamic load rating	Basic static load rating	Limiting speed *	Mass	Usable bearing designation	
	RNA 49	RNA 59	RNA 69	RNA 48	NK	Fw	D	C	r <sub>s</sub> min	Da MAX	Cr N	Cor N	rpm	g (approx)	INNER RING	WITH INNER RING
58	RNA 4910	—	—	—	—	58	72	22	0.6	68	46 200	82 100	7 000	179	IR505822	NA4910
	—	RNA 5910	—	—	—	58 <sup>+0.049</sup>	72	30	0.6	68	64 400	126 000	7 000	289	IR505830	NA5910
	—	—	RNA 6910	—	—	58 <sup>+0.030</sup>	72	40	0.6	68	79 100	163 800	7 000	320	IR505840	NA6910
60	—	—	—	—	NK60/25	60 <sup>+0.049</sup>	72	25	0.6	68	47 500	103 000	6 500	187	IR556025	NKI 55/25
	—	—	—	—	NK60/35	60 <sup>+0.030</sup>	72	35	0.6	68	64 100	151 000	6 500	260	IR556035	NKI 55/35
63	RNA 4911	—	—	—	—	63	80	25	1	75	57 600	97 300	6 500	265	IR556325	NA4911
	—	RNA 5911	—	—	—	63 <sup>+0.049</sup>	80	34	1	75	82 600	154 000	6 500	367	IR556334	NA5911
	—	—	RNA 6911	—	—	63 <sup>+0.030</sup>	80	45	1	75	99 000	194 200	6 500	475	IR556345	NA6911
65	—	—	—	—	NK65/25	65 <sup>+0.049</sup>	78	25	0.6	74	49 600	111 800	6 000	225	—	—
	—	—	—	—	NK65/35	65 <sup>+0.030</sup>	78	35	0.6	74	67 000	164 800	6 000	315	—	—
68	—	—	—	—	NK68/25	68	82	25	0.6	78	54 800	116 700	6 000	250	IR606825	NKI 60/25
	—	—	—	—	NK68/35	68	82	35	0.6	78	72 100	165 700	6 000	350	IR606835	NKI 60/35
	RNA 4912	—	—	—	—	68 <sup>+0.049</sup>	85	25	1	80	60 100	104 900	6 000	285	IR606825	NA4912
	—	RNA 5912	—	—	—	68 <sup>+0.030</sup>	85	34	1	80	86 100	167 000	6 000	408	IR606834	NA5912
	—	—	RNA 6912	—	—	68	85	45	1	80	103 000	210 800	6 000	510	IR606845	NA6912
70	—	—	—	—	NK70/25	70 <sup>+0.049</sup>	85	25	0.6	81	55 500	120 600	5 500	280	—	—
	—	—	—	—	NK70/35	70 <sup>+0.030</sup>	85	35	0.6	81	73 000	170 600	5 500	395	—	—
72	RNA 4913	—	—	—	—	72	90	25	1	85	62 800	113 800	5 500	325	IR657225	NA4913
	—	RNA 5913	—	—	—	72 <sup>+0.049</sup>	90	34	1	85	89 900	180 000	5 500	462	IR657234	NA5913
	—	—	RNA 6913	—	—	72 <sup>+0.030</sup>	90	45	1	85	107 900	226 500	5 500	585	IR657245	NA6913

\* Suitable for oil lubrication. In case of grease lubrication, down to 60% of this value.

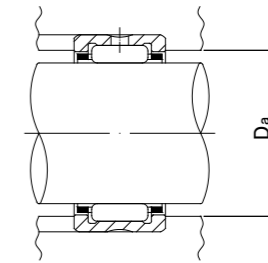
# MACHINED RING NEEDLE ROLLER BEARINGS WITHOUT INNER RING



RNA49, RNA59, RNA48, NK



RNA69

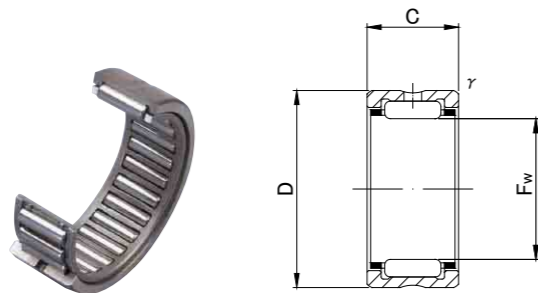
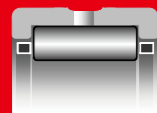


## RNA49, RNA59, RNA69, RNA48, NK TYPE

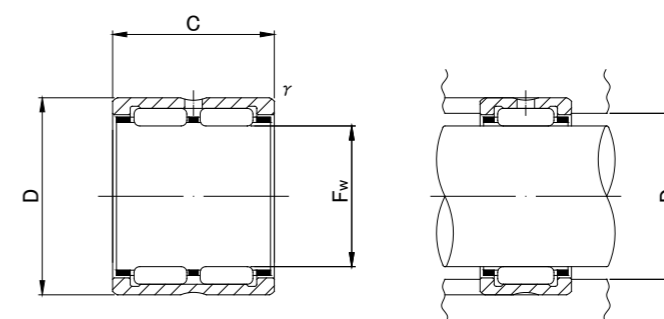
Shaft Diameter (mm)	Designation					Dimensions (mm)				Standard mounting dimensions (mm)	Basic dynamic load rating	Basic static load rating	Limiting speed *	Mass	Usable bearing designation								
	RNA 49	RNA 59	RNA 69	RNA 48	NK	Fw	D	C	fs min	Da MAX	Cr N	Cor N	rpm	g (approx)	INNER RING	WITH INNER RING							
73	—	—	—	—	NK73/25 NK73/35	73 +0.049	90	25	0.6	86	61 100 80 400	126 500 180 400	5 500 5 500	335 475	— IR657335	— NKI 65/35							
	—	—	—	—		73 +0.030	90	35	0.6														
75	—	—	—	—	NK75/25 NK75/35	75 +0.049	92	25	0.6	88	62 200 82 700	130 400 186 300	5 500 5 500	345 485	— —	— —							
	—	—	—	—		75 +0.030	92	35	0.6														
80	—	—	—	—	NK80/25 NK80/35 — — —	80	95	25	1	90	59 400 78 100 83 200 112 000 133 400	137 300 194 200 157 900 232 000 310 900	5 000 5 000 5 000 5 000 5 000	315 445 495 706 910	IR708025 IR708035 IR708030 IR708040 IR708054	NKI 70/25 NKI 70/35 NA4914 NA5914 NA6914							
	—	—	—	—		80 +0.049	95	35	1								90	78 100	194 200	5 000	445	IR708035	NKI 70/35
	RNA 4914	—	—	—		80 +0.030	100	30	1								95	83 200	157 900	5 000	495	IR708030	NA4914
	—	RNA 5914	—	—		80	100	40	1								95	112 000	232 000	5 000	706	IR708040	NA5914
	—	—	RNA 6914	—		80	100	54	1								95	133 400	310 900	5 000	910	IR708054	NA6914
85	—	—	—	—	NK85/25 — NK85/35 — —	85	105	25	1	100	76 400 86 200 102 000 116 000 138 300	145 100 169 700 209 900 249 000 330 500	4 500 4 500 4 500 4 500 4 500	435 525 610 745 960	IR758525 IR758530 IR758535 IR758540 IR758554	NKI 75/25 NA4915 NKI 75/35 NA5915 NA6915							
	RNA 4915	—	—	—		85 +0.058	105	30	1								100	86 200	169 700	4 500	525	IR758530	NA4915
	—	—	—	—		85 +0.036	105	35	1								100	102 000	209 900	4 500	610	IR758535	NKI 75/35
	—	RNA 5915	—	—		85	105	40	1								100	116 000	249 000	4 500	745	IR758540	NA5915
	—	—	RNA 6915	—		85	105	54	1								100	138 300	330 500	4 500	960	IR758554	NA6915
90	—	—	—	—	NK90/25 — NK90/35 — —	90	110	25	1	105	77 400 87 400 103 000 117 000 143 200	150 000 174 600 216 700 257 000 350 100	4 500 4 500 4 500 4 500 4 500	456 550 640 787 1 010	IR809025 IR809030 IR809035 IR809040 IR809054	NKI 80/25 NA4916 NKI 80/35 NA5916 NA6916							
	RNA 4916	—	—	—		90 +0.058	110	30	1								105	87 400	174 600	4 500	550	IR809030	NA4916
	—	—	—	—		90 +0.036	110	35	1								105	103 000	216 700	4 500	640	IR809035	NKI 80/35
	—	RNA 5916	—	—		90	110	40	1								105	117 000	257 000	4 500	787	IR809040	NA5916
	—	—	RNA 6916	—		90	110	54	1								105	143 200	350 100	4 500	1 010	IR809054	NA6916
95	—	—	—	—	NK95/26 NK95/36	95 +0.058	115	26	1	110	79 700 106 900	158 900 230 500	4 200 4 200	495 690	IR859526 IR859536	NKI 85/26 NKI 85/36							
	—	—	—	—		95 +0.036	115	36	1														
100	—	—	—	—	NK100/26 — NK100/36 — —	100	120	26	1	115	82 500 109 800 109 800 144 000 172 600	168 700 244 200 244 200 346 000 466 800	4 000 4 000 4 000 4 000 4 000	525 705 725 1 000 1 300	IR9010026 IR8510035 IR9010036 IR8510046 IR8510063	NKI 90/26 NA4917 NKI 90/36 NA5917 NA6917							
	RNA 4917	—	—	—		100 +0.058	120	35	1.1								113.5	109 800	244 200	4 000	705	IR8510035	NA4917
	—	—	—	—		100 +0.036	120	36	1								115	109 800	244 200	4 000	725	IR9010036	NKI 90/36
	—	RNA 5917	—	—		100	120	46	1.1								113.5	144 000	346 000	4 000	1 000	IR8510046	NA5917
	—	—	RNA 6917	—		100	120	63	1.1								113.5	172 600	466 800	4 000	1 300	IR8510063	NA6917

\* Suitable for oil lubrication. In case of grease lubrication, down to 60% of this value.

# MACHINED RING NEEDLE ROLLER BEARINGS WITHOUT INNER RING



RNA49, RNA59, RNA48, NK



RNA69

RNA, NK

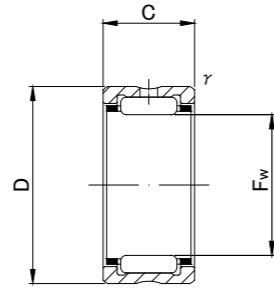
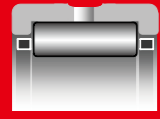
RNA, NK

## RNA49, RNA59, RNA69, RNA48, NK TYPE

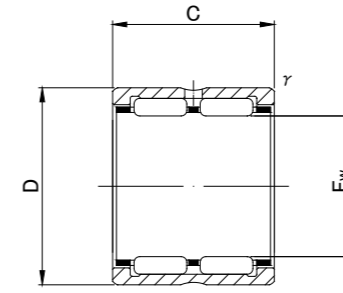
Shaft Diameter (mm)	Designation					Dimensions (mm)				Standard mounting dimensions (mm)	Basic dynamic load rating	Basic static load rating	Limiting speed *	Mass	Usable bearing designation	
	RNA 49	RNA 59	RNA 69	RNA 48	NK	Fw	D	C	fs min						Da MAX	Cr N
105	—	—	—	—	<b>NK105/26</b>	105	125	26	1	120	84 700	177 500	3 800	545	IR9510526	NKI 95/26
	<b>RNA 4918</b>	—	—	—	—	105	125	35	1.1	118.5	112 800	257 900	3 800	740	IR9010535	NA4918
	—	—	—	—	<b>NK105/36</b>	105 <sup>+0.058</sup>	125	36	1	120	112 800	257 900	3 800	760	IR9510536	NKI 95/36
	—	<b>RNA 5918</b>	—	—	—	105 <sup>+0.036</sup>	125	46	1.1	118.5	148 000	365 000	3 800	1 040	IR9010546	NA5918
	—	—	<b>RNA 6918</b>	—	—	105	125	63	1.1	118.5	177 500	490 300	3 800	1 360	IR9010563	NA6918
110	—	—	—	—	<b>NK110/30</b>	110	130	30	1.1	123.5	105 900	239 300	3 600	660	IR10011030	NKI 100/30
	<b>RNA 4919</b>	—	—	—	—	110	130	35	1.1	123.5	116 700	270 700	3 600	770	IR9511035	NA4919
	—	—	—	—	<b>NK110/40</b>	110 <sup>+0.058</sup>	130	40	1.1	123.5	133 400	323 600	3 600	880	IR10011040	NKI 100/40
	—	<b>RNA 5919</b>	—	—	—	110 <sup>+0.036</sup>	130	46	1.1	123.5	152 000	384 000	3 600	1 130	IR9511046	NA5919
	—	—	<b>RNA 6919</b>	—	—	110	130	63	1.1	1 123.5	182 400	514 800	3 600	1 420	IR9511063	NA6919
115	<b>RNA 4920</b>	—	—	—	—	115 <sup>+0.058</sup> <sup>+0.036</sup>	140	40	1.1	133.5	145 000	329 000	3 500	1 190	IR10011540	NA4920
120	—	—	—	<b>RNA 4822</b>	—	120 <sup>+0.058</sup> <sup>+0.036</sup>	140	30	1	135	93 000	239 000	3 500	790	IR11012030	NA4822
125	<b>RNA 4922</b>	—	—	—	—	125 <sup>+0.068</sup> <sup>+0.043</sup>	150	40	1.1	143.5	152 000	357 000	3 000	1 280	IR11012540	NA4922
130	—	—	—	<b>RNA 4824</b>	—	130 <sup>+0.068</sup> <sup>+0.043</sup>	150	30	1	145	97 000	259 000	3 000	850	IR12013030	NA4824
135	<b>RNA 4924</b>	—	—	—	—	135 <sup>+0.068</sup> <sup>+0.043</sup>	165	45	1.1	158.5	187 000	435 000	3 000	1 930	IR12013545	NA4924

\* Suitable for oil lubrication. In case of grease lubrication, down to 60% of this value.

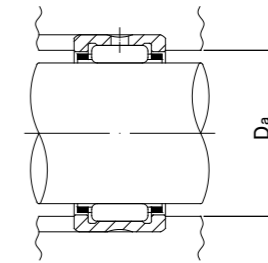
# MACHINED RING NEEDLE ROLLER BEARINGS WITHOUT INNER RING



RNA49, RNA59, RNA48, NK



RNA69

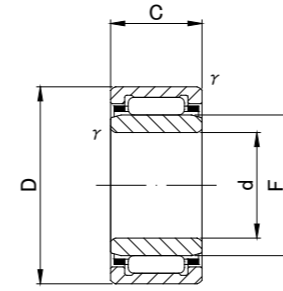
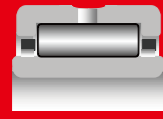


## RNA49, RNA59, RNA69, RNA48, NK TYPE

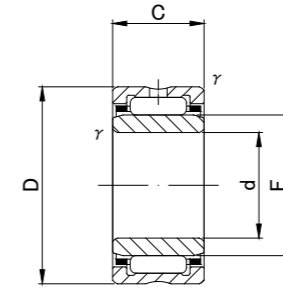
Shaft Diameter (mm)	Designation					Dimensions (mm)				Standard mounting dimensions (mm)	Basic dynamic load rating	Basic static load rating	Limiting speed *	Mass	Usable bearing designation	
	RNA 49	RNA 59	RNA 69	RNA 48	NK	Fw	D	C	<i>f</i> s min	Da MAX	Cr N	Cor N	rpm	g (approx)	INNER RING	WITH INNER RING
145	—	—	—	<b>RNA 4826</b>	—	145 <sup>+0.068</sup> / <sub>+0.043</sub>	165	35	1.1	158.5	117 000	340 000	3 000	1 100	IR13014535	NA4826
150	<b>RNA 4926</b>	—	—	—	—	150 <sup>+0.068</sup> / <sub>+0.043</sub>	180	50	1.5	172	216 000	540 000	2 500	2 360	IR13015050	NA4926
155	—	—	—	<b>RNA 4828</b>	—	155 <sup>+0.068</sup> / <sub>+0.043</sub>	175	35	1.1	168.5	121 000	363 000	2 500	1 170	IR14015535	NA4828
160	<b>RNA 4928</b>	—	—	—	—	160 <sup>+0.068</sup> / <sub>+0.043</sub>	190	50	1.5	182	224 000	580 000	2 500	2 500	IR14016050	NA4928
165	—	—	—	<b>RNA 4830</b>	—	165 <sup>+0.068</sup> / <sub>+0.043</sub>	190	40	1.1	183.5	168 000	446 000	2 500	1 750	IR15016540	NA4830
175	—	—	—	<b>RNA 4832</b>	—	175 <sup>+0.068</sup> / <sub>+0.043</sub>	200	40	1.1	193.5	173 000	474 000	2 500	1 850	IR16017540	NA4832

\* Suitable for oil lubrication. In case of grease lubrication, down to 60% of this value.

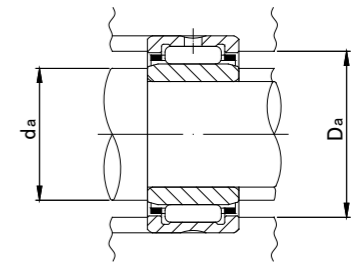
# MACHINED RING NEEDLE ROLLER BEARINGS WITH INNER RING



NKI(d ≤ 8)



NA49,NA59,NA69(d ≤ 30),NKI

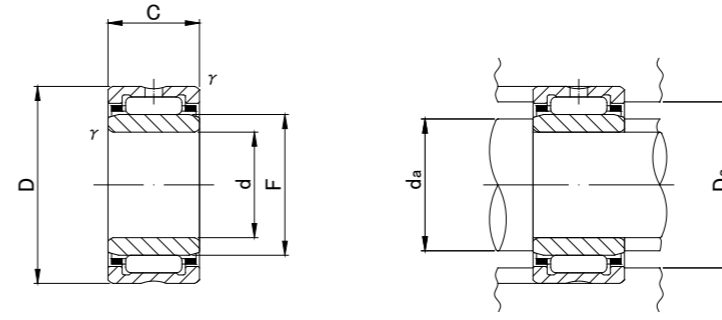
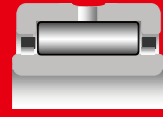


## NA49,NA59,NA69,NA48,NKI TYPE

Shaft Diameter (mm)	Designation					Dimensions (mm)						Standard mounting dimensions (mm)			Basic dynamic load rating	Basic static load rating	Limiting speed*	Mass	Usable bearing designation	
	NA 49	NA 59	NA 69	NA48	NKI	d	D	C	r/s min	F	da		Da MAX	Cr N	Cor N	rpm	g (approx)	OUTER RING	INNER RING	
											MIN	MAX								
5	NA495	—	—	—	—	5	13	10	0.15	7	6.2	6.7	11.8	2 960	2 690	34 000	7.3	RNA495	IR5710	
	—	—	—	—	NKI 5/12	5 <sup>0</sup>	15	12	0.3	8	7	7.7	13	5 100	4 700	32 000	11.9	NK8/12	IR5812	
	—	—	—	—	NKI 5/16	5 <sup>-0.008</sup>	15	16	0.3	8	7	7.7	13	7 100	7 300	32 000	16.7	NK8/16	IR5816	
6	NA 496	—	—	—	—	6	15	10	0.15	8	7.2	7.7	13.8	3 900	3 400	32 000	9.1	RNA496	IR6810	
	—	—	—	—	NKI 6/12	6 <sup>0</sup>	16	12	0.3	9	8	8.7	14	5 500	5 300	30 000	13	NK9/12	IR6912	
	—	—	—	—	NKI 6/16	6 <sup>-0.008</sup>	16	16	0.3	9	8	8.7	14	7 600	8 200	30 000	17.5	NK9/16	IR6916	
7	NA 497	—	—	—	—	7	17	10	0.15	9	8.2	8.7	15.8	4 500	3 600	30 000	11.2	RNA497	IR7910	
	—	—	—	—	NKI 7/12	7 <sup>0</sup>	17	12	0.3	10	9	9.7	15	5 900	6 000	28 000	14.3	NK10/12	IR71012	
	—	—	—	—	NKI 7/16	7 <sup>-0.008</sup>	17	16	0.3	10	9	9.7	15	8 200	9 200	28 000	19.2	NK10/16	IR71016	
8	NA 498	—	—	—	—	8	19	11	0.2	10	9.2	9.7	17.4	6 200	5 000	28 000	15	RNA498	IR81011	
9	—	—	—	—	NKI 9/12	9	19	12	0.3	12	11	11.5	17	6 600	7 300	26 000	16.7	NK12/12	IR91212	
	—	—	—	—	NKI 9/16	9 <sup>0</sup>	19	16	0.3	12	11	11.5	17	9 200	11 200	26 000	22.5	NK12/16	IR91216	
	NA 499	—	—	—	—	9 <sup>-0.008</sup>	20	11	0.3	12	11	11.5	18	6 600	6 300	26 000	16.7	RNA499	IR91211	
10	NA 4900	—	—	—	—	10	22	13	0.3	14	12	13	20	9 200	10 100	24 000	24	RNA4900	IR101413	
	—	—	—	—	NKI 10/16	10 <sup>0</sup>	22	16	0.3	14	12	13	20	11 800	13 700	24 000	30	NK14/16	IR101416	
	—	—	—	—	NKI 10/20	10 <sup>-0.008</sup>	22	20	0.3	14	12	13	20	14 800	18 500	24 000	38	NK14/20	IR101420	
12	NA 4901	—	—	—	—	12	24	13	0.3	16	14	15	22	9 700	11 100	23 000	26.5	RNA4901	IR121613	
	—	—	—	—	NKI 12/16	12 <sup>0</sup>	24	16	0.3	16	14	15	22	12 300	15 100	23 000	33.5	NK16/16	IR121616	
	—	—	—	—	NKI 12/20	12 <sup>-0.008</sup>	24	20	0.3	16	14	15	22	15 600	20 400	23 000	42.5	NK16/20	IR121620	
	—	—	NA 6901	—	—	12	24	22	0.3	16	14	15	22	17 100	23 000	23 000	44.5	RNA6901	IR121622	

\* Suitable for oil lubrication. In case of grease lubrication, down to 60% of this value.

# MACHINED RING NEEDLE ROLLER BEARINGS WITH INNER RING



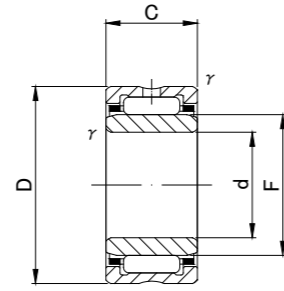
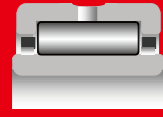
NA49,NA59,NA69(d ≤ 30),NKI

## NA49,NA59,NA69,NA48,NKI TYPE

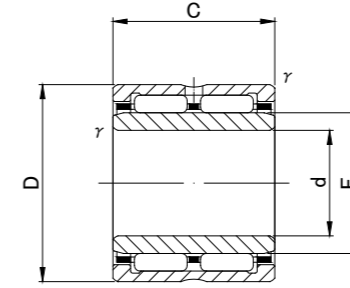
Shaft Diameter (mm)	Designation					Dimensions (mm)						Standard mounting dimensions (mm)		Basic dynamic load rating	Basic static load rating	Limiting speed*	Mass	Usable bearing designation	
	NA 49	NA 59	NA 69	NA48	NKI	d	D	C	f's min	F	da		D <sub>a</sub> MAX	C <sub>r</sub> N	C <sub>or</sub> N	rpm	g (approx)	OUTER RING	INNER RING
											MIN	MAX							
15	—	—	—	—	NKI 15/16	15	27	16	0.3	19	17	18	25	14 000	18 700	21 000	39.5	NK19/16	IR151916
	—	—	—	—	NKI 15/20	15	27	20	0.3	19	17	18	25	17 700	25 300	21 000	50	NK19/20	IR151920
	NA 4902	—	—	—	—	15 <sup>0</sup> <sub>-0.008</sub>	28	13	0.3	20	17	19	26	10 900	13 800	20 000	35	RNA4902	IR152013
	—	NA 5902	—	—	—	15	28	18	0.3	20	17	19	26	15 700	22 100	20 000	52	RNA5902	IR152018
	—	—	NA 6902	—	—	15	28	23	0.3	20	17	19	26	19 300	28 700	20 000	61	RNA6902	IR152023
17	—	—	—	—	NKI 17/16	17	29	16	0.3	21	19	20	27	14 400	20 000	19 000	43.5	NK21/16	IR172116
	—	—	—	—	NKI 17/20	17	29	20	0.3	21	19	20	27	18 200	27 100	19 000	54	NK21/20	IR172120
	NA 4903	—	—	—	—	17 <sup>0</sup> <sub>-0.008</sub>	30	13	0.3	22	19	21	28	11 800	15 600	18 000	39	RNA4903	IR172213
	—	NA 5903	—	—	—	17	30	18	0.3	22	19	21	28	16 900	24 900	18 000	56	RNA5903	IR172218
	—	—	NA 6903	—	—	17	30	23	0.3	22	19	21	28	20 800	32 500	18 000	67	RNA6903	IR172223
20	—	—	—	—	NKI 20/16	20	32	16	0.3	24	22	23	30	15 300	22 600	17 000	48.5	NK24/16	IR202416
	—	—	—	—	NKI 20/20	20	32	20	0.3	24	22	23	30	19 400	30 500	17 000	61	NK24/20	IR202420
	NA 4904	—	—	—	—	20 <sup>0</sup> <sub>-0.010</sub>	37	17	0.3	25	22	24	35	21 000	25 000	16 000	78.5	RNA4904	IR202517
	—	NA 5904	—	—	—	20	37	23	0.3	25	22	24	35	29 400	38 600	16 000	115	RNA5904	IR202523
	—	—	NA 6904	—	—	20	37	30	0.3	25	22	24	35	35 400	48 800	16 000	136	RNA6904	IR202530
22	—	—	—	—	NKI 22/16	22	34	16	0.3	26	24	25	32	16 300	24 900	15 000	52	NK26/16	IR222616
	—	—	—	—	NKI 22/20	22	34	20	0.3	26	24	25	32	20 600	33 700	15 000	67.5	NK26/20	IR222620
	NA 49/22	—	—	—	—	22 <sup>0</sup> <sub>-0.010</sub>	39	17	0.3	28	24	27	37	21 400	28 800	14 000	87	RNA49/22	IR222817
	—	NA 59/22	—	—	—	22	39	23	0.3	28	24	27	37	29 800	44 400	14 000	134	RNA59/22	IR222823
	—	—	NA 69/22	—	—	22	39	30	0.3	28	24	27	37	36 300	56 900	14 000	152	RNA69/22	IR222830
25	—	—	—	—	NKI 25/20	25	38	20	0.3	29	27	28	36	21 600	37 200	14 000	82	NK29/20	IR252920
	—	—	—	—	NKI 25/30	25	38	30	0.3	29	27	28	36	30 900	59 000	14 000	123	NK29/30	IR252930
	NA 4905	—	—	—	—	25 <sup>0</sup> <sub>-0.010</sub>	42	17	0.3	30	27	29	40	23 700	30 700	13 000	92.5	RNA4905	IR253017
	—	NA 5905	—	—	—	25	42	23	0.3	30	27	29	40	33 200	47 500	13 000	139	RNA5905	IR253023
	—	—	NA 6905	—	—	25	42	30	0.3	30	27	29	40	42 100	64 200	13 000	160	RNA6905	IR253030
28	—	—	—	—	NKI 28/20	28	42	20	0.3	32	30	31	40	25 700	42 200	13 000	96.5	NK32/20	IR283220
	—	—	—	—	NKI 28/30	28	42	30	0.3	32	30	31	40	36 900	67 100	13 000	145	NK32/30	IR283230
	NA 49/28	—	—	—	—	28 <sup>0</sup> <sub>-0.010</sub>	45	17	0.3	32	30	31	43	24 500	32 700	13 000	101	RNA49/28	IR283217
	—	NA 59/28	—	—	—	28	45	23	0.3	32	30	31	43	34 300	50 500	13 000	142	RNA59/28	IR283223
	—	—	NA 69/28	—	—	28	45	30	0.3	32	30	31	43	41 800	64 700	13 000	176	RNA69/28	IR283230
30	—	—	—	—	NKI 30/20	30	45	20	0.3	35	32	34	43	27 000	46 200	11 000	112	NK35/20	IR303520
	—	—	—	—	NKI 30/30	30	45	30	0.3	35	32	34	43	38 600	73 500	11 000	171	NK35/30	IR303530
	NA 4906	—	—	—	—	30 <sup>0</sup> <sub>-0.010</sub>	47	17	0.3	35	32	34	45	25 200	34 700	11 000	106	RNA4906	IR303517
	—	NA 5906	—	—	—	30	47	23	0.3	35	32	34	45	35 200	53 700	11 000	152	RNA5906	IR303523
	—	—	NA 6906	—	—	30	47	30	0.3	35	32	34	45	43 100	69 000	11 000	184	RNA6906	IR303530

\* Suitable for oil lubrication. In case of grease lubrication, down to 60% of this value.

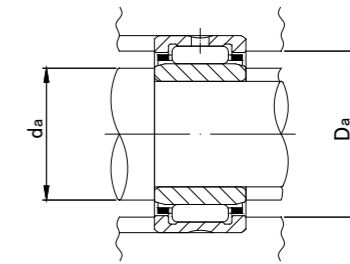
# MACHINED RING NEEDLE ROLLER BEARINGS WITH INNER RING



NA49,NA59,NA69(d ≤ 30),NKI



NA69

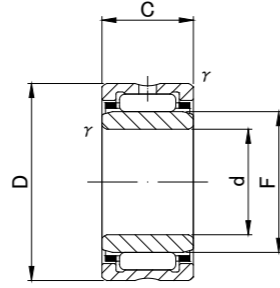
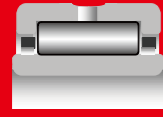


## NA49,NA59,NA69,NA48,NKI TYPE

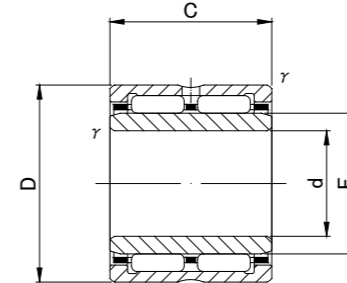
Shaft Diameter (mm)	Designation					Dimensions (mm)						Standard mounting dimensions (mm)		Basic dynamic load rating	Basic static load rating	Limiting speed*	Mass	Usable bearing designation	
	NA 49	NA 59	NA 69	NA48	NKI	d	D	C	r/s min	F	da		Da	Cr N	Cor N	rpm	g (approx)	OUTER RING	INNER RING
											MIN	MAX							
32	—	—	—	—	<b>NKI 32/20</b>	32	47	20	0.3	37	34	36	45	28 200	50 100	11 000	121	NK37/20	IR323720
	—	—	—	—	<b>NKI 32/30</b>	32	47	30	0.3	37	34	36	45	40 500	79 800	11 000	180	NK37/30	IR323730
	<b>NA 49/32</b>	—	—	—	—	32 <sup>0</sup> <sub>-0.012</sub>	52	20	0.6	40	36	39	48	31 300	47 900	10 000	165	RNA49/32	IR324020
	—	<b>NA 59/32</b>	—	—	—	32	52	27	0.6	40	36	39	48	41 900	69 900	10 000	241	RNA59/32	IR324027
	—	—	<b>NA 69/32</b>	—	—	32	52	36	0.6	40	36	39	48	53 500	95 700	10 000	295	RNA69/32	IR324036
35	—	—	—	—	<b>NKI 35/20</b>	35	50	20	0.3	40	37	39	48	29 400	54 100	10 000	129	NK40/20	IR354020
	—	—	—	—	<b>NKI 35/30</b>	35	50	30	0.3	40	37	39	48	42 300	86 100	10 000	192	NK40/30	IR354030
	<b>NA 4907</b>	—	—	—	—	35 <sup>0</sup> <sub>-0.012</sub>	55	20	0.6	42	39	41	51	32 000	50 200	9 500	178	RNA4907	IR354220
	—	<b>NA 5907</b>	—	—	—	35	55	27	0.6	42	39	41	51	42 900	73 200	9 500	256	RNA5907	IR354227
	—	—	<b>NA 6907</b>	—	—	35	55	36	0.6	42	39	41	51	54 800	100 000	9 500	320	RNA6907	IR354236
38	—	—	—	—	<b>NKI 38/20</b>	38 <sup>0</sup> <sub>-0.012</sub>	53	20	0.3	43	40	42	51	30 500	58 100	9 500	136	NK43/20	IR384320
	—	—	—	—	<b>NKI 38/30</b>	38	53	30	0.3	43	40	42	51	43 700	92 500	9 500	205	NK43/30	IR384330
40	—	—	—	—	<b>NKI 40/20</b>	40	55	20	0.3	45	42	44	53	31 100	60 100	9 000	143	NK45/20	IR404520
	—	—	—	—	<b>NKI 40/30</b>	40	55	30	0.3	45	42	44	53	44 500	95 700	9 000	215	NK45/30	IR404530
	<b>NA 4908</b>	—	—	—	—	40 <sup>0</sup> <sub>-0.012</sub>	62	22	0.6	48	44	47	58	41 600	67 400	8 500	245	RNA4908	IR404822
	—	<b>NA 5908</b>	—	—	—	40	62	30	0.6	48	44	47	58	58 000	103 000	8 500	348	RNA5908	IR404830
	—	—	<b>NA 6908</b>	—	—	40	62	40	0.6	48	44	47	58	71 300	134 400	8 500	440	RNA6908	IR404840
42	—	—	—	—	<b>NKI 42/20</b>	42 <sup>0</sup> <sub>-0.012</sub>	57	20	0.3	47	44	46	55	31 500	62 300	8 500	149	NK47/20	IR424720
	—	—	—	—	<b>NKI 42/30</b>	42	57	30	0.3	47	44	46	55	45 200	99 000	8 500	225	NK47/30	IR424730
45	—	—	—	—	<b>NKI 45/25</b>	45	62	25	0.6	50	49	49.5	58	43 000	85 200	8 000	230	NK50/25	IR455025
	—	—	—	—	<b>NKI 45/35</b>	45	62	35	0.6	50	49	49.5	58	58 100	125 500	8 000	320	NK50/35	IR455035
	<b>NA 4909</b>	—	—	—	—	45 <sup>0</sup> <sub>-0.012</sub>	68	22	0.6	52	49	51	64	43 500	73 400	7 500	285	RNA4909	IR455222
	—	<b>NA 5909</b>	—	—	—	45	68	30	0.6	52	49	51	64	60 700	112 000	7 500	396	RNA5909	IR455230
	—	—	<b>NA 6909</b>	—	—	45	68	40	0.6	52	49	51	64	74 600	147 100	7 500	520	RNA6909	IR455240
50	—	—	—	—	<b>NKI 50/25</b>	50	68	25	0.6	55	54	54.5	64	45 400	94 100	7 500	270	NK55/25	IR505525
	—	—	—	—	<b>NKI 50/35</b>	50	68	35	0.6	55	54	54.5	64	61 300	138 300	7 500	365	NK55/35	IR505535
	<b>NA 4910</b>	—	—	—	—	50 <sup>0</sup> <sub>-0.012</sub>	72	22	0.6	58	54	57	68	46 200	82 100	7 000	295	RNA4910	IR505822
	—	<b>NA 5910</b>	—	—	—	50	72	30	0.6	58	54	57	68	64 400	126 000	7 000	498	RNA5910	IR505830
	—	—	<b>NA 6910</b>	—	—	50	72	40	0.6	58	54	57	68	79 100	163 800	7 000	530	RNA6910	IR505840

\* Suitable for oil lubrication. In case of grease lubrication, down to 60% of this value.

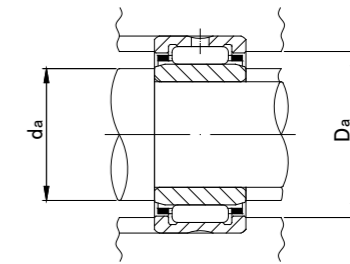
# MACHINED RING NEEDLE ROLLER BEARINGS WITH INNER RING



NA49,NA59,NKI



NA69



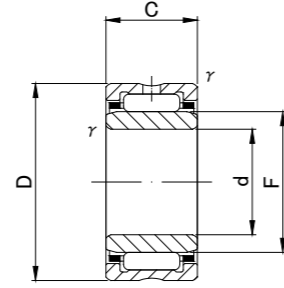
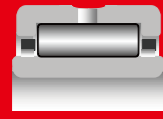
## ■ NA49,NA59,NA69,NA48,NKI TYPE

Shaft Diameter (mm)	Designation					Dimensions (mm)						Standard mounting dimensions (mm)		Basic dynamic load rating	Basic static load rating	Limiting speed*	Mass	Usable bearing designation	
	NA 49	NA 59	NA 69	NA48	NKI	d	D	C	r/s min	F	da		Da	Cr N	Cor N	rpm	g (approx)	OUTER RING	INNER RING
											MIN	MAX							
55	—	—	—	—	NKI 55/25	55	72	25	0.6	60	59	59.5	68	47 500	103 000	6 500	275	NK60/25	IR556025
	—	—	—	—	NKI 55/35	55	72	35	0.6	60	59	59.5	68	64 100	151 000	6 500	380	NK60/35	IR556035
	NA 4911	—	—	—	—	55 <sup>0</sup> <sub>-0.015</sub>	80	25	1	63	60	61	75	57 600	97 300	6 500	410	RNA4911	IR556325
	—	NA 5911	—	—	—	55	80	34	1	63	60	61	75	82 600	154 000	6 500	559	RNA5911	IR556334
	—	—	NA 6911	—	—	55	80	45	1	63	60	61	75	99 000	194 200	6 500	730	RNA6911	IR556345
60	—	—	—	—	NKI 60/25	60	82	25	0.6	68	64	66	78	54 800	116 700	6 000	395	NK68/25	IR606825
	—	—	—	—	NKI 60/35	60	82	35	0.6	68	64	66	78	72 100	165 700	6 000	560	NK68/35	IR606835
	NA 4912	—	—	—	—	60 <sup>0</sup> <sub>-0.015</sub>	85	25	1	68	64	66	80	60 100	104 900	6 000	440	RNA4912	IR606825
	—	NA 5912	—	—	—	60	85	34	1	68	65	66	80	86 100	167 000	6 000	614	RNA5912	IR606834
	—	—	NA 6912	—	—	60	85	45	1	68	65	66	80	103 000	210 800	6 000	785	RNA6912	IR606845
65	NA 4913	—	—	—	—	65	90	25	1	72	70	70.5	85	62 800	113 800	5 500	470	RNA4913	IR657225
	—	NA 5913	—	—	—	65 <sup>0</sup> <sub>-0.015</sub>	90	34	1	72	70	70.5	85	89 900	180 000	5 500	655	RNA5913	IR657234
	—	—	—	—	NKI 65/35	65	90	35	0.6	73	69	71	86	80 400	180 400	5 500	710	NK73/35	IR657335
	—	—	NA 6913	—	—	65	90	45	1	72	70	70.5	85	107 900	226 500	5 500	840	RNA6913	IR657245
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
70	—	—	—	—	NKI 70/25	70	95	25	1	80	75	78	90	59 400	137 300	5 000	540	NK80/25	IR708025
	—	—	—	—	NKI 70/35	70	95	35	1	80	75	78	90	78 100	194 200	5 000	755	NK80/35	IR708035
	NA 4914	—	—	—	—	70 <sup>0</sup> <sub>-0.015</sub>	100	30	1	80	75	78	95	83 200	157 900	5 000	765	RNA4914	IR708030
	—	NA 5914	—	—	—	70	100	40	1	80	75	78	95	112 000	232 000	5 000	1 060	RNA5914	IR708040
	—	—	NA 6914	—	—	70	100	54	1	80	75	78	95	133 400	310 900	5 000	1 400	RNA6914	IR708054
75	—	—	—	—	NKI 75/25	75	105	25	1	85	80	83	100	76 400	145 100	4 500	675	NK85/25	IR758525
	NA 4915	—	—	—	—	75	105	30	1	85	80	83	100	86 200	169 700	4 500	810	RNA4915	IR758530
	—	—	—	—	NKI 75/35	75 <sup>0</sup> <sub>-0.015</sub>	105	35	1	85	80	83	100	102 000	209 900	4 500	945	NK85/35	IR758535
	—	NA 5915	—	—	—	75	105	40	1	85	80	83	100	116 000	249 000	4 500	1 130	RNA5915	IR758540
	—	—	NA 6915	—	—	75	105	54	1	85	80	83	100	138 300	330 500	4 500	1 480	RNA6915	IR758554
80	—	—	—	—	NKI 80/25	80	110	25	1	90	85	88	105	77 400	150 000	4 500	710	NK90/25	IR809025
	NA 4916	—	—	—	—	80	110	30	1	90	85	88	105	87 400	174 600	4 500	855	RNA4916	IR809030
	—	—	—	—	NKI 80/35	80 <sup>0</sup> <sub>-0.015</sub>	110	35	1	90	85	88	105	103 000	216 700	4 500	995	NK90/35	IR809035
	—	NA 5916	—	—	—	80	110	40	1	90	85	88	105	117 000	257 000	4 500	1 150	RNA5916	IR809040
	—	—	NA 6916	—	—	80	110	54	1	90	85	88	105	143 200	350 100	4 500	1 560	RNA6916	IR809054
85	—	—	—	—	NKI 85/26	85	115	26	1	95	90	93	110	79 700	158 900	4 200	775	NK95/26	IR859526
	—	—	—	—	NKI 85/36	85	115	36	1	95	90	93	110	106 900	230 500	4 200	1 080	NK95/36	IR859536
	NA 4917	—	—	—	—	85 <sup>0</sup> <sub>-0.020</sub>	120	35	1.1	100	91.5	98	133.5	109 800	244 200	4 000	1 280	RNA4917	IR8510035
	—	NA 5917	—	—	—	85	120	46	1.1	100	91.5	98	133.5	144 000	346 000	4 000	1 760	RNA5917	IR8510046
	—	—	NA 6917	—	—	85	120	63	1.1	100	91.5	98	133.5	172 600	466 800	4 000	2 340	RNA6917	IR8510063

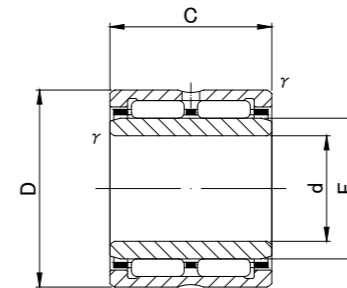
\* Suitable for oil lubrication. In case of grease lubrication, down to 60% of this value.



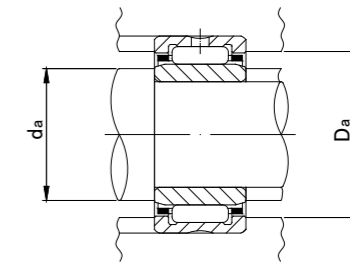
# MACHINED RING NEEDLE ROLLER BEARINGS WITH INNER RING



NA49,NA59,NA48,NKI



NA69



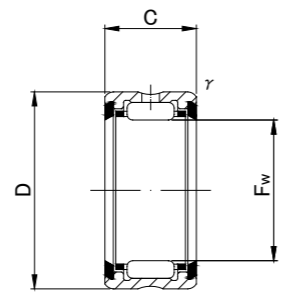
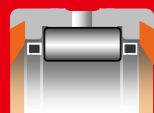
## NA49,NA59,NA69,NA48,NKI TYPE

Shaft Diameter (mm)	Designation					Dimensions (mm)					Standard mounting dimensions (mm)		Basic dynamic load rating	Basic static load rating	Limiting speed*	Mass	Usable bearing designation		
	NA 49	NA 59	NA 69	NA48	NKI	d	D	C	r/s min	F	da		Da	Cr N	Cor N	rpm	g (approx)	OUTER RING	INNER RING
											MIN	MAX							
90	—	—	—	—	NKI 90/26	90	120	26	1	100	95	98	135	82 500	168 700	4 000	820	NK100/26	IR9010026
	—	—	—	—	NKI 90/36	90	120	36	1	100	95	98	135	109 800	244 200	4 000	1 140	NK100/36	IR9010036
	NA 4918	—	—	—	—	90 <sup>0</sup> <sub>-0.020</sub>	125	35	1.1	105	96.5	103	118.5	112 800	257 900	3 800	1 350	RNA4918	IR9010535
	—	NA 5918	—	—	—	90	125	46	1.1	105	96.5	103	118.5	148 000	365 000	3 800	1 840	RNA5918	IR9010546
	—	—	NA 6918	—	—	90	125	63	1.1	105	96.5	103	118.5	177 500	490 300	3 800	2 460	RNA6918	IR9010563
95	—	—	—	—	NKI 95/26	95	125	26	1	105	100	103	120	84 700	177 500	3 800	860	NK105/26	IR9510526
	—	—	—	—	NKI 95/36	95	125	36	1	105	100	103	120	112 800	257 900	3 800	1 190	NK105/36	IR9510536
	NA 4919	—	—	—	—	95 <sup>0</sup> <sub>-0.020</sub>	130	35	1.1	110	101.5	108	123.5	116 700	270 700	3 600	1 420	RNA4919	IR9511035
	—	NA 5919	—	—	—	95	130	46	1.1	110	101.5	108	123.5	152 000	384 000	3 600	1 980	RNA5919	IR9511046
	—	—	NA 6919	—	—	95	130	63	1.1	110	101.5	108	123.5	182 400	514 800	3 600	2 580	RNA6919	IR9511063
100	—	—	—	—	NKI 100/30	100	130	30	1.1	110	106.5	108	123.5	105 900	239 300	3 600	1 040	NK110/30	IR10011030
	—	—	—	—	NKI 100/40	100 <sup>0</sup> <sub>-0.020</sub>	130	40	1.1	110	106.5	108	123.5	133 400	323 600	3 600	1 380	NK110/40	IR10011040
	NA 4920	—	—	—	—	100	140	40	1.1	115	106.5	113	133.5	145 000	329 000	3 500	1 960	RNA4920	IR10011540
110	—	—	—	NA 4822	—	110 <sup>0</sup> <sub>-0.020</sub>	140	30	1	120	115	118	135	93 000	239 000	3 500	1 200	RNA4822	IR11012030
	NA 4922	—	—	—	—	110	150	40	1.1	125	116.5	123	143.5	152 000	357 000	3 000	2 120	RNA4922	IR11012540
120	—	—	—	NA 4824	—	120 <sup>0</sup> <sub>-0.020</sub>	150	30	1	130	125	128	145	97 000	259 000	3 000	1 300	RNA4824	IR12013030
	NA 4924	—	—	—	—	120	165	45	1.1	135	126.5	133	158.5	187 000	435 000	3 000	2 960	RNA4924	IR12013545
130	—	—	—	NA 4826	—	130 <sup>0</sup> <sub>-0.025</sub>	165	35	1.1	145	136.5	143	158.5	117 000	340 000	3 000	1 960	RNA4826	IR13014535
	NA 4926	—	—	—	—	130	180	50	1.5	150	138	148	172	216 000	540 000	2 500	4 030	RNA4926	IR13015050
140	—	—	—	NA 4828	—	140 <sup>0</sup> <sub>-0.025</sub>	175	35	1.1	155	146.5	153	168.5	121 000	363 000	2 500	2 100	RNA4828	IR14015535
	NA 4928	—	—	—	—	140	190	50	1.5	160	148	158	182	224 000	580 000	2 500	4 290	RNA4928	IR14016050
150	—	—	—	NA 4830	—	150 <sup>0</sup> <sub>-0.025</sub>	190	40	1.1	165	156.5	163	183.5	168 000	446 000	2 500	2 880	RNA4830	IR15016540
160	—	—	—	NA 4832	—	160 <sup>0</sup> <sub>-0.025</sub>	200	40	1.1	175	166.5	173	193.5	173 000	474 000	2 500	3 050	RNA4832	IR16017540

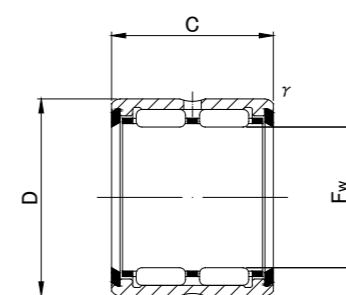
\* Suitable for oil lubrication. In case of grease lubrication, down to 60% of this value.

# MACHINED RING NEEDLE ROLLER BEARINGS

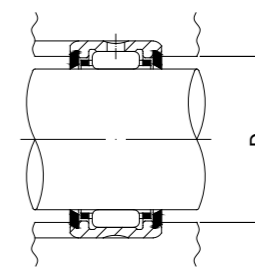
SEALED, WITHOUT INNER RING



RNA49UU, RNA69UU ( $F_w \leq 35$ )



RNA69UU



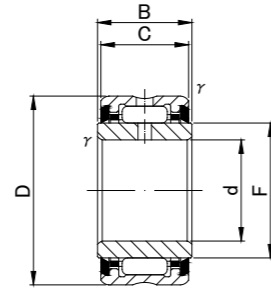
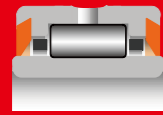
## RNA49UU, RNA69UU, SEALED TYPE

Prepacked Grease

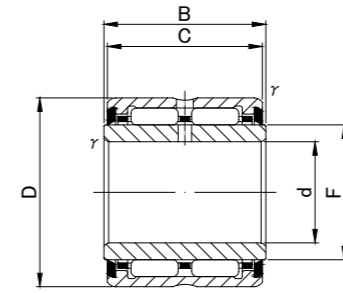
Shaft Diameter (mm)	Designation		Dimensions (mm)				Standard mounting dimensions (mm)	Basic dynamic load rating	Basic static load rating	Limiting speed (GREASE)	Mass	Usable bearing designation	
	RNA 49UU	RNA 69UU	$F_w$	D	C	$r/s$ min						$D_a$ MAX	Cr N
14	RNA 4900UU	—	14 $+0.027$ $+0.016$	22	13	0.3	20	8 000	8 500	14 000	16	IRZ101414	NA4900UU
16	RNA 4901UU	—	16 $+0.027$	24	13	0.3	22	8 400	9 300	12 000	18	IRZ121614	NA4901UU
	—	RNA 6901UU	16 $+0.016$	24	22	0.3	22	15 600	20 400	12 000	30	IRZ121623	NA6901UU
20	RNA 4902UU	—	20 $+0.033$	28	13	0.3	26	9 600	11 700	9 500	22	IRZ152014	NA4902UU
	—	RNA 6902UU	20 $+0.020$	28	23	0.3	26	18 400	27 100	9 500	38	IRZ152024	NA6902UU
22	RNA 4903UU	—	22 $+0.033$	30	13	0.3	28	10 300	13 100	8 500	23	IRZ172214	NA4903UU
	—	RNA 6903UU	22 $+0.020$	30	23	0.3	28	19 800	30 600	8 500	40	IRZ172224	NA6903UU
25	RNA 4904UU	—	25 $+0.033$	37	17	0.3	35	17 900	20 500	7 500	55	IRZ202518	NA4904UU
	—	RNA 6904UU	25 $+0.020$	37	30	0.3	35	33 000	44 500	7 500	96	IRZ202531	NA6904UU
30	RNA 4905UU	—	30 $+0.033$	42	17	0.3	40	20 300	25 100	6 500	63	IRZ253018	NA4905UU
	—	RNA 6905UU	30 $+0.020$	42	30	0.3	40	39 200	58 600	6 500	110	IRZ253031	NA6905UU
35	RNA 4906UU	—	35 $+0.041$	47	17	0.3	45	21 600	28 400	5 500	71	IRZ303518	NA4906UU
	—	RNA 6906UU	35 $+0.025$	47	30	0.3	45	40 100	63 100	5 500	130	IRZ303531	NA6906UU
42	RNA 4907UU	—	42 $+0.041$	55	20	0.6	51	30 100	46 300	4 500	110	IRZ354221	NA4907UU
	—	RNA 6907UU	42 $+0.025$	55	36	0.6	51	51 600	92 600	4 500	200	IRZ354237	NA6907UU
48	RNA 4908UU	—	48 $+0.041$	62	22	0.6	58	37 200	58 300	4 000	150	IRZ404823	NA4908UU
	—	RNA 6908UU	48 $+0.025$	62	40	0.6	58	63 700	116 700	4 000	270	IRZ404841	NA6908UU
52	RNA 4909UU	—	52 $+0.049$	68	22	0.6	64	38 800	63 400	3 500	190	IRZ455223	NA4909UU
	—	RNA 6909UU	52 $+0.030$	68	40	0.6	64	66 700	126 500	3 500	355	IRZ455241	NA6909UU
58	RNA 4910UU	—	58 $+0.049$	72	22	0.6	68	41 300	71 100	3 500	180	IRZ505823	NA4910UU
	—	RNA 6910UU	58 $+0.030$	72	40	0.6	68	70 800	142 200	3 500	320	IRZ505841	NA6910UU

# MACHINED RING NEEDLE ROLLER BEARINGS

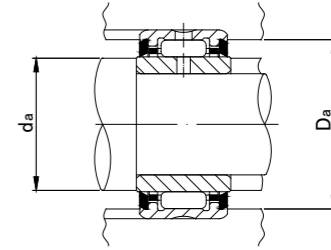
SEALED, WITH INNER RING



NA49UU, NA69UU (d ≤ 30)



NA69UU

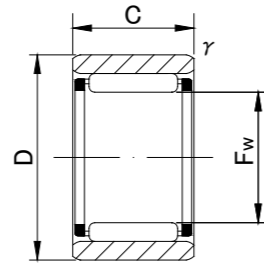
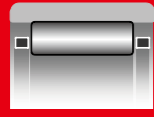


## NA49UU, NA69UU, SEALED TYPE

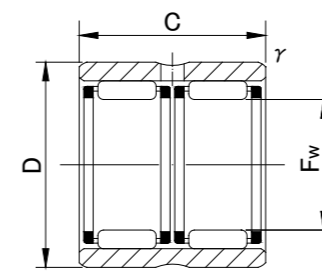
Prepacked Grease

Shaft Diameter (mm)	Designation		Dimensions (mm)						Standard mounting dimensions (mm)			Basic dynamic load rating	Basic static load rating	Limiting speed (GREASE)	Mass	Usable bearing designation	
	NA 49UU	NA 69UU	d	D	C	B	r/s min	F	da		Da MAX					Cr N	Cor N
									MIN	MAX							
10	NA 4900UU	—	10 <sup>0</sup> <sub>-0.008</sub>	22	13	14	0.3	14	12	13	20	8 000	8 500	14 000	25	RNA4900UU	IRZ101414
12	NA 4901UU	—	12 <sup>0</sup> <sub>-0.008</sub>	24	13	14	0.3	16	14	15	22	8 400	9 300	12 000	28	RNA4901UU	IRZ121614
	—	NA 6901UU	12 <sup>0</sup> <sub>-0.008</sub>	24	22	23	0.3	16	14	15	22	15 600	20 400	12 000	46	RNA6901UU	IRZ121623
15	NA 4902UU	—	15 <sup>0</sup> <sub>-0.008</sub>	28	13	14	0.3	20	17	19	26	9 600	11 700	9 500	36	RNA4902UU	IRZ152014
	—	NA 6902UU	15 <sup>0</sup> <sub>-0.008</sub>	28	23	24	0.3	20	17	19	26	18 400	27 100	9 500	63	RNA6902UU	IRZ152024
17	NA 4903UU	—	17 <sup>0</sup> <sub>-0.008</sub>	30	13	14	0.3	22	19	21	28	10 300	13 100	8 500	40	RNA4903UU	IRZ172214
	—	NA 6903UU	17 <sup>0</sup> <sub>-0.008</sub>	30	23	24	0.3	22	19	21	28	19 800	30 600	8 500	69	RNA6903UU	IRZ172224
20	NA 4904UU	—	20 <sup>0</sup> <sub>-0.010</sub>	37	17	18	0.3	25	22	24	35	17 900	20 500	7 500	78	RNA4904UU	IRZ202518
	—	NA 6904UU	20 <sup>0</sup> <sub>-0.010</sub>	37	30	31	0.3	25	22	24	35	33 000	44 500	7 500	140	RNA6904UU	IRZ202531
25	NA 4905UU	—	25 <sup>0</sup> <sub>-0.010</sub>	42	17	18	0.3	30	27	29	40	20 300	25 100	6 500	93	RNA4905UU	IRZ253018
	—	NA 6905UU	25 <sup>0</sup> <sub>-0.010</sub>	42	30	31	0.3	30	27	29	40	39 200	58 600	6 500	162	RNA6905UU	IRZ253031
30	NA 4906UU	—	30 <sup>0</sup> <sub>-0.010</sub>	47	17	18	0.3	35	32	34	45	21 600	28 400	5 500	106	RNA4906UU	IRZ303518
	—	NA 6906UU	30 <sup>0</sup> <sub>-0.010</sub>	47	30	31	0.3	35	32	34	45	40 100	63 100	5 500	185	RNA6906UU	IRZ303531
35	NA 4907UU	—	35 <sup>0</sup> <sub>-0.012</sub>	55	20	21	0.6	42	39	41	51	30 100	46 300	4 500	179	RNA4907UU	IRZ354221
	—	NA 6907UU	35 <sup>0</sup> <sub>-0.012</sub>	55	36	37	0.6	42	39	41	51	51 600	92 600	4 500	320	RNA6907UU	IRZ354237
40	NA 4908UU	—	40 <sup>0</sup> <sub>-0.012</sub>	62	22	23	0.6	48	44	47	58	37 200	58 300	4 000	245	RNA4908UU	IRZ404823
	—	NA 6908UU	40 <sup>0</sup> <sub>-0.012</sub>	62	40	41	0.6	48	44	47	58	63 700	116 700	4 000	440	RNA6908UU	IRZ404841
45	NA 4909UU	—	45 <sup>0</sup> <sub>-0.012</sub>	68	22	23	0.6	52	49	51	64	38 800	63 400	3 500	290	RNA4909UU	IRZ455223
	—	NA 6909UU	45 <sup>0</sup> <sub>-0.012</sub>	68	40	41	0.6	52	49	51	64	66 700	126 500	3 500	510	RNA6909UU	IRZ455241
50	NA 4910UU	—	50 <sup>0</sup> <sub>-0.012</sub>	72	22	23	0.6	58	54	57	68	41 300	71 100	3 500	300	RNA4910UU	IRZ505823
	—	NA 6910UU	50 <sup>0</sup> <sub>-0.012</sub>	72	40	41	0.6	58	54	57	68	70 800	142 200	3 500	530	RNA6910UU	IRZ505841

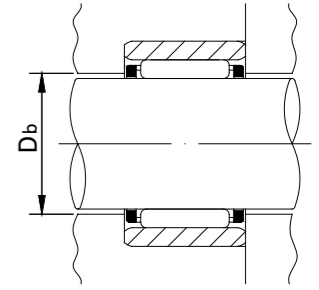
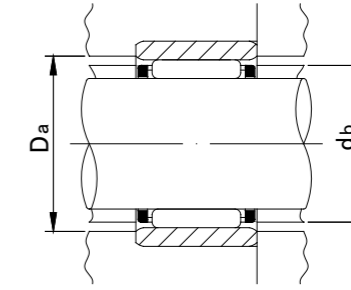
# MACHINED RING NEEDLE ROLLER BEARINGS WITHOUT INNER RING



RNAF



RNAFW

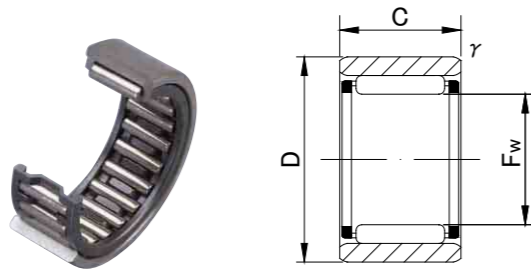
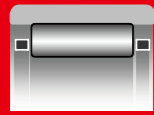


## RNAF(W) TYPE

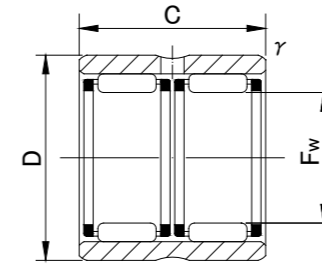
Shaft Diameter (mm)	Designation	Dimensions (mm)				Standard mounting dimensions (mm)			Basic dynamic load rating	Basic static load rating	Limiting speed*	Mass	Usable bearing designation	
		Fw	D	C	r/s min	db	Da MAX	Db					INNER RING	WITH INNER RING
<b>5</b>	<b>RNAF5108</b>	5 <sup>+0.018</sup> / <sub>+0.010</sub>	10	8	0.2	6.7	8.4	5.4	2 500	2 000	40 000	3	—	—
<b>6</b>	<b>RNAF6138</b>	6 <sup>+0.018</sup> / <sub>+0.010</sub>	13	8	0.3	8.4	11	6.4	2 500	2 100	37 000	5.5	—	—
<b>7</b>	<b>RNAF7148</b>	7 <sup>+0.022</sup> / <sub>+0.013</sub>	14	8	0.3	9.4	12	7.4	2 900	2 600	34 000	6	—	—
<b>8</b>	<b>RNAF81510</b>	8 <sup>+0.022</sup> / <sub>+0.013</sub>	15	10	0.3	10.4	13	8.4	3 600	3 600	32 000	8	—	—
	<b>RNAFW81620</b>	8 <sup>+0.022</sup> / <sub>+0.013</sub>	16	20	0.3	10.8	14	8.4	6 200	7 200	32 000	20	—	—
<b>10</b>	<b>RNAF101710</b>	10 <sup>+0.022</sup> / <sub>+0.013</sub>	17	10	0.3	12.4	15	10.4	4 100	4 500	28 000	10	IR61010	NAF61710
	<b>RNAF102012</b>	10 <sup>+0.022</sup> / <sub>+0.013</sub>	20	12	0.3	13.5	18	10.4	6 000	6 000	28 000	19	IR71012	NAF72012
<b>12</b>	<b>RNAF122212</b>	12 <sup>+0.027</sup> / <sub>+0.016</sub>	22	12	0.3	17.5	20	12.4	9 000	8 400	26 000	19	IR91212	NAF92212
<b>14</b>	<b>RNAF142213</b>	14 <sup>+0.027</sup> / <sub>+0.016</sub>	22	13	0.3	17.6	20	14.6	7 800	9 400	24 000	18	IR101413	NAF102213
	<b>RNAFW142220</b>	14 <sup>+0.027</sup> / <sub>+0.016</sub>	22	20	0.3	17.6	20	14.6	10 800	14 200	24 000	28	IR101420	NAFW102220
	<b>RNAF142612</b>	14 <sup>+0.027</sup> / <sub>+0.016</sub>	26	12	0.3	19.4	24	14.6	9 800	9 700	24 000	29	IR101412	NAF102612
<b>15</b>	<b>RNAF152313</b>	15 <sup>+0.027</sup> / <sub>+0.016</sub>	23	13	0.3	18.6	21	15.6	8 200	10 200	23 000	20	—	—
	<b>RNAFW152320</b>	15 <sup>+0.027</sup> / <sub>+0.016</sub>	23	20	0.3	18.6	21	15.6	11 400	15 400	23 000	31	—	—
<b>16</b>	<b>RNAF162413</b>	16 <sup>+0.027</sup> / <sub>+0.016</sub>	24	13	0.3	19.6	22	16.6	8 600	11 000	23 000	21	IR121613	NAF122413
	<b>RNAFW162420</b>	16 <sup>+0.027</sup> / <sub>+0.016</sub>	24	20	0.3	19.6	22	16.6	11 900	16 700	23 000	32	IR121620	NAFW122420
	<b>RNAF162812</b>	16 <sup>+0.027</sup> / <sub>+0.016</sub>	28	12	0.3	21.4	26	16.6	10 500	10 900	23 000	32	IR121612	NAF122812
<b>17</b>	<b>RNAF172513</b>	17 <sup>+0.027</sup> / <sub>+0.016</sub>	25	13	0.3	20.6	23	17.6	9 000	11 900	22 000	22	—	—
	<b>RNAFW172520</b>	17 <sup>+0.027</sup> / <sub>+0.016</sub>	25	20	0.3	20.6	23	17.6	12 400	17 900	22 000	33	—	—
<b>18</b>	<b>RNAF182613</b>	18 <sup>+0.027</sup> / <sub>+0.016</sub>	26	13	0.3	21.6	24	18.6	9 300	12 700	21 000	23	—	—
	<b>RNAFW182620</b>	18 <sup>+0.027</sup> / <sub>+0.016</sub>	26	20	0.3	21.6	24	18.6	12 800	19 100	21 000	35	—	—
	<b>RNAF183012</b>	18 <sup>+0.027</sup> / <sub>+0.016</sub>	30	12	0.3	23.4	28	18.6	11 800	13 000	21 000	35	—	—
	<b>RNAFW183024</b>	18 <sup>+0.027</sup> / <sub>+0.016</sub>	30	24	0.3	23.4	28	18.6	20 200	26 200	21 000	70	—	—

\* Suitable for oil lubrication. In case of grease lubrication, down to 50% of this value.

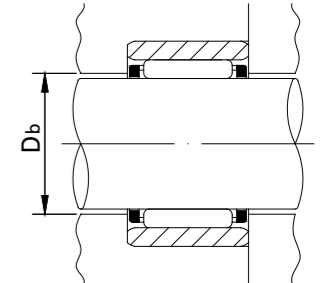
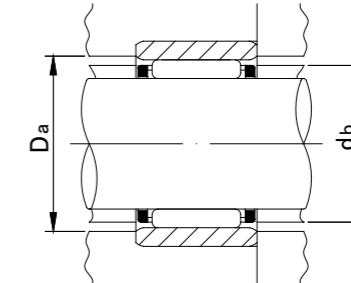
# MACHINED RING NEEDLE ROLLER BEARINGS WITHOUT INNER RING



RNAS



RNAFW

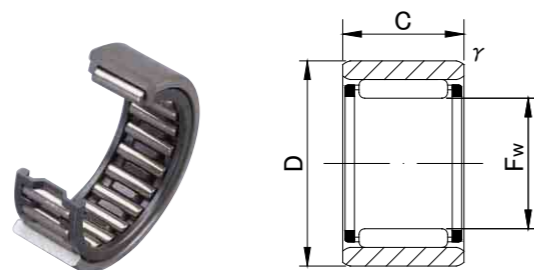


## RNAF(W) TYPE

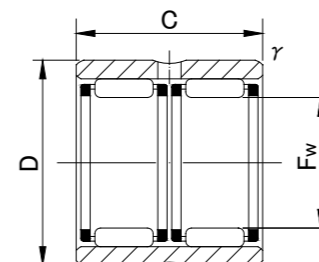
Shaft Diameter (mm)	Designation	Dimensions (mm)				Standard mounting dimensions (mm)			Basic dynamic load rating	Basic static load rating	Limiting speed*	Mass	Usable bearing designation	
		Fw	D	C	r/s min	db	Da MAX	Db					INNER RING	WITH INNER RING
20	<b>RNAF202813</b>	20	28	13	0.3	23.6	26	20.6	9 600	13 500	20 000	25	IR152013	NAF152813
	<b>RNAFW202826</b>	20 +0.033	28	26	0.3	23.6	26	20.6	16 500	27 100	20 000	50	IR152026	NAFW152826
	<b>RNAF203212</b>	20 +0.020	32	12	0.3	25.4	30	20.6	12 400	14 300	20 000	37	IR152012	NAF153212
	<b>RNAFW203224</b>	20	32	24	0.3	25.4	30	20.6	21 200	28 600	20 000	75	—	—
22	<b>RNAF223013</b>	22	30	13	0.3	25.6	28	22.6	10 200	15 200	18 000	27	IR172213	NAF173013
	<b>RNAFW223026</b>	22 +0.033	30	26	0.3	25.6	28	22.6	17 600	30 300	18 000	54	IR172226	NAFW173026
	<b>RNAF223516</b>	22 +0.020	35	16	0.3	27.8	33	22.6	17 600	20 900	18 000	59	IR172216	NAF173516
	<b>RNAFW223532</b>	22	35	32	0.3	27.8	33	22.6	30 200	41 900	18 000	117	IR172232	NAFW173532
25	<b>RNAF253517</b>	25	35	17	0.3	29.5	33	25.6	17 300	26 600	16 000	51	IR202517	NAF203517
	<b>RNAFW253526</b>	25 +0.033	35	26	0.3	29.5	33	25.6	22 500	37 200	16 000	78	IR202526	NAFW203526
	<b>RNAF253716</b>	25 +0.020	37	16	0.3	30.4	35	25.6	19 400	24 500	16 000	57	IR202516	NAF203716
	<b>RNAFW253732</b>	25	37	32	0.3	30.4	35	25.6	33 200	49 000	16 000	114	IR202532	NAFW203732
28	<b>RNAF284016</b>	28 +0.033	40	16	0.3	33.4	38	28.6	20 100	26 500	14 000	63	—	—
	<b>RNAFW284032</b>	28 +0.020	40	32	0.3	33.4	38	28.6	34 400	53 000	14 000	125	—	—
30	<b>RNAF304017</b>	30	40	17	0.3	34.5	38	30.6	18 600	31 100	13 000	59	IR253017	NAF254017
	<b>RNAFW304026</b>	30 +0.033	40	26	0.3	34.5	38	30.6	24 200	43 400	13 000	91	IR253026	NAFW254026
	<b>RNAF304216</b>	30 +0.020	42	16	0.3	35.4	40	30.6	20 800	28 300	13 000	66	IR253016	NAF254216
	<b>RNAFW304232</b>	30	42	32	0.3	35.4	40	30.6	35 700	56 800	13 000	132	IR253032	NAFW254232
35	<b>RNAF354517</b>	35	45	17	0.3	39.5	43	35.6	20 500	36 900	11 000	68	IR303517	NAF304517
	<b>RNAFW354526</b>	35 +0.041	45	26	0.3	39.5	43	35.6	26 600	51 600	11 000	103	IR303526	NAFW304526
	<b>RNAF354716</b>	35 +0.025	47	16	0.3	40.4	45	35.6	23 000	33 800	11 000	76	IR303516	NAF304716
	<b>RNAFW354732</b>	35	47	32	0.3	40.4	45	35.6	39 500	67 800	11 000	151	IR303532	NAFW304732
40	<b>RNAF405017</b>	40	50	17	0.3	43.5	48	40.8	22 200	42 700	10 000	75	IR354017	NAF355017
	<b>RNAFW405034</b>	40 +0.041	50	34	0.3	43.5	48	40.8	38 000	85 300	10 000	152	IR354034	NAFW355034
	<b>RNAF405520</b>	40 +0.025	55	20	0.3	45.2	53	40.8	31 500	48 000	10 000	142	IR354020	NAF355520
	<b>RNAFW405540</b>	40	55	40	0.3	45.2	53	40.8	53 900	96 000	10 000	280	IR354040	NAFW355540
45	<b>RNAF455517</b>	45	55	17	0.3	48.5	53	45.8	23 200	47 200	10 000	84	IR404517	NAF405517
	<b>RNAFW455534</b>	45 +0.041	55	34	0.3	48.5	53	45.8	39 900	94 200	10 000	167	IR404534	NAFW405534
	<b>RNAF456220</b>	45 +0.025	62	20	0.3	50.9	60	45.8	33 200	53 300	9 000	185	IR404520	NAF406220
	<b>RNAFW456240</b>	45	62	40	0.3	50.9	60	45.8	57 000	106 900	9 000	370	IR404540	NAFW406240
50	<b>RNAF506220</b>	50	62	20	0.3	54.2	60	50.8	27 100	59 300	8 000	139	IR455020	NAF456220
	<b>RNAFW506240</b>	50 +0.041	62	40	0.3	54.2	60	50.8	46 400	118 700	8 000	276	IR455040	NAFW456240
	<b>RNAF506520</b>	50 +0.025	65	20	0.3	55.2	63	50.8	35 900	61 100	8 000	170	—	—
	<b>RNAFW506540</b>	50	65	40	0.6	55.2	61	50.8	61 500	122 600	8 000	345	—	—

\* Suitable for oil lubrication. In case of grease lubrication, down to 50% of this value.

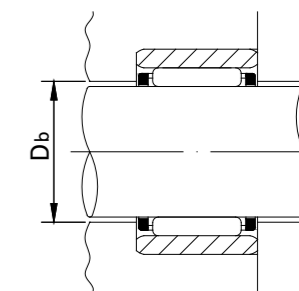
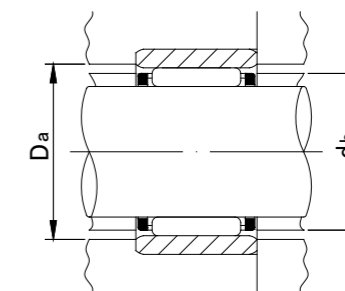
# MACHINED RING NEEDLE ROLLER BEARINGS WITHOUT INNER RING



RNAF



RNAFW

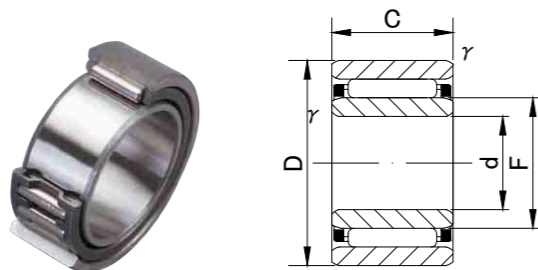
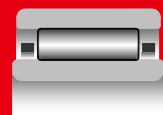


## RNAF(W) TYPE

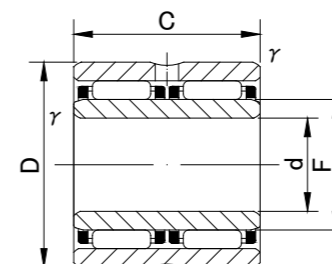
Shaft Diameter (mm)	Designation	Dimensions (mm)				Standard mounting dimensions (mm)			Basic dynamic load rating	Basic static load rating	Limiting speed*	Mass	Usable bearing designation	
		Fw	D	C	r/s min	db	Da MAX	Db					INNER RING	WITH INNER RING
55	<b>RNAF556820</b>	55	68	20	0.6	59.5	64	55.8	28 500	66 000	7 500	167	IR505520	NAF506820
	<b>RNAFW556840</b>	55 +0.049	68	40	0.6	59.5	64	55.8	48 900	132 400	7 500	330	IR505540	NAFW506840
	<b>RNAF557220</b>	55 +0.030	72	20	0.6	60.9	68	55.8	37 400	66 400	7 500	215	IR455520	NAF457220
	<b>RNAFW557240</b>	55	72	40	0.6	60.9	68	55.8	64 100	132 400	7 500	435	IR455540	NAFW457240
60	<b>RNAF607820</b>	60 +0.049	78	20	1	66.3	73	60.8	38 900	71 700	6 500	255	IR506020	NAF507820
	<b>RNAFW607840</b>	60 +0.030	78	40	1	66.3	73	60.8	66 700	143 200	6 500	510	IR506040	NAFW507840
65	<b>RNAF658530</b>	65 +0.049	85	30	1	72	80	66	59 300	127 500	6 000	465	IR556530	NAF558530
	<b>RNAFW658560</b>	65 +0.030	85	60	1	72	80	66	102 000	254 000	6 000	950	IR556560	NAFW558560
70	<b>RNAF709030</b>	70 +0.049	90	30	1	77	85	71	61 200	135 300	5 500	500	IR607030	NAF609030
	<b>RNAFW709060</b>	70 +0.030	90	60	1	77	85	71	104 900	271 600	5 500	1 000	IR607060	NAFW609060
75	<b>RNAF759530</b>	75 +0.049	95	30	1	82	90	76	63 200	144 200	5 500	530	IR657530	NAF659530
	<b>RNAFW759560</b>	75 +0.030	95	60	1	82	90	76	108 900	289 300	5 500	1 050	IR657560	NAFW659560
80	<b>RNAF8010030</b>	80 +0.049	100	30	1	87	95	81	64 900	153 000	5 000	560	IR708030	NAF7010030
	<b>RNAFW8010060</b>	80 +0.030	100	60	1	87	95	81	111 800	306 000	5 000	1 120	IR708060	NAFW7010060
85	<b>RNAF8510530</b>	85 +0.058 +0.036	105	30	1	92	100	86	66 600	160 800	4 800	590	IR758530	NAF7510530
90	<b>RNAF9011030</b>	90 +0.058 +0.036	110	30	1	97	105	91	69 500	173 600	4 500	620	IR809030	NAF8011030
95	<b>RNAF9511530</b>	95 +0.058 +0.036	115	30	1	102	110	96	70 900	182 400	4 200	650	IR859530	NAF8511530
100	<b>RNAF10012030</b>	100 +0.058 +0.036	120	30	1	107	115	101	72 600	191 200	4 000	690	IR9010030	NAF9012030

\* Suitable for oil lubrication. In case of grease lubrication, down to 50% of this value.

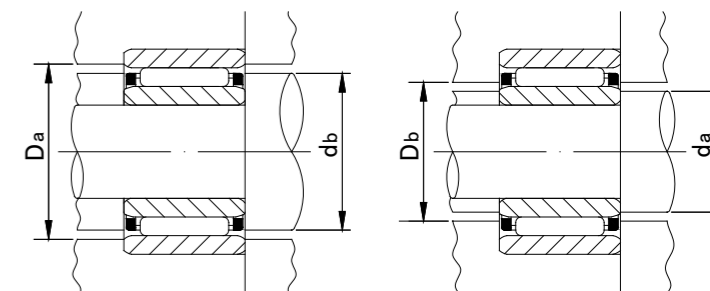
# MACHINED RING NEEDLE ROLLER BEARINGS WITH INNER RING



NAF



NAFW

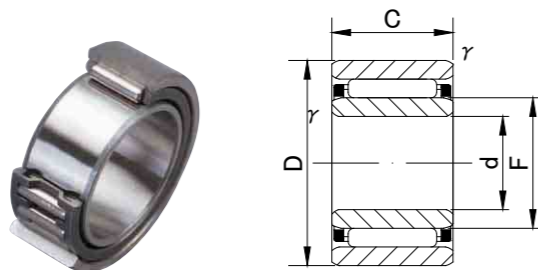
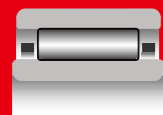


## NAF(W) TYPE

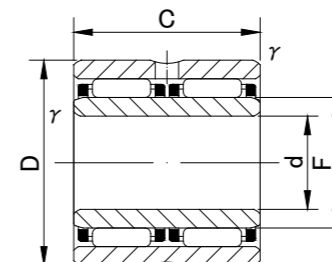
Shaft Diameter (mm)	Designation	Dimensions (mm)					Standard mounting dimensions (mm)				Basic dynamic load rating	Basic static load rating	Limiting speed*	Mass	Usable bearing designation						
		d	D	C	r's min	F	db	Da MAX	da						Db	Cr N	Cor N	rpm	g (approx)	OUTER RING	INNER RING
									MIN	MAX											
<b>6</b>	<b>NAF 61710</b>	6 <sup>0</sup> <sub>-0.008</sub>	17	10	0.3	10	12.4	15	8	9.7	10.4	4 100	4 500	28 000	14	RNAF101710	IR61010				
<b>7</b>	<b>NAF 72012</b>	7 <sup>0</sup> <sub>-0.008</sub>	20	12	0.3	10	13.5	18	9	9.7	10.4	6 000	6 000	28 000	23	RNAF102012	IR71012				
<b>9</b>	<b>NAF 92212</b>	9 <sup>0</sup> <sub>-0.008</sub>	22	12	0.3	12	17.5	20	11	11.5	12.4	9 000	8 400	26 000	24	RNAF122212	IR91212				
<b>10</b>	<b>NAF 102213</b>	10 <sup>0</sup> <sub>-0.008</sub>	22	13	0.3	14	17.6	20	12	13	14.6	7 800	9 400	24 000	26	RNAF142213	IR101413				
	<b>NAFW 102220</b>	10 <sup>0</sup> <sub>-0.008</sub>	22	20	0.3	14	17.6	20	12	13	14.6	10 800	14 200	24 000	40	RNAFW142220	IR101420				
	<b>NAF 102612</b>	10 <sup>0</sup> <sub>-0.008</sub>	26	12	0.3	14	19.4	24	12	13	14.6	9 800	9 700	24 000	36	RNAF142612	IR101412				
<b>12</b>	<b>NAF 122413</b>	12 <sup>0</sup> <sub>-0.008</sub>	24	13	0.3	16	19.6	22	14	15	16.6	8 600	11 000	23 000	30	RNAF162413	IR121613				
	<b>NAFW 122420</b>	12 <sup>0</sup> <sub>-0.008</sub>	24	20	0.3	16	19.6	22	14	15	16.6	11 900	16 700	23 000	45	RNAFW162420	IR121620				
	<b>NAF 122812</b>	12 <sup>0</sup> <sub>-0.008</sub>	28	12	0.3	16	21.4	26	14	15	16.6	10 500	10 900	23 000	40	RNAF162812	IR121612				
<b>15</b>	<b>NAF 152813</b>	15 <sup>0</sup> <sub>-0.008</sub>	28	13	0.3	20	23.6	26	17	19	20.6	9 600	13 500	20 000	37	RNAF202813	IR152013				
	<b>NAFW 152826</b>	15 <sup>0</sup> <sub>-0.008</sub>	28	26	0.3	20	23.6	26	17	19	20.6	16 500	27 100	20 000	76	RNAFW202826	IR152026				
	<b>NAF 153212</b>	15 <sup>0</sup> <sub>-0.008</sub>	32	12	0.3	20	25.4	30	17	19	20.6	12 400	14 300	20 000	51	RNAF203212	IR152012				
<b>17</b>	<b>NAF 173013</b>	17 <sup>0</sup> <sub>-0.008</sub>	30	13	0.3	22	25.6	28	19	21	22.6	10 200	15 200	18 000	43	RNAF223013	IR172213				
	<b>NAFW 173026</b>	17 <sup>0</sup> <sub>-0.008</sub>	30	26	0.3	22	25.6	28	19	21	22.6	17 600	30 300	18 000	85	RNAFW223026	IR172226				
	<b>NAF 173516</b>	17 <sup>0</sup> <sub>-0.008</sub>	35	16	0.3	22	27.8	33	19	21	22.6	17 600	20 900	18 000	77	RNAF223516	IR172216				
	<b>NAFW 173532</b>	17 <sup>0</sup> <sub>-0.008</sub>	35	32	0.3	22	27.8	33	19	21	22.6	30 200	41 900	18 000	155	RNAFW223532	IR172232				
<b>20</b>	<b>NAF 203517</b>	20 <sup>0</sup> <sub>-0.010</sub>	35	17	0.3	25	29.5	33	22	24	25.6	17 300	26 600	16 000	75	RNAF253517	IR202517				
	<b>NAFW 203526</b>	20 <sup>0</sup> <sub>-0.010</sub>	35	26	0.3	25	29.5	33	22	24	25.6	22 500	37 200	16 000	114	RNAFW253526	IR202526				
	<b>NAF 203716</b>	20 <sup>0</sup> <sub>-0.010</sub>	37	16	0.3	25	30.4	35	22	24	25.6	19 400	24 500	16 000	80	RNAF253716	IR202516				
	<b>NAFW 203732</b>	20 <sup>0</sup> <sub>-0.010</sub>	37	32	0.3	25	30.4	35	22	24	25.6	33 200	49 000	16 000	158	RNAFW253732	IR202532				
<b>25</b>	<b>NAF 254017</b>	25 <sup>0</sup> <sub>-0.010</sub>	40	17	0.3	30	34.5	38	27	29	30.6	18 600	31 100	13 000	88	RNAF304017	IR253017				
	<b>NAFW 254026</b>	25 <sup>0</sup> <sub>-0.010</sub>	40	26	0.3	30	34.5	38	27	29	30.6	24 200	43 400	13 000	136	RNAFW304026	IR253026				
	<b>NAF 254216</b>	25 <sup>0</sup> <sub>-0.010</sub>	42	16	0.3	30	35.4	40	27	29	30.6	20 800	28 300	13 000	94	RNAF304216	IR253016				
	<b>NAFW 254232</b>	25 <sup>0</sup> <sub>-0.010</sub>	42	32	0.3	30	35.4	40	27	29	30.6	35 700	56 800	13 000	187	RNAFW304232	IR253032				
<b>30</b>	<b>NAF 304517</b>	30 <sup>0</sup> <sub>-0.010</sub>	45	17	0.3	35	39.5	43	32	34	35.6	20 500	36 900	11 000	100	RNAF354517	IR303517				
	<b>NAFW 304526</b>	30 <sup>0</sup> <sub>-0.010</sub>	45	26	0.3	35	39.5	43	32	34	35.6	26 600	51 600	11 000	155	RNAFW354526	IR303526				
	<b>NAF 304716</b>	30 <sup>0</sup> <sub>-0.010</sub>	47	16	0.3	35	40.4	45	32	34	35.6	23 000	33 800	11 000	108	RNAF354716	IR303516				
	<b>NAFW 304732</b>	30 <sup>0</sup> <sub>-0.010</sub>	47	32	0.3	35	40.4	45	32	34	35.6	39 500	67 800	11 000	215	RNAFW354732	IR303532				

\* Suitable for oil lubrication. In case of grease lubrication, down to 50% of this value.

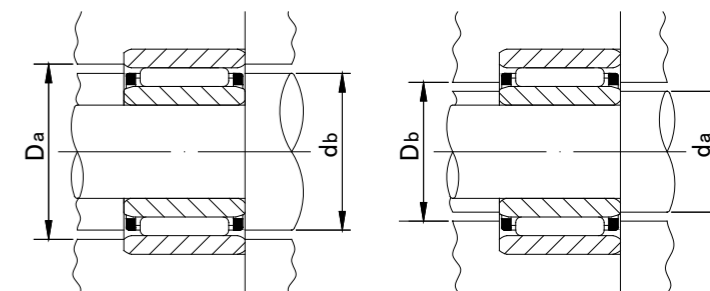
# MACHINED RING NEEDLE ROLLER BEARINGS WITH INNER RING



NAF



NAFW



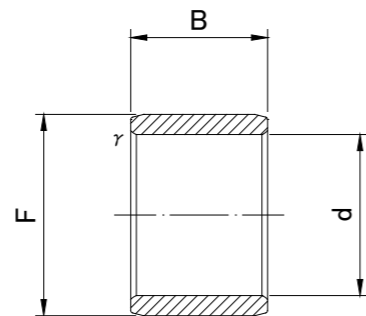
## NAF(W) TYPE

Shaft Diameter (mm)	Designation	Dimensions (mm)					Standard mounting dimensions (mm)				Basic dynamic load rating	Basic static load rating	Limiting speed*	Mass	Usable bearing designation						
		d	D	C	r/s min	F	db	Da MAX	da						Db	Cr N	Cor N	rpm	g (approx)	OUTER RING	INNER RING
									MIN	MAX											
35	NAF 355017	35	50	17	0.3	40	43.5	48	37	39	40.8	22 200	42 700	10 000	115	RNAF405017	IR354017				
	NAFW 355034	35 <sub>0</sub>	50	34	0.3	40	43.5	48	37	39	40.8	38 000	85 300	10 000	230	RNAFW405034	IR354034				
	NAF 355520	35 <sub>-0.012</sub>	55	20	0.3	40	45.2	53	37	39	40.8	31 500	48 000	10 000	188	RNAF405520	IR354020				
	NAFW 355540	35	55	40	0.3	40	45.2	53	37	39	40.8	53 900	96 000	10 000	375	RNAFW405540	IR354040				
40	NAF 405517	40	55	17	0.3	45	48.5	53	42	44	45.8	23 200	47 200	10 000	129	RNAF455517	IR404517				
	NAFW 405534	40 <sub>0</sub>	55	34	0.3	45	48.5	53	42	44	45.8	39 900	94 200	10 000	255	RNAFW455534	IR404534				
	NAF 406220	40 <sub>-0.012</sub>	62	20	0.3	45	50.9	60	42	44	45.8	33 200	53 300	9 000	236	RNAF456220	IR404520				
	NAFW 406240	40	62	40	0.3	45	50.9	60	42	44	45.8	57 000	106 900	9 000	475	RNAFW456240	IR404540				
45	NAF 456220	45	62	20	0.3	50	54.2	60	47	49	50.8	27 100	59 300	8 000	197	RNAF506220	IR455020				
	NAFW 456240	45 <sub>0</sub>	62	40	0.3	50	54.2	60	49	49.5	50.8	46 400	118 700	8 000	389	RNAFW506240	IR455040				
	NAF 457220	45 <sub>-0.012</sub>	72	20	0.6	55	60.9	68	49	54	55.8	37 400	66 400	7 500	340	RNAF557220	IR455520				
	NAFW 457240	45	72	40	0.6	55	60.9	68	49	54	55.8	64 100	132 400	7 500	685	RNAFW557240	IR455540				
50	NAF 506820	50	68	20	0.6	55	59.5	64	54	54.5	55.8	28 500	66 000	7 500	230	RNAF556820	IR505520				
	NAFW 506840	50 <sub>0</sub>	68	40	0.6	55	59.5	64	54	54.5	55.8	48 900	132 400	7 500	465	RNAFW556840	IR505540				
	NAF 507820	50 <sub>-0.012</sub>	78	20	1	60	66.3	73	55	59	60.8	38 900	71 700	6 500	390	RNAF607820	IR506020				
	NAFW 507840	50	78	40	1	60	66.3	73	55	59	60.8	66 700	143 200	6 500	775	RNAFW607840	IR506040				
55	NAF 558530	55 <sub>0</sub>	85	30	1	65	72	80	60	63	66	59 300	127 500	6 000	680	RNAF658530	IR556530				
	NAFW 558560	55 <sub>-0.015</sub>	85	60	1	65	72	80	60	63	66	102 000	254 000	6 000	1 380	RNAFW658560	IR556560				
60	NAF 609030	60 <sub>0</sub>	90	30	1	70	77	85	65	68	71	61 200	135 300	5 500	740	RNAF709030	IR607030				
	NAFW 609060	60 <sub>-0.015</sub>	90	60	1	70	77	85	65	68	71	104 900	271 600	5 500	1 470	RNAFW709060	IR607060				
65	NAF 659530	65 <sub>0</sub>	95	30	1	75	82	90	70	73	76	63 200	144 200	5 500	800	RNAF759530	IR657530				
	NAFW 659560	65 <sub>-0.015</sub>	95	60	1	75	82	90	70	73	76	108 900	289 300	5 500	1 570	RNAFW759560	IR657560				
70	NAF 7010030	70 <sub>0</sub>	100	30	1	80	87	95	75	78	81	64 900	153 000	5 000	840	RNAF801003	IR708030				
	NAFW 7010060	70 <sub>-0.015</sub>	100	60	1	80	87	95	75	78	81	111 800	306 000	5 000	1 670	RNAFW8010060	IR708060				
75	NAF 7510530	75 <sub>0</sub> -0.015	105	30	1	85	92	100	80	83	86	66 600	160 800	4 800	890	RNAF8510530	IR758530				
80	NAF 8011030	80 <sub>0</sub> -0.015	110	30	1	90	97	105	85	88	91	69 500	173 600	4 500	930	RNAF9011030	IR809030				
85	NAF 8511530	85 <sub>0</sub> -0.020	115	30	1	95	102	110	90	93	96	70 900	182 400	4 200	970	RNAF9511530	IR859530				
90	NAF 9012030	90 <sub>0</sub> -0.020	120	30	1	100	107	115	95	98	101	72 600	191 200	4 000	1 040	RNAF10012030	IR9010030				

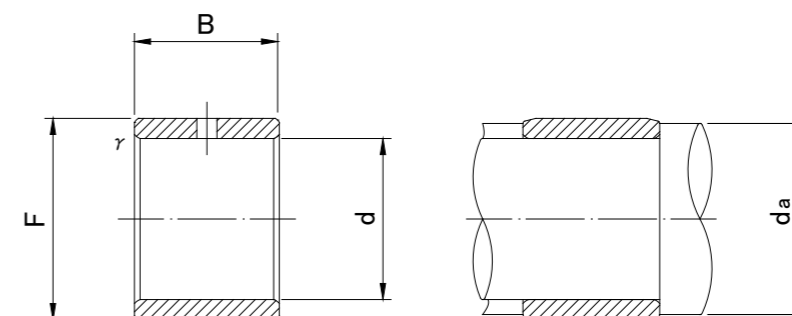
\* Suitable for oil lubrication. In case of grease lubrication, down to 50% of this value.



# INNER RINGS



IR

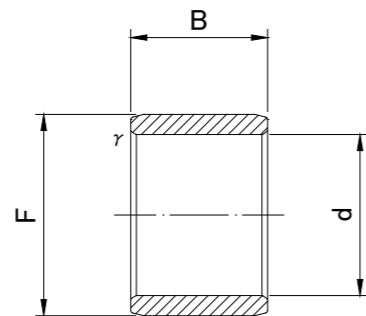


IRZ

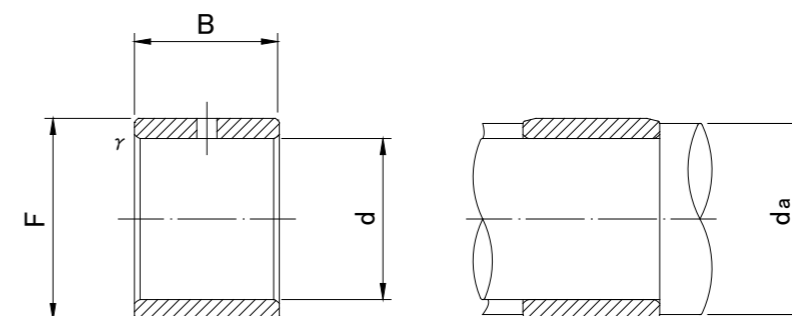
## IR,IRZ TYPE

Shaft Diameter (mm)	Designation		Dimensions (mm)				Standard mounting dimensions (mm)		Mass (g approx)	Usable bearing designation						
	IR	IRZ	d	F	B	r/s min	da			RNA 49	RNA 59	RNA 69	RNA 48	NK	RNAF	
							MIN	MAX								
5	IR 5812	—	5 <sup>0</sup>	8	12	0.3	7	7.7	3	—	—	—	—	NK 8/12	—	
	IR 5816	—	5 <sup>-0.008</sup>	8	16	0.3	7	7.7	4	—	—	—	—	NK 8/16	—	
6	IR 6810	—	6 <sup>0</sup>	8	10	0.15	7.2	7.7	1.7	RNA 496	—	—	—	—	—	
	IR 6912	—	6 <sup>0</sup>	9	12	0.3	8	8.7	3.2	—	—	—	—	NK 9/12	—	
	IR 6916	—	6 <sup>-0.008</sup>	9	16	0.3	8	8.7	4.3	—	—	—	—	NK 9/16	—	
	IR 61010	—	6	10	10	0.3	8	9.7	4	—	—	—	—	—	RNAF 101710	
7	IR 7910	—	7 <sup>0</sup>	9	10	0.15	8.2	8.7	1.9	RNA 497	—	—	—	—	—	
	IR 71010.5	—	7 <sup>0</sup>	10	10.5	0.3	9	9.7	3.2	—	—	—	—	—	—	
	IR 71012	—	7 <sup>-0.008</sup>	10	12	0.3	9	9.7	3.6	—	—	—	—	NK 10/12	RNAF 102012	
	IR 71012.5	—	7 <sup>-0.008</sup>	10	12.5	0.3	9	9.7	3.9	—	—	—	—	—	—	
	IR 71015.5	—	7	10	15.5	0.3	9	9.7	4.8	—	—	—	—	—	—	
	IR 71016	—	7	10	16	0.3	9	9.7	5	—	—	—	—	NK 10/16	—	
8	IR 81011	—	8 <sup>0</sup>	10	11	0.15	9.2	9.7	2.4	RNA 498	—	—	—	—	—	
	IR 81210	—	8 <sup>0</sup>	12	10	0.3	10	11	4.8	—	—	—	—	—	—	
	IR 81210.5	—	8 <sup>-0.008</sup>	12	10.5	0.3	10	11	5.1	—	—	—	—	—	—	
	IR 81212.5	—	8 <sup>-0.008</sup>	12	12.5	0.3	10	11	6	—	—	—	—	—	—	
	IR 81215.5	—	8 <sup>-0.008</sup>	12	15.5	0.3	10	11	7.5	—	—	—	—	—	—	
9	IR 91211	—	9 <sup>0</sup>	12	11	0.3	11	11.5	3.1	RNA 499	—	—	—	—	—	
	IR 91212	—	9 <sup>-0.008</sup>	12	12	0.3	11	11.5	4.5	—	—	—	—	NK 12/12	RNAF 122212	
	IR 91216	—	9 <sup>-0.008</sup>	12	16	0.3	11	11.5	6	—	—	—	—	NK 12/16	—	
10	IR 101312.5	—	10 <sup>0</sup>	13	12.5	0.3	12	12	5.2	—	—	—	—	—	—	
	IR 101412	—	10 <sup>0</sup>	14	12	0.3	12	13	7	—	—	—	—	—	RNAF 142612	
	IR 101412.5	—	10 <sup>0</sup>	14	12.5	0.3	12	13	7.2	—	—	—	—	—	—	
	IR 101413	—	10 <sup>0</sup>	14	13	0.3	12	13	7.5	RNA 4900	—	—	—	—	RNAF 142213	
	—	IRZ 101414	—	10 <sup>0</sup>	14	14	0.3	12	13	8	RNA 4900UU	—	—	—	—	—
	IR 101416	—	10 <sup>0</sup>	14	16	0.3	12	13	9	—	—	—	—	NK 14/16	—	
	IR 101416.5	—	10 <sup>-0.008</sup>	14	16.5	0.3	12	13	9.6	—	—	—	—	—	—	
	IR 101420	—	10 <sup>-0.008</sup>	14	20	0.3	12	13	11.5	—	—	—	—	NK 14/20	RNAFW 142220	
	IR 101420.5	—	10 <sup>-0.008</sup>	14	20.5	0.3	12	13	11.9	—	—	—	—	—	—	
	IR 101510.5	—	10 <sup>-0.008</sup>	15	10.5	0.3	12	14	7.9	—	—	—	—	—	—	
	IR 101515.5	—	10 <sup>-0.008</sup>	15	15.5	0.3	12	14	11.7	—	—	—	—	—	—	
	IR 101520.5	—	10 <sup>-0.008</sup>	15	20.5	0.3	12	14	15.5	—	—	—	—	—	—	
	IR 101525.5	—	10 <sup>-0.008</sup>	15	25.5	0.3	12	14	19.3	—	—	—	—	—	—	

# INNER RINGS



IR

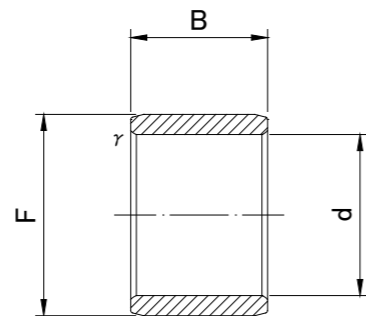


IRZ

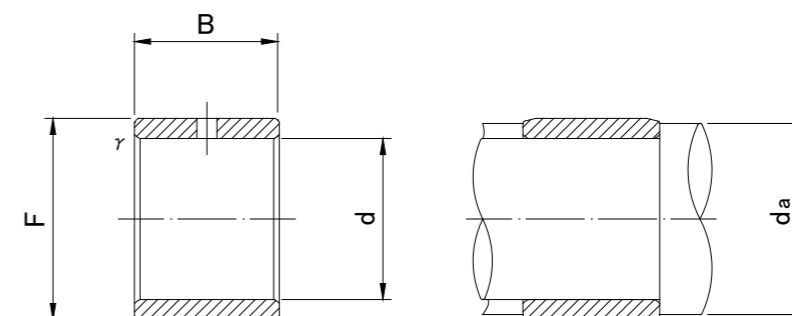
## IR,IRZ TYPE

Shaft Diameter (mm)	Designation		Dimensions (mm)				Standard mounting dimensions (mm)		Mass (g approx)	Usable bearing designation					
	IR	IRZ	d	F	B	r/s min	da			RNA 49	RNA 59	RNA 69	RNA 48	NK	RNAF
							MIN	MAX							
12	IR 121512.5	—	12	15	12.5	0.3	14	14	6.1	—	—	—	—	—	—
	IR 121516	—	12	15	16	0.3	14	14	7.8	—	—	—	—	—	—
	IR 121516.5	—	12	15	16.5	0.3	14	14	8.1	—	—	—	—	—	—
	IR 121522.5	—	12	15	22.5	0.3	14	14	11	—	—	—	—	—	—
	IR 121612	—	12	16	12	0.3	14	15	8	—	—	—	—	—	RNAF 162812
	IR 121612.5	—	12	16	12.5	0.3	14	15	8.5	—	—	—	—	—	—
	IR 121613	—	12	16	13	0.3	14	15	8.5	RNA 4901	—	—	—	—	RNAF 162413
	—	<b>IRZ 121614</b>	12	16	14	0.3	14	15	9.6	RNA 4901UU	—	—	—	—	—
	IR 121616	—	12 <sup>0</sup> <sub>-0.008</sub>	16	16	0.3	14	15	10.5	—	—	—	—	NK 16/16	—
	IR 121616.5	—	12	16	16.5	0.3	14	15	11.2	—	—	—	—	—	—
	IR 121620	—	12	16	20	0.3	14	15	13.5	—	—	—	—	NK 16/20	RNAFW 162420
	IR 121620.5	—	12	16	20.5	0.3	14	15	13.9	—	—	—	—	—	—
	IR 121622	—	12	16	22	0.3	14	15	14.5	—	—	RNA 6901	—	—	—
	IR 121622.5	—	12	16	22.5	0.3	14	15	15.2	—	—	—	—	—	—
—	<b>IRZ 121623</b>	12	16	23	0.3	14	15	15.5	—	—	RNA 6901UU	—	—	—	
IR 121715.5	—	12	17	15.5	0.3	14	16	13.6	—	—	—	—	—	—	
IR 121720.5	—	12	17	20.5	0.3	14	16	18	—	—	—	—	—	—	
14	IR 141717	—	14 <sup>0</sup> <sub>-0.008</sub>	17	17	0.3	16	16	9.5	—	—	—	—	—	—
15	IR 151812.5	—	15	18	12.5	0.3	17	17	7.5	—	—	—	—	—	—
	IR 151815.5	—	15	18	15.5	0.3	17	17	9.3	—	—	—	—	—	—
	IR 151816.5	—	15	18	16.5	0.3	17	17	9.9	—	—	—	—	—	—
	IR 151820.5	—	15	18	20.5	0.3	17	17	12.3	—	—	—	—	—	—
	IR 151825.5	—	15	18	25.5	0.3	17	17	15.2	—	—	—	—	—	—
	IR 151916	—	15	19	16	0.3	17	18	12.5	—	—	—	—	NK 19/16	—
	IR 151916.5	—	15	19	16.5	0.3	17	18	13.6	—	—	—	—	—	—
	IR 151920	—	15	19	20	0.3	17	18	16	—	—	—	—	NK 19/20	—
	IR 151920.5	—	15 <sup>0</sup> <sub>-0.008</sub>	19	20.5	0.3	17	18	12.3	—	—	—	—	—	—
	IR 152012	—	15	20	12	0.3	17	19	12	—	—	—	—	—	RNAF 203212
	IR 152013	—	15	20	13	0.3	17	19	13.5	RNA 4902	—	—	—	—	RNAF 202813
	—	<b>IRZ 152014</b>	15	20	14	0.3	17	19	14.5	RNA 4902UU	—	—	—	—	—
	IR 152015.5	—	15	20	15.5	0.3	17	19	16.4	—	—	—	—	—	—
	IR 152018	—	15	20	18	0.3	17	19	19	—	RNA 5902	—	—	—	—
	IR 152020.5	—	15	20	20.5	0.3	17	19	21.5	—	—	—	—	—	—
	IR 152023	—	15	20	23	0.3	17	19	24	—	—	RNA 6902	—	—	—
—	<b>IRZ 152024</b>	15	20	24	0.3	17	19	25	—	—	RNA 6902UU	—	—	—	
IR 152026	—	15	20	26	0.3	17	19	28	—	—	—	—	—	RNAFW 202826	

# INNER RINGS



IR

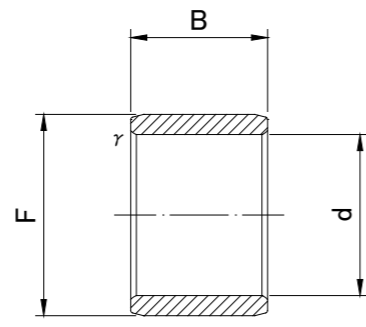


IRZ

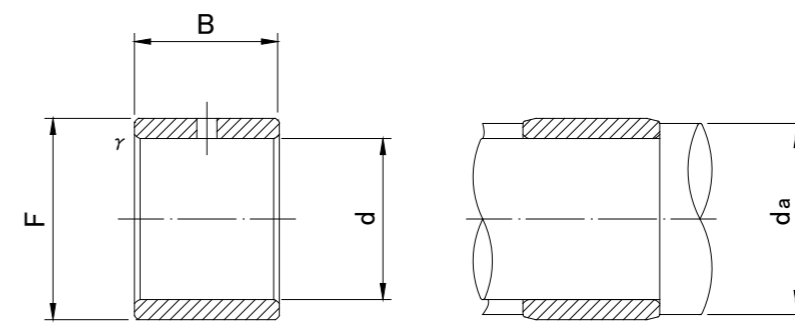
## IR,IRZ TYPE

Shaft Diameter (mm)	Designation		Dimensions (mm)				Standard mounting dimensions (mm)		Mass (g approx)	Usable bearing designation					
	IR	IRZ	d	F	B	r/s min	da			RNA 49	RNA 59	RNA 69	RNA 48	NK	RNAF
							MIN	MAX							
17	IR 172016.5	—	17	20	16.5	0.3	19	19	11.1	—	—	—	—	—	—
	IR 172020	—	17	20	20	0.3	19	19	14	—	—	—	—	—	—
	IR 172020.5	—	17	20	20.5	0.3	19	19	13.7	—	—	—	—	—	—
	IR 172030.5	—	17	20	30.5	0.3	19	19	20.5	—	—	—	—	—	—
	IR 172116	—	17	21	16	0.3	19	20	14.5	—	—	—	—	NK 21/16	—
	IR 172120	—	17	21	20	0.3	19	20	18	—	—	—	—	NK 21/20	—
	IR 172213	—	17	22	13	0.3	19	21	15.5	RNA 4903	—	—	—	—	RNAF 223013
	—	IRZ 172214	17	22	14	0.3	19	21	16.5	RNA 4903UU	—	—	—	—	—
	IR 172215.5	—	17 <sup>0</sup> <sub>-0.008</sub>	22	15.5	0.3	19	21	18.3	—	—	—	—	—	—
	IR 172216	—	17	22	16	0.3	19	21	19	—	—	—	—	—	RNAF 223516
	IR 172216.5	—	17	22	16.5	0.3	19	21	19.4	—	—	—	—	—	—
	IR 172218	—	17	22	18	0.3	19	21	21	—	RNA 5903	—	—	—	—
	IR 172223	—	17	22	23	0.3	19	21	26.5	—	—	RNA 6903	—	—	—
	—	IRZ 172224	17	22	24	0.3	19	21	28	—	—	RNA 6903UU	—	—	—
IR 172225.5	—	17	22	25.5	0.3	19	21	30	—	—	—	—	—	—	
IR 172226	—	17	22	26	0.3	19	21	31	—	—	—	—	—	RNAFW 223026	
IR 172232	—	17	22	32	0.3	19	21	38	—	—	—	—	—	RNAFW 223532	
20	IR 202416	—	20	24	16	0.3	22	23	16.5	—	—	—	—	NK 24/16	—
	IR 202416.5	—	20	24	16.5	0.3	22	23	17.5	—	—	—	—	—	—
	IR 202420	—	20	24	20	0.3	22	23	20.5	—	—	—	—	NK 24/20	—
	IR 202420.5	—	20	24	20.5	0.3	22	23	22	—	—	—	—	—	—
	IR 202510.5	—	20	25	10.5	0.3	22	24	14.3	—	—	—	—	—	—
	IR 202515.5	—	20	25	15.5	0.3	22	24	21	—	—	—	—	—	—
	IR 202516	—	20	25	16	0.3	22	24	22	—	—	—	—	—	RNAF 253716
	IR 202517	—	20	25	17	0.3	22	24	23	RNA 4904	—	—	—	—	RNAF 253517
	—	IRZ 202518	20	25	18	0.3	22	24	24	RNA 4904UU	—	—	—	—	—
	IR 202520	—	20 <sup>0</sup> <sub>-0.010</sub>	25	20	0.3	22	24	27	—	—	—	—	—	—
	IR 202520.5	—	20	25	20.5	0.3	22	24	28	—	—	—	—	—	—
	IR 202523	—	20	25	23	0.3	22	24	31	—	RNA 5904	—	—	—	—
	IR 202525.5	—	20	25	25.5	0.3	22	24	34.5	—	—	—	—	—	—
	IR 202526	—	20	25	26	0.3	22	24	36	—	—	—	—	—	RNAFW 253526
	IR 202526.5	—	20	25	26.5	0.3	22	24	36	—	—	—	—	—	—
	IR 202530	—	20	25	30	0.3	22	24	40.5	—	—	RNA 6904	—	—	—
—	IRZ 202531	20	25	31	0.3	22	24	41.5	—	—	RNA 6904UU	—	—	—	
IR 202532	—	20	25	32	0.3	22	24	44	—	—	—	—	—	RNAFW 253732	

# INNER RINGS



IR

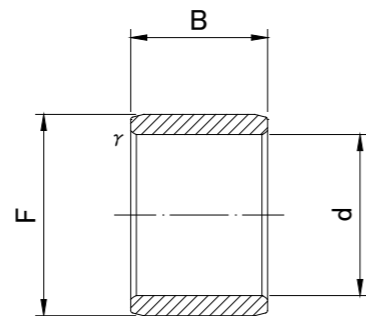


IRZ

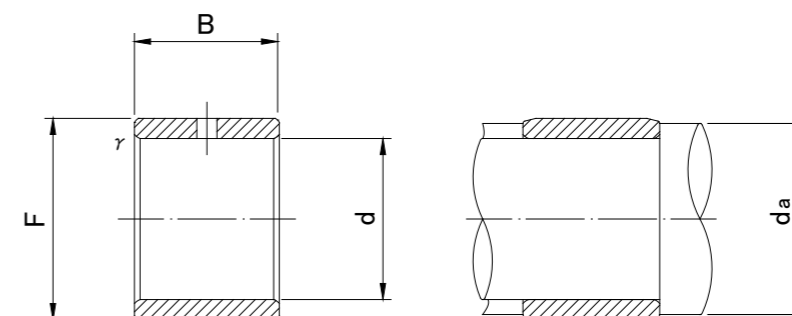
## IR,IRZ TYPE

Shaft Diameter (mm)	Designation		Dimensions (mm)				Standard mounting dimensions (mm)		Mass (g approx)	Usable bearing designation					
	IR	IRZ	d	F	B	r/s min	da			RNA 49	RNA 59	RNA 69	RNA 48	NK	RNAF
							MIN	MAX							
22	IR 222616	—	22	26	16	0.3	24	25	17.5	—	—	—	—	NK 26/16	—
	IR 222620	—	22	26	20	0.3	24	25	24	—	—	—	—	NK 26/20	—
	IR 222817	—	22 <sup>0</sup>	28	17	0.3	24	27	30.5	RNA 49/22	—	—	—	—	—
	IR 222820.5	—	22 <sup>-0.010</sup>	28	20.5	0.3	24	27	37	—	—	—	—	—	—
	IR 222823	—	22	28	23	0.3	24	27	42	—	RNA 59/22	—	—	—	—
	IR 222830	—	22	28	30	0.3	24	27	55	—	—	RNA 69/22	—	—	—
25	IR 252920	—	25	29	20	0.3	27	28	25	—	—	—	—	NK 29/20	—
	IR 252930	—	25	29	30	0.3	27	28	38	—	—	—	—	NK 29/30	—
	IR 253015	—	25	30	15	0.3	24	29	24.5	—	—	—	—	—	—
	IR 253015.5	—	25	30	15.5	0.3	24	29	25.5	—	—	—	—	—	—
	IR 253016	—	25	30	16	0.3	27	29	28	—	—	—	—	—	RNAF 304216
	IR 253017	—	25	30	17	0.3	27	29	28.5	RNA 4905	—	—	—	—	RNAF 304017
	—	IRZ 253018	25	30	18	0.3	27	29	29.5	RNA 4905UU	—	—	—	—	—
	IR 253020	—	25	30	20	0.3	24	29	33	—	—	—	—	—	—
	IR 253020.5	—	25 <sup>0</sup>	30	20.5	0.3	24	29	34	—	—	—	—	—	—
	IR 253023	—	25 <sup>-0.010</sup>	30	23	0.3	27	29	38	—	RNA 5905	—	—	—	—
	IR 253025.5	—	25	30	25.5	0.3	24	29	42.5	—	—	—	—	—	—
	IR 253026	—	25	30	26	0.3	27	29	44.5	—	—	—	—	—	RNAFW 304026
	IR 253026.5	—	25	30	26.5	0.3	24	29	44	—	—	—	—	—	—
	IR 253030	—	25	30	30	0.3	27	29	49	—	—	RNA 6905	—	—	—
	IR 253030.5	—	25	30	30.5	0.3	24	29	50.5	—	—	—	—	—	—
	—	IRZ 253031	25	30	31	0.3	27	29	51	—	—	RNA 6905UU	—	—	—
	IR 253032	—	25	30	32	0.3	27	29	54	—	—	—	—	—	RNAFW 304232
IR 253038.5	—	25	30	38.5	0.3	24	29	64	—	—	—	—	—	—	
28	IR 283217	—	28	32	17	0.3	30	31	24.5	RNA 49/28	—	—	—	—	—
	IR 283220	—	28	32	20	0.3	30	31	28.5	—	—	—	—	NK 32/20	—
	IR 283220.5	—	28 <sup>0</sup>	32	20.5	0.3	30	31	29.5	—	—	—	—	—	—
	IR 283223	—	28 <sup>-0.010</sup>	32	23	0.3	30	31	34	—	RNA 59/28	—	—	—	—
	IR 283230	—	28	32	30	0.3	30	31	43	—	—	RNA 69/28	—	NK 32/30	—
	IR 283230.5	—	28	32	30.5	0.3	30	31	44	—	—	—	—	—	—

# INNER RINGS



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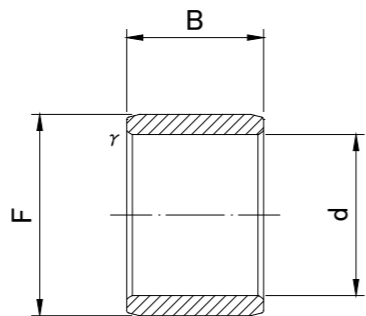


IRZ

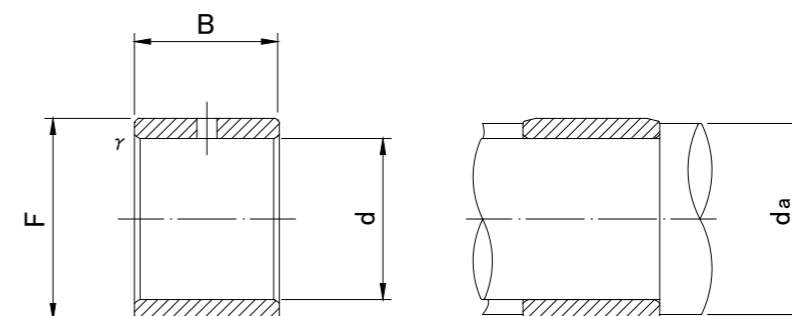
## IR,IRZ TYPE

Shaft Diameter (mm)	Designation		Dimensions (mm)				Standard mounting dimensions (mm)		Mass (g approx)	Usable bearing designation					
	IR	IRZ	d	F	B	r/s min	da			RNA 49	RNA 59	RNA 69	RNA 48	NK	RNAF
							MIN	MAX							
30	IR 303516	—	30	35	16	0.3	32	34	31.5	—	—	—	—	—	RNAF 354716
	IR 303517	—	30	35	17	0.3	32	34	33.5	RNA 4906	—	—	—	—	RNAF 354517
	—	IRZ 303518	30	35	18	0.3	32	34	35	RNA 4906UU	—	—	—	—	—
	IR 303520	—	30	35	20	0.3	32	34	38.5	—	—	—	—	NK 35/20	—
	IR 303520.5	—	30	35	20.5	0.3	34	34	40	—	—	—	—	—	—
	IR 303523	—	30	35	23	0.3	32	34	44	—	RNA 5906	—	—	—	—
	IR 303525.5	—	30 <sup>0</sup> <sub>-0.010</sub>	35	25.5	0.3	34	34	51	—	—	—	—	—	—
	IR 303526	—	30	35	26	0.3	32	34	52	—	—	—	—	—	RNAFW 354526
	IR 303530	—	30	35	30	0.3	32	34	59	—	—	RNA 6906	—	NK 35/30	—
	IR 303530.5	—	30	35	30.5	0.3	34	34	60	—	—	—	—	—	—
	—	IRZ 303531	30	35	31	0.3	32	34	61	—	—	RNA 6906UU	—	—	—
	IR 303532	—	30	35	32	0.3	32	34	64	—	—	—	—	—	RNAFW 354732
	IR 303820	—	30	38	20	0.6	34	37	65	—	—	—	—	—	—
32	IR 323720	—	32	37	20	0.3	34	36	43.5	—	—	—	—	NK 37/20	—
	IR 323730	—	32	37	30	0.3	34	36	63	—	—	—	—	NK 37/30	—
	IR 324020	—	32 <sup>0</sup> <sub>-0.012</sub>	40	20	0.6	36	39	69	RNA 49/32	—	—	—	—	—
	IR 324027	—	32	40	27	0.6	36	39	92	—	RNA 59/32	—	—	—	—
	IR 324036	—	32	40	36	0.6	36	39	123	—	—	RNA 69/32	—	—	—
35	IR 354017	—	35	40	17	0.3	37	39	39	—	—	—	—	—	RNAF 405017
	IR 354020	—	35	40	20	0.3	37	39	46	—	—	—	—	NK 40/20	RNAF 405520
	IR 354020.5	—	35	40	20.5	0.3	39	39	46.5	—	—	—	—	—	—
	IR 354025.5	—	35	40	25.5	0.3	39	39	46	—	—	—	—	—	—
	IR 354030	—	35	40	30	0.3	37	39	67	—	—	—	—	NK 40/30	—
	IR 354034	—	35 <sup>0</sup> <sub>-0.012</sub>	40	34	0.3	37	39	78	—	—	—	—	—	RNAFW 405034
	IR 354040	—	35	40	40	0.3	37	39	95	—	—	—	—	—	RNAFW 405540
	IR 354220	—	35	42	20	0.6	39	41	65	RNA 4907	—	—	—	—	—
	—	IRZ 354221	35	42	21	0.6	39	41	67	RNA 4907UU	—	—	—	—	—
	IR 354227	—	35	42	27	0.6	39	41	80	—	RNA 5907	—	—	—	—
	IR 354236	—	35	42	36	0.6	39	41	120	—	—	RNA 6907	—	—	—
—	IRZ 354237	35	42	37	0.6	39	41	120	—	—	RNA 6907UU	—	—	—	
38	IR 384320	—	38 <sup>0</sup> <sub>-0.012</sub>	43	20	0.3	40	42	49.5	—	—	—	—	NK 43/20	—
	IR 384330	—	38	43	30	0.3	40	42	72	—	—	—	—	NK 43/30	—

# INNER RINGS



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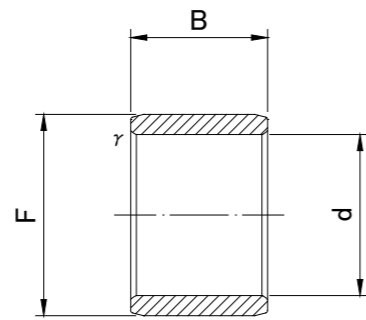


IRZ

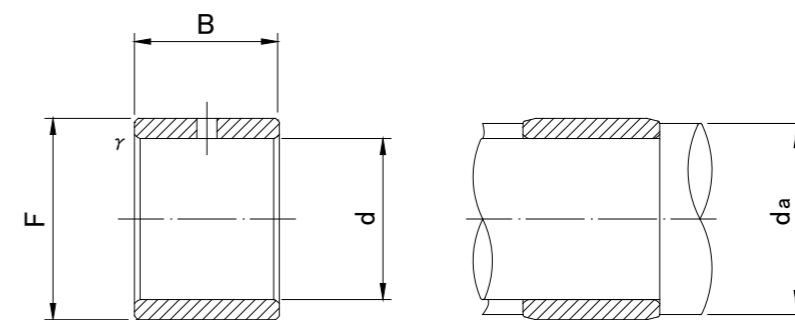
## IR,IRZ TYPE

Shaft Diameter (mm)	Designation		Dimensions (mm)				Standard mounting dimensions (mm)		Mass (g approx)	Usable bearing designation					
	IR	IRZ	d	F	B	r/s min	da			RNA 49	RNA 59	RNA 69	RNA 48	NK	RNAF
							MIN	MAX							
40	IR 404517	—	40	45	17	0.3	42	44	44.5	—	—	—	—	—	RNAF 455517
	IR 404520	—	40	45	20	0.3	42	44	51	—	—	—	—	NK 45/20	RNAF 456220
	IR 404520.5	—	40	45	20.5	0.6	44	44	52.5	—	—	—	—	—	—
	IR 404525.5	—	40	45	25.5	0.6	44	44	65.5	—	—	—	—	—	—
	IR 404530	—	40	45	30	0.3	42	44	77	—	—	—	—	NK 45/30	—
	IR 404530.5	—	40	45	30.5	0.6	44	44	78.5	—	—	—	—	—	—
	IR 404534	—	40	45	34	0.3	42	44	88	—	—	—	—	—	RNAFW 455534
	IR 404540	—	40 <sup>0</sup> <sub>-0.012</sub>	45	40	0.3	42	44	105	—	—	—	—	—	RNAFW 456240
	IR 404540.5	—	40	45	40.5	0.6	44	44	104	—	—	—	—	—	—
	IR 404822	—	40	48	22	0.6	44	47	93	RNA 4908	—	—	—	—	—
	—	IRZ 404823	40	48	23	0.6	44	47	95	RNA 4908UU	—	—	—	—	—
	IR 404830	—	40	48	30	0.6	44	47	123	—	RNA 5908	—	—	—	—
	IR 404840	—	40	48	40	0.6	44	47	165	—	—	RNA 6908	—	—	—
—	IRZ 404841	40	48	41	0.6	44	47	170	—	—	RNA 6908UU	—	—	—	
42	IR 424720	—	42 <sup>0</sup> <sub>-0.012</sub>	47	20	0.3	44	46	54	—	—	—	—	NK 47/20	—
	IR 424730	—	42	47	30	0.3	44	46	81	—	—	—	—	NK 47/30	—
45	IR 455020	—	45	50	20	0.3	47	49	58	—	—	—	—	—	RNAF 506220
	IR 455025	—	45	50	25	0.6	49	49.5	71	—	—	—	—	NK 50/25	—
	IR 455025.5	—	45	50	25.5	0.6	44	49	73	—	—	—	—	—	—
	IR 455030.5	—	45	50	30.5	0.6	44	49	87.5	—	—	—	—	—	—
	IR 455035	—	45	50	35	0.6	49	49.5	95	—	—	—	—	NK 50/35	—
	IR 455040	—	45	50	40	0.3	49	49.5	115	—	—	—	—	—	RNAFW 506240
	IR 455222	—	45 <sup>0</sup> <sub>-0.012</sub>	52	22	0.6	49	51	88	RNA 4909	—	—	—	—	—
	—	IRZ 455223	45	52	23	0.6	49	51	93	RNA 4909UU	—	—	—	—	—
	IR 455230	—	45	52	30	0.6	49	51	123	—	RNA 5909	—	—	—	—
	IR 455240	—	45	52	40	0.6	49	51	165	—	—	RNA 6909	—	—	—
	—	IRZ 455241	45	52	41	0.6	49	51	170	—	—	RNA 6909UU	—	—	—
	IR 455520	—	45	55	20	0.6	49	54	120	—	—	—	—	—	RNAF 557220
	IR 455522	—	45	55	22	1	50	54	130	—	—	—	—	—	—
IR 455540	—	45	55	40	0.6	49	54	245	—	—	—	—	—	RNAFW 557240	

# INNER RINGS



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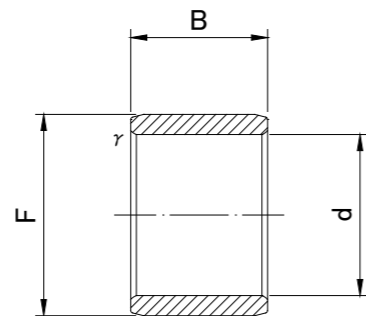


IRZ

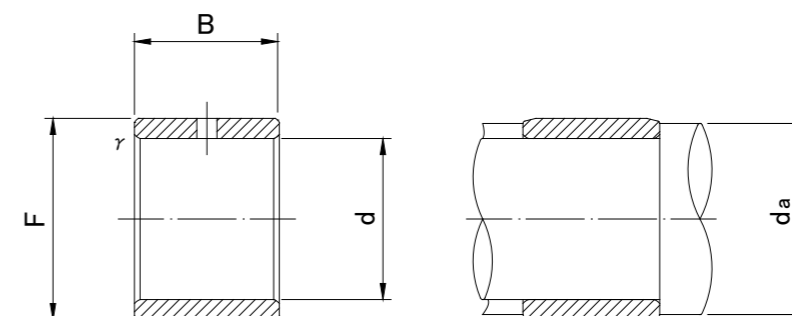
## IR,IRZ TYPE

Shaft Diameter (mm)	Designation		Dimensions (mm)				Standard mounting dimensions (mm)		Mass (g approx)	Usable bearing designation					
	IR	IRZ	d	F	B	r/s min	da			RNA 49	RNA 59	RNA 69	RNA 48	NK	RNAF
							MIN	MAX							
50	IR 505520	—	50	55	20	0.6	54	54.5	63	—	—	—	—	—	RNAF 556820
	IR 505525	—	50	55	25	0.6	54	54.5	77	—	—	—	—	NK 55/25	—
	IR 505535	—	50	55	35	0.6	54	54.5	110	—	—	—	—	NK 55/35	—
	IR 505540	—	50	55	40	0.6	54	54.5	130	—	—	—	—	—	RNAFW 556840
	IR 505822	—	50	58	22	0.6	54	57	116	RNA 4910	—	—	—	—	—
	—	IRZ 505823	50 <sup>0</sup>	58	23	0.6	54	57	118	RNA 4910UU	—	—	—	—	—
	IR 505830	—	50 <sup>-0.012</sup>	58	30	0.6	54	57	159	—	RNA 5910	—	—	—	—
	IR 505840	—	50	58	40	0.6	54	57	210	—	—	RNA 6910	—	—	—
	—	IRZ 505841	50	58	41	0.6	54	57	215	—	—	RNA 6910UU	—	—	—
	IR 506020	—	50	60	20	1	55	59	135	—	—	—	—	—	RNAF 607820
IR 506025	—	50	60	25	1	55	59	163	—	—	—	—	—	—	
IR 506040	—	50	60	40	1	55	59	265	—	—	—	—	—	RNAFW 607840	
55	IR 556025	—	55	60	25	0.6	59	59.5	88	—	—	—	—	NK 60/25	—
	IR 556035	—	55	60	35	0.6	59	59.5	120	—	—	—	—	NK 60/35	—
	IR 556325	—	55	63	25	1	60	61	145	RNA 4911	—	—	—	—	—
	IR 556334	—	55 <sup>0</sup>	63	34	1	60	61	192	—	RNA 5911	—	—	—	—
	IR 556345	—	55 <sup>-0.015</sup>	63	45	1	60	61	255	—	—	RNA 6911	—	—	—
	IR 556530	—	55	65	30	1	60	63	220	—	—	—	—	—	RNAF 658530
	IR 556560	—	55	65	60	1	60	63	435	—	—	—	—	—	RNAFW 658560
60	IR 606825	—	60	68	25	0.6	64	66	150	RNA 4912	—	—	—	NK 68/25	—
	IR 606834	—	60	68	34	1	65	66	206	—	RNA 5912	—	—	—	—
	IR 606835	—	60	68	35	0.6	64	66	210	—	—	—	—	NK 68/35	—
	IR 606845	—	60 <sup>0</sup>	68	45	1	65	66	275	—	—	RNA 6912	—	—	—
	IR 607025	—	60 <sup>-0.015</sup>	70	25	1	65	68	195	—	—	—	—	—	—
	IR 607030	—	60	70	30	1	65	68	240	—	—	—	—	—	RNAF 709030
	IR 607060	—	60	70	60	1	65	68	480	—	—	—	—	—	RNAFW 709060
65	IR 657225	—	65	72	25	1	70	70.5	145	RNA 4913	—	—	—	—	—
	IR 657234	—	65	72	34	1	70	70.5	193	—	RNA 5913	—	—	—	—
	IR 657245	—	65	72	45	1	70	70.5	255	—	—	RNA 6913	—	—	—
	IR 657335	—	65 <sup>0</sup>	73	35	0.6	69	71	235	—	—	—	—	—	—
	IR 657530	—	65 <sup>-0.015</sup>	75	30	1	70	73	260	—	—	—	—	—	RNAF 759530
	IR 657560	—	65	75	60	1	70	73	520	—	—	—	—	—	RNAFW 759560

# INNER RINGS



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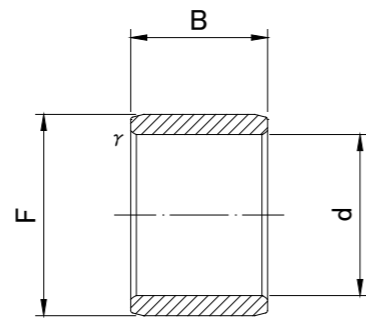
IRZ

## IR,IRZ TYPE

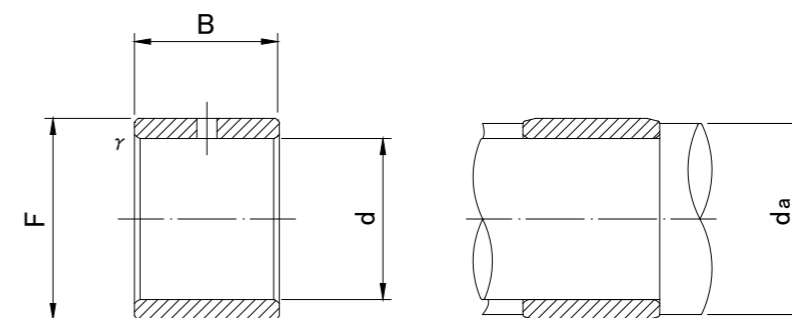
Shaft Diameter (mm)	Designation		Dimensions (mm)				Standard mounting dimensions (mm)		Mass (g) (approx)	Usable bearing designation					
	IR	IRZ	d	F	B	r/s min	da			RNA 49	RNA 59	RNA 69	RNA 48	NK	RNAF
							MIN	MAX							
70	IR 708025	—	70	80	25	1	75	78	225	—	—	—	—	NK 80/25	—
	IR 708030	—	70	80	30	1	75	78	275	RNA 4914	—	—	—	—	RNAF 8010030
	IR 708035	—	70 <sup>0</sup>	80	35	1	75	78	310	—	—	—	—	NK 80/35	—
	IR 708040	—	70 <sup>-0.015</sup>	80	40	1	75	78	358	—	RNA 5914	—	—	—	—
	IR 708054	—	70	80	54	1	75	78	490	—	—	RNA 6914	—	—	—
	IR 708060	—	70	80	60	1	75	78	560	—	—	—	—	—	RNAFW 8010060
75	IR 758525	—	75	85	25	1	80	83	240	—	—	—	—	NK 85/25	—
	IR 758530	—	75	85	30	1	80	83	290	RNA 4915	—	—	—	—	RNAF 8510530
	IR 758535	—	75 <sup>0</sup>	85	35	1	80	83	335	—	—	—	—	NK 85/35	—
	IR 758540	—	75 <sup>-0.015</sup>	85	40	1	80	83	385	—	RNA 5915	—	—	—	—
	IR 758554	—	75	85	54	1	80	83	520	—	—	RNA 6915	—	—	—
80	IR 809025	—	80	90	25	1	85	88	255	—	—	—	—	NK 90/25	—
	IR 809030	—	80	90	30	1	85	88	310	RNA 4916	—	—	—	—	RNAF 9011030
	IR 809035	—	80 <sup>0</sup>	90	35	1	85	88	355	—	—	—	—	NK 90/35	—
	IR 809040	—	80 <sup>-0.015</sup>	90	40	1	85	88	408	—	RNA 5916	—	—	—	—
	IR 809054	—	80	90	54	1	85	88	550	—	—	RNA 6916	—	—	—
85	IR 859526	—	85	95	26	1	90	93	280	—	—	—	—	NK 95/26	—
	IR 859530	—	85	95	30	1	90	93	330	—	—	—	—	—	RNAF 9511530
	IR 859536	—	85 <sup>0</sup>	95	36	1	90	93	390	—	—	—	—	NK 95/36	—
	IR 8510035	—	85 <sup>-0.020</sup>	100	35	1.1	91.5	98	575	RNA 4917	—	—	—	—	—
	IR 8510046	—	85	100	46	1.1	91.5	98	760	—	RNA 5917	—	—	—	—
	IR 8510063	—	85	100	63	1.1	91.5	98	1 040	—	—	RNA 6917	—	—	—
90	IR 9010026	—	90	100	26	1	95	98	295	—	—	—	—	NK 100/26	—
	IR 9010030	—	90	100	30	1	95	98	355	—	—	—	—	—	RNAF 10012030
	IR 9010036	—	90 <sup>0</sup>	100	36	1	95	98	415	—	—	—	—	NK 100/36	—
	IR 9010535	—	90 <sup>-0.020</sup>	105	35	1.1	96.5	103	610	RNA 4918	—	—	—	—	—
	IR 9010546	—	90	105	46	1.1	96.5	103	800	—	RNA 5918	—	—	—	—
	IR 9010563	—	90	105	63	1.1	96.5	103	1 100	—	—	RNA 6918	—	—	—
95	IR 9510526	—	95	105	26	1	100	103	315	—	—	—	—	NK 105/26	—
	IR 9510536	—	95	105	36	1	100	103	430	—	—	—	—	NK 105/36	—
	IR 9511035	—	95 <sup>0</sup>	110	35	1.1	101.5	108	650	RNA 4919	—	—	—	—	—
	IR 9511046	—	95 <sup>-0.020</sup>	110	46	1.1	101.5	108	850	—	RNA 5919	—	—	—	—
	IR 9511063	—	95	110	63	1.1	101.5	108	1 160	—	—	RNA 6919	—	—	—
100	IR 10011030	—	100	110	30	1.1	106.5	108	380	—	—	—	—	NK 110/30	—
	IR 10011040	—	100 <sup>0</sup>	110	40	1.1	106.5	108	500	—	—	—	—	NK 110/40	—
	IR 10011540	—	100 <sup>-0.020</sup>	115	40	1.1	106.5	113	700	RNA 4920	—	—	—	—	—



# INNER RINGS



IR



IRZ

## IR,IRZ TYPE

Shaft Diameter (mm)	Designation		Dimensions (mm)					Standard mounting dimensions (mm)		Mass (g approx)	Usable bearing designation					
	IR	IRZ	d	F	B	r/s min	da		RNA 49		RNA 59	RNA 69	RNA 48	NK	RNAF	
							MIN	MAX								
110	IR 11012030	—	110 <sup>0</sup>	120	30	1.0	115	118	410	—	—	—	RNA 4822	—	—	
	IR 11012540	—	110 <sup>-0.020</sup>	125	40	1.1	116.5	123	840	RNA 4922	—	—	—	—	—	
120	IR 12013030	—	120 <sup>0</sup>	130	30	1.0	125	128	450	—	—	—	RNA 4824	—	—	
	IR 12013545	—	120 <sup>-0.020</sup>	135	45	1.1	126.5	133	1 030	RNA 4924	—	—	—	—	—	
130	IR 13014535	—	130 <sup>0</sup>	145	35	1.1	136.5	143	860	—	—	—	RNA 4826	—	—	
	IR 13015050	—	130 <sup>-0.025</sup>	150	50	1.5	138	148	1 670	RNA 4926	—	—	—	—	—	
140	IR 14015535	—	140 <sup>0</sup>	155	35	1.1	146.5	153	930	—	—	—	RNA 4828	—	—	
	IR 14016050	—	140 <sup>-0.025</sup>	160	50	1.5	148	158	1 790	RNA 4928	—	—	—	—	—	
150	IR 15016540	—	150 <sup>0</sup> -0.025	165	40	1.1	156.5	163	1 130	—	—	—	RNA 4830	—	—	
160	IR 16017540	—	160 <sup>0</sup> -0.025	175	40	1.1	166.5	173	1 200	—	—	—	RNA 4832	—	—	

# CAM FOLLOWERS



# Cam follower with pre-installed grease nipple

**Newly available versatile cam follower which has conquered disadvantages in traditional products!!**

**CF..AB**  
Standard type

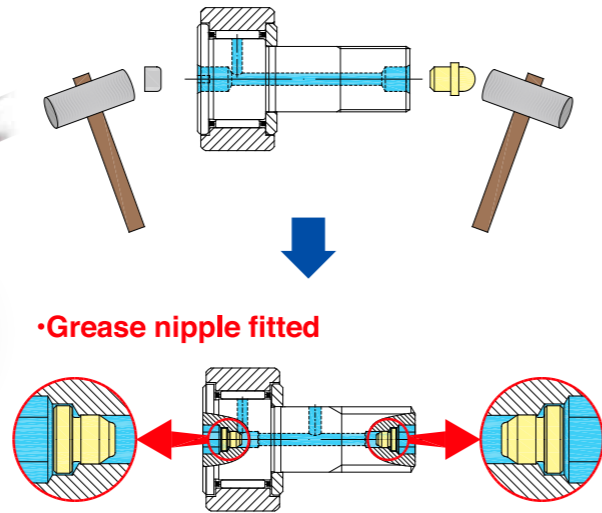
**CF..MAB**  
Stainless type

**CFH..AB**  
Eccentric type

**CFH..MAB**  
Eccentric stainless type

Ready use instantly after unpack the box thanks to pre-installed grease nipple.

•Conventional type: Need to fit a nipple

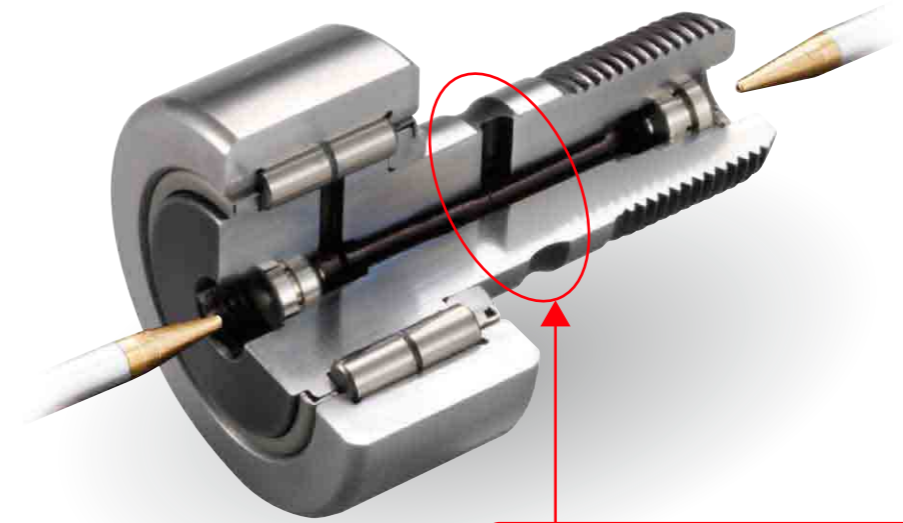


Lubrication available from both stud head side and thread side.No restriction for mounting location.

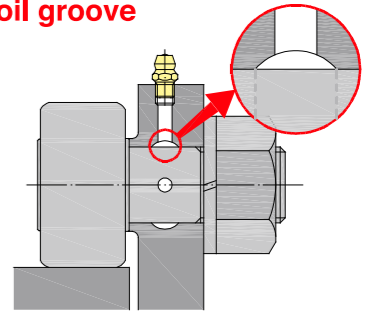
**NUCF..AB**

Double-row cylindrical roller type

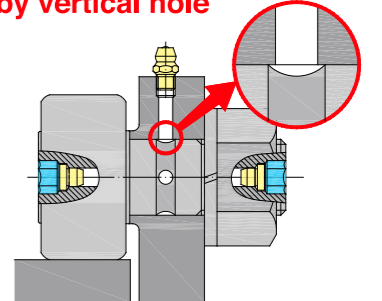
stud diameter  
**16 to 30mm**



•Need to machine an internal oil groove

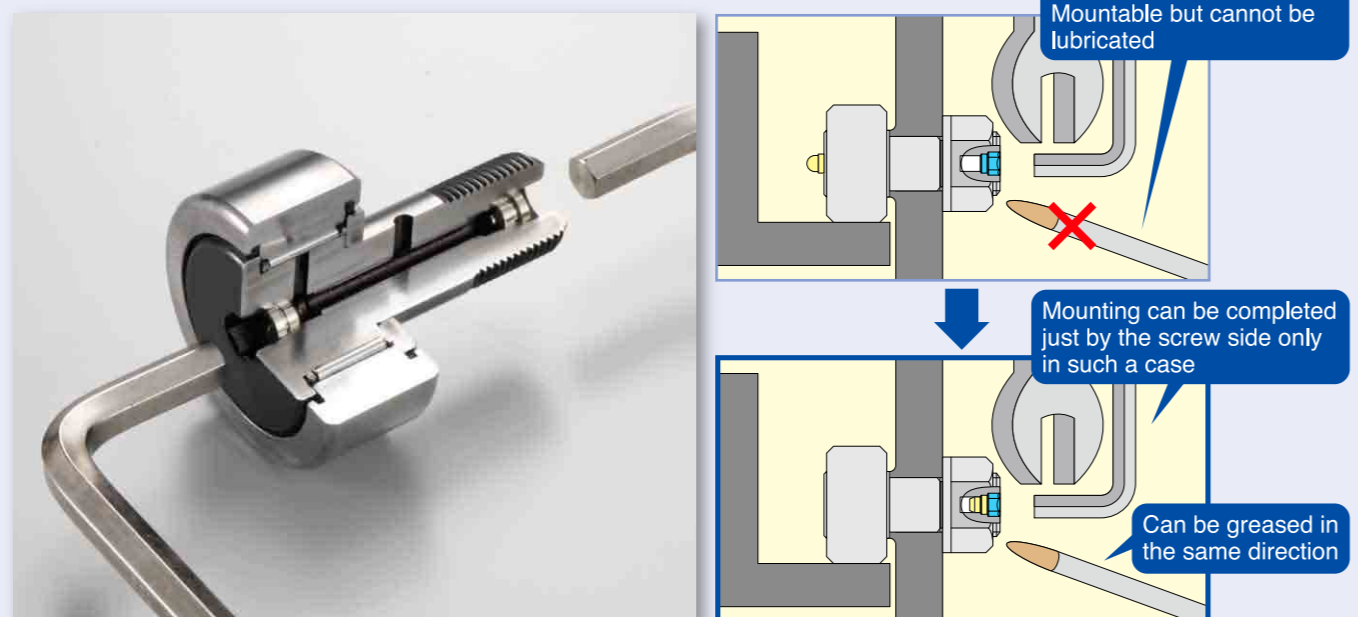


•Lubrication enabled only by vertical hole

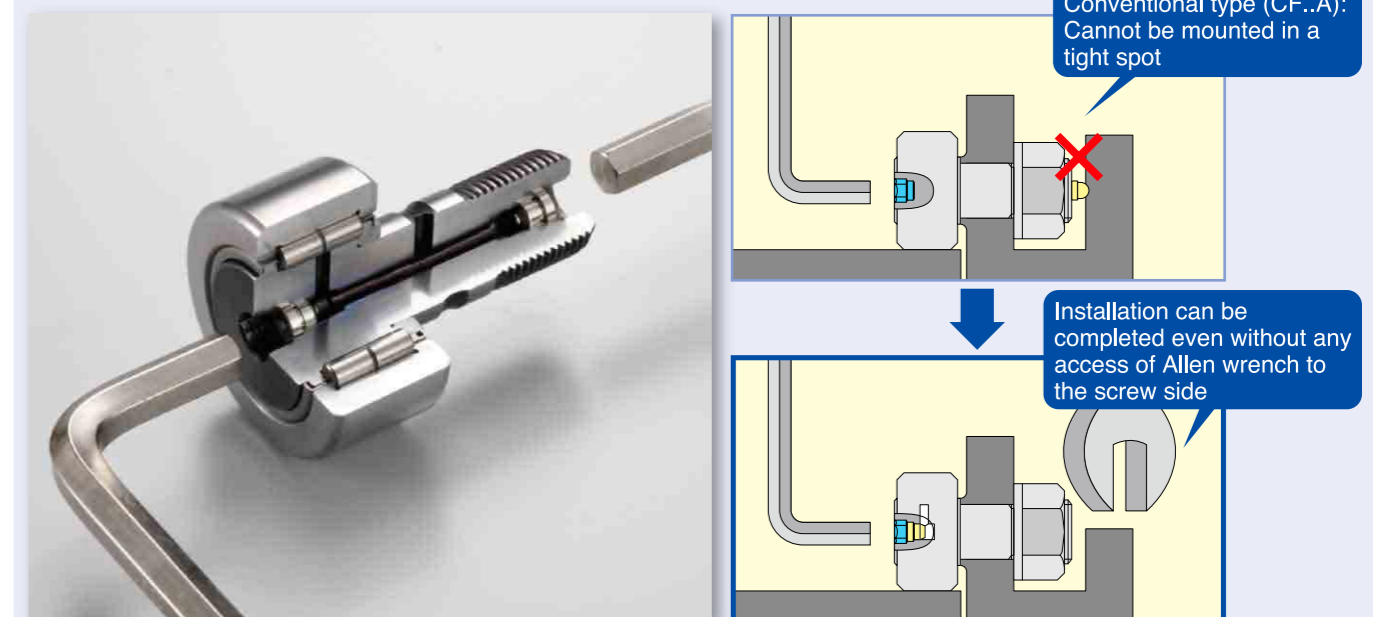


Lubrication area at the side of stud has an oil groove to eliminate bothersome groove machining process in the mounting side(NUCF type).


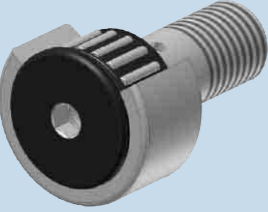
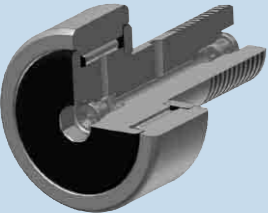
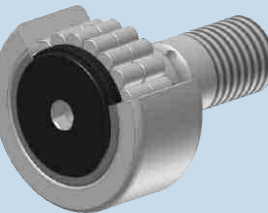
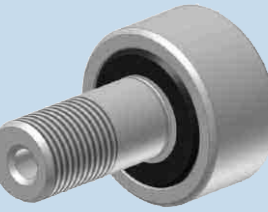
**No restriction for mounting location thanks to hexagon socket shape in stud head and thread side.Easy mounting and removal is available thanks to having hexagon socket shape in both side.**

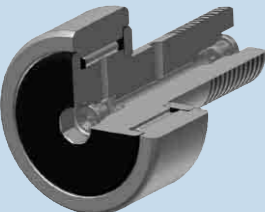
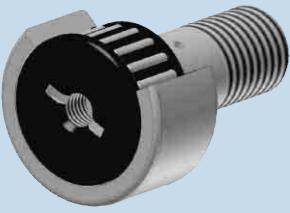
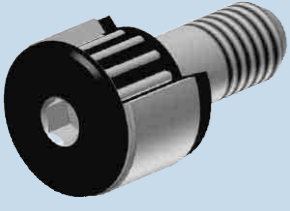
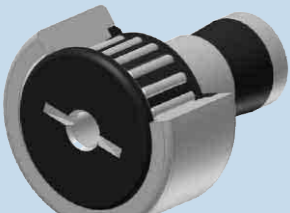
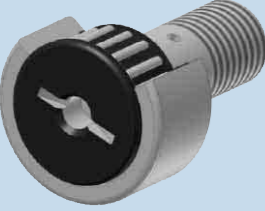


**No restriction for mounting location thanks to hexagon socket shape in stud head and thread side.Easy mounting and removal is available thanks to having hexagon socket shape in both side.**



## Type and Part Code

Type	Applicable axis diameter	Feature	Part Code
 <p>CF</p>	φ 5 ~ φ 30	General purpose cam follower with screwdriver groove on the stud head. Available with stainless steel type (code M) for higher durability.	<p><b>V</b>: Full complement <b>None</b>: With cage</p> <p><b>UU</b>: With seal <b>None</b>: With shield</p> <p><b>CF</b> <b>16</b> <b>V</b> <b>M</b> <b>UU</b> <b>R</b> <b>N</b></p> <p>Type <b>M</b>: Stainless steel <b>None</b>: High carbon steel</p> <p><b>R</b>: Crowned outer ring <b>None</b>: Cylindrical outer ring</p> <p>Option <b>N</b>: (Dedicated grease nipple)</p>
 <p>CF-A Hexagon hole</p>	φ 3 ~ φ 30	Hexagon sockets at the head of stud. Easy mounting with hex-wrench. Available with hexagon sockets at thread side model(CF-B). (Applicable for shaft diameter 12 or more) Available with stainless steel type (code M) for higher corrosive resistance.	<p><b>V</b>: Full complement <b>None</b>: With cage</p> <p><b>UU</b>: With seal <b>None</b>: With shield</p> <p><b>CF</b> <b>16</b> <b>V</b> <b>M</b> <b>UU</b> <b>R</b> <b>A</b> <b>N</b></p> <p>Type <b>M</b>: Stainless steel <b>None</b>: High carbon steel</p> <p><b>A</b>: with hexagon socket on the stud head <b>B</b>: with hexagon socket on the thread side (Applicable shaft diameter φ 12 ~ φ 30)</p> <p><b>R</b>: Crowned outer ring <b>None</b>: Cylindrical outer ring</p> <p>Option <b>N</b>: (Dedicated grease nipple)</p>
 <p>CF-AB</p>	φ 10 ~ φ 30	Both of stud head and thread ends have hexagon holes and integrated concave grease nipples. Available for mounting with either hexagon sockets and lubrication from both sides. Available with stainless steel type (code M) for higher corrosive resistance.	<p><b>V</b>: Full complement <b>None</b>: With cage</p> <p><b>UU</b>: With seal <b>None</b>: With shield</p> <p><b>CF</b> <b>16</b> <b>V</b> <b>M</b> <b>UU</b> <b>R</b> <b>AB</b></p> <p>Type <b>M</b>: Stainless steel <b>None</b>: High carbon steel</p> <p><b>AB</b>: with hexagon socket on both sides. (With integrated concave nipple)</p> <p><b>R</b>: Crowned outer ring <b>None</b>: Cylindrical outer ring</p>
 <p>NUCF-AB Double cylindrical roller</p>	φ 16 ~ φ 30	Cam follower which allows high radial loading and moderate axial loading with integrated cylindrical roller in double rows. Integrated concave grease nipples and hexagon sockets in both sides allow mounting and lubrication from either side.	<p><b>NUCF</b> <b>16</b> <b>R</b> <b>AB</b></p> <p>Type</p> <p><b>AB</b>: with hexagon socket on both sides. (With integrated concave nipple)</p> <p><b>R</b>: Crowned outer ring <b>None</b>: Cylindrical outer rings</p>
 <p>CFH-A Hexagon socket, Eccentric</p>	φ 5 ~ φ 30	Available for the same mounting hole as general type. Compact and high accuracy eccentric cam followers with integral structure enables easy fine positioning adjustment simply by rotating stud due to eccentric stud head shifting 0.2 to 1mm from stud mounting axis. Drastic reduction of machining and assembling process is enabled by eliminating positioning against cam groove or high accuracy machining of mounting holes. Available with stainless steel type (code M) for higher corrosive resistance.	<p><b>V</b>: Full complement <b>None</b>: With cage</p> <p><b>UU</b>: With seal <b>None</b>: With shield</p> <p><b>CFH</b> <b>16</b> <b>V</b> <b>M</b> <b>UU</b> <b>R</b> <b>A</b></p> <p>Type <b>M</b>: Stainless steel <b>None</b>: High carbon steel</p> <p><b>A</b>: with hexagon socket on the stud head <b>B</b>: with hexagon socket on the thread side (Applicable shaft diameter φ 12 ~ φ 30)</p> <p><b>R</b>: Crowned outer ring <b>None</b>: Cylindrical outer ring</p> <p><b>None</b>: Standard typed</p>

Type	Applicable axis diameter	Feature	Part Code
 <p>CFH-AB</p>	φ 12 ~ φ 30	Eccentric cam follower with integrated concave grease nipples on both sides. Available for mounting and lubrication with hexagon holes on both sides. Available with stainless steel type (code M) for higher corrosive resistance.	<p><b>V</b>: Full complement <b>None</b>: With cage</p> <p><b>UU</b>: With seal <b>None</b>: With shield</p> <p><b>R</b>: Crowned outer ring <b>None</b>: Cylindrical outer ring</p> <p><b>AB</b>: with hexagon socket on both sides (Applicable shaft diameter φ 12~ φ 30) (With integrated concave nipple)</p> <p><b>M</b>: Stainless steel <b>None</b>: High carbon steel</p> <p>Part Code: <b>CFH 16 V M UU R AB</b></p>
 <p>CFT Lubrication tap hole</p>	φ 6 ~ φ 30	Cam follower with tap for piping at stud head and thread of general type. Optimal for location that requires concentrated lubrication piping. Available with stainless steel type (code M) for higher corrosive resistance.	<p><b>V</b>: Full complement <b>None</b>: With cage</p> <p><b>UU</b>: With seal <b>None</b>: With shield</p> <p><b>R</b>: Crowned outer ring <b>None</b>: Cylindrical outer ring</p> <p><b>A</b>: with hexagon socket on the stud head (Applicable shaft diameter φ 12 ~ φ 30) <b>B</b>: with hexagon socket on the thread side (Applicable shaft diameter φ 12 ~ φ 30) <b>None</b>: Standard typed</p> <p><b>M</b>: Stainless steel <b>None</b>: High carbon steel</p> <p><b>CFT</b>: Standard typed <b>CFHT</b>: Eccentric type</p> <p>Part Code: <b>CFT 16 V M UU R A</b></p>
 <p>CFS Compact outer ring</p>	φ 2.5 ~ φ 6	Built-in very thin needle roller. Enables compact design due to very small outer ring diameter in comparison to stud diameter. Available with stainless steel type (code M) for higher corrosive resistance.	<p><b>V</b>: Full complement <b>None</b>: With cage</p> <p><b>A</b>: with hexagon socket on the stud head</p> <p><b>M</b>: Stainless steel <b>None</b>: High carbon steel</p> <p>Part Code: <b>CFS 6 V M A</b></p>
 <p>CF-SFU Easy mounting</p>	φ 6 ~ φ 20	A type with step on stud to allow easy mounting. Optimal for devices with limited space for stud tightening. Available with seal only.	<p><b>V</b>: Full complement <b>None</b>: With cage</p> <p><b>R</b>: Crowned outer ring <b>None</b>: Cylindrical outer ring</p> <p>Part Code: <b>CF-SFU 16 V R</b></p>
 <p>CR Inch type</p>	φ 4.826 ~ φ 22.225	Cam followers in inch dimension.	<p><b>R</b>: Crowned outer ring <b>None</b>: Cylindrical outer ring</p> <p><b>UU</b>: With seal <b>None</b>: With shield</p> <p>Part Code: <b>CR 16 UU R</b></p>

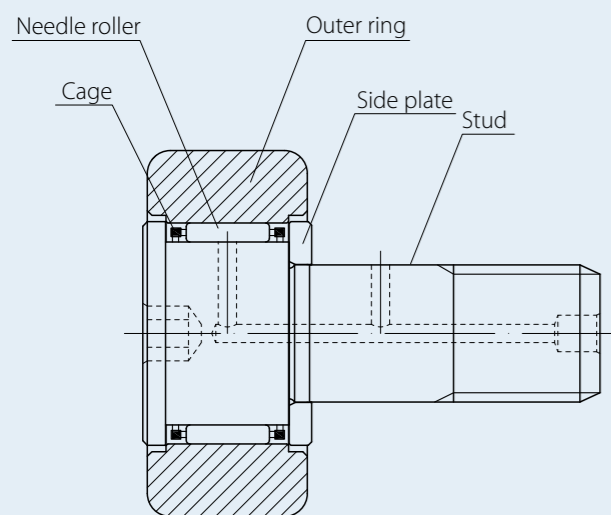
## Structure and Features

Cam followers are compact and high rigid bearings with stud. It has a structure that an outer ring with built-in "roller" rolls over a track (raceway) and is utilized as guide roller for cam mechanism or linier motion. The cam follower is designed with a thick-walled outer ring in order to provide high rigidity to endure heavy load or impact load at contact portion with the track.

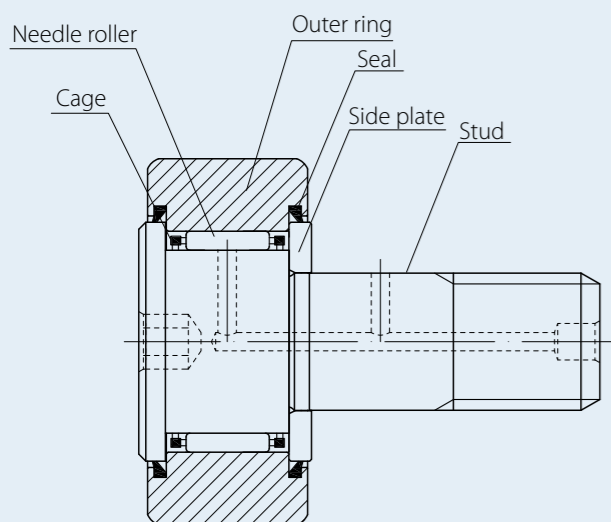
Outer rings have two shapes – crowned outer ring and cylindrical outer ring. The cylindrical outer ring is effective for heavy duty applications since it contacts with large contact area of the associated objects so that can mitigate the contact surface pressure. The crowned outer ring is suited for absorbing eccentric load since it absorbs angular misalignment due to a mount error. They have two internal structures – one with cage and one with full complement. Caged type cam followers are suited for high speed application, since the guiding feature of cage enables the rotation of "rollers" to be stable. Compared with caged type cam followers, full complement type is effective for applications with low-speed operation of heavy load due to its larger load rating. Full complement type also includes double-row cylindrical roller type which allows moderate axial loading.

Cam followers shall be fixed by tightening hexagon nut at stud thread by holding the stud with screw driver or hex-wrench.

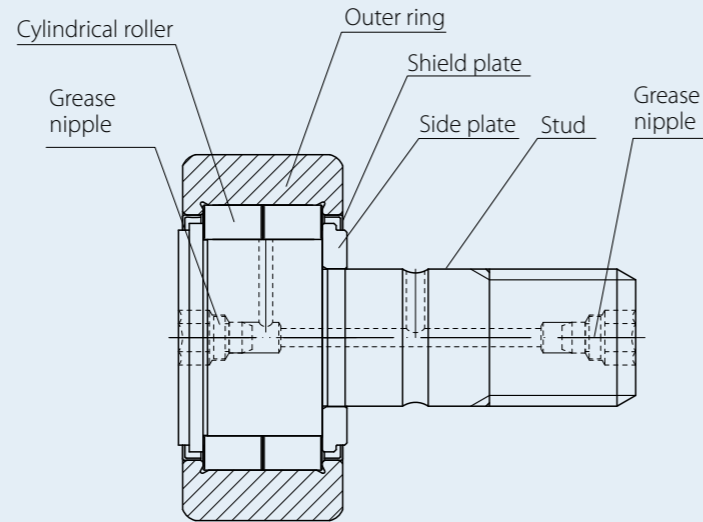
Cam followers with eccentric axis on the stud thread have an advantage to adjust the variation of mounting position within its eccentric range, without requesting high machining accuracy of mounting hole position.



CF-Structure of type A



CF-UU Structure of type A



NUCF-Structure of type AB

## Accuracy standard

Accuracy of cam follower is indicated in Table-1 and Table-2 below.

Unit:  $\mu\text{m}$

Name	Category	Cam follower series in metric (CF--, NUCF--)		Compact type (CFS--)	Cam follower series in inch (CR--)	
		Crowned outer ring	Cylindrical outer ring	Cylindrical outer ring	Crowned outer ring	Cylindrical outer ring
Dimension tolerance of outer ring outer diameter (D)		0 -50	Refer to Table-2	Refer to Table-2	0 -50	0 -25
Dimension tolerance of stud diameter (d)		h7		h6	+25 0	
Dimension tolerance of outer ring width (C)		0 -120		0 -120	0 -130	

Unit:  $\mu\text{m}$

Nominal outer ring outer diameter D (mm)		Dimension tolerance of mean outside diameter in a single plane $\Delta_{Dmp}$		Radial runout of outer ring $K_{ea}$
Over	Incl.	high	low	max.
6 (5 or more)	18	0	-8	15
18	30	0	-9	15
30	50	0	-11	20
50	80	0	-13	25
80	120	0	-15	35

## Radial internal clearance

Table below indicates radial internal clearance of cam follower.

Table-3 Radial internal clearance

Unit:  $\mu\text{m}$

Part code				Radial internal clearance	
Cam follower series in metric (CF)	Compact type (CFS)	Double-row cylindrical roller cam follower (NUCF)	Inch type series (CR)	min.	max.
CF3 ~ 5	CFS2.5 ~ 5		CR8 ~ 8-1	3	17
CF6 ~ 8	CFS6		CR10 ~ 10-2	5	20
CF10 ~ 12-1			CR12 ~ 22	5	25
CF16 ~ 20-1			CR24 ~ 26	10	30
CF24 ~ 30-2				10	40
		NUCF16 ~ 24		0	25
		NUCF24-1 ~ 30-2		5	30

## Fits

Cam followers require machining of mounting hole to eliminate play at fitting portion especially for the portion which is subjected to impact shock due to its application in cantilevered mounting. Table-4 indicates recommended fits between cam follower and its mounting hole.

Table-4 Dimension tolerance of stud mounting hole

Part code	Dimension tolerance of stud mounting hole
Cam follower series in metric (CF)	H7
Compact type (CFS)	H6
Double-row cylindrical roller cam follower (NUCF)	H7
Cam follower series in inch (CR)	F7

## Maximum permissible load

Permissible load of cam follower is subjected to change in accordance with bending strength and shear strength of its stud in addition to standard rating load of needle bearing due to its design with stud. This load is indicated as maximum permissible load.

## Track load capacity

Track load capacity means a permissible load under which the outer ring of cam follower and the mating surface are allowable to be used over a long period without causing any deformation nor compression mark. Track load capacity depicted in dimension table indicates a value for which hardness of steel mating material is assumed to be HRC40. In the case that the hardness of mating material is not HRC40, track load capacity in the dimension table shall be multiplied by value of track load factor obtained by Figure-1.

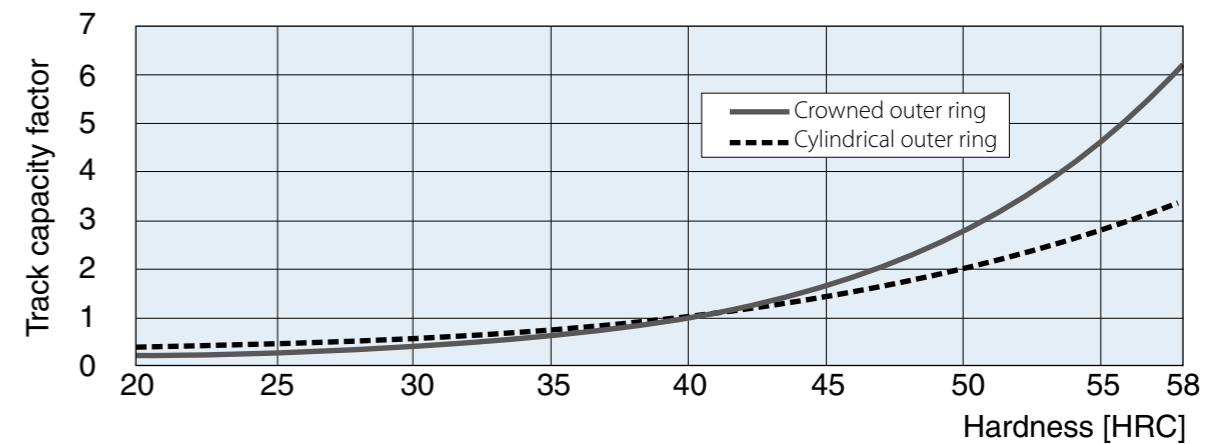


Figure-1 Track capacity factor

## Lubrication

All the JNS cam followers are lubricated with pre-packed high quality lithium soap-based grease grade 2 (RoHS compliant) so that they are ready to use. For applications requiring high prevention measure against invasion of foreign matter or leakage of lubricant, products with seal(part code--UU) which integrate special synthetic lubber with high abrasion resistance are also available.

Grease shall be packed up to volume approximately one-third to one-half of internal space of bearing. Lubrication interval varies depending on operation condition. Referential interval may be every six to twenty four months for cam followers with cages and every one to six months for full complement type with grease in the same type.

Some excessive grease may leak at the beginning of usage or immediately after re-greasing even for the products with seal. Aging operation period is recommended prior to application in which no contamination by grease is allowed in and around device. Wipe and clean any leaked extra grease after this operation.

Dedicated grease nipple shall be knocked in onto cam follower by pressing flange portion of the nipple using fixture shown in Figure-2.

## Accessories

Accessories for cam follower of standard specification are shown in Table-5. Dedicated grease nipple is available upon customer request by ordering products with suffix "N" added to part code.

Also, type CF-AB and type NUCF-AB have integrated dedicated concave grease nipples installed at both sides.

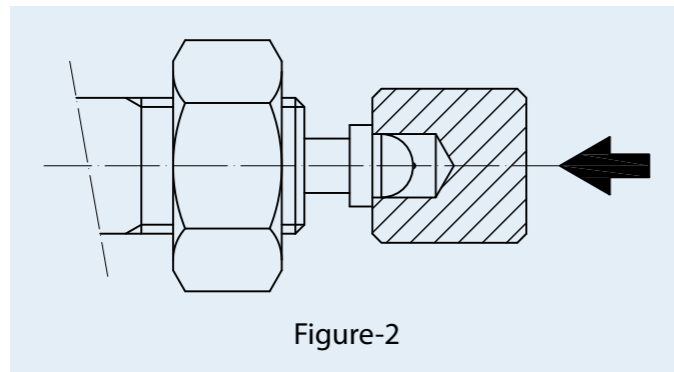





Figure-2

Example) CF 12 UUR-N  
└─ Dedicated grease nipple

Table-5 Accessories

Part code		 Stop plug <sup>*1)</sup>	 Resin plug <sup>*2)</sup>	 Hexagon nuts style 2	Grease
CF CFH CR	Without seal	Attached	Attached	Attached	Packed
	With seal	Attached	Attached	Attached	Packed
CFT	Without seal	—	—	Attached	Packed
	With seal	—	—	Attached	Packed
CFS		—	—	Attached	Packed
CF-SFU		Attached	Attached	—	Packed
NUCF		—	—	Attached	Packed

\*1) Stop plug is used for plugging unused lubrication hole(s).

\*2) Resin plug is used for preventing leakage of grease.

## DIMENSIONS OF GREASE NIPPLES

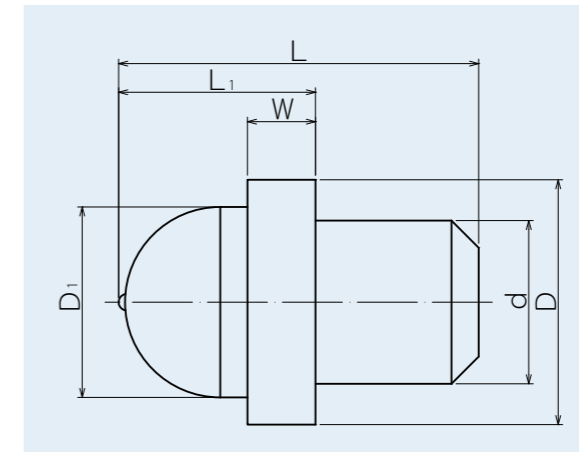


Table-6

Applicable part code	Nipple dimension					
	d	D	D <sub>1</sub>	L	L <sub>1</sub>	W
CF, CFH						
CF5	3.2	7.5	6	9	5.5	1.5
CF6 ~ CF10-1	4	7.5	6	10	5.5	1.5
CF12 ~ CF18	6	8	6	11	6	2
CF20 ~ CF30-2	8	10	6	16	7	3

## Dimensions of supply nozzle for CF..AB type

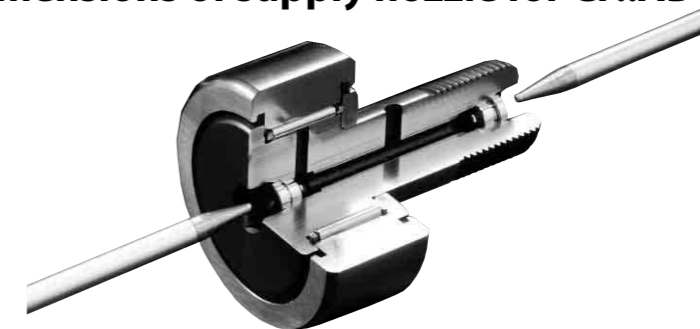
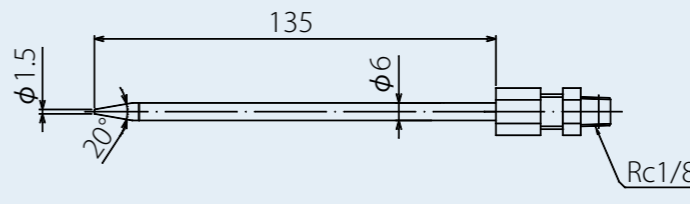
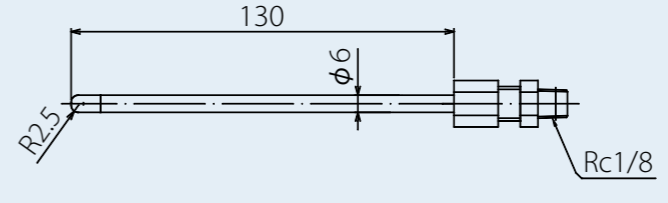


Table-7 Dimension of recommended lubrication nozzle (for CF..AB, NUCF..AB)

Type	Dimension and shape	Applied model number	
NPAB-1		CF10ABK(M10 × 1)	NUCF16AB
		CF10-1ABK(M10 × 1)	NUCF18AB
		CF12AB	
		CF12-1AB	
		CF16AB	
		CF18AB	
NPAB-2		CF20AB	NUCF20AB
		CF20-1AB	NUCF20-1AB
		CF24AB	NUCF24AB
		CF24-1AB	NUCF24-1AB
		CF30AB	NUCF30AB
		CF30-1AB	NUCF30-2AB
	CF30-2AB		

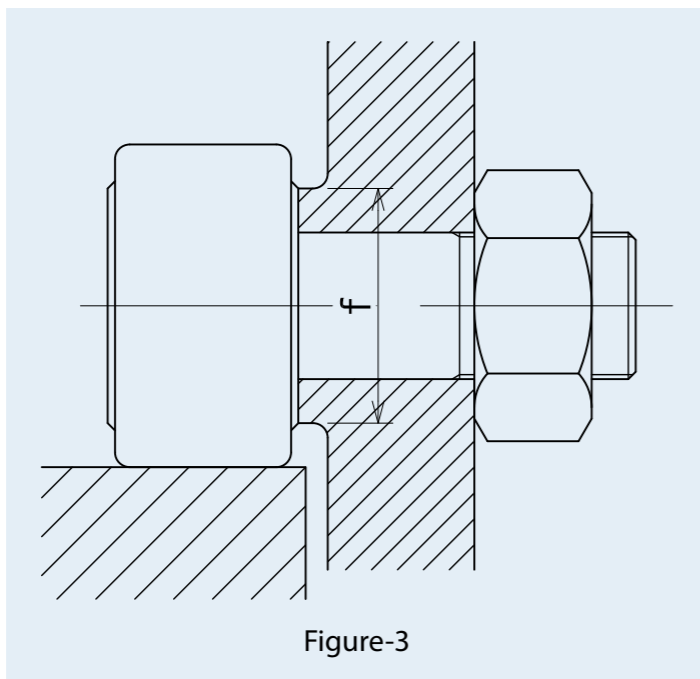


## Mounting

### Mounting part

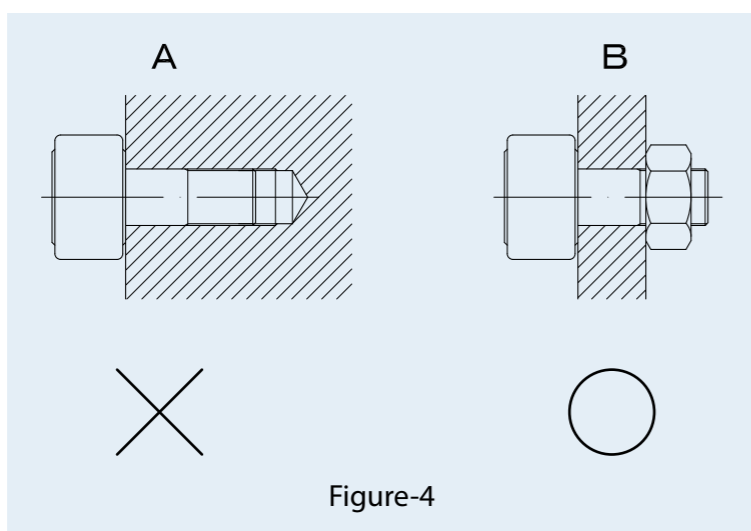
Hole for stud shall be perpendicular to mounting surface so as to ensure even contact between outer ring and rolling surface of mating material. Corner chamfer of hole shall be as small as around C0.5. Counter bore diameter shall be dimension  $f$  or more as described in the dimension table.

Type CF-R with crowned outer ring is recommended in the case of application with insufficient contact between outer ring and rolling surface of mating material.

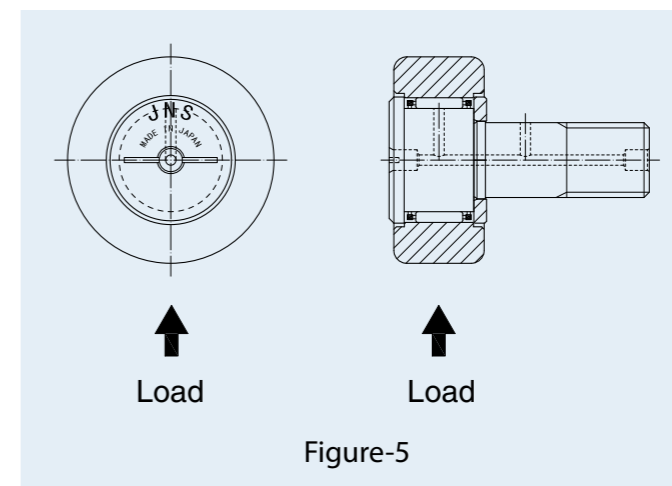


### Mounting method

- Cam follower shall be mounted so as not to incline against direction of the motion.
- Mounting method to tighten cam follower directly to bracket by adding female thread to it without using nut as depicted in Figure-4 (A) is NOT recommended. This method may cause damage on stud due to concentration of bending stress in male thread portion in the event of loosening since it is difficult to tighten the stud sufficiently.



- For application with heavy load, lubrication hole of stud shall be located outside of loading range (on the side to receive load). Location of the lubrication hole is indicated by "JNS" marking on the side of stud flange. (Refer to Figure-5)  
Hole at the center of stud is used as stopper for tightening or lubricant supply hole for grease lubrication.



### Precaution for using spring washer

It is important to ensure that spring washer used for mounting cam follower has no burr or sharp edge. Debris scraped from nut or mounting bracket by burr or sharp edge of washer during tightening can invade stud thread and can cause insufficient tightness or damage to thread.

### Tightening torque of stud

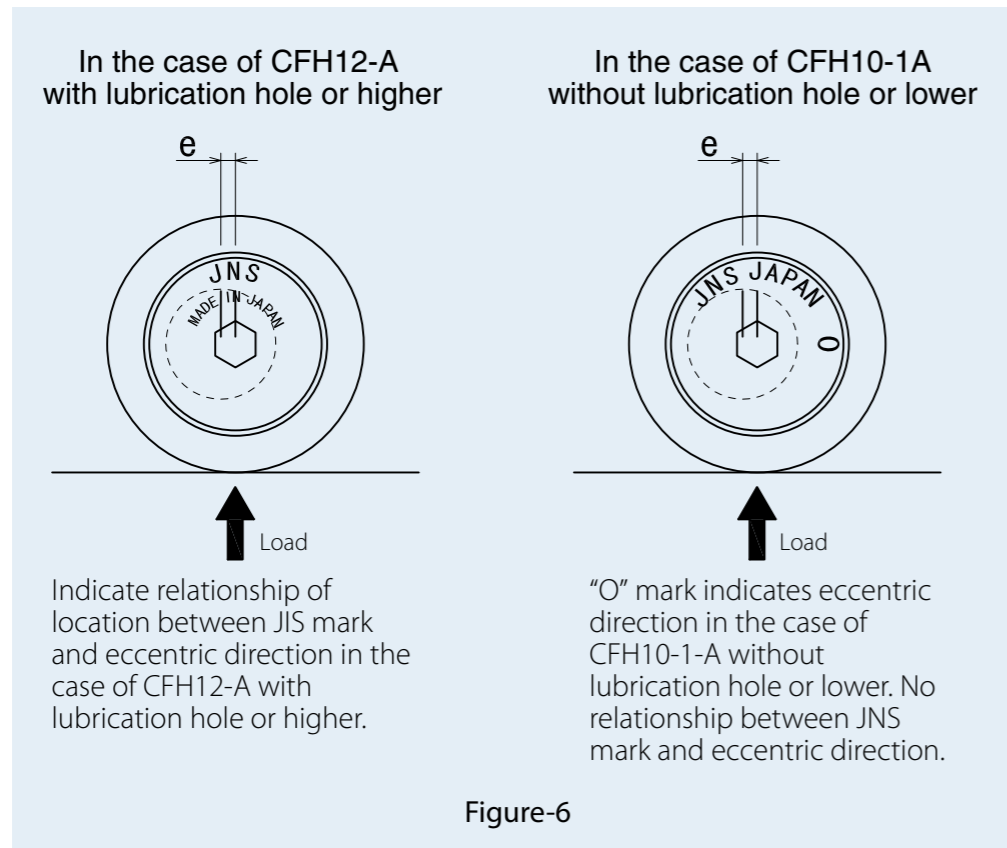
Stud of cam follower is subjected to bending stress or tensile stress by bearing load. Tightening torque shall be set not to exceed the value in the dimension table.

Using double spring washers, double thin nut of JIS B 1181 or special nut with locking feature is recommended in the case of possible loosening of mounting screw due to vibration or impact shock.

## Mounting of eccentric cam follower

Adjustment of eccentric shall be performed in accordance with the following procedure.

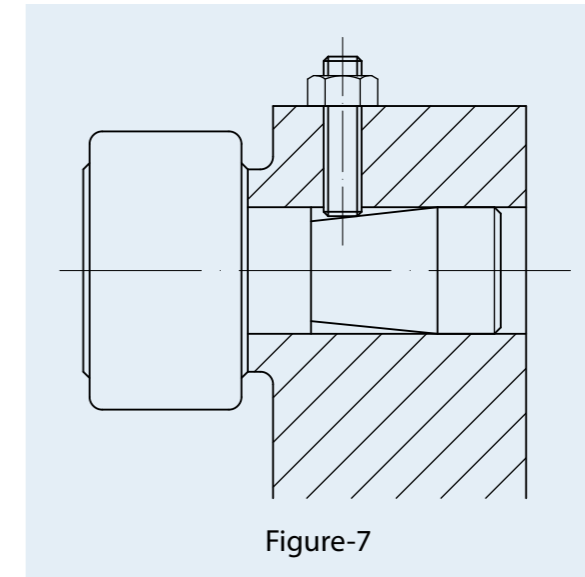
- (1) Insert stud to mounting hole and tighten nut as the stud can turn loosely. Marking of stud shall face location indicated in Figure-6 in relation to direction of load.
- (2) Gap between cam follower and mating contact surface may be adjusted by turning stud using hexagon hole on the stud head.
- (3) After completing adjustment, tighten nut with holding rotation of stud. Make it sure not to exceed maximum tightening torque of the nut.



## Mounting of CF-SFU type

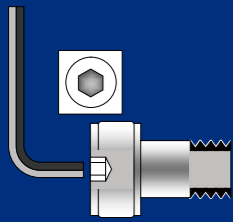
Refer to Figure-7 for mounting method of easy mounting of CF-SFU type.

Type CF-SFU is NOT recommended for application in the part subjected to vibration or shock impact as much as its mounting is simple. Standard cam followers with nut are recommended for application with possible vibration or shock impact.



# CAM FOLLOWERS

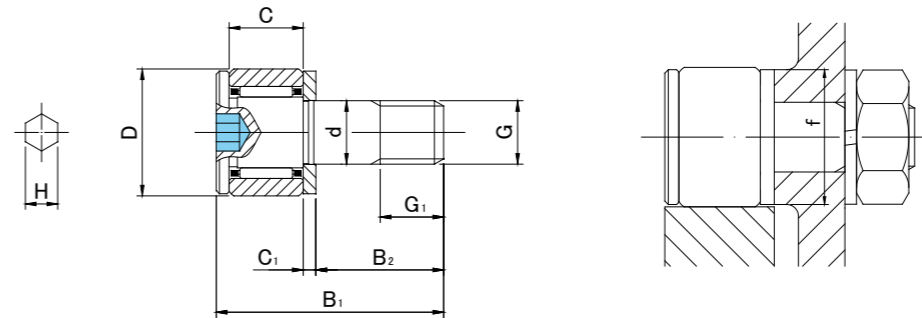
MINIATURE TYPE  
HEXAGON SOCKET ON STUD HEAD



CFS..A



CFS..VA



## CFS..A TYPE

Prepacked Grease

Stud diameter (mm)	Designation	Dimensions (mm)											Basic dynamic load rating	Basic static load rating	Largest permissible load	Max tightening torque	Mass
		Cylindrical outer ring		D	C	d	G	G1	B1	B2	C1	H					
h6 tolerance	With cage	Full roller															
2.5	CFS 2.5A	—	5	3	2.5	M2.5×0.45	2.5	9.5	5	0.7	0.9	4.8	410	335	260	0.2	1
	0 -0.006	—											CFS 2.5VA	1 000	1 080		
3	CFS 3A	—	6	4	3	M3×0.5	3	11.5	6	0.7	1.5	5.8	630	610	360	0.3	2
	0 -0.006	—											CFS 3VA	1 370	1 770		
4	CFS 4A	—	8	5	4	M4×0.7	4	15	8	1	2	7.7	1 080	1 080	780	0.6	4
	0 -0.008	—											CFS 4VA	2 350	3 040		
5	CFS 5A	—	10	6	5	M5×0.8	5	18	10	1	2.5	9.6	1 570	1 860	1 420	1.3	7
	0 -0.008	—											CFS 5VA	3 140	4 710		
6	CFS 6A	—	12	7	6	M6×1	6	21.5	12	1.2	3	11.6	2 060	2 160	2 110	2.3	13
	0 -0.008	—											CFS 6VA	4 610	6 270		

OUTER RINGS TOLERANCE (μm)

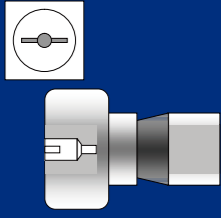
TYPE	Cylindrical outer ring
CFS2.5,CFS3,CFS4,CFS5,CFS6	0/-8

ACCESSORIES

TYPE	
All types	NUT Attached

# CAM FOLLOWERS

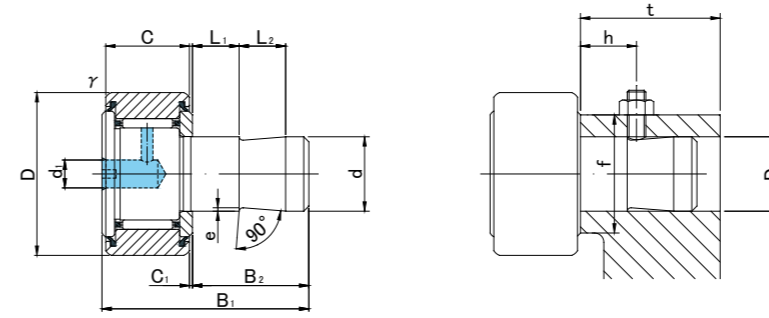
## EASY MOUNTING TYPE SCREWDRIVER SLOT HEAD



CF-SFU



CF-SFU.V



### CF-SFU TYPE

Prepacked Grease

Stud diameter (mm)	Designation R500(CF6~CF18) R1000(CF20≤)	Dimensions (mm)													Mounting dimensions (mm)			Basic dynamic load rating	Basic static load rating	Largest permissible load	Track load capacity		Mass
		Cylindrical outer ring	Crowned outer ring	D	C	d	B1	B2	C1	L1	L2	d1	e	r <sub>s</sub> min	D1 Tolerance	t Min	f Min				h (Ref)	Cr N	
6	CF-SFU-6	CF-SFU-6R	16	11	6	32	20	0.6	5	10	4	0.3	0.3	6 <sup>0</sup> / <sub>+0.012</sub>	20	11	10	3 630	3 630	2 110	3 430	1 080	19
	CF-SFU-6V	CF-SFU-6VR																			3 430	1 080	
8	CF-SFU-8	CF-SFU-8R	19	11	8	32	20	0.6	5	10	4	0.5	0.3	8 <sup>0</sup> / <sub>+0.015</sub>	20	13	10	4 310	4 710	4 710	4 020	1 370	28.5
	CF-SFU-8V	CF-SFU-8VR																			4 020	1 370	
10	CF-SFU-10	CF-SFU-10R	22	12	10	33	20	0.6	5	10	4	0.5	0.3	10 <sup>0</sup> / <sub>+0.015</sub>	20	15	10	5 390	6 860	6 860	4 700	1 670	43
	CF-SFU-10V	CF-SFU-10VR																			4 700	1 670	
10	CF-SFU-10-1	CF-SFU-10-1R	26	12	10	33	20	0.6	5	10	4	0.5	0.3	10 <sup>0</sup> / <sub>+0.015</sub>	20	15	10	5 390	6 860	6 860	5 490	2 060	58.5
	CF-SFU-10-1V	CF-SFU-10-1VR																			5 490	2 060	
12	CF-SFU-12	CF-SFU-12R	30	14	12	35	20	0.6	5	10	6	1	0.6	12 <sup>0</sup> / <sub>+0.018</sub>	20	20	10	7 940	9 800	9 800	7 060	2 450	93
	CF-SFU-12V	CF-SFU-12VR																			7 060	2 450	
12	CF-SFU-12-1	CF-SFU-12-1R	32	14	12	35	20	0.6	5	10	6	1	0.6	12 <sup>0</sup> / <sub>+0.018</sub>	20	20	10	7 940	9 800	9 800	7 450	2 740	103
	CF-SFU-12-1V	CF-SFU-12-1VR																			7 450	2 740	
16	CF-SFU-16	CF-SFU-16R	35	18	16	44.5	25	0.8	10	10	6	1	0.6	16 <sup>0</sup> / <sub>+0.018</sub>	25	24	15	12 050	18 330	18 330	11 200	3 140	164
	CF-SFU-16V	CF-SFU-16VR																			11 200	3 140	
18	CF-SFU-18	CF-SFU-18R	40	20	18	46.5	25	0.8	10	10	6	1	1	18 <sup>0</sup> / <sub>+0.018</sub>	25	26	15	14 700	25 200	25 200	14 400	3 720	235
	CF-SFU-18V	CF-SFU-18VR																			14 400	3 720	
20	CF-SFU-20	CF-SFU-20R	52	24	20	50.5	25	0.8	10	10	8	1	1	20 <sup>0</sup> / <sub>+0.021</sub>	25	36	15	20 680	34 600	32 140	23 200	8 230	436
	CF-SFU-20V	CF-SFU-20VR																			23 200	8 230	
20	CF-SFU-20-1	CF-SFU-20-1R	47	24	20	50.5	25	0.8	10	10	8	1	1	20 <sup>0</sup> / <sub>+0.021</sub>	25	36	15	20 680	34 600	32 140	21 000	7 150	361
	CF-SFU-20-1V	CF-SFU-20-1VR																			21 000	7 150	

#### OUTER RINGS TOLERANCE (μm)

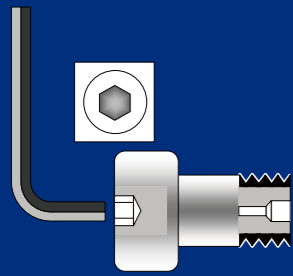
TYPE	Cylindrical outer ring	Crowned outer ring
CF6	0/-8	0/-50
CF8,CF10,CF10-1,CF12	0/-9	0/-50
CF12-1,CF16,CF18,CF20-1	0/-11	0/-50
CF20	0/-13	0/-50

#### ACCESSORIES

TYPE	STOP PLUG	RESIN PLUG
CF6/CF8/CF10/CF10-1	—	φ 4 Attached
CF12/CF12-1/CF16/CF18	φ 6 Attached	φ 6 Attached
CF20/CF20-1	φ 8 Attached	φ 8 Attached

# CAM FOLLOWERS

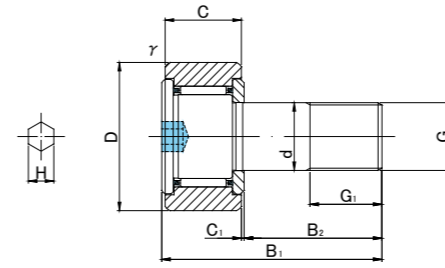
## HEXAGON SOCKET ON STUD HEAD



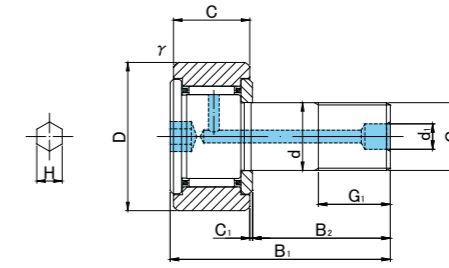
CF..A



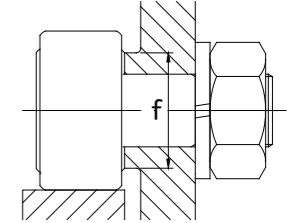
CF.VA



CF3(V)A~CF10-1(V)A



CF10(V)AK~CF10-1(V)AK



### CF..A TYPE

Prepacked Grease

Stud diameter (mm)	h7 tolerance	Designation				Dimensions (mm)														Basic dynamic load rating Cr N	Basic static load rating Cor N	Largest permissible load N	Limiting speed * rpm	Track load capacity		Max tightening torque N·m	Mass g (approx)
		Cylindrical outer ring		Crowned outer ring R250(≤CF5) R500(CF6~CF10)		D	C	d	G	G1	B1	B2	B3	C1	d1	d2	H	r <sub>s</sub> min	f min					Cylindrical outer ring N	Crowned outer ring N		
		Without seals	With seals	Without seals	With seals																						
3	0 -0.010	CF 3A	CF 3UUA	CF 3RA	CF 3UURA	10	7	3	M3×0.5	5	17	9	—	0.5	—	—	2	0.2	6.8	1 470	1 180	360	47 000	1 370	540	0.4	4.5
		CF 3VA	CF 3VUUA	CF 3VRA	CF 3VUURA															2 800	2 500	360	18 800				
4	0 -0.012	CF 4A	CF 4UUA	CF 4RA	CF 4UURA	12	8	4	M4×0.7	6	20	11	—	0.5	—	—	2.5	0.3	8.6	2 060	2 050	780	37 000	1 760	690	1	7.5
		CF 4VA	CF 4VUUA	CF 4VRA	CF 4VUURA															4 000	4 300	780	14 800				
5	0 -0.012	CF 5A	CF 5UUA	CF 5RA	CF 5UURA	13	9	5	M5×0.8	7.5	23	13	—	0.5	—	—	3	0.3	9.7	3 140	2 770	1 420	29 000	2 250	780	2	10.5
		CF 5VA	CF 5VUUA	CF 5VRA	CF 5VUURA															5 100	5 500	1 420	11 600				
6	0 -0.012	CF 6A	CF 6UUA	CF 6RA	CF 6UURA	16	11	6	M6×1	8	28	16	—	0.6	—	—	3	0.3	11	3 630	3 630	2 110	25 000	3 430	1 080	3	18.5
		CF 6VA	CF 6VUUA	CF 6VRA	CF 6VUURA															6 960	8 530	2 110	12 000				
8	0 -0.015	CF 8A	CF 8UUA	CF 8RA	CF 8UURA	19	11	8	M8×1.25	10	32	20	—	0.6	—	—	4	0.3	13	4 310	4 710	4 710	20 000	4 020	1 370	8	28.5
		CF 8VA	CF 8VUUA	CF 8VRA	CF 8VUURA															8 130	11 170	4 710	9 000				
10	0 -0.015	CF10A	CF10UUA	CF10RA	CF10UURA	22	12	10	M10×1.25	12	36	23	—	0.6	—	—	5	0.3	15	5 390	6 860	6 860	17 000	4 700	1 670	15	45
		CF10VA	CF10VUUA	CF10VRA	CF10VUURA															9 510	14 500	7 450	7 500				
10	0 -0.015	CF10-1A	CF10-1UUA	CF10-1RA	CF10-1UURA	26	12	10	M10×1.25	12	36	23	—	0.6	—	—	5	0.3	15	5 390	6 860	6 860	17 000	5 490	2 060	15	60
		CF10-1VA	CF10-1VUUA	CF10-1VRA	CF10-1VUURA															9 510	14 500	7 450	7 500				
10	0 -0.015	CF10AK	CF10UAK	CF10RAK	CF10UURAK	22	12	10	M10×1	12	36	23	—	0.6	4	—	5	0.3	15	5 390	6 860	6 860	17 000	4 700	1 670	15	45
		CF10VAK	CF10VUAK	CF10VRAK	CF10VUURAK															9 510	14 500	7 450	7 500				
10	0 -0.015	CF10-1AK	CF10-1UAK	CF10-1RAK	CF10-1UURAK	26	12	10	M10×1	12	36	23	—	0.6	4	—	5	0.3	15	5 390	6 860	6 860	17 000	5 490	2 060	15	60
		CF10-1VAK	CF10-1VUAK	CF10-1VRAK	CF10-1VUURAK															9 510	14 500	7 450	7 500				

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

#### OUTER RINGS TOLERANCE (μm)

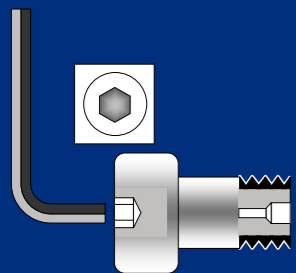
TYPE	Cylindrical outer ring	Crowned outer ring
CF3,CF4,CF5,CF6	0/-8	0/-50
CF8,CF10,CF10-1,CF12	0/-9	0/-50
CF12-1,CF16,CF18,CF20-1	0/-11	0/-50
CF20,CF24,CF24-1,CF30	0/-13	0/-50
CF30-1,CF30-2	0/-15	0/-50

#### ACCESSORIES

TYPE	STOP PLUG	RESIN PLUG	NUT
CF3/CF4/CF5/CF6/CF8/CF10/CF10-1	—	—	Attached
CF10K/CF10-1K	φ 4 Attached	φ 4 Attached	Attached
CF12/CF12-1/CF16/CF18	φ 6 Attached	φ 6 Attached	Attached
CF20/CF20-1/CF24/CF24-1/CF30/CF30-1/CF30-2	φ 8 Attached	φ 8 Attached	Attached

# CAM FOLLOWERS

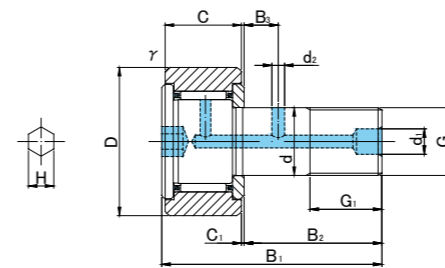
## HEXAGON SOCKET ON STUD HEAD



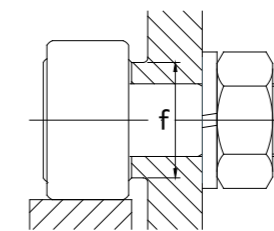
CF..A



CF..VA



CF12(V)A~CF30-2(V)A



### CF..A TYPE

Prepacked Grease

Stud diameter (mm)	Designation	Dimensions (mm)																	Basic dynamic load rating	Basic static load rating	Largest permissible load	Limiting speed *	Track load capacity		Max tightening torque	Mass
		Cylindrical outer ring				Crowned outer ring R500(CF12 ~ CF18) R1000(CF20 ≤)				Other dimensions													Cylindrical outer ring N	Crowned outer ring N		
h7 tolerance	Without seals	With seals	Without seals	With seals	D	C	d	G	G1	B1	B2	B3	C1	d1	d2	H	r <sub>s</sub> min	f min	Cr N	Cor N	N	rpm	Cylindrical outer ring N	Crowned outer ring N	N·m	g (approx)
12	CF12A	CF12UUA	CF12RA	CF12UURA	30	14	12	M12×1.5	13	40	25	6	0.6	6	3	6	0.6	20	7 940	9 800	9 800	14 000	7 060	2 450	22	95
	CF12VA	CF12VUUA	CF12VRA	CF12VUURA															13 430	19 700	11 270	6 000				
12	CF12-1A	CF12-1UUA	CF12-1RA	CF12-1UURA	32	14	12	M12×1.5	13	40	25	6	0.6	6	3	6	0.6	20	7 940	9 800	9 800	14 000	7 450	2 740	22	105
	CF12-1VA	CF12-1VUUA	CF12-1VRA	CF12-1VUURA															13 430	19 700	11 270	6 000				
16	CF16A	CF16UUA	CF16RA	CF16UURA	35	18	16	M16×1.5	17	52	32.5	8	0.8	6	3	6	0.6	24	12 050	18 330	18 330	10 000	11 200	3 140	58	170
	CF16VA	CF16VUUA	CF16VRA	CF16VUURA															20 680	37 630	19 800	4 500				
18	CF18A	CF18UUA	CF18RA	CF18UURA	40	20	18	M18×1.5	19	58	36.5	8	0.8	6	3	6	1	26	14 700	25 200	25 200	8 500	14 400	3 720	87	250
	CF18VA	CF18VUUA	CF18VRA	CF18VUURA															25 280	51 350	26 560	3 500				
20	CF20A	CF20UUA	CF20RA	CF20UURA	52	24	20	M20×1.5	21	66	40.5	9	0.8	8	4	8	1	36	20 680	34 600	32 140	7 000	23 200	8 230	120	460
	CF20VA	CF20VUUA	CF20VRA	CF20VUURA															33 120	64 480	32 140	3 500				
20	CF20-1A	CF20-1UUA	CF20-1RA	CF20-1UURA	47	24	20	M20×1.5	21	66	40.5	9	0.8	8	4	8	1	36	20 680	34 600	32 140	7 000	21 000	7 150	120	385
	CF20-1VA	CF20-1VUUA	CF20-1VRA	CF20-1VUURA															33 120	64 480	32 140	3 500				
24	CF24A	CF24UUA	CF24RA	CF24UURA	62	29	24	M24×1.5	25	80	49.5	11	0.8	8	4	8	1	40	30 480	52 630	49 500	6 500	34 200	10 500	220	815
	CF24VA	CF24VUUA	CF24VRA	CF24VUURA															46 550	92 020	49 500	3 000				
24	CF24-1A	CF24-1UUA	CF24-1RA	CF24-1UURA	72	29	24	M24×1.5	25	80	49.5	11	0.8	8	4	8	1	40	30 480	52 630	49 500	6 500	39 800	12 900	220	1 140
	CF24-1VA	CF24-1VUUA	CF24-1VRA	CF24-1VUURA															46 550	92 020	49 500	3 000				
30	CF30A	CF30UUA	CF30RA	CF30UURA	80	35	30	M30×1.5	32	100	63	15	1	8	4	8	1	46	45 370	85 060	73 700	5 000	52 600	14 900	450	1 870
	CF30VA	CF30VUUA	CF30VRA	CF30VUURA															67 620	144 060	73 700	2 200				
30	CF30-1A	CF30-1UUA	CF30-1RA	CF30-1UURA	85	35	30	M30×1.5	32	100	63	15	1	8	4	8	1	46	45 370	85 060	73 700	5 000	56 000	56 000	450	2 030
	CF30-1VA	CF30-1VUUA	CF30-1VRA	CF30-1VUURA															67 620	144 060	73 700	2 200				
30	CF30-2A	CF30-2UUA	CF30-2RA	CF30-2UURA	90	35	30	M30×1.5	32	100	63	15	1	8	4	8	1	46	45 370	85 060	73 700	5 000	59 300	59 300	450	2 220
	CF30-2VA	CF30-2VUUA	CF30-2VRA	CF30-2VUURA															67 620	144 060	73 700	2 200				

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

#### OUTER RINGS TOLERANCE (μm)

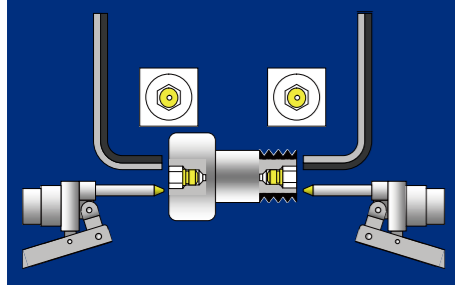
TYPE	Cylindrical outer ring	Crowned outer ring
CF3,CF4,CF5,CF6	0/-8	0/-50
CF8,CF10,CF10-1,CF12	0/-9	0/-50
CF12-1,CF16,CF18,CF20-1	0/-11	0/-50
CF20,CF24,CF24-1,CF30	0/-13	0/-50
CF30-1,CF30-2	0/-15	0/-50

#### ACCESSORIES

TYPE	STOP PLUG	RESIN PLUG	NUT
CF3/CF4/CF5/CF6/CF8/CF10/CF10-1	—	—	Attached
CF10K/CF10-1K	φ 4 Attached	φ 4 Attached	Attached
CF12/CF12-1/CF16/CF18	φ 6 Attached	φ 6 Attached	Attached
CF20/CF20-1/CF24/CF24-1/CF30/CF30-1/CF30-2	φ 8 Attached	φ 8 Attached	Attached

# CAM FOLLOWERS

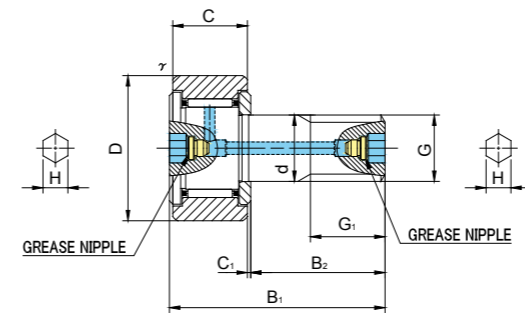
HEXAGON SOCKET ON BOTH SIDES  
GREASE NIPPLE INSTALLED



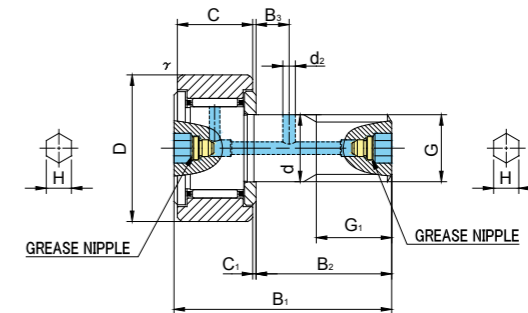
CF..AB



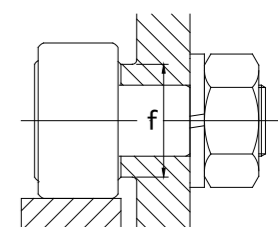
CF..VAB



CF10(V)ABK~CF10-1(V)ABK



CF12(V)AB~CF18(V)AB



## CF..AB TYPE

Prepacked Grease

Stud diameter (mm)	Designation	Dimensions (mm)																Basic dynamic load rating	Basic static load rating	Largest permissible load	Limiting speed *	Track load capacity		Max tightening torque	Mass
		Cylindrical outer ring				Crowned outer ring																Cylindrical outer ring	Crowned outer ring		
h7 tolerance	Without seals	With seals	Without seals	With seals	D	C	d	G	G1	B1	B2	B3	C1	d2	H	r/s min	f min	Cr N	Cor N	N	rpm	N	N	N-m	g (approx)
10	CF10ABK	CF10UUABK	CF10RABK	CF10UURABK	22	12	10	M10×1	12	36	23	—	0.6	—	5	0.3	15	5 390	6 860	6 860	17 000	4 700	1 670	15	45
	CF10VABK	CF10VUUABK	CF10VRABK	CF10VUURABK														9 510	14 500	7 450	7 500				
10	CF10-1ABK	CF10-1UUABK	CF10-1RABK	CF10-1UURABK	26	12	10	M10×1	12	36	23	—	0.6	—	5	0.3	15	5 390	6 860	6 860	17 000	5 490	2 060	15	60
	CF10-1VABK	CF10-1VUUABK	CF10-1VRABK	CF10-1VUURABK														9 510	14 500	7 450	7 500				
12	CF12AB	CF12UUAB	CF12RAB	CF12UURAB	30	14	12	M12×1.5	13	40	25	6	0.6	3	6	0.6	20	7 940	9 800	9 800	14 000	7 060	2 450	22	95
	CF12VAB	CF12VUUAB	CF12VRAB	CF12VUURAB														13 430	19 700	11 270	6 000				
12	CF12-1AB	CF12-1UUAB	CF12-1RAB	CF12-1UURAB	32	14	12	M12×1.5	13	40	25	6	0.6	3	6	0.6	20	7 940	9 800	9 800	14 000	7 450	2 740	22	105
	CF12-1VAB	CF12-1VUUAB	CF12-1VRAB	CF12-1VUURAB														13 430	19 700	11 270	6 000				
16	CF16AB	CF16UUAB	CF16RAB	CF16UURAB	35	18	16	M16×1.5	17	52	32.5	8	0.8	3	6	0.6	24	12 050	18 330	18 330	10 000	11 200	3 140	58	170
	CF16VAB	CF16VUUAB	CF16VRAB	CF16VUURAB														20 680	37 630	19 800	4 500				
18	CF18AB	CF18UUAB	CF18RAB	CF18UURAB	40	20	18	M18×1.5	19	58	36.5	8	0.8	3	6	1	26	14 700	25 200	25 200	8 500	14 400	3 720	87	250
	CF18VAB	CF18VUUAB	CF18VRAB	CF18VUURAB														25 280	51 350	26 560	3 500				
20	CF20AB	CF20UUAB	CF20RAB	CF20UURAB	52	24	20	M20×1.5	21	66	40.5	9	0.8	4	8	1	36	20 680	34 600	32 140	7 000	23 200	8 230	120	460
	CF20VAB	CF20VUUAB	CF20VRAB	CF20VUURAB														33 120	64 480	32 140	3 500				

CF..AB TYPE has oil holes (grease nipple) which are prepared in the stud head and thread side, also an oil hole is prepared in the outer surface of stud.

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

### OUTER RINGS TOLERANCE (μm)

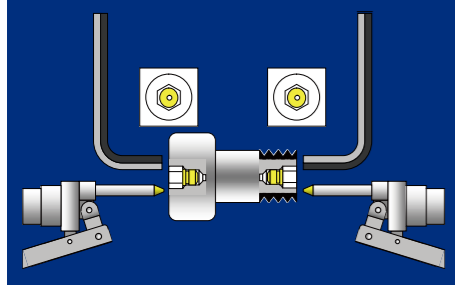
TYPE	Cylindrical outer ring	Crowned outer ring
CF10,CF10-1,CF12	0/-9	0/-50
CF12-1,CF16,CF18,CF20-1	0/-11	0/-50
CF20,CF24,CF24-1,CF30	0/-13	0/-50
CF30-1,CF30-2	0/-15	0/-50

### ACCESSORIES

TYPE	Grease Nipple	NUT
All types	Installed	Attached

# CAM FOLLOWERS

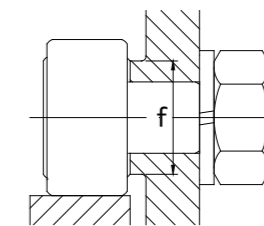
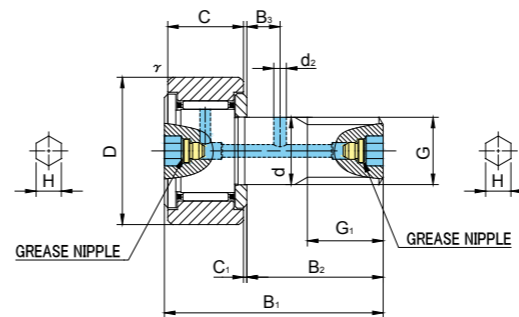
HEXAGON SOCKET ON BOTH SIDES  
GREASE NIPPLE INSTALLED



CF..AB



CF..VAB



## CF..AB TYPE

Prepacked Grease

Stud diameter (mm)	Designation	Dimensions (mm)																Basic dynamic load rating	Basic static load rating	Largest permissible load	Limiting speed *	Track load capacity		Max tightening torque	Mass
		Cylindrical outer ring				Crowned outer ring R1000(CF20 ≤)				Other dimensions												Cylindrical outer ring N	Crowned outer ring N		
h7 tolerance	Without seals	With seals	Without seals	With seals	D	C	d	G	G1	B1	B2	B3	C1	d2	H	r <sub>s</sub> min	f min	Cr N	Cor N	N	rpm	N	N	N-m	g (approx)
20	CF20-1AB	CF20-1UUAB	CF20-1RAB	CF20-1UURAB	47	24	20	M20×1.5	21	66	40.5	9	0.8	4	8	1	36	20 680	34 600	32 140	7 000	21 000	7 150	120	385
	CF20-1VAB	CF20-1VUUAB	CF20-1VRAB	CF20-1VUURAB														33 120	64 480	32 140	3 500				
24	CF24AB	CF24UUAB	CF24RAB	CF24UURAB	62	29	24	M24×1.5	25	80	49.5	11	0.8	4	8	1	40	30 480	52 630	49 500	6 500	34 200	10 500	220	815
	CF24VAB	CF24VUUAB	CF24VRAB	CF24VUURAB														46 550	92 020	49 500	3 000				
24	CF24-1AB	CF24-1UUAB	CF24-1RAB	CF24-1UURAB	72	29	24	M24×1.5	25	80	49.5	11	0.8	4	8	1	40	30 480	52 630	49 500	6 500	39 800	12 900	220	1 140
	CF24-1VAB	CF24-1VUUAB	CF24-1VRAB	CF24-1VUURAB														46 550	92 020	49 500	3 000				
30	CF30AB	CF30UUAB	CF30RAB	CF30UURAB	80	35	30	M30×1.5	32	100	63	15	1	4	8	1	46	45 370	85 060	73 700	5 000	52 600	14 900	450	1 870
	CF30VAB	CF30VUUAB	CF30VRAB	CF30VUURAB														67 620	144 060	73 700	2 200				
30	CF30-1AB	CF30-1UUAB	CF30-1RAB	CF30-1UURAB	85	35	30	M30×1.5	32	100	63	15	1	4	8	1	46	45 370	85 060	73 700	5 000	56 000	16 100	450	2 030
	CF30-1VAB	CF30-1VUUAB	CF30-1VRAB	CF30-1VUURAB														67 620	144 060	73 700	2 200				
30	CF30-2AB	CF30-2UUAB	CF30-2RAB	CF30-2UURAB	90	35	30	M30×1.5	32	100	63	15	1	4	8	1	46	45 370	85 060	73 700	5 000	59 300	17 300	450	2 220
	CF30-2VAB	CF30-2VUUAB	CF30-2VRAB	CF30-2VUURAB														67 620	144 060	73 700	2 200				

CF..AB TYPE has oil holes (grease nipple) which are prepared in the stud head and thread side, also an oil hole is prepared in the outer surface of stud.

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

### OUTER RINGS TOLERANCE (μm)

TYPE	Cylindrical outer ring	Crowned outer ring
CF10,CF10-1,CF12	0/-9	0/-50
CF12-1,CF16,CF18,CF20-1	0/-11	0/-50
CF20,CF24,CF24-1,CF30	0/-13	0/-50
CF30-1,CF30-2	0/-15	0/-50

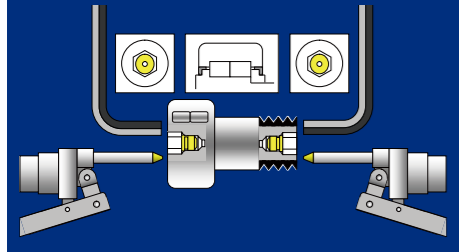
### ACCESSORIES

TYPE	Grease Nipple	NUT
All types	Installed	Attached

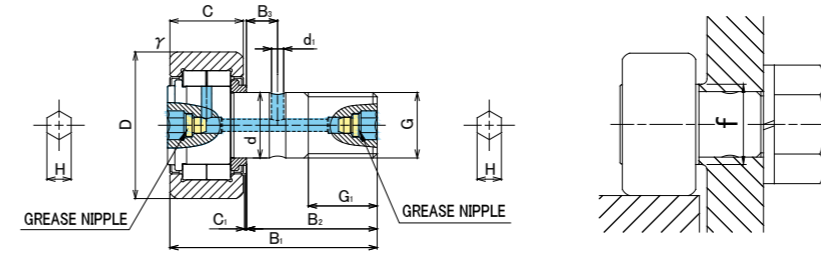


# CAM FOLLOWERS

FULL COMPLEMENT DOUBLE ROW  
HEXAGON SOCKET ON BOTH SIDES  
GREASE NIPPLE INSTALLED



NUCF..AB



## NUCF TYPE

Prepacked Grease

Stud diameter (mm)	Designation	Dimensions (mm)															Basic dynamic load rating	Basic static load rating	Largest permissible load	Limiting speed	Track load capacity		Max tightening torque	Mass
		Cylindrical outer ring	Crowned outer ring R500(NUCF16~NUCF18) R1000(NUCF20≤)	D	C	d	G	G1	B1	B2	B3	C1	D2	H	r <sub>s</sub> min	f					Cr N	Cor N		
16	Without seals	With seals	35	18	16	M16x1.5	17	52	32.5	7.8	0.8		3	6	0.6	20	23 400	27 200	11 900	5 200	11 200	3 140	58	167
	NUCF16AB	NUCF16RAB																						
18	Without seals	With seals	40	20	18	M18x1.5	19	58	36.5	8	0.8		3	6	1	22	25 200	30 900	22 200	4 700	14 400	3 720	87	248
	NUCF18AB	NUCF18RAB																						
20	Without seals	With seals	52	24	20	M20x1.5	21	66	40.5	9	0.8		4	8	1	31	43 000	58 100	25 700	3 300	23 200	8 230	120	461
	NUCF20AB	NUCF20RAB																						
20	Without seals	With seals	47	24	20	M20x1.5	21	66	40.5	9	0.8		4	8	1	27	38 900	48 900	25 300	3 800	21 000	7 150	120	390
	NUCF20-1AB	NUCF20-1RAB																						
24	Without seals	With seals	62	28	24	M24x1.5	25	80	49.5	11	1.3		4	8	1	38	57 600	74 300	35 000	2 800	32 000	10 500	220	789
	NUCF24AB	NUCF24RAB																						
24	Without seals	With seals	72	28	24	M24x1.5	25	80	49.5	11	1.3		4	8	1.1	44	63 300	87 500	53 700	2 300	37 200	12 900	220	1 020
	NUCF24-1AB	NUCF24-1RAB																						
30	Without seals	With seals	80	35	30	M30x1.5	32	100	63	15	1		4	8	1.1	47	94 800	135 700	73 700	2 100	52 600	14 900	450	1 630
	NUCF30AB	NUCF30RAB																						
30	Without seals	With seals	90	35	30	M30x1.5	32	100	63	15	1		4	8	1.1	47	94 800	135 700	73 700	2 100	59 300	17 300	450	1 990
	NUCF30-2AB	NUCF30-2RAB																						

### OUTER RINGS TOLERANCE (μm)

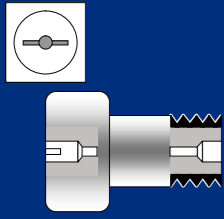
TYPE	Cylindrical outer ring	Crowned outer ring
NUCF16,NUCF18,NUCF20-1	0/-11	0/-50
NUCF20,NUCF24,NUCF24-1,NUCF30	0/-13	0/-50
NUCF30-2	0/-15	0/-50

### ACCESSORIES

TYPE		
All types	Installed	Attached

# CAM FOLLOWERS

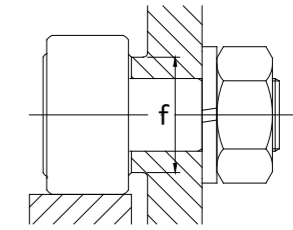
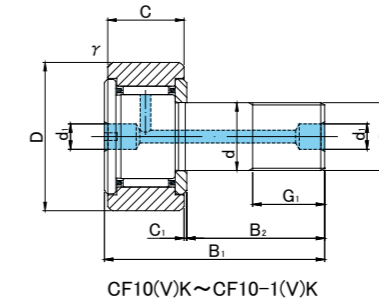
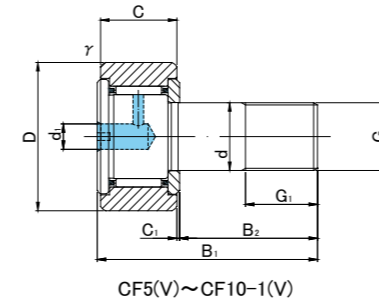
## SCREWDRIVER SLOT HEAD



CF



CF.V



### CF TYPE

Prepacked Grease

Stud diameter (mm)	Designation	Dimensions (mm)																	Basic dynamic load rating	Basic static load rating	Largest permissible load	Limiting speed *	Track load capacity		Max tightening torque	Mass
		Cylindrical outer ring				Crowned outer ring R250(CF5) R500(CF6 ~ CF10-1)				Other dimensions													Cylindrical outer ring N	Crowned outer ring N		
		Without seals	With seals	Without seals	With seals	D	C	d	G	G1	B1	B2	B3	C1	d1	d2	r <sub>s</sub> min	f min					Cr N	Cor N		
5	CF 5	CF 5UU	CF 5R	CF 5UUR	13	9	5	M5×0.8	7.5	23	13	—	0.5	3.1	—	0.3	9.7	3 140	2 770	1 420	29 000	2 250	780	2	10.5	
	CF 5V	CF 5VUU	CF 5VR	CF 5VUUR														5 100	5 500	1 420	11 600					
6	CF 6	CF 6UU	CF 6R	CF 6UUR	16	11	6	M6×1	8	28	16	—	0.6	4	—	0.3	11	3 630	3 630	2 110	25 000	3 430	1 080	3	18.5	
	CF 6V	CF 6VUU	CF 6VR	CF 6VUUR														6 960	8 530	2 110	12 000					
8	CF 8	CF 8UU	CF 8R	CF 8UUR	19	11	8	M8×1.25	10	32	20	—	0.6	4	—	0.3	13	4 310	4 710	4 710	20 000	4 020	1 370	8	28.5	
	CF 8V	CF 8VUU	CF 8VR	CF 8VUUR														8 130	11 170	4 710	9 000					
10	CF10	CF10UU	CF10R	CF10UUR	22	12	10	M10×1.25	12	36	23	—	0.6	4	—	0.3	15	5 390	6 860	6 860	17 000	4 700	1 670	15	45	
	CF10V	CF10VUU	CF10VR	CF10VUUR														9 510	14 500	7 450	7 500					
10	CF10-1	CF10-1UU	CF10-1R	CF10-1UUR	26	12	10	M10×1.25	12	36	23	—	0.6	4	—	0.3	15	5 390	6 860	6 860	17 000	5 490	2 060	15	60	
	CF10-1V	CF10-1VUU	CF10-1VR	CF10-1VUUR														9 510	14 500	7 450	7 500					
10	CF10K	CF10UUK	CF10RK	CF10UURK	22	12	10	M10×1	12	36	23	—	0.6	4	—	0.3	15	5 390	6 860	6 860	17 000	4 700	1 670	15	45	
	CF10VK	CF10VUUK	CF10VRK	CF10VUURK														9 510	14 500	7 450	7 500					
10	CF10-1K	CF10-1UUK	CF10-1RK	CF10-1UURK	26	12	10	M10×1	12	36	23	—	0.6	4	—	0.3	15	5 390	6 860	6 860	17 000	5 490	2 060	15	60	
	CF10-1VK	CF10-1VUUK	CF10-1VRK	CF10-1VUURK														9 510	14 500	7 450	7 500					

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

#### OUTER RINGS TOLERANCE

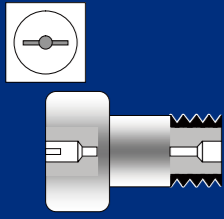
TYPE	Cylindrical outer ring	Crowned outer ring
CF5,CF6	0/-8	0/-50
CF8,CF10,CF10-1,CF12	0/-9	0/-50
CF12-1,CF16,CF18,CF20-1	0/-11	0/-50
CF20,CF24,CF24-1,CF30	0/-13	0/-50
CF30-1,CF30-2	0/-15	0/-50

#### ACCESSORIES

TYPE	STOP PLUG	RESIN PLUG	NUT
CF5	—	—	Attached
CF6/CF8/CF10/CF10-1	—	φ 4 Attached	Attached
CF12/CF12-1/CF16/CF18	φ 6 Attached	φ 6 Attached	Attached
CF20/CF20-1/CF24/CF24-1/CF30/CF30-1/CF30-2	φ 8 Attached	φ 8 Attached	Attached

# CAM FOLLOWERS

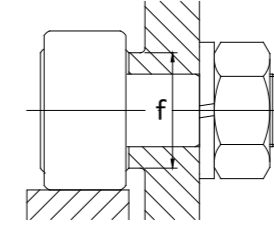
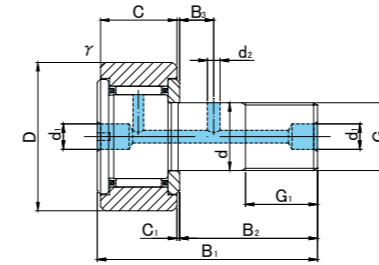
## SCREWDRIVER SLOT HEAD



CF



CF.V



### CF TYPE

Prepacked Grease

Stud diameter (mm)	h7 tolerance	Designation				Dimensions (mm)														Basic dynamic load rating Cr N	Basic static load rating Cor N	Largest permissible load N	Limiting speed * rpm	Track load capacity		Max tightening torque N·m	Mass g (approx)
		Cylindrical outer ring		Crowned outer ring R500(CF12 ~ CF18) R1000(CF20 ≤)		D	C	d	G	G1	B1	B2	B3	C1	d1	d2	r/min	f min	Cylindrical outer ring N					Crowned outer ring N			
		Without seals	With seals	Without seals	With seals																						
12	0 -0.018	CF12	CF12UU	CF12R	CF12UUR	30	14	12	M12×1.5	13	40	25	6	0.6	6	3	0.6	20	7 940	9 800	9 800	14 000	7 060	2 450	22	95	
		CF12V	CF12VUU	CF12VR	CF12VUUR														13 430	19 700	11 270	6 000					
12	0 -0.018	CF12-1	CF12-1UU	CF12-1R	CF12-1UUR	32	14	12	M12×1.5	13	40	25	6	0.6	6	3	0.6	20	7 940	9 800	9 800	14 000	7 450	2 740	22	105	
		CF12-1V	CF12-1VUU	CF12-1VR	CF12-1VUUR														13 430	19 700	11 270	6 000					
16	0 -0.018	CF16	CF16UU	CF16R	CF16UUR	35	18	16	M16×1.5	17	52	32.5	8	0.8	6	3	0.6	24	12 050	18 330	18 330	10 000	11 200	3 140	58	170	
		CF16V	CF16VUU	CF16VR	CF16VUUR														20 680	37 630	19 800	4 500					
18	0 -0.018	CF18	CF18UU	CF18R	CF18UUR	40	20	18	M18×1.5	19	58	36.5	8	0.8	6	3	1	26	14 700	25 200	25 200	8 500	14 400	3 720	87	250	
		CF18V	CF18VUU	CF18VR	CF18VUUR														25 280	51 350	26 560	3 500					
20	0 -0.021	CF20	CF20UU	CF20R	CF20UUR	52	24	20	M20×1.5	21	66	40.5	9	0.8	8	4	1	36	20 680	34 600	32 140	7 000	23 200	8 230	120	460	
		CF20V	CF20VUU	CF20VR	CF20VUUR														33 120	64 480	32 140	3 500					
20	0 -0.021	CF20-1	CF20-1UU	CF20-1R	CF20-1UUR	47	24	20	M20×1.5	21	66	40.5	9	0.8	8	4	1	36	20 680	34 600	32 140	7 000	21 000	7 150	120	385	
		CF20-1V	CF20-1VUU	CF20-1VR	CF20-1VUUR														33 120	64 480	32 140	3 500					
24	0 -0.021	CF24	CF24UU	CF24R	CF24UUR	62	29	24	M24×1.5	25	80	49.5	11	0.8	8	4	1	40	30 480	52 630	49 500	6 500	34 200	10 500	220	815	
		CF24V	CF24VUU	CF24VR	CF24VUUR														46 550	92 020	49 500	3 000					
24	0 -0.021	CF24-1	CF24-1UU	CF24-1R	CF24-1UUR	72	29	24	M24×1.5	25	80	49.5	11	0.8	8	4	1	40	30 480	52 630	49 500	6 500	39 800	12 900	220	1 140	
		CF24-1V	CF24-1VUU	CF24-1VR	CF24-1VUUR														46 550	92 020	49 500	3 000					
30	0 -0.021	CF30	CF30UU	CF30R	CF30UUR	80	35	30	M30×1.5	32	100	63	15	1	8	4	1	46	45 370	85 060	73 700	5 000	52 600	14 900	450	1 870	
		CF30V	CF30VUU	CF30VR	CF30VUUR														67 620	144 060	73 700	2 200					
30	0 -0.021	CF30-1	CF30-1UU	CF30-1R	CF30-1UUR	85	35	30	M30×1.5	32	100	63	15	1	8	4	1	46	45 370	85 060	73 700	5 000	56 000	16 100	450	2 030	
		CF30-1V	CF30-1VUU	CF30-1VR	CF30-1VUUR														67 620	144 060	73 700	2 200					
30	0 -0.021	CF30-2	CF30-2UU	CF30-2R	CF30-2UUR	90	35	30	M30×1.5	32	100	63	15	1	8	4	1	46	45 370	85 060	73 700	5 000	59 300	17 300	450	2 220	
		CF30-2V	CF30-2VUU	CF30-2VR	CF30-2VUUR														67 620	144 060	73 700	2 200					

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

#### OUTER RINGS TOLERANCE

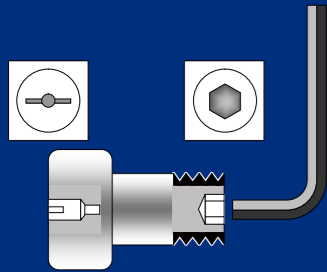
TYPE	Cylindrical outer ring	Crowned outer ring
CF5,CF6	0/-8	0/-50
CF8,CF10,CF10-1,CF12	0/-9	0/-50
CF12-1,CF16,CF18,CF20-1	0/-11	0/-50
CF20,CF24,CF24-1,CF30	0/-13	0/-50
CF30-1,CF30-2	0/-15	0/-50

#### ACCESSORIES

TYPE	STOP PLUG	RESIN PLUG	NUT
CF5	—	—	Attached
CF6/CF8/CF10/CF10-1	—	φ 4 Attached	Attached
CF12/CF12-1/CF16/CF18	φ 6 Attached	φ 6 Attached	Attached
CF20/CF20-1/CF24/CF24-1/CF30/CF30-1/CF30-2	φ 8 Attached	φ 8 Attached	Attached

# CAM FOLLOWERS

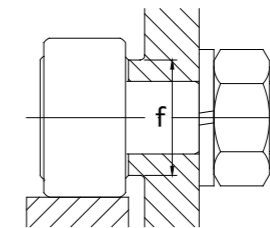
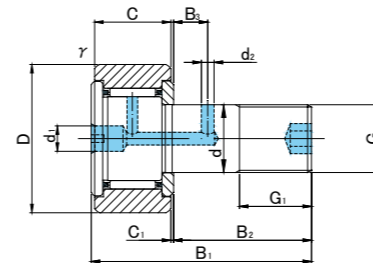
HEXAGON SOCKET ON THREAD SIDE  
SCREWDRIVER SLOT HEAD



CF..B



CF..VB



## CF..B TYPE

Prepacked Grease

Stud diameter (mm)	h7 tolerance	Designation				Dimensions (mm)															Basic dynamic load rating Cr N	Basic static load rating Cor N	Largest permissible load N	Limiting speed * rpm	Track load capacity		Max tightening torque N·m	Mass g (approx)
		Cylindrical outer ring		Crowned outer ring R500(CF12 ~ CF18) R1000(CF20 ≤)		D	C	d	G	G1	B1	B2	B3	C1	d1	d2	H	r min	f min	Cylindrical outer ring N					Crowned outer ring N			
		Without seals	With seals	Without seals	With seals																							
12	0 -0.018	CF12B	CF12UUB	CF12RB	CF12UURB	30	14	12	M12×1.5	13	40	25		6	0.6	6	3	6	0.6	20	7 940	9 800	9 800	14 000	7 060	2 450	22	95
		CF12VB	CF12VUUB	CF12VRB	CF12VUURB																13 430	19 700	11 270	6 000				
12	0 -0.018	CF12-1B	CF12-1UUB	CF12-1RB	CF12-1UURB	32	14	12	M12×1.5	13	40	25		6	0.6	6	3	6	0.6	20	7 940	9 800	9 800	14 000	7 450	2 740	22	105
		CF12-1VB	CF12-1VUUB	CF12-1VRB	CF12-1VUURB																13 430	19 700	11 270	6 000				
16	0 -0.018	CF16B	CF16UUB	CF16RB	CF16UURB	35	18	16	M16×1.5	17	52	32.5		8	0.8	6	3	6	0.6	24	12 050	18 330	18 330	10 000	11 200	3 140	58	170
		CF16VB	CF16VUUB	CF16VRB	CF16VUURB																20 680	37 630	19 800	4 500				
18	0 -0.018	CF18B	CF18UUB	CF18RB	CF18UURB	40	20	18	M18×1.5	19	58	36.5		8	0.8	6	3	6	1	26	14 700	25 200	25 200	8 500	14 400	3 720	87	250
		CF18VB	CF18VUUB	CF18VRB	CF18VUURB																25 280	51 350	26 560	3 500				
20	0 -0.021	CF20B	CF20UUB	CF20RB	CF20UURB	52	24	20	M20×1.5	21	66	40.5		9	0.8	8	4	8	1	36	20 680	34 600	32 140	7 000	23 200	8 230	120	460
		CF20VB	CF20VUUB	CF20VRB	CF20VUURB																33 120	64 480	32 140	3 500				
20	0 -0.021	CF20-1B	CF20-1UUB	CF20-1RB	CF20-1UURB	47	24	20	M20×1.5	21	66	40.5		9	0.8	8	4	8	1	36	20 680	34 600	32 140	7 000	21 000	7 150	120	385
		CF20-1VB	CF20-1VUUB	CF20-1VRB	CF20-1VUURB																33 120	64 480	32 140	3 500				
24	0 -0.021	CF24B	CF24UUB	CF24RB	CF24UURB	62	29	24	M24×1.5	25	80	49.5		11	0.8	8	4	8	1	40	30 480	52 630	49 500	6 500	34 200	10 500	220	815
		CF24VB	CF24VUUB	CF24VRB	CF24VUURB																46 550	92 020	49 500	3 000				
24	0 -0.021	CF24-1B	CF24-1UUB	CF24-1RB	CF24-1UURB	72	29	24	M24×1.5	25	80	49.5		11	0.8	8	4	8	1	40	30 480	52 630	49 500	6 500	39 800	12 900	220	1 140
		CF24-1VB	CF24-1VUUB	CF24-1VRB	CF24-1VUURB																46 550	92 020	49 500	3 000				
30	0 -0.021	CF30B	CF30UUB	CF30RB	CF30UURB	80	35	30	M30×1.5	32	100	63		15	1	8	4	8	1	46	45 370	85 060	73 700	5 000	52 600	14 900	450	1 870
		CF30VB	CF30VUUB	CF30VRB	CF30VUURB																67 620	144 060	73 700	2 200				
30	0 -0.021	CF30-1B	CF30-1UUB	CF30-1RB	CF30-1UURB	85	35	30	M30×1.5	32	100	63		15	1	8	4	8	1	46	45 370	85 060	73 700	5 000	56 000	16 100	450	2 030
		CF30-1VB	CF30-1VUUB	CF30-1VRB	CF30-1VUURB																67 620	144 060	73 700	2 200				
30	0 -0.021	CF30-2B	CF30-2UUB	CF30-2RB	CF30-2UURB	90	35	30	M30×1.5	32	100	63		15	1	8	4	8	1	46	45 370	85 060	73 700	5 000	59 300	17 300	450	2 220
		CF30-2VB	CF30-2VUUB	CF30-2VRB	CF30-2VUURB																67 620	144 060	73 700	2 200				

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

### OUTER RINGS TOLERANCE (μm)

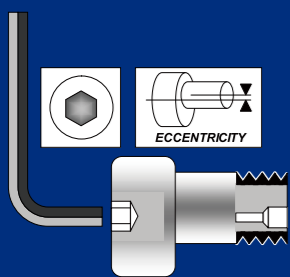
TYPE	Cylindrical outer ring	Crowned outer ring
CF12	0/-9	0/-50
CF12-1,CF16,CF18,CF20-1	0/-11	0/-50
CF20,CF24,CF24-1,CF30	0/-13	0/-50
CF30-1,CF30-2	0/-15	0/-50

### ACCESSORIES

TYPE	STOP PLUG	RESIN PLUG	NUT
CF3/CF4/CF5	—	—	Attached
CF6/CF8/CF10/CF10-1	—	—	Attached
CF12/CF12-1/CF16/CF18	φ 6 Attached	φ 6 Attached	Attached
CF20/CF20-1/CF24/CF24-1/CF30/CF30-1/CF30-2	φ 8 Attached	φ 8 Attached	Attached

# CAM FOLLOWERS

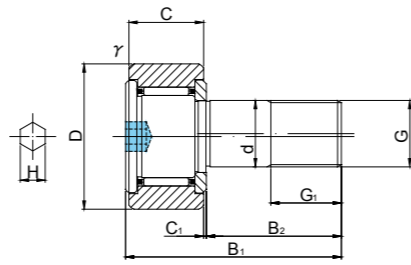
SOLID ECCENTRIC TYPE  
HEXAGON SOCKET ON STUD HEAD



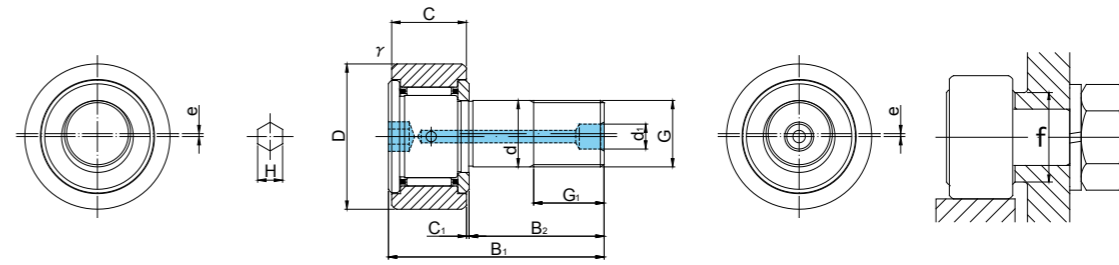
CFH..A



CFH..VA



CFH5(V)A~CFH10-1(V)A



CFH12(V)A~CFH12-1(V)A

## CFH..A TYPE

Prepacked Grease

Stud diameter (mm)	Designation	Dimensions (mm)											Basic dynamic load rating	Basic static load rating	Largest permissible load	Limiting speed *	Track load capacity		Max tightening torque	Mass					
		Cylindrical outer ring				Crowned outer ring R250(CF5) R500(CF6 ~ CF12-1)				Eccentricity							Cylindrical outer ring N	Crowned outer ring N			N-m	g (approx)			
h7 tolerance	Without seals	With seals	Without seals	With seals	D	C	d	G	G1	B1	B2	C1	d1	H	r <sub>s</sub> min	e	f min	Cr N	Cor N	N	rpm	N	N	N-m	g (approx)
5	CFH 5A	CFH 5UUA	CFH 5RA	CFH 5UURA	13	9	5	M5×0.8	7.5	23	13	0.5	—	3	0.3	0.2	9.7	3 140	2 770	1 420	29 000	2 250	780	2	10.5
	CFH 5VA	CFH 5VUUA	CFH 5VRA	CFH 5VUURA																					
6	CFH 6A	CFH 6UUA	CFH 6RA	CFH 6UURA	16	11	6	M6×1	8	28	16	0.6	—	3	0.3	0.25	11	3 630	3 630	2 110	25 000	3 430	1 080	3	18.5
	CFH 6VA	CFH 6VUUA	CFH 6VRA	CFH 6VUURA																					
8	CFH 8A	CFH 8UUA	CFH 8RA	CFH 8UURA	19	11	8	M8×1.25	10	32	20	0.6	—	4	0.3	0.25	13	4 310	4 710	4 710	20 000	4 020	1 370	8	28.5
	CFH 8VA	CFH 8VUUA	CFH 8VRA	CFH 8VUURA																					
10	CFH10A	CFH10UUA	CFH10RA	CFH10UURA	22	12	10	M10×1.25	12	36	23	0.6	—	5	0.3	0.3	15	5 390	6 860	6 860	17 000	4 700	1 670	15	45
	CFH10VA	CFH10VUUA	CFH10VRA	CFH10VUURA																					
10	CFH10-1A	CFH10-1UUA	CFH10-1RA	CFH10-1UURA	26	12	10	M10×1.25	12	36	23	0.6	—	5	0.3	0.3	15	5 390	6 860	6 860	17 000	5 490	2 060	15	60
	CFH10-1VA	CFH10-1VUUA	CFH10-1VRA	CFH10-1VUURA																					
12	CFH12A	CFH12UUA	CFH12RA	CFH12UURA	30	14	12	M12×1.5	13	40	25	0.6	6	6	0.6	0.4	20	7 940	9 800	9 800	14 000	7 060	2 450	22	95
	CFH12VA	CFH12VUUA	CFH12VRA	CFH12VUURA																					
12	CFH12-1A	CFH12-1UUA	CFH12-1RA	CFH12-1UURA	32	14	12	M12×1.5	13	40	25	0.6	6	6	0.6	0.4	20	7 940	9 800	9 800	14 000	7 450	2 740	22	105
	CFH12-1VA	CFH12-1VUUA	CFH12-1VRA	CFH12-1VUURA																					

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

### OUTER RINGS TOLERANCE (μm)

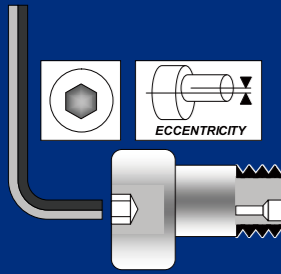
TYPE	Cylindrical outer ring	Crowned outer ring
CF5,CF6	0/-8	0/-50
CF8,CF10,CF10-1,CF12	0/-9	0/-50
CF12-1,CF16,CF18,CF20-1	0/-11	0/-50
CF20,CF24,CF24-1,CF30	0/-13	0/-50
CF30-1,CF30-2	0/-15	0/-50

### ACCESSORIES

TYPE	STOP PLUG	RESIN PLUG	NUT
CF5	—	—	Attached
CF6/CF8/CF10/CF10-1	—	—	Attached
CF12/CF12-1/CF16/CF18	φ 6 Attached	φ 6 Attached	Attached
CF20/CF20-1/CF24/CF24-1/CF30/CF30-1/CF30-2	φ 8 Attached	φ 8 Attached	Attached

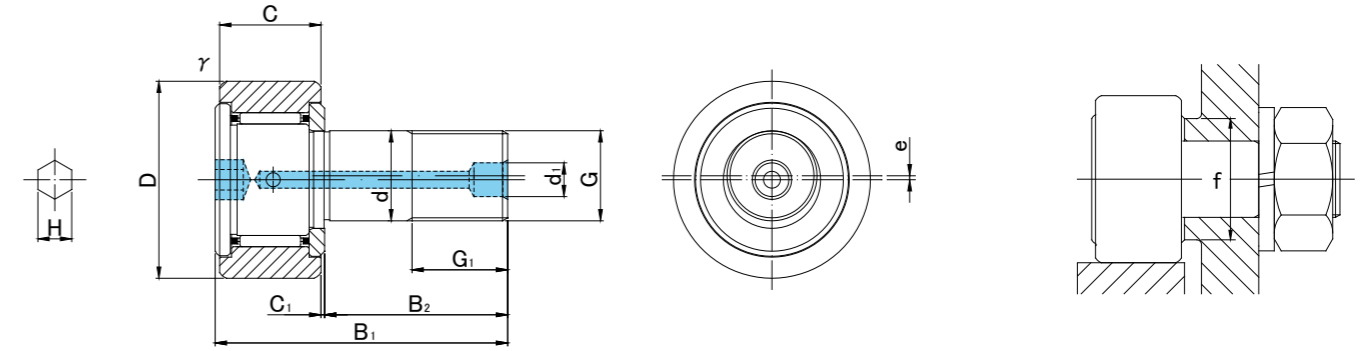
# CAM FOLLOWERS

SOLID ECCENTRIC TYPE  
HEXAGON SOCKET ON STUD HEAD



CFH..A

CFH..VA



## CFH..A TYPE

Prepacked Grease

Stud diameter (mm)	Designation	Dimensions (mm)												Basic dynamic load rating	Basic static load rating	Largest permissible load	Limiting speed *	Track load capacity		Max tightening torque	Mass				
		Cylindrical outer ring				Crowned outer ring				Eccentricity								Cylindrical outer ring N	Crowned outer ring N			N·m	g (approx)		
h7 tolerance	Without seals	With seals	Without seals	With seals	D	C	d	G	G1	B1	B2	C1	d1	H	r/min	e	f min	Cr N	Cor N	N	rpm	N	N	N·m	g (approx)
16	CFH16A	CFH16UUA	CFH16RA	CFH16UURA	35	18	16	M16×1.5	17	52	32.5	0.8	6	6	0.6	0.5	24	12 050	18 330	18 330	10 000	11 200	3 140	58	170
	CFH16VA	CFH16VUUA	CFH16VRA	CFH16VUURA														20 680	37 630	19 800	4 500				
18	CFH18A	CFH18UUA	CFH18RA	CFH18UURA	40	20	18	M18×1.5	19	58	36.5	0.8	6	6	1	0.6	26	14 700	25 200	25 200	8 500	14 400	3 720	87	250
	CFH18VA	CFH18VUUA	CFH18VRA	CFH18VUURA														25 280	51 350	26 560	3 500				
20	CFH20A	CFH20UUA	CFH20RA	CFH20UURA	52	24	20	M20×1.5	21	66	40.5	0.8	8	8	1	0.7	36	20 680	34 600	32 140	7 000	23 200	8 230	120	460
	CFH20VA	CFH20VUUA	CFH20VRA	CFH20VUURA														33 120	64 480	32 140	3 500				
20	CFH20-1A	CFH20-1UUA	CFH20-1RA	CFH20-1UURA	47	24	20	M20×1.5	21	66	40.5	0.8	8	8	1	0.7	36	20 680	34 600	32 140	7 000	21 000	7 150	120	385
	CFH20-1VA	CFH20-1VUUA	CFH20-1VRA	CFH20-1VUURA														33 120	64 480	32 140	3 500				
24	CFH24A	CFH24UUA	CFH24RA	CFH24UURA	62	29	24	M24×1.5	25	80	49.5	0.8	8	8	1	0.8	40	30 480	52 630	49 500	6 500	34 200	10 500	220	815
	CFH24VA	CFH24VUUA	CFH24VRA	CFH24VUURA														46 550	92 020	49 500	3 000				
24	CFH24-1A	CFH24-1UUA	CFH24-1RA	CFH24-1UURA	72	29	24	M24×1.5	25	80	49.5	0.8	8	8	1	0.8	40	30 480	52 630	49 500	6 500	39 800	12 900	220	1 140
	CFH24-1VA	CFH24-1VUUA	CFH24-1VRA	CFH24-1VUURA														46 550	92 020	49 500	3 000				
30	CFH30A	CFH30UUA	CFH30RA	CFH30UURA	80	35	30	M30×1.5	32	100	63	1	8	8	1	1	46	45 370	85 060	73 700	5 000	52 600	14 900	450	1 870
	CFH30VA	CFH30VUUA	CFH30VRA	CFH30VUURA														67 620	144 060	73 700	2 200				
30	CFH30-1A	CFH30-1UUA	CFH30-1RA	CFH30-1UURA	85	35	30	M30×1.5	32	100	63	1	8	8	1	1	46	45 370	85 060	73 700	5 000	56 000	16 100	450	2 030
	CFH30-1VA	CFH30-1VUUA	CFH30-1VRA	CFH30-1VUURA														67 620	144 060	73 700	2 200				
30	CFH30-2A	CFH30-2UUA	CFH30-2RA	CFH30-2UURA	90	35	30	M30×1.5	32	100	63	1	8	8	1	1	46	45 370	85 060	73 700	5 000	59 300	17 300	450	2 220
	CFH30-2VA	CFH30-2VUUA	CFH30-2VRA	CFH30-2VUURA														67 620	144 060	73 700	2 200				

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

### OUTER RINGS TOLERANCE (μm)

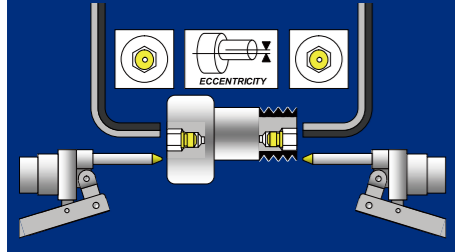
TYPE	Cylindrical outer ring	Crowned outer ring
CF5,CF6	0/-8	0/-50
CF8,CF10,CF10-1,CF12	0/-9	0/-50
CF12-1,CF16,CF18,CF20-1	0/-11	0/-50
CF20,CF24,CF24-1,CF30	0/-13	0/-50
CF30-1,CF30-2	0/-15	0/-50

### ACCESSORIES

TYPE	STOP PLUG	RESIN PLUG	NUT
CF5	—	—	Attached
CF6/CF8/CF10/CF10-1	—	—	Attached
CF12/CF12-1/CF16/CF18	φ 6 Attached	φ 6 Attached	Attached
CF20/CF20-1/CF24/CF24-1/CF30/CF30-1/CF30-2	φ 8 Attached	φ 8 Attached	Attached

# CAM FOLLOWERS

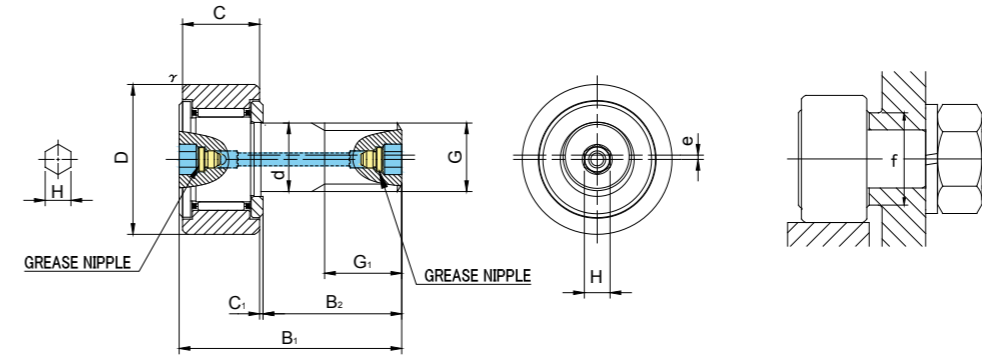
SOLID ECCENTRIC TYPE  
HEXAGON SOCKET ON BOTH SIDES  
GREASE NIPPLE INSTALLED



CFH..AB



CFH..VAB



## CFH..AB TYPE

Prepacked Grease

Stud diameter (mm)	Designation	Dimensions (mm)															Basic dynamic load rating	Basic static load rating	Largest permissible load	Limiting speed *	Track load capacity		Max tightening torque	Mass		
		Cylindrical outer ring				Crowned outer ring															Cylindrical outer ring N	Crowned outer ring N			N·m	g (approx)
		Without seals	With seals	Without seals	With seals	D	C	d	G	G1	B1	B2	C1	H	r <sub>s</sub> min	e										
12	CFH12AB	CFH12UUAB	CFH12RAB	CFH12UURAB	30	14	12	M12×1.5	13	40	25	0.6	6	0.6	0.4	20	7 940	9 800	9 800	14 000	7 060	2 450	22	95		
	CFH12VAB	CFH12VUUAB	CFH12VRAB	CFH12VUURAB													13 430	19 700	11 270	6 000						
12	CFH12-1AB	CFH12-1UUAB	CFH12-1RAB	CFH12-1UURAB	32	14	12	M12×1.5	13	40	25	0.6	6	0.6	0.4	20	7 940	9 800	9 800	14 000	7 450	2 740	22	105		
	CFH12-1VAB	CFH12-1VUUAB	CFH12-1VRAB	CFH12-1VUURAB													13 430	19 700	11 270	6 000						
16	CFH16AB	CFH16UUAB	CFH16RAB	CFH16UURAB	35	18	16	M16×1.5	17	52	32.5	0.8	6	0.6	0.5	24	12 050	18 330	18 330	10 000	11 200	3 140	58	170		
	CFH16VAB	CFH16VUUAB	CFH16VRAB	CFH16VUURAB													20 680	37 630	19 800	4 500						
18	CFH18AB	CFH18UUAB	CFH18RAB	CFH18UURAB	40	20	18	M18×1.5	19	58	36.5	0.8	6	1	0.6	26	14 700	25 200	25 200	8 500	14 400	3 720	87	250		
	CFH18VAB	CFH18VUUAB	CFH18VRAB	CFH18VUURAB													25 280	51 350	26 560	3 500						
20	CFH20AB	CFH20UUAB	CFH20RAB	CFH20UURAB	52	24	20	M20×1.5	21	66	40.5	0.8	8	1	0.7	36	20 680	34 600	32 140	7 000	23 200	8 230	120	460		
	CFH20VAB	CFH20VUUAB	CFH20VRAB	CFH20VUURAB													33 120	64 480	32 140	3 500						
20	CFH20-1AB	CFH20-1UUAB	CFH20-1RAB	CFH20-1UURAB	47	24	20	M20×1.5	21	66	40.5	0.8	8	1	0.7	36	20 680	34 600	32 140	7 000	21 000	7 150	120	385		
	CFH20-1VAB	CFH20-1VUUAB	CFH20-1VRAB	CFH20-1VUURAB													33 120	64 480	32 140	3 500						

CFH..AB TYPE has oil holes (grease nipple) which are prepared in the stud head and thread side, also an oil hole is prepared outer surface of stud.

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

### OUTER RINGS TOLERANCE (μm)

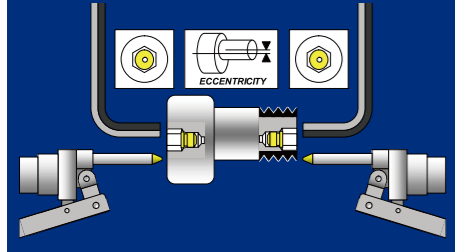
TYPE	Cylindrical outer ring	Crowned outer ring
CF12	0/-9	0/-50
CF12-1,CF16,CF18,CF20-1	0/-11	0/-50
CF20,CF24,CF24-1,CF30	0/-13	0/-50
CF30-1,CF30-2	0/-15	0/-50

### ACCESSORIES

TYPE	Grease Nipple	NUT
All types	Installed	Attached

# CAM FOLLOWERS

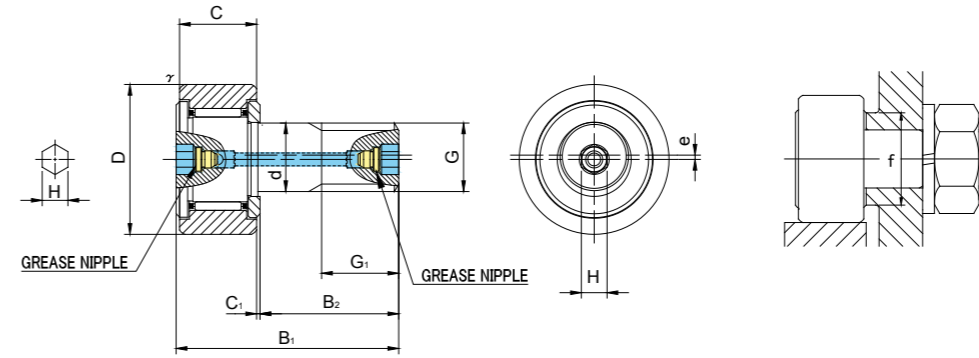
SOLID ECCENTRIC TYPE  
HEXAGON SOCKET ON BOTH SIDES  
GREASE NIPPLE INSTALLED



CFH..AB



CFH..VAB



## CFH..AB TYPE

Prepacked Grease

Stud diameter (mm)	h7 tolerance	Designation				Dimensions (mm)													Basic dynamic load rating	Basic static load rating	Largest permissible load	Limiting speed *	Track load capacity		Max tightening torque	Mass					
		Cylindrical outer ring		Crowned outer ring R1000(CF24 ≤)		D	C	d	G	G1	B1	B2	C1	H	r <sub>s</sub> min	e	f min	Cr N					Cor N	N			rpm	Cylindrical outer ring N	Crowned outer ring N	N·m	g (approx)
		Without seals	With seals	Without seals	With seals																							N	N		
24	0 -0.021	CFH24AB	CFH24UUAB	CFH24RAB	CFH24UURAB	62	29	24	M24×1.5	25	80	49.5	0.8	8	1	0.8	40	30 480	52 630	49 500	6 500	34 200	10 500	220	815						
		CFH24VAB	CFH24VUUAB	CFH24VRAB	CFH24VUURAB													46 550	92 020	49 500	3 000										
24	0 -0.021	CFH24-1AB	CFH24-1UUAB	CFH24-1RAB	CFH24-1UURAB	72	29	24	M24×1.5	25	80	49.5	0.8	8	1	0.8	40	30 480	52 630	49 500	6 500	39 800	12 900	220	1 140						
		CFH24-1VAB	CFH24-1VUUAB	CFH24-1VRAB	CFH24-1VUURAB													46 550	92 020	49 500	3 000										
30	0 -0.021	CFH30AB	CFH30UUAB	CFH30RAB	CFH30UURAB	80	35	30	M30×1.5	32	100	63	1	8	1	1	46	45 370	85 060	73 700	5 000	52 600	14 900	450	1 870						
		CFH30VAB	CFH30VUUAB	CFH30VRAB	CFH30VUURAB													67 620	144 060	73 700	2 200										
30	0 -0.021	CFH30-1AB	CFH30-1UUAB	CFH30-1RAB	CFH30-1UURAB	85	35	30	M30×1.5	32	100	63	1	8	1	1	46	45 370	85 060	73 700	5 000	56 000	16 100	450	2 030						
		CFH30-1VAB	CFH30-1VUUAB	CFH30-1VRAB	CFH30-1VUURAB													67 620	144 060	73 700	2 200										
30	0 -0.021	CFH30-2AB	CFH30-2UUAB	CFH30-2RAB	CFH30-2UURAB	90	35	30	M30×1.5	32	100	63	1	8	1	1	46	45 370	85 060	73 700	5 000	59 300	17 300	450	2 220						
		CFH30-2VAB	CFH30-2VUUAB	CFH30-2VRAB	CFH30-2VUURAB													67 620	144 060	73 700	2 200										

CFH..AB TYPE has oil holes (grease nipple) which are prepared in the stud head and thread side, also an oil hole is prepared outer surface of stud.

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

### OUTER RINGS TOLERANCE (μm)

TYPE	Cylindrical outer ring	Crowned outer ring
CF12	0/-9	0/-50
CF12-1,CF16,CF18,CF20-1	0/-11	0/-50
CF20,CF24,CF24-1,CF30	0/-13	0/-50
CF30-1,CF30-2	0/-15	0/-50

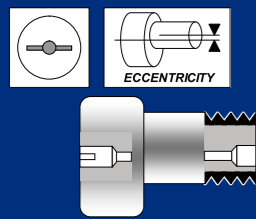
### ACCESSORIES

TYPE		
All types	Installed	Attached



# CAM FOLLOWERS

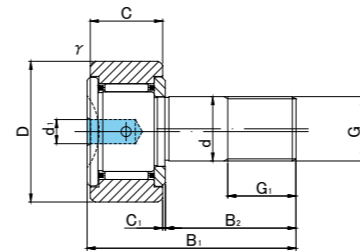
SOLID ECCENTRIC TYPE  
SCREWDRIVER SLOT HEAD



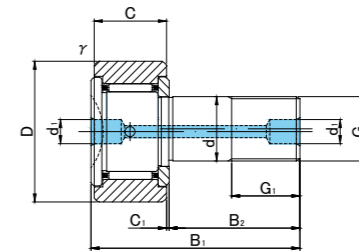
CFH



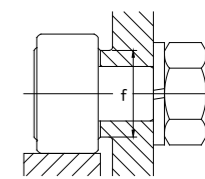
CFH.V



CFH5(V)~CFH10-1(V)



CFH12(V)~CFH16(V)



## CFH TYPE

Prepacked Grease

Stud diameter (mm)	Designation	Dimensions (mm)															Basic dynamic load rating	Basic static load rating	Largest permissible load	Limiting speed *	Track load capacity		Max tightening torque	Mass		
		Cylindrical outer ring				Crowned outer ring R250(CF5) R500 (CF6 ~ CF16)				Eccentricity											Cylindrical outer ring N	Crowned outer ring N			N·m	g (approx)
		Without seals	With seals	Without seals	With seals	D	C	d	G	G1	B1	B2	C1	d1	r <sub>s</sub> min	e										
5	CFH 5	CFH 5UU	CFH 5R	CFH 5UUR	13	9	5	M5×0.8	7.5	23	13	0.5	3.1	0.3	0.2	9.7	3 140	2 770	1 420	29 000	2 250	780	2	10.5		
	CFH 5V	CFH 5VUU	CFH 5VR	CFH 5VUUR													5,100	5,500	1 420	11,600						
6	CFH 6	CFH 6UU	CFH 6R	CFH 6UUR	16	11	6	M6×1	8	28	16	0.6	4	0.3	0.25	11	3 630	3 630	2 110	25 000	3 430	1 080	3	18.5		
	CFH 6V	CFH 6VUU	CFH 6VR	CFH 6VUUR													6 960	8 530	2 110	12 000						
8	CFH 8	CFH 8UU	CFH 8R	CFH 8UUR	19	11	8	M8×1.25	10	32	20	0.6	4	0.3	0.25	13	4 310	4 710	4 710	20 000	4 020	1 370	8	28.5		
	CFH 8V	CFH 8VUU	CFH 8VR	CFH 8VUUR													8 130	11 170	4 710	9 000						
10	CFH10	CFH10UU	CFH10R	CFH10UUR	22	12	10	M10×1.25	12	36	23	0.6	4	0.3	0.3	15	5 390	6 860	6 860	17 000	4 700	1 670	15	45		
	CFH10V	CFH10VUU	CFH10VR	CFH10VUUR													9 510	14 500	7 450	7 500						
10	CFH10-1	CFH10-1UU	CFH10-1R	CFH10-1UUR	26	12	10	M10×1.25	12	36	23	0.6	4	0.3	0.3	15	5 390	6 860	6 860	17 000	5 490	2 060	15	60		
	CFH10-1V	CFH10-1VUU	CFH10-1VR	CFH10-1VUUR													9 510	14 500	7 450	7 500						
12	CFH12	CFH12UU	CFH12R	CFH12UUR	30	14	12	M12×1.5	13	40	25	0.6	6	0.6	0.4	20	7 940	9 800	9 800	14 000	7 060	2 450	22	95		
	CFH12V	CFH12VUU	CFH12VR	CFH12VUUR													13 430	19 700	11 270	6 000						
12	CFH12-1	CFH12-1UU	CFH12-1R	CFH12-1UUR	32	14	12	M12×1.5	13	40	25	0.6	6	0.6	0.4	20	7 940	9 800	9 800	14 000	7 450	2 740	22	105		
	CFH12-1V	CFH12-1VUU	CFH12-1VR	CFH12-1VUUR													13 430	19 700	11 270	6 000						
16	CFH16	CFH16UU	CFH16R	CFH16UUR	35	18	16	M16×1.5	17	52	32.5	0.8	6	0.6	0.5	24	12 050	18 330	18 330	10 000	11 200	3 140	58	170		
	CFH16V	CFH16VUU	CFH16VR	CFH16VUUR													20 680	37 630	19 800	4 500						

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

### OUTER RINGS TOLERANCE (μm)

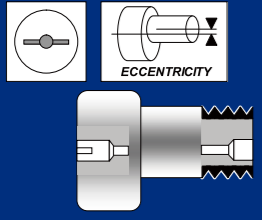
TYPE	Cylindrical outer ring	Crowned outer ring
CF5,CF6	0/-8	0/-50
CF8,CF10,CF10-1,CF12	0/-9	0/-50
CF12-1,CF16,CF18,CF20-1	0/-11	0/-50
CF20,CF24,CF24-1,CF30	0/-13	0/-50
CF30-1,CF30-2	0/-15	0/-50

### ACCESSORIES

TYPE	STOP PLUG	RESIN PLUG	NUT
CF5	—	—	Attached
CF6/CF8/CF10/CF10-1	—	φ 4 Attached	Attached
CF12/CF12-1/CF16/CF18	φ 6 Attached	φ 6 Attached	Attached
CF20/CF20-1/CF24/CF24-1/CF30/CF30-1/CF30-2	φ 8 Attached	φ 8 Attached	Attached

# CAM FOLLOWERS

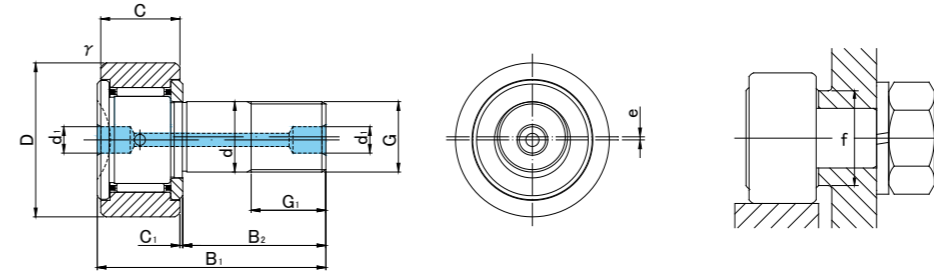
SOLID ECCENTRIC TYPE  
SCREWDRIVER SLOT HEAD



CFH



CFH.V



## CFH TYPE

Prepacked Grease

Stud diameter (mm)	Designation	Dimensions (mm)											Basic dynamic load rating	Basic static load rating	Largest permissible load	Limiting speed *	Track load capacity		Max tightening torque	Mass				
		Cylindrical outer ring				Crowned outer ring R500(CF18) R1000(CF20 ≤)											Cylindrical outer ring N	Crowned outer ring N			N·m	g (approx)		
h7 tolerance	Without seals	With seals	Without seals	With seals	D	C	d	G	G1	B1	B2	C1	d1	r <sub>s</sub> min	e	f min	Cr N	Cor N	N	rpm	N	N	N·m	g (approx)
18	CFH18	CFH18UU	CFH18R	CFH18UUR	40	20	18	M18×1.5	19	58	36.5	0.8	6	1	0.6	26	14 700	25 200	25 200	8 500	14 400	3 720	87	250
	CFH18V	CFH18VUU	CFH18VR	CFH18VUUR													25 280	51 350	26 560	3 500				
20	CFH20	CFH20UU	CFH20R	CFH20UUR	52	24	20	M20×1.5	21	66	40.5	0.8	8	1	0.7	36	20 680	34 600	32 140	7 000	23 200	8 230	120	460
	CFH20V	CFH20VUU	CFH20VR	CFH20VUUR													33 120	64 480	32 140	3 500				
20	CFH20-1	CFH20-1UU	CFH20-1R	CFH20-1UUR	47	24	20	M20×1.5	21	66	40.5	0.8	8	1	0.7	36	20 680	34 600	32 140	7 000	21 000	7 150	120	385
	CFH20-1V	CFH20-1VUU	CFH20-1VR	CFH20-1VUUR													33 120	64 480	32 140	3 500				
24	CFH24	CFH24UU	CFH24R	CFH24UUR	62	29	24	M24×1.5	25	80	49.5	0.8	8	1	0.8	40	30 480	52 630	49 500	6 500	34 200	10 500	220	815
	CFH24V	CFH24VUU	CFH24VR	CFH24VUUR													46 550	92 020	49 500	3 000				
24	CFH24-1	CFH24-1UU	CFH24-1R	CFH24-1UUR	72	29	24	M24×1.5	25	80	49.5	0.8	8	1	0.8	40	30 480	52 630	49 500	6 500	39 800	12 900	220	1 140
	CFH24-1V	CFH24-1VUU	CFH24-1VR	CFH24-1VUUR													46 550	92 020	49 500	3 000				
30	CFH30	CFH30UU	CFH30R	CFH30UUR	80	35	30	M30×1.5	32	100	63	1	8	1	1	46	45 370	85 060	73 700	5 000	52 600	14 900	450	1 870
	CFH30V	CFH30VUU	CFH30VR	CFH30VUUR													67 620	144 060	73 700	2 200				
30	CFH30-1	CFH30-1UU	CFH30-1R	CFH30-1UUR	85	35	30	M30×1.5	32	100	63	1	8	1	1	46	45 370	85 060	73 700	5 000	56 000	16 100	450	2 030
	CFH30-1V	CFH30-1VUU	CFH30-1VR	CFH30-1VUUR													67 620	144 060	73 700	2 200				
30	CFH30-2	CFH30-2UU	CFH30-2R	CFH30-2UUR	90	35	30	M30×1.5	32	100	63	1	8	1	1	46	45 370	85 060	73 700	5 000	59 300	17 300	450	2 220
	CFH30-2V	CFH30-2VUU	CFH30-2VR	CFH30-2VUUR													67 620	144 060	73 700	2 200				

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

### OUTER RINGS TOLERANCE (μm)

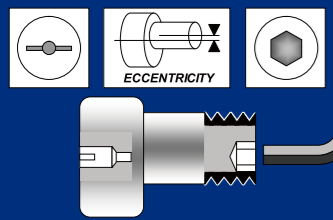
TYPE	Cylindrical outer ring	Crowned outer ring
CF5,CF6	0/-8	0/-50
CF8,CF10,CF10-1,CF12	0/-9	0/-50
CF12-1,CF16,CF18,CF20-1	0/-11	0/-50
CF20,CF24,CF24-1,CF30	0/-13	0/-50
CF30-1,CF30-2	0/-15	0/-50

### ACCESSORIES

TYPE	STOP PLUG	RESIN PLUG	NUT
CF5	—	—	Attached
CF6/CF8/CF10/CF10-1	—	φ 4 Attached	Attached
CF12/CF12-1/CF16/CF18	φ 6 Attached	φ 6 Attached	Attached
CF20/CF20-1/CF24/CF24-1/CF30/CF30-1/CF30-2	φ 8 Attached	φ 8 Attached	Attached

# CAM FOLLOWERS

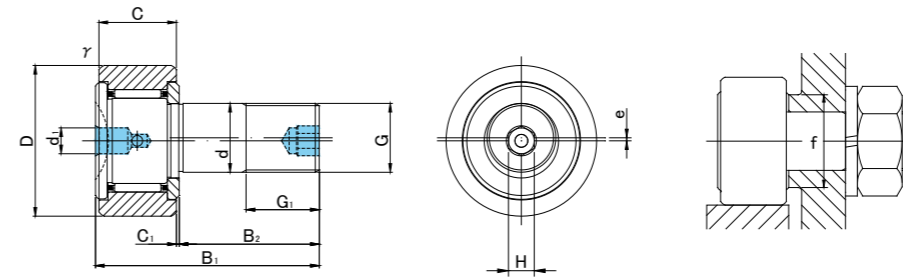
SOLID ECCENTRIC TYPE  
HEXAGON SOCKET ON THREAD SIDE  
SCREWDRIVER SLOT HEAD



CFH..B



CFH..VB



## CFH..B TYPE

Prepacked Grease

Stud diameter (mm)	h7 tolerance	Designation				Dimensions (mm)														Basic dynamic load rating Cr N	Basic static load rating Cor N	Largest permissible load N	Limiting speed * rpm	Track load capacity		Max tightening torque N·m	Mass g (approx)
		Cylindrical outer ring		Crowned outer ring R500(CF12 ~ CF18) R1000(CF20 ≤)		D	C	d	G	G1	B1	B2	C1	d1	H	rs min	e	f min	Cylindrical outer ring N					Crowned outer ring N			
		Without seals	With seals	Without seals	With seals																						
12	0 -0.018	CFH12B	CFH12UUB	CFH12RB	CFH12UURB	30	14	12	M12×1.5	13	40	25	0.6	6	6	0.6	0.4	20	7 940	9 800	9 800	14 000	7 060	2 450	22	95	
		CFH12VB	CFH12VUUB	CFH12VRB	CFH12VUURB														13 430	19 700	11 270	6 000					
12	0 -0.018	CFH12-1B	CFH12-1UUB	CFH12-1RB	CFH12-1UURB	32	14	12	M12×1.5	13	40	25	0.6	6	6	0.6	0.4	20	7 940	9 800	9 800	14 000	7 450	2 740	22	105	
		CFH12-1VB	CFH12-1VUUB	CFH12-1VRB	CFH12-1VUURB														13 430	19 700	11 270	6 000					
16	0 -0.018	CFH16B	CFH16UUB	CFH16RB	CFH16UURB	35	18	16	M16×1.5	17	52	32.5	0.8	6	6	0.6	0.5	24	12 050	18 330	18 330	10 000	11 200	3 140	58	170	
		CFH16VB	CFH16VUUB	CFH16VRB	CFH16VUURB														20 680	37 630	19 800	4 500					
18	0 -0.018	CFH18B	CFH18UUB	CFH18RB	CFH18UURB	40	20	18	M18×1.5	19	58	36.5	0.8	6	6	1	0.6	26	14 700	25 200	25 200	8 500	14 400	3 720	87	250	
		CFH18VB	CFH18VUUB	CFH18VRB	CFH18VUURB														25 280	51 350	26 560	3 500					
20	0 -0.021	CFH20B	CFH20UUB	CFH20RB	CFH20UURB	52	24	20	M20×1.5	21	66	40.5	0.8	8	8	1	0.7	36	20 680	34 600	32 140	7 000	23 200	8 230	120	460	
		CFH20VB	CFH20VUUB	CFH20VRB	CFH20VUURB														33 120	64 480	32 140	3 500					
20	0 -0.021	CFH20-1B	CFH20-1UUB	CFH20-1RB	CFH20-1UURB	47	24	20	M20×1.5	21	66	40.5	0.8	8	8	1	0.7	36	20 680	34 600	32 140	7 000	21 000	7 150	120	385	
		CFH20-1VB	CFH20-1VUUB	CFH20-1VRB	CFH20-1VUURB														33 120	64 480	32 140	3 500					
24	0 -0.021	CFH24B	CFH24UUB	CFH24RB	CFH24UURB	62	29	24	M24×1.5	25	80	49.5	0.8	8	8	1	0.8	40	30 480	52 630	49 500	6 500	34 200	10 500	220	815	
		CFH24VB	CFH24VUUB	CFH24VRB	CFH24VUURB														46 550	92 020	49 500	3 000					
24	0 -0.021	CFH24-1B	CFH24-1UUB	CFH24-1RB	CFH24-1UURB	72	29	24	M24×1.5	25	80	49.5	0.8	8	8	1	0.8	40	30 480	52 630	49 500	6 500	39 800	12 900	220	1 140	
		CFH24-1VB	CFH24-1VUUB	CFH24-1VRB	CFH24-1VUURB														46 550	92 020	49 500	3 000					
30	0 -0.021	CFH30B	CFH30UUB	CFH30RB	CFH30UURB	80	35	30	M30×1.5	32	100	63	1	8	8	1	1	46	45 370	85 060	73 700	5 000	52 600	14 900	450	1 870	
		CFH30VB	CFH30VUUB	CFH30VRB	CFH30VUURB														67 620	144 060	73 700	2 200					
30	0 -0.021	CFH30-1B	CFH30-1UUB	CFH30-1RB	CFH30-1UURB	85	35	30	M30×1.5	32	100	63	1	8	8	1	1	46	45 370	85 060	73 700	5 000	56 000	16 100	450	2 030	
		CFH30-1VB	CFH30-1VUUB	CFH30-1VRB	CFH30-1VUURB														67 620	144 060	73 700	2 200					
30	0 -0.021	CFH30-2B	CFH30-2UUB	CFH30-2RB	CFH30-2UURB	90	35	30	M30×1.5	32	100	63	1	8	8	1	1	46	45 370	85 060	73 700	5 000	59 300	17 300	450	2 220	
		CFH30-2VB	CFH30-2VUUB	CFH30-2VRB	CFH30-2VUURB														67 620	144 060	73 700	2 200					

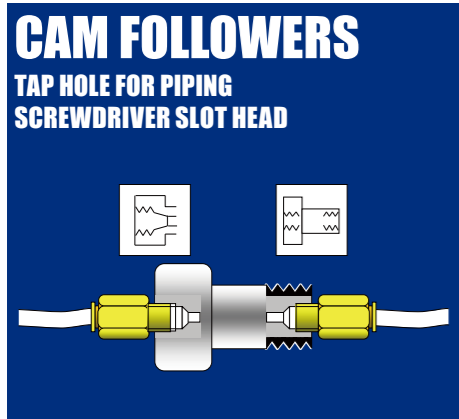
\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

### OUTER RINGS TOLERANCE (μm)

TYPE	Cylindrical outer ring	Crowned outer ring
CF12	0/-9	0/-50
CF12-1,CF16,CF18,CF20-1	0/-11	0/-50
CF20,CF24,CF24-1,CF30	0/-13	0/-50
CF30-1,CF30-2	0/-15	0/-50

### ACCESSORIES

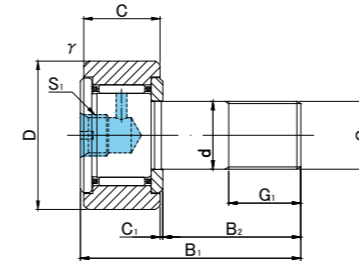
TYPE	STOP PLUG	RESIN PLUG	NUT
CF12/CF12-1/CF16/CF18	φ 6 Attached	φ 6 Attached	Attached
CF20/CF20-1/CF24/CF24-1/CF30/CF30-2	φ 8 Attached	φ 8 Attached	Attached



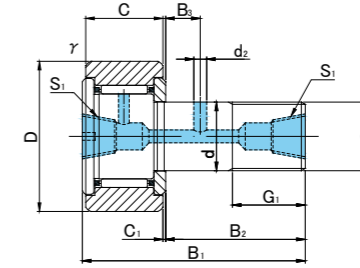
CFT



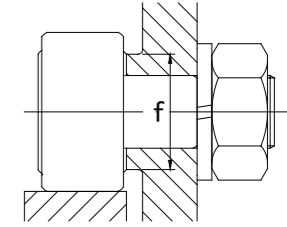
CFT.V



CFT6(V)~CFT10-1(V)



CFT12(V)~CFT18(V)



CFT TYPE

Prepacked Grease

Stud diameter (mm)	h7 tolerance	Designation				Dimensions (mm)														Basic dynamic load rating Cr N	Basic static load rating Cor N	Largest permissible load N	Limiting speed * rpm	Track load capacity		Max tightening torque N·m	Mass g (approx)
		Cylindrical outer ring		Crowned outer ring R500(CF6 ~ CF18)		D	C	d	G	G1	B1	B2	B3	C1	S1	d2	r <sub>s</sub> min	f min	Cylindrical outer ring N					Crowned outer ring N			
		Without seals	With seals	Without seals	With seals																						
6	0 -0.012	CFT 6	CFT 6UU	CFT 6R	CFT 6UUR	16	11	6	M6×1	8	28	16	—	0.6	M6×0.75	—	0.3	11	3 630	3 630	2 110	25 000	3 430	1 080	3	18.5	
		CFT 6V	CFT 6VUU	CFT 6VR	CFT 6VUUR														6 960	8 530	2 110	12 000					
8	0 -0.015	CFT 8	CFT 8UU	CFT 8R	CFT 8UUR	19	11	8	M8×1.25	10	32	20	—	0.6	M6×0.75	—	0.3	13	4 310	4 710	4 710	20 000	4 020	1 370	8	28.5	
		CFT 8V	CFT 8VUU	CFT 8VR	CFT 8VUUR														8 130	11 170	4 710	9 000					
10	0 -0.015	CFT10	CFT10UU	CFT10R	CFT10UUR	22	12	10	M10×1.25	12	36	23	—	0.6	M6×0.75	—	0.3	15	5 390	6 860	6 860	17 000	4 700	1 670	15	45	
		CFT10V	CFT10VUU	CFT10VR	CFT10VUUR														9 510	14 500	7 450	7 500					
10	0 -0.015	CFT10-1	CFT10-1UU	CFT10-1R	CFT10-1UUR	26	12	10	M10×1.25	12	36	23	—	0.6	M6×0.75	—	0.3	15	5 390	6 860	6 860	17 000	5 490	2 060	15	60	
		CFT10-1V	CFT10-1VUU	CFT10-1VR	CFT10-1VUUR														9 510	14 500	7 450	7 500					
12	0 -0.018	CFT12	CFT12UU	CFT12R	CFT12UUR	30	14	12	M12×1.5	13	40	25	6	0.6	M6×0.75	3	0.6	20	7 940	9 800	9 800	14 000	7 060	2 450	22	95	
		CFT12V	CFT12VUU	CFT12VR	CFT12VUUR														13 430	19 700	11 270	6 000					
12	0 -0.018	CFT12-1	CFT12-1UU	CFT12-1R	CFT12-1UUR	32	14	12	M12×1.5	13	40	25	6	0.6	M6×0.75	3	0.6	20	7 940	9 800	9 800	14 000	7 450	2 740	22	105	
		CFT12-1V	CFT12-1VUU	CFT12-1VR	CFT12-1VUUR														13 430	19 700	11 270	6 000					
16	0 -0.018	CFT16	CFT16UU	CFT16R	CFT16UUR	35	18	16	M16×1.5	17	52	32.5	8	0.8	Rc1/8	3	0.6	24	12 050	18 330	18 330	10 000	11 200	3 140	58	170	
		CFT16V	CFT16VUU	CFT16VR	CFT16VUUR														20 680	37 630	19 800	4 500					
18	0 -0.018	CFT18	CFT18UU	CFT18R	CFT18UUR	40	20	18	M18×1.5	19	58	36.5	8	0.8	Rc1/8	3	1	26	14 700	25 200	25 200	8 500	14 400	3 720	87	250	
		CFT18V	CFT18VUU	CFT18VR	CFT18VUUR														25 280	51 350	26 560	3 500					

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

OUTER RINGS TOLERANCE (μm)

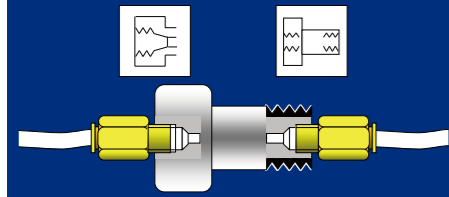
TYPE	Cylindrical outer ring	Crowned outer ring
CF6	0/-8	0/-50
CF8,CF10,CF10-1,CF12	0/-9	0/-50
CF12-1,CF16,CF18,CF20-1	0/-11	0/-50
CF20,CF24,CF24-1,CF30	0/-13	0/-50
CF30-1,CF30-2	0/-15	0/-50

ACCESSORIES

TYPE	
All types	 NUT Attached

# CAM FOLLOWERS

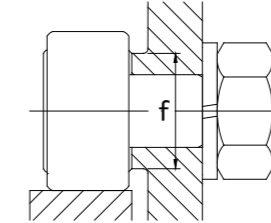
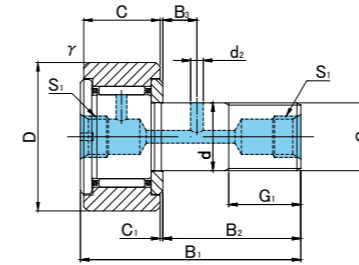
TAP HOLE FOR PIPING  
SCREWDRIVER SLOT HEAD



CFT



CFT.V



## CFT TYPE

Prepacked Grease

Stud diameter (mm)	h7 tolerance	Designation				Dimensions (mm)														Basic dynamic load rating Cr N	Basic static load rating Cor N	Largest permissible load N	Limiting speed * rpm	Track load capacity		Max tightening torque N·m	Mass g (approx)
		Cylindrical outer ring		Crowned outer ring R1000(CF20 ≤)		D	C	d	G	G1	B1	B2	B3	C1	S1	d2	r <sub>s</sub> min	f min	Cylindrical outer ring N					Crowned outer ring N			
		Without seals	With seals	Without seals	With seals																						
20	0 -0.021	CFT20	CFT20UU	CFT20R	CFT20UUR	52	24	20	M20×1.5	21	66	40.5	9	0.8	Rc1/8	4	1	36	20 680	34 600	32 140	7 000	23 200	8 230	120	460	
		CFT20V	CFT20VUU	CFT20VR	CFT20VUUR														33 120	64 480	32 140	3 500					
20	0 -0.021	CFT20-1	CFT20-1UU	CFT20-1R	CFT20-1UUR	47	24	20	M20×1.5	21	66	40.5	9	0.8	Rc1/8	4	1	36	20 680	34 600	32 140	7 000	21 000	7 150	120	385	
		CFT20-1V	CFT20-1VUU	CFT20-1VR	CFT20-1VUUR														33 120	64 480	32 140	3 500					
24	0 -0.021	CFT24	CFT24UU	CFT24R	CFT24UUR	62	29	24	M24×1.5	25	80	49.5	11	0.8	Rc1/8	4	1	40	30 480	52 630	49 500	6 500	34 200	10 500	220	815	
		CFT24V	CFT24VUU	CFT24VR	CFT24VUUR														46 550	92 020	49 500	3 000					
24	0 -0.021	CFT24-1	CFT24-1UU	CFT24-1R	CFT24-1UUR	72	29	24	M24×1.5	25	80	49.5	11	0.8	Rc1/8	4	1	40	30 480	52 630	49 500	6 500	39 800	12 900	220	1 140	
		CFT24-1V	CFT24-1VUU	CFT24-1VR	CFT24-1VUUR														46 550	92 020	49 500	3 000					
30	0 -0.021	CFT30	CFT30UU	CFT30R	CFT30UUR	80	35	30	M30×1.5	32	100	63	15	1	Rc1/8	4	1	46	45 370	85 060	73 700	5 000	52 600	14 900	450	1 870	
		CFT30V	CFT30VUU	CFT30VR	CFT30VUUR														67 620	144 060	73 700	2 200					
30	0 -0.021	CFT30-1	CFT30-1UU	CFT30-1R	CFT30-1UUR	85	35	30	M30×1.5	32	100	63	15	1	Rc1/8	4	1	46	45 370	85 060	73 700	5 000	56 000	56 000	450	2 030	
		CFT30-1V	CFT30-1VUU	CFT30-1VR	CFT30-1VUUR														67 620	144 060	73 700	2 200					
30	0 -0.021	CFT30-2	CFT30-2UU	CFT30-2R	CFT30-2UUR	90	35	30	M30×1.5	32	100	63	15	1	Rc1/8	4	1	46	45 370	85 060	73 700	5 000	59 300	59 300	450	2 220	
		CFT30-2V	CFT30-2VUU	CFT30-2VR	CFT30-2VUUR														67 620	144 060	73 700	2 200					

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

### OUTER RINGS TOLERANCE (μm)

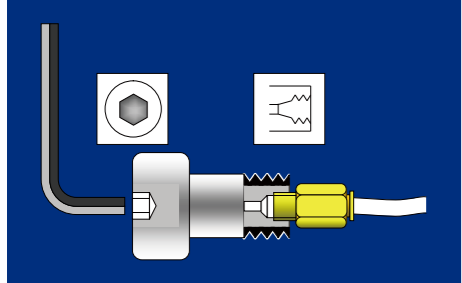
TYPE	Cylindrical outer ring	Crowned outer ring
CF6	0/-8	0/-50
CF8,CF10,CF10-1,CF12	0/-9	0/-50
CF12-1,CF16,CF18,CF20-1	0/-11	0/-50
CF20,CF24,CF24-1,CF30	0/-13	0/-50
CF30-1,CF30-2	0/-15	0/-50

### ACCESSORIES

TYPE	
All types	NUT Attached

# CAM FOLLOWERS

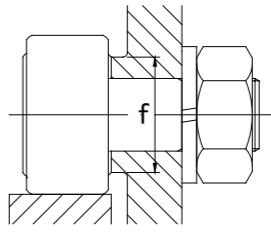
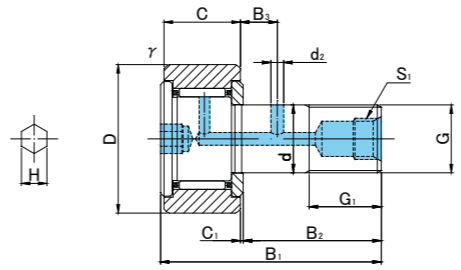
TAP HOLE FOR PIPING  
HEXAGON SOCKET ON STUD HEAD



CFT..A



CFT..VA



## CFT..A TYPE

Prepacked Grease

Stud diameter (mm)	h7 tolerance	Designation				Dimensions (mm)															Basic dynamic load rating Cr N	Basic static load rating Cor N	Largest permissible load N	Limiting speed * rpm	Track load capacity		Max tightening torque N·m	Mass g (approx)
		Cylindrical outer ring		Crowned outer ring R500(CF12~CF18) R1000(CF20≤)		D	C	d	G	G1	B1	B2	B3	C1	S1	d2	H	r min	f min	Cylindrical outer ring N					Crowned outer ring N			
		Without seals	With seals	Without seals	With seals																							
12	0 -0.018	CFT12A	CFT12UUA	CFT12RA	CFT12UURA	30	14	12	M12×1.5	13	40	25	6	0.6	M6×0.75	3	6	0.6	20	7 940	9 800	9 800	14 000	7 060	2 450	22	95	
		CFT12VA	CFT12VUUA	CFT12VRA	CFT12VUURA															13 430	19 700	11 270	6 000					
12	0 -0.018	CFT12-1A	CFT12-1UUA	CFT12-1RA	CFT12-1UURA	32	14	12	M12×1.5	13	40	25	6	0.6	M6×0.75	3	6	0.6	20	7 940	9 800	9 800	14 000	7 450	2 740	22	105	
		CFT12-1VA	CFT12-1VUUA	CFT12-1VRA	CFT12-1VUURA															13 430	19 700	11 270	6 000					
16	0 -0.018	CFT16A	CFT16UUA	CFT16RA	CFT16UURA	35	18	16	M16×1.5	17	52	32.5	8	0.8	Rc1/8	3	6	0.6	24	12 050	18 330	18 330	10 000	11 200	3 140	58	170	
		CFT16VA	CFT16VUUA	CFT16VRA	CFT16VUURA															20 680	37 630	19 800	4 500					
18	0 -0.018	CFT18A	CFT18UUA	CFT18RA	CFT18UURA	40	20	18	M18×1.5	19	58	36.5	8	0.8	Rc1/8	3	6	1	26	14 700	25 200	25 200	8 500	14 400	3 720	87	250	
		CFT18VA	CFT18VUUA	CFT18VRA	CFT18VUURA															25 280	51 350	26 560	3 500					
20	0 -0.021	CFT20A	CFT20UUA	CFT20RA	CFT20UURA	52	24	20	M20×1.5	21	66	40.5	9	0.8	Rc1/8	4	8	1	36	20 680	34 600	32 140	7 000	23 200	8 230	120	460	
		CFT20VA	CFT20VUUA	CFT20VRA	CFT20VUURA															33 120	64 480	32 140	3 500					
20	0 -0.021	CFT20-1A	CFT20-1UUA	CFT20-1RA	CFT20-1UURA	47	24	20	M20×1.5	21	66	40.5	9	0.8	Rc1/8	4	8	1	36	20 680	34 600	32 140	7 000	21 000	7 150	120	385	
		CFT20-1VA	CFT20-1VUUA	CFT20-1VRA	CFT20-1VUURA															33 120	64 480	32 140	3 500					
24	0 -0.021	CFT24A	CFT24UUA	CFT24RA	CFT24UURA	62	29	24	M24×1.5	25	80	49.5	11	0.8	Rc1/8	4	8	1	40	30 480	52 630	49 500	6 500	34 200	10 500	220	815	
		CFT24VA	CFT24VUUA	CFT24VRA	CFT24VUURA															46 550	92 020	49 500	3 000					
24	0 -0.021	CFT24-1A	CFT24-1UUA	CFT24-1RA	CFT24-1UURA	72	29	24	M24×1.5	25	80	49.5	11	0.8	Rc1/8	4	8	1	40	30 480	52 630	49 500	6 500	39 800	12 900	220	1 140	
		CFT24-1VA	CFT24-1VUUA	CFT24-1VRA	CFT24-1VUURA															46 550	92 020	49 500	3 000					
30	0 -0.021	CFT30A	CFT30UUA	CFT30RA	CFT30UURA	80	35	30	M30×1.5	32	100	63	15	1	Rc1/8	4	8	1	46	45 370	85 060	73 700	5 000	52 600	14 900	450	1 870	
		CFT30VA	CFT30VUUA	CFT30VRA	CFT30VUURA															67 620	144 060	73 700	2 200					
30	0 -0.021	CFT30-1A	CFT30-1UUA	CFT30-1RA	CFT30-1UURA	85	35	30	M30×1.5	32	100	63	15	1	Rc1/8	4	8	1	46	45 370	85 060	73 700	5 000	56 000	56 000	450	2 030	
		CFT30-1VA	CFT30-1VUUA	CFT30-1VRA	CFT30-1VUURA															67 620	144 060	73 700	2 200					
30	0 -0.021	CFT30-2A	CFT30-2UUA	CFT30-2RA	CFT30-2UURA	90	35	30	M30×1.5	32	100	63	15	1	Rc1/8	4	8	1	46	45 370	85 060	73 700	5 000	59 300	59 300	450	2 220	
		CFT30-2VA	CFT30-2VUUA	CFT30-2VRA	CFT30-2VUURA															67 620	144 060	73 700	2 200					

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

### OUTER RINGS TOLERANCE

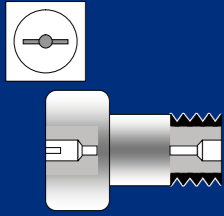
TYPE	Cylindrical outer ring	Crowned outer ring
CF12	0/-9	0/-50
CF12-1,CF16,CF18,CF20-1	0/-11	0/-50
CF20,CF24,CF24-1,CF30	0/-13	0/-50
CF30-1,CF30-2	0/-15	0/-50

### ACCESSORIES

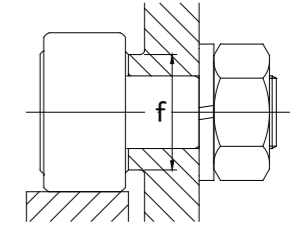
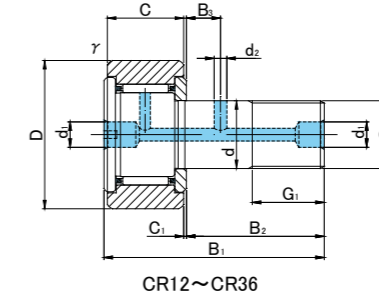
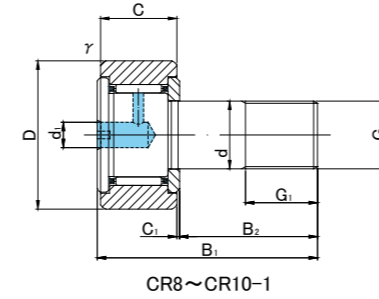
TYPE	
All types	NUT Attached

# CAM FOLLOWERS

INCH DIMENSION  
SCREWDRIVER SLOT HEAD



CR






## CR TYPE

Prepacked Grease

Stud diameter	Designation				Dimensions (inch/mm)																	Basic dynamic load rating	Basic static load rating	Limiting speed *	Track load capacity		Max tightening torque	Mass							
	Cylindrical outer ring		Crowned outer ring R250(≤CR8-1) R500(CR10≤)		D	C	d	G UNF	G1	B1	B2	B3	C1	d1	d2	r	f	Cr N	Cor N	rpm	Cylindrical outer ring N				Crowned outer ring N	N·m			g (approx)						
d mm (inch)	Without seals	With seals	Without seals	With seals																	C		G		B1		B2			B3		C1		d1	
4.826 (-)	CR8	CR8UU	CR8R	CR8UUR	1/2	12.7	11/32	8.731	—	4.826	No.10-32	1/4	6.35	7/8	22.225	—	—	0.8	1/8	3.175	—	—	1/64	0.397	21/64	8.334	2 550	2 160	28 000	2 160	730	2	9		
	CR8-1	CR8-1UU	CR8-1R	CR8-1UUR		3/8	9.525	1 1/32						26.194	5/8															15.875	2 350		730	10	
6.350 (1/4)	CR10	CR10UU	CR10R	CR10UUR	5/8	15.875	13/32	10.319	1/4	6.35	1/4 - 28	5/16	7.938	1 1/16	26.988	—	—	0.8	1/8	3.175	—	—	1/64	0.397	29/64	11.509	3 630	3 630	21 000	3 230	1 180	3	19		
	CR10-1	CR10-1UU	CR10-1R	CR10-1UUR		7/16	11.112	1 7/32						30.956	3/4															19.05	3 430		1 180	21	
9.525 (3/8)	CR12	CR12UU	CR12R	CR12UUR	3/4	19.05	1/2	12.7	3/8	9.525	3/8 - 24	3/8	9.525	1 13/32	35.719	7/8	22.225	1/4	6.35	0.8	3/16	4.762	3/32	2.381	1/32	0.794	17/32	13.494	4 410	5 100	15 000	4 510	1 270	17	35
	CR14	CR14UU	CR14R	CR14UUR		7/8								22.225	19/32																	15.081	4 800		5 780
11.112 (7/16)	CR16	CR16UU	CR16R	CR16UUR	1	25.4	5/8	15.875	7/16	11.112	7/16 - 20	1/2	12.7	1 21/32	42.069	1	25.4	1/4	6.35	0.8	3/16	4.762	1/8	3.175	3/64	1.191	45/64	17.859	8 820	10 780	13 000	7 250	1 960	20	73
	CR18	CR18UU	CR18R	CR18UUR		1 1/8								28.575	1/16																	1.588	3/4		19.05
12.700 (1/2)	CR20	CR20UU	CR20R	CR20UUR	1 1/4	31.75	3/4	19.05	1/2	12.7	1/2 - 20	5/8	15.875	2 1/32	51.594	1 1/4	31.75	5/16	7.938	0.8	3/16	4.762	1/8	3.175	1/16	1.588	55/64	21.828	14 210	15 970	11 000	10 680	2 840	28	132
	CR22	CR22UU	CR22R	CR22UUR		1 3/8								34.925	11 760																	2 940	157		
15.875 (5/8)	CR24	CR24UU	CR24R	CR24UUR	1 1/2	38.1	7/8	22.225	5/8	15.875	5/8 - 18	3/4	19.05	2 13/32	61.119	1 1/2	38.1	3/8	9.525	0.8	3/16	4.762	5/32	3.969	1/16	1.588	1 3/64	26.196	18 520	24 210	8 500	15 390	3 820	64	225
	CR26	CR26UU	CR26R	CR26UUR		1 5/8								41.275	16 660																	3 820	260		
19.05 (3/4)	CR28	CR28UU	CR28R	CR28UUR	1 3/4	44.45	1	25.4	3/4	19.05	3/4 - 16	7/8	22.225	2 25/32	70.644	1 3/4	44.45	7/16	11.112	0.8	3/16	4.762	5/32	3.969	1/16	1.588	1 9/32	32.543	25 090	38 220	7 000	20 970	3 820	117	365
	CR30	CR30UU	CR30R	CR30UUR		1 7/8								47.625	22 440																	4 700	410		
22.225 (7/8)	CR32	CR32UU	CR32R	CR32UUR	2	50.8	1 1/4	31.75	7/8	22.225	7/8 - 14	1	25.4	3 9/32	83.344	2	50.8	1/2	12.7	0.8	3/16	4.762	3/16	4.762	1/16	1.588	1 15/32	37.306	32 440	63 800	5 500	30 870	4 900	186	615
	CR36	CR36UU	CR36R	CR36UUR		2 1/4								57.15	34 690																	5 980	750		

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

### ACCESSORIES




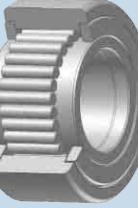
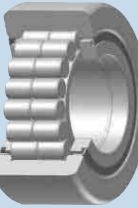
TYPE			
CR8, CR8-1, CR10, CR10-1	—	—	Attached
CR12, CR14, CR16, CR18, CR20, CR22	φ 4.8 Attached	φ 4.8 Attached	Attached
CR24, CR26, CR28, CR30, CR32, CR36	φ 4.8 Attached	φ 4.8 Attached	Attached

# ROLLER FOLLOWERS





## Type and Part Code

Type	Applicable shaft diameter	Feature	Part Code
 <p>RNAS T (Separable type)</p>	$\phi 7 \sim \phi 60$	NAS T type without inner ring. Available with stainless steel type (code M) for higher corrosive resistance.	<p><b>RNAS T</b>   <b>15</b> <b>M</b>   <b>R</b></p> <p>↑   ↑   ↑</p> <p>Type   ↑   <b>R</b>: Crowned outer ring <b>None</b>: Cylindrical outer ring</p> <p><b>M</b>: Stainless steel <b>None</b>: High Carbon steel</p>
 <p>NAS T (Separable type)</p>	$\phi 6 \sim \phi 50$	Thick wall outer ring, inner ring. Separable bearing with combined needle roller with precision cage. Available with stainless steel type (code M) for higher corrosive resistance.	<p><b>NAS T</b>   <b>15</b> <b>M</b>   <b>R</b></p> <p>↑   ↑   ↑</p> <p>Type   ↑   <b>R</b>: Crowned outer ring <b>None</b>: Cylindrical outer ring</p> <p><b>M</b>: Stainless steel <b>None</b>: High Carbon steel</p>
 <p>NAS T-ZZ (Separable type)</p>	$\phi 6 \sim \phi 50$	Separable bearing in which labyrinth seal is formed with combined side plate at both sides of inner ring of NAS T type. (NAS T-ZZUU type comes with seal) Available with stainless steel type (code M) for higher corrosive resistance.	<p><b>NAS T</b>   <b>15</b> <b>M</b>   <b>ZZ</b>   <b>UU</b>   <b>R</b></p> <p>↑   ↑   ↑   ↑   ↑</p> <p>Type   ↑   <b>ZZ</b>: With shield   ↑   <b>UU</b>: With seal   ↑   <b>R</b>: Crowned outer ring <b>None</b>: Cylindrical outer ring</p> <p><b>M</b>: Stainless steel   <b>UU</b>: With seal <b>None</b>: High Carbon steel   <b>None</b>: With shield</p>
 <p>NART-R (Non-separable type)</p>	$\phi 5 \sim \phi 50$	Non-separable bearing with fixed side plate at inner ring. Mitigate eccentric load with spherical shape at outer diameter of outer ring (Code R). (NART-UUR type comes with seal) Available with stainless steel type (code M) for higher corrosive resistance.	<p><b>NART</b>   <b>15</b> <b>M</b>   <b>UU</b>   <b>V</b>   <b>R</b></p> <p>↑   ↑   ↑   ↑   ↑</p> <p>Type   ↑   <b>UU</b>: With seal   ↑   <b>R</b>: Crowned outer ring <b>None</b>: With shield   ↑   <b>X</b>: Cylindrical outer ring</p> <p><b>M</b>: Stainless steel   <b>V</b>: Full complement <b>None</b>: High Carbon steel   <b>None</b>: With cage</p>
 <p>NURT-R (Double-row cylindrical roller)</p>	$\phi 15 \sim \phi 50$	Bearing which allows high radial loading and moderate axial loading with integrated cylindrical roller in double rows. Mitigate eccentric load with spherical shape at outer diameter of outer ring (Code R).	<p><b>NURT</b>   <b>15</b>   <b>R</b></p> <p>↑   ↑   ↑</p> <p>Type   ↑   <b>R</b>: Crowned outer ring <b>X</b>: Cylindrical outer ring</p>

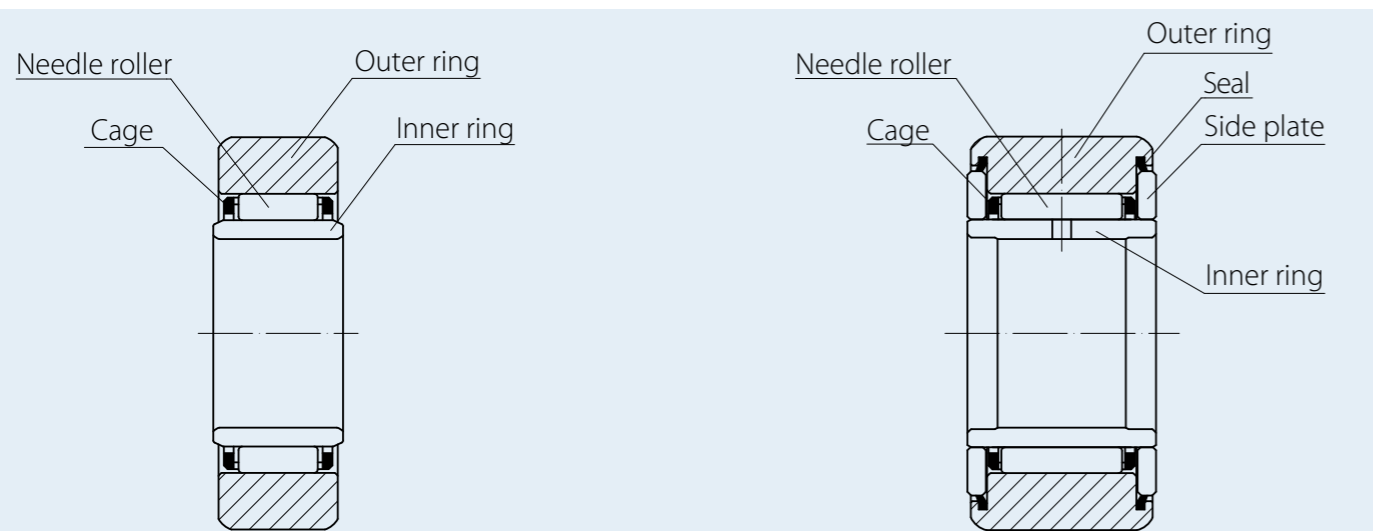
## Structure and Features

Roller follower is a bearing with integrated "roller" featuring high rigidity. Its primary application is in a guide roller to have its contacting member travel in linear motion in direction of tangent using rotation of outer ring.

Outer ring of the roller follower is designed with thick ring in order to provide high rigidity to endure heavy load or impact load at portion to contact with the associated objects.

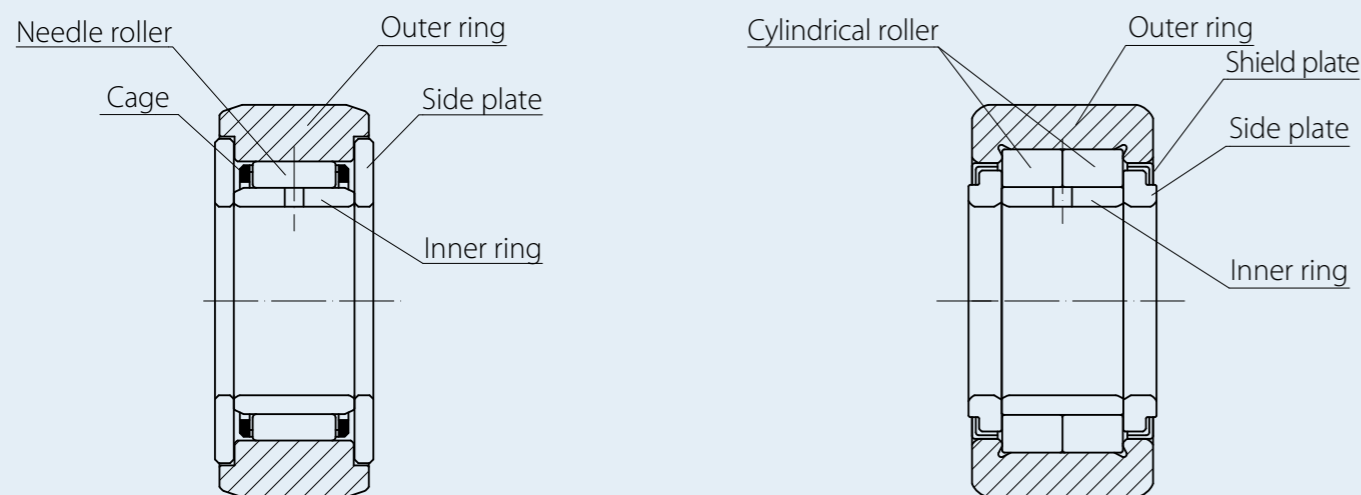
Type of roller follower mainly consists of separate type, which have separated inner ring and outer ring, and non-separate type, whose inner ring has fixed side plate.

Also, various types with shapes and structures are available in accordance with application. Outer rings have two types – crowned outer ring and cylindrical outer ring. The crowned outer ring is suited for absorbing eccentric load since it absorbs angular misalignment due to a mount error. Cylindrical outer ring is effective for heavy duty since it contacts with large contact area of the associated objects so that can mitigate the contact surface pressure. They have two internal mechanism – one with cage and one with full complement. A roller follower with cage is suitable for high speed application since the guiding feature of cage enables the rotation of "rollers" to be stable. Compared with cage type, full complement type is effective for applications with low-speed operation of heavy load due to its larger load rating. Full complement type also includes double-row cylindrical roller type which allows moderate axial loading.



Structure of type NAST

Structure of type NART..UUR



Structure of type NAST..ZZ

Structure of type NURT

## Accuracy standard

Roller followers are manufactured in accordance with the following accuracies.

Unit:  $\mu\text{m}$

Name	Category	Crowned outer ring	Cylindrical outer ring
Dimension tolerance of outer ring outer diameter (D)		0 -50	Refer to Table-3
Dimension tolerance of outer ring width (C)		0 -120	
Tolerance of inner ring width (B)	Separable	0 -120	
Tolerance of bearing width (B)	Non-separable	h12	—
Fw	Separable	Refer to Table-11 on page 23	

Unit:  $\mu\text{m}$

Nominal inner ring bore diameter d (mm)		Deviation of mean bore diameter in a single plane $\Delta_{dmp}$		Tolerance of radial runout of inner ring
Over	Incl.	high	low	max.
2.5	10	0	-8	10
10	18	0	-9	10
18	30	0	-10	13
30	50	0	-12	15

Unit:  $\mu\text{m}$

Nominal outer ring bore diameter D (mm)		Deviation of mean outer diameter in a single plane $\Delta_{Dmp}$		Tolerance of radial runout of outer ring (max.)
Over	Incl.	high	low	max.
6	18	0	-8	15
18	30	0	-9	15
30	50	0	-11	20
50	80	0	-13	25
80	120	0	-15	35

## Radial internal clearance

Table below indicates radial internal clearance of roller follower.

Table-4 Radial internal clearance

Unit:  $\mu\text{m}$

Part code			Radial internal clearance	
Separable	Non-separable	Double row cylindrical roller	min.	max.
NAST6	NART5R ~ 6R		5	20
NAST8 ~ 12	NART8R ~ 12R		5	25
NAST15 ~ 25	NART15R ~ 25R		10	30
NAST30 ~ 40	NART30R ~ 40R		10	40
NAST45 ~ 50	NART45R ~ 50R		15	50
		NURT15R ~ 30-1R	0	25
		NURT35R ~ 40-1R	5	30
		NURT45R ~ 50-1R	5	35

## Fits

Table below indicates recommended fits between roller follower and its mounting shaft.

Table-5 Shaft fits

Type		Tolerance grade
Separable	Without inner ring	k5,k6
	With inner ring	g6,h6
Non-separable		
Double row cylindrical roller		

## Track load capacity

Track load capacity means a permissible load under which the outer ring of cam follower and the mating surface are allowable to be used over a long period without causing any deformation nor compression mark. Track load capacity depicted in dimension table indicates a value for which hardness of contacting steel member is assumed to be HRC40. In the case that the hardness of contacting member is not HRC40, track load capacity in the dimension table shall be multiplied by value of track capacity factor obtained by Figure-1.

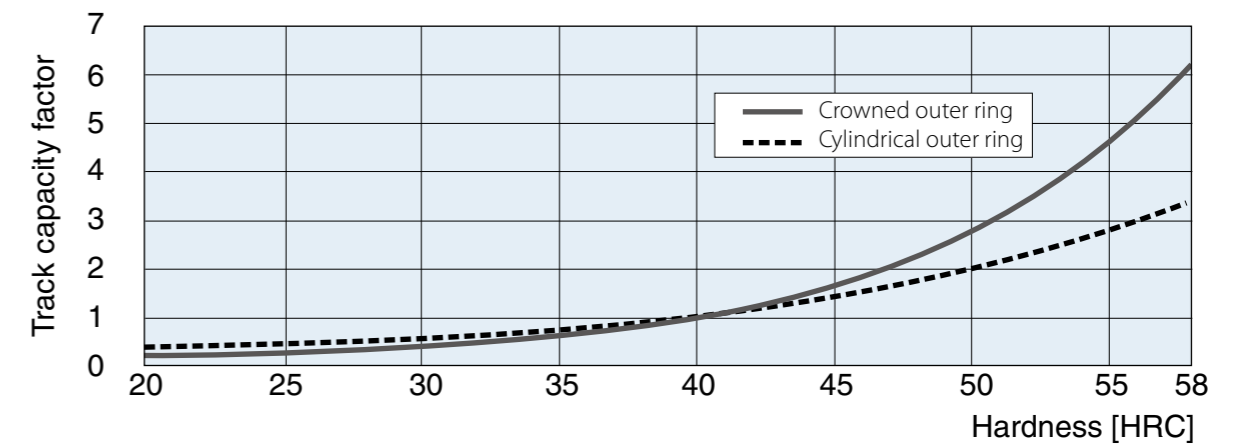


Figure-1 Track capacity factor

## Lubrication

All the JNS roller followers are lubricated with pre-packed high quality lithium soap-based grease grade 2 (RoHS compliant) so that they are ready to use. For applications requiring high prevention measure against invasion of foreign matter or leakage of lubricant, products with seal (part code--UU) which integrate special synthetic lubber with high abrasion resistance are also available.

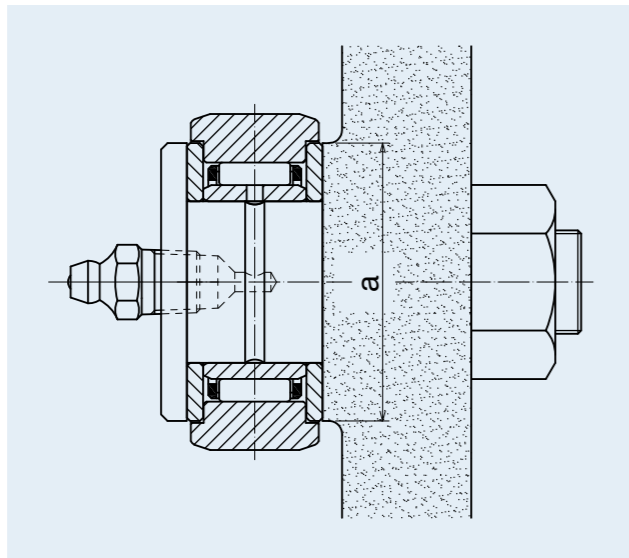
Grease shall be packed up to volume approximately one-third to one-half of internal space of bearing. Lubrication interval varies depending on operation condition. Referential interval may be every six to twenty four months for roller followers with cages and every one to six months for full complement type with grease in the same type.

Some excessive grease may leak at the beginning of usage or immediately after re-greasing even for the products with seal. Aging operation period is recommended prior to application in which no contamination by grease is allowed in and around device. Wipe and clean any leaked extra grease after this operation.

## Mounting

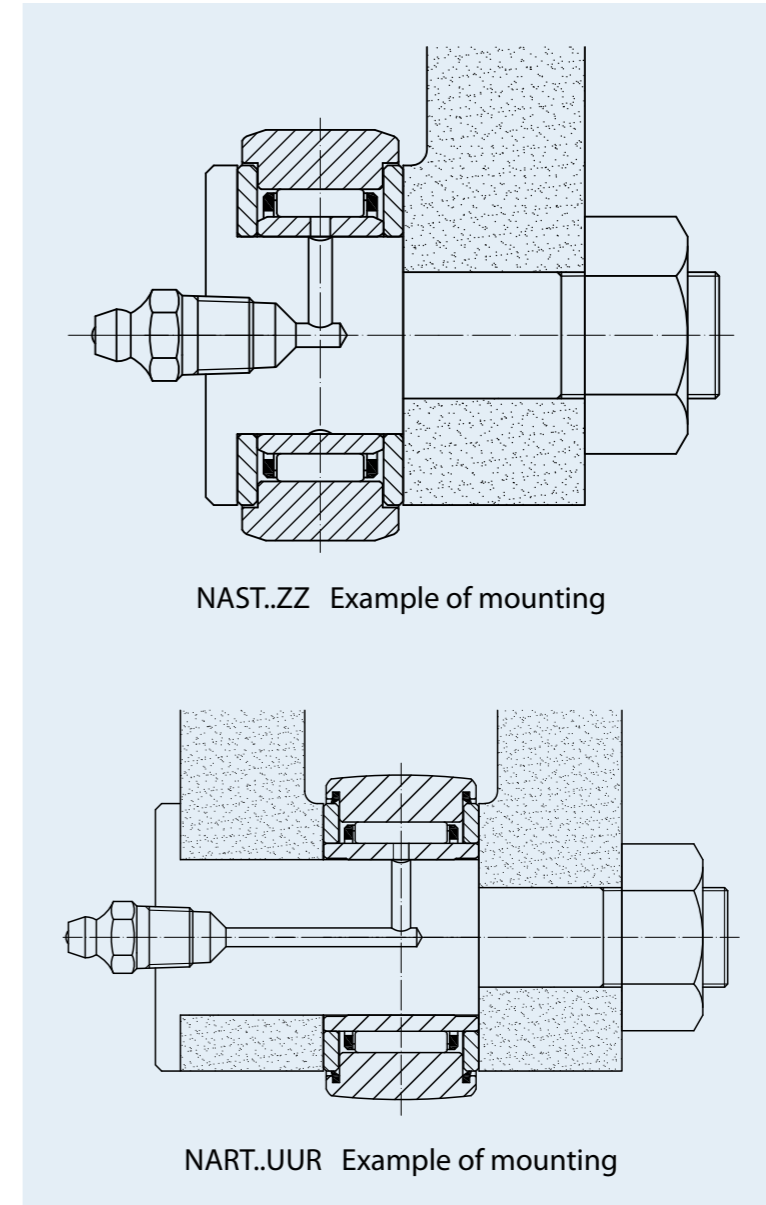
### Mounting part

- Thrust load may cause damage to side plate, outer ring or roller follower since it is designed so as to support load in radial direction. It is recommended to design and assemble to avoid thrust load.
- Application with roller follower without inner ring requires heat treatment and grinding finish of shaft. Surface hardness of the shaft shall be HRC58 to 64, and surface roughness shall be  $R_a$  0.2  $\mu$  m or less for this application.
- Side plate of non-separate type roller follower is pressed-in to fix it. Application in a manner to push the side plate shall be avoided in order to prevent risk of abnormal rotation under external force.
- Crowned outer ring is recommended in the case that contact between the outer ring and contacting member track surface is not smooth and even.
- When mounting NART, NAST-ZZ and NURT type, dimension "a" must be more than it described in dimension table in order to protect the side plate.



### Mounting method

To prevent pre-mature failure of roller follower, lubrication hole of inner ring shall be located outside of loading range (on the side to receive load).

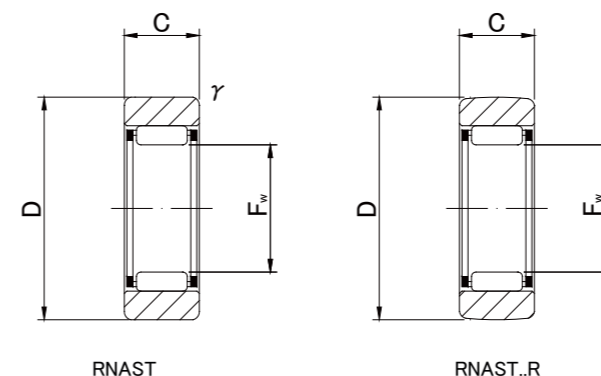


# ROLLER FOLLOWERS

## SEPARABLE WITHOUT INNER RING



RNAS T



### RNAS T TYPE

Prepacked Grease

Shaft Diameter (mm)	Designation		Dimensions (mm)				Basic dynamic load rating	Basic static load rating	Track load capacity		Limiting speed *	Mass		
	Cylindrical outer ring	Crowned outer ring (R500)	Fw	D	C	r/s min			Cr N	Cor N			Cylindrical outer ring N	Crowned outer ring N
7	RNAS T 5	RNAS T 5R	7 <sup>+0.022</sup> / <sub>+0.013</sub>	16	7.8	0.3	2 740	2 390	2 350	1 080	30 000	8.9		
10	RNAS T 6	RNAS T 6R	10 <sup>+0.027</sup> / <sub>+0.016</sub>	19	9.8	0.3	4 120	4 550	3 530	1 370	20 000	13.9		
12	RNAS T 8	RNAS T 8R	12 <sup>+0.027</sup> / <sub>+0.016</sub>	24	9.8	0.6	5 680	5 890	4 020	1 860	17 000	23.5		
14	RNAS T10	RNAS T10R	14 <sup>+0.027</sup> / <sub>+0.016</sub>	30	11.8	1	9 700	9 670	5 590	2 450	15 000	42.5		
16	RNAS T12	RNAS T12R	16 <sup>+0.027</sup> / <sub>+0.016</sub>	32	11.8	1	10 400	10 900	5 980	2 740	13 000	49.5		
20	RNAS T15	RNAS T15R	20 <sup>+0.033</sup> / <sub>+0.020</sub>	35	11.8	1	12 300	14 300	6 570	3 140	10 000	50		
22	RNAS T17	RNAS T17R	22 <sup>+0.033</sup> / <sub>+0.020</sub>	40	15.8	1	17 400	20 900	10 900	3 720	9 500	90		
25	RNAS T20	RNAS T20R	25 <sup>+0.033</sup> / <sub>+0.020</sub>	47	15.8	1	19 200	24 500	12 700	4 610	8 500	135		
30	RNAS T25	RNAS T25R	30 <sup>+0.033</sup> / <sub>+0.020</sub>	52	15.8	1	20 700	28 400	14 100	5 290	7 000	152		
38	RNAS T30	RNAS T30R	38 <sup>+0.041</sup> / <sub>+0.025</sub>	62	19.8	1	30 300	45 400	22 100	6 660	5 500	255		
42	RNAS T35	RNAS T35R	42 <sup>+0.041</sup> / <sub>+0.025</sub>	72	19.8	1	32 200	50 600	25 700	8 130	5 000	375		
50	RNAS T40	RNAS T40R	50 <sup>+0.041</sup> / <sub>+0.025</sub>	80	19.8	1.5	35 700	61 100	26 900	9 310	4 000	420		
55	RNAS T45	RNAS T45R	55 <sup>+0.049</sup> / <sub>+0.030</sub>	85	19.8	1.5	37 100	66 400	28 500	10 100	4 000	460		
60	RNAS T50	RNAS T50R	60 <sup>+0.049</sup> / <sub>+0.030</sub>	90	19.8	1.5	38 700	71 800	30 200	11 000	3 500	500		

\* Suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible.

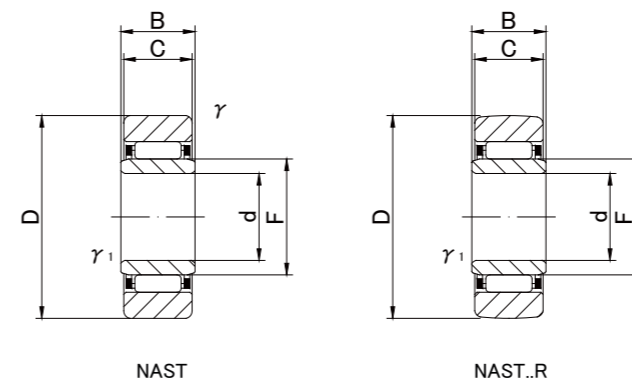
#### OUTER RINGS TOLERANCE (μm)

TYPE	Cylindrical outer ring	Crowned outer ring
RNAS T5	0/-8	0/-50
RNAS T6,RNAS T8,RNAS T10	0/-9	0/-50
RNAS T12,RNAS T15,RNAS T17,RNAS T20	0/-11	0/-50
RNAS T25,RNAS T30,RNAS T35,RNAS T40	0/-13	0/-50
RNAS T45,RNAS T50	0/-15	0/-50

# ROLLER FOLLOWERS SEPARABLE WITH INNER RING



NAST



## NAST TYPE

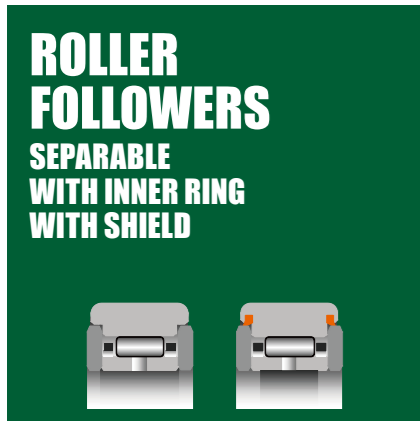
Prepacked Grease

Shaft Diameter (mm)	Designation		Dimensions (mm)							Basic dynamic load rating	Basic static load rating	Track load capacity		Limiting speed *	Mass		
	Cylindrical outer ring	Crowned outer ring (R500)	d	D	B	C	r's min	r1's min	F			Cr N	Cor N			Cylindrical outer ring N	Crowned outer ring N
<b>6</b>	<b>NAST 6</b>	<b>NAST 6R</b>	6 <sup>0</sup> <sub>-0.008</sub>	<b>19</b>	10	9.8	0.3	0.3	10	4 120	4 550	3 530	1 370	20 000	17.8		
<b>8</b>	<b>NAST 8</b>	<b>NAST 8R</b>	8 <sup>0</sup> <sub>-0.008</sub>	<b>24</b>	10	9.8	0.6	0.3	12	5 680	5 890	4 020	1 860	17 000	28		
<b>10</b>	<b>NAST10</b>	<b>NAST10R</b>	10 <sup>0</sup> <sub>-0.008</sub>	<b>30</b>	12	11.8	1	0.3	14	9 700	9 670	5 590	2 450	15 000	50		
<b>12</b>	<b>NAST12</b>	<b>NAST12R</b>	12 <sup>0</sup> <sub>-0.008</sub>	<b>32</b>	12	11.8	1	0.3	16	10 400	10 900	5 980	2 740	13 000	58		
<b>15</b>	<b>NAST15</b>	<b>NAST15R</b>	15 <sup>0</sup> <sub>-0.008</sub>	<b>35</b>	12	11.8	1	0.3	20	12 300	14 300	6 570	3 140	10 000	62		
<b>17</b>	<b>NAST17</b>	<b>NAST17R</b>	17 <sup>0</sup> <sub>-0.010</sub>	<b>40</b>	16	15.8	1	0.3	22	17 400	20 900	10 900	3 720	9 500	110		
<b>20</b>	<b>NAST20</b>	<b>NAST20R</b>	20 <sup>0</sup> <sub>-0.010</sub>	<b>47</b>	16	15.8	1	0.3	25	19 200	24 500	12 700	4 610	8 500	155		
<b>25</b>	<b>NAST25</b>	<b>NAST25R</b>	25 <sup>0</sup> <sub>-0.010</sub>	<b>52</b>	16	15.8	1	0.3	30	20 700	28 400	14 100	5 290	7 000	180		
<b>30</b>	<b>NAST30</b>	<b>NAST30R</b>	30 <sup>0</sup> <sub>-0.010</sub>	<b>62</b>	20	19.8	1	0.6	38	30 300	45 400	22 100	6 660	5 500	320		
<b>35</b>	<b>NAST35</b>	<b>NAST35R</b>	35 <sup>0</sup> <sub>-0.012</sub>	<b>72</b>	20	19.8	1	0.6	42	32 200	50 600	25 700	8 130	5 000	440		
<b>40</b>	<b>NAST40</b>	<b>NAST40R</b>	40 <sup>0</sup> <sub>-0.012</sub>	<b>80</b>	20	19.8	1.5	1	50	35 700	61 100	26 900	9 310	4 000	530		
<b>45</b>	<b>NAST45</b>	<b>NAST45R</b>	45 <sup>0</sup> <sub>-0.012</sub>	<b>85</b>	20	19.8	1.5	1	55	37 100	66 400	28 500	10 100	4 000	580		
<b>50</b>	<b>NAST50</b>	<b>NAST50R</b>	50 <sup>0</sup> <sub>-0.012</sub>	<b>90</b>	20	19.8	1.5	1	60	38 700	71 800	30 200	11 000	3 500	635		

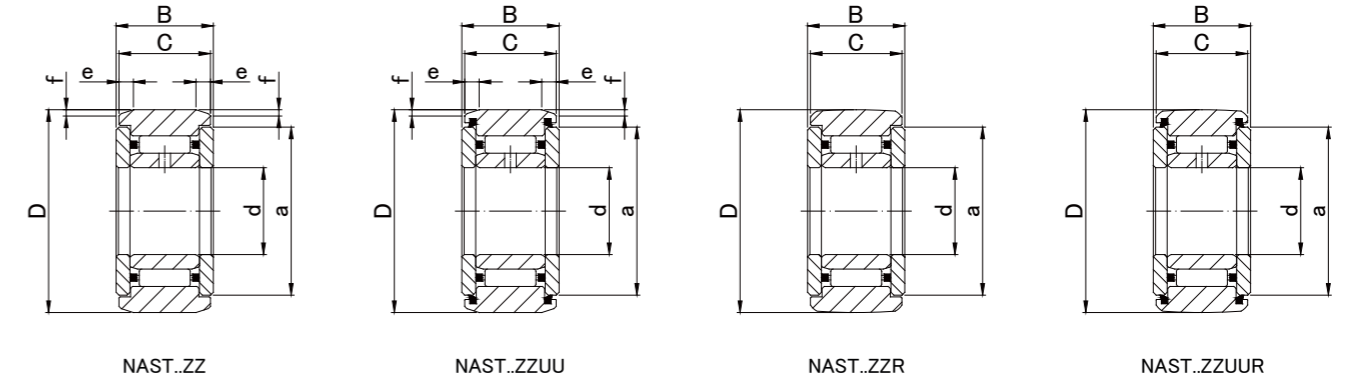
\* Suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible.

### OUTER RINGS TOLERANCE (Outside diameter) (μm)

TYPE	Cylindrical outer ring	Crowned outer ring
NAST6,NAST8,NAST10	0/-9	0/-50
NAST12,NAST15,NAST17,NAST20	0/-11	0/-50
NAST25,NAST30,NAST35,NAST40	0/-13	0/-50
NAST45,NAST50	0/-15	0/-50



NAST..ZZ



**NAST..ZZ TYPE**

Prepacked Grease

Shaft Diameter (mm)	Designation				Dimensions (mm)									Basic dynamic load rating Cr N	Basic static load rating Cor N	Track load capacity		Limiting speed * rpm	Mass g (approx)
	Cylindrical outer ring		Crowned outer ring (R500)		d	D	B	C	a	e	f	r/s min	Cylindrical outer ring N			Crowned outer ring N			
	Without seals	With seals	Without seals	With seals															
<b>6</b>	<b>NAST 6ZZ</b>	<b>NAST 6ZZUU</b>	<b>NAST 6ZZR</b>	<b>NAST 6ZZUUR</b>	6 <sup>0</sup> <sub>-0.008</sub>	<b>19</b>	14	13.8	14	2.5	0.8	0.3	4 120	4 550	3 530	1 370	20 000	24.5	
<b>8</b>	<b>NAST 8ZZ</b>	<b>NAST 8ZZUU</b>	<b>NAST 8ZZR</b>	<b>NAST 8ZZUUR</b>	8 <sup>0</sup> <sub>-0.008</sub>	<b>24</b>	14	13.8	17.5	2.5	0.8	0.6	5 680	5 890	4 510	1 860	17 000	39	
<b>10</b>	<b>NAST10ZZ</b>	<b>NAST10ZZUU</b>	<b>NAST10ZZR</b>	<b>NAST10ZZUUR</b>	10 <sup>0</sup> <sub>-0.008</sub>	<b>30</b>	16	15.8	23.5	2.5	0.8	1	9 700	9 670	6 860	2 450	15 000	65	
<b>12</b>	<b>NAST12ZZ</b>	<b>NAST12ZZUU</b>	<b>NAST12ZZR</b>	<b>NAST12ZZUUR</b>	12 <sup>0</sup> <sub>-0.008</sub>	<b>32</b>	16	15.8	25.5	2.5	0.8	1	10 400	10 900	7 350	2 740	13 000	75	
<b>15</b>	<b>NAST15ZZ</b>	<b>NAST15ZZUU</b>	<b>NAST15ZZR</b>	<b>NAST15ZZUUR</b>	15 <sup>0</sup> <sub>-0.008</sub>	<b>35</b>	16	15.8	29	2.5	0.8	1	12 300	14 300	8 040	3 140	10 000	83	
<b>17</b>	<b>NAST17ZZ</b>	<b>NAST17ZZUU</b>	<b>NAST17ZZR</b>	<b>NAST17ZZUUR</b>	17 <sup>0</sup> <sub>-0.010</sub>	<b>40</b>	20	19.8	32.5	3	1	1	17 400	20 900	11 800	3 720	9 500	135	
<b>20</b>	<b>NAST20ZZ</b>	<b>NAST20ZZUU</b>	<b>NAST20ZZR</b>	<b>NAST20ZZUUR</b>	20 <sup>0</sup> <sub>-0.010</sub>	<b>47</b>	20	19.8	38	3	1	1	19 200	24 500	13 800	4 610	8 500	195	
<b>25</b>	<b>NAST25ZZ</b>	<b>NAST25ZZUU</b>	<b>NAST25ZZR</b>	<b>NAST25ZZUUR</b>	25 <sup>0</sup> <sub>-0.010</sub>	<b>52</b>	20	19.8	43	3	1	1	20 700	28 400	15 300	5 290	7 000	225	
<b>30</b>	<b>NAST30ZZ</b>	<b>NAST30ZZUU</b>	<b>NAST30ZZR</b>	<b>NAST30ZZUUR</b>	30 <sup>0</sup> <sub>-0.010</sub>	<b>62</b>	25	24.8	50.5	4	1.2	1	30 300	45 400	22 100	6 660	5 500	400	
<b>35</b>	<b>NAST35ZZ</b>	<b>NAST35ZZUU</b>	<b>NAST35ZZR</b>	<b>NAST35ZZUUR</b>	35 <sup>0</sup> <sub>-0.012</sub>	<b>72</b>	25	24.8	53.5	4	1.2	1	32 200	50 600	25 700	8 130	5 000	550	
<b>40</b>	<b>NAST40ZZ</b>	<b>NAST40ZZUU</b>	<b>NAST40ZZR</b>	<b>NAST40ZZUUR</b>	40 <sup>0</sup> <sub>-0.012</sub>	<b>80</b>	26	25.8	61.5	4	1.2	1.5	35 700	61 100	30 300	9 310	4 000	710	
<b>45</b>	<b>NAST45ZZ</b>	<b>NAST45ZZUU</b>	<b>NAST45ZZR</b>	<b>NAST45ZZUUR</b>	45 <sup>0</sup> <sub>-0.012</sub>	<b>85</b>	26	25.8	66.5	4	1.2	1.5	37 100	66 400	31 100	10 100	4 000	760	
<b>50</b>	<b>NAST50ZZ</b>	<b>NAST50ZZUU</b>	<b>NAST50ZZR</b>	<b>NAST50ZZUUR</b>	50 <sup>0</sup> <sub>-0.012</sub>	<b>90</b>	26	25.8	76	4	1.2	1.5	38 700	71 800	34 000	11 000	3 500	830	

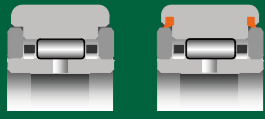
\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

OUTER RINGS TOLERANCE (Outside diameter) (µm)

TYPE	Cylindrical outer ring	Crowned outer ring
NAST6,NAST8,NAST10	0/-9	0/-50
NAST12,NAST15,NAST17,NAST20	0/-11	0/-50
NAST25,NAST30,NAST35,NAST40	0/-13	0/-50
NAST45,NAST50	0/-15	0/-50

# ROLLER FOLLOWERS

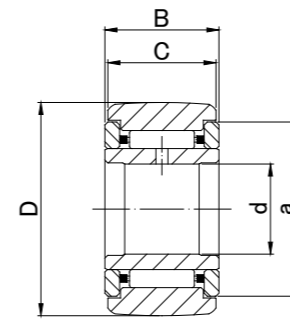
NON SEPARABLE WITH INNER RING



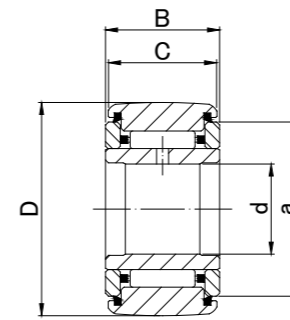
NART..R



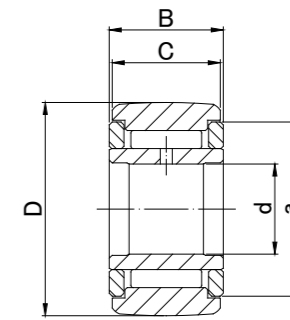
NART..VR



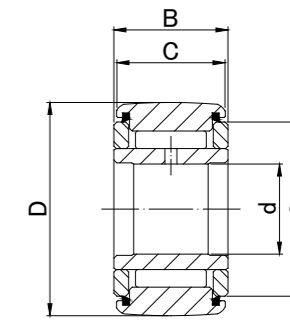
NART..R  
NART..X



NART..UUR  
NART..UUX



NART..VR  
NART..VX



NART..UUVR  
NART..UUVX

## NART TYPE

Prepacked Grease

Shaft Diameter (mm)	Designation				Dimensions (mm)					Basic dynamic load rating	Basic static load rating	Track load capacity		Limiting speed *	Mass			
	Crowned outer ring R500( ≤ NART17) R1000(NART20 ≤ )		Cylindrical outer ring		d	D	B	C	a			f/s min	Cr N			Cor N	Crowned outer ring N	Cylindrical outer ring N
	Without seals	With seals	Without seals	With seals														
5	NART 5R	NART 5UUR	NART 5X	NART 5UUX	5 <sup>0</sup>	16	12	11	12	0.3	3 620	3 720	1 080	3 430	25 000	14.5		
	NART 5VR	NART 5UUVR	NART 5VX	NART 5UUVX	5 <sup>-0.008</sup>												8 500	15.1
6	NART 6R	NART 6UUR	NART 6X	NART 6UUX	6 <sup>0</sup>	19	12	11	14	0.3	4 200	4 700	1 370	4 020	20 000	20.5		
	NART 6VR	NART 6UUVR	NART 6VX	NART 6UUVX	6 <sup>-0.008</sup>												7 000	21.5
8	NART 8R	NART 8UUR	NART 8X	NART 8UUX	8 <sup>0</sup>	24	15	14	17.5	0.3	6 600	7 300	1 860	5 950	17 000	41.5		
	NART 8VR	NART 8UUVR	NART 8VX	NART 8UUVX	8 <sup>-0.008</sup>												11 800	15 600
10	NART10R	NART10UUR	NART10X	NART10UUX	10 <sup>0</sup>	30	15	14	23.5	0.6	8 600	8 300	2 450	7 060	15 000	64.5		
	NART10VR	NART10UUVR	NART10VX	NART10UUVX	10 <sup>-0.008</sup>												15 600	18 100
12	NART12R	NART12UUR	NART12X	NART12UUX	12 <sup>0</sup>	32	15	14	25.5	0.6	9 100	9 200	2 740	7 450	13 000	71		
	NART12VR	NART12UUVR	NART12VX	NART12UUVX	12 <sup>-0.008</sup>												16 800	20 500
15	NART15R	NART15UUR	NART15X	NART15UUX	15 <sup>0</sup>	35	19	18	29	0.6	14 400	17 600	3 140	11 200	10 000	102		
	NART15VR	NART15UUVR	NART15VX	NART15UUVX	15 <sup>-0.008</sup>												25 100	36 400
17	NART17R	NART17UUR	NART17X	NART17UUX	17 <sup>0</sup>	40	21	20	32.5	1	18 600	22 500	3 720	14 400	9 500	149		
	NART17VR	NART17UUVR	NART17VX	NART17UUVX	17 <sup>-0.008</sup>												32 000	46 200
20	NART20R	NART20UUR	NART20X	NART20UUX	20 <sup>0</sup>	47	25	24	38	1	24 100	32 700	7 150	21 000	8 000	250		
	NART20VR	NART20UUVR	NART20VX	NART20UUVX	20 <sup>-0.010</sup>												41 700	67 300
25	NART25R	NART25UUR	NART25X	NART25UUX	25 <sup>0</sup>	52	25	24	43	1	25 800	37 500	8 230	23 200	7 000	285		
	NART25VR	NART25UUVR	NART25VX	NART25UUVX	25 <sup>-0.010</sup>												45 500	79 000
30	NART30R	NART30UUR	NART30X	NART30UUX	30 <sup>0</sup>	62	29	28	50.5	1	36 200	56 900	10 500	33 000	5 500	470		
	NART30VR	NART30UUVR	NART30VX	NART30UUVX	30 <sup>-0.010</sup>												59 800	110 400
35	NART35R	NART35UUR	NART35X	NART35UUX	35 <sup>0</sup>	72	29	28	53.5	1	38 200	62 800	12 900	38 000	5 000	640		
	NART35VR	NART35UUVR	NART35VX	NART35UUVX	35 <sup>-0.012</sup>												63 000	121 500
40	NART40R	NART40UUR	NART40X	NART40UUX	40 <sup>0</sup>	80	32	30	61.5	1	46 200	84 700	14 900	44 400	4 000	845		
	NART40VR	NART40UUVR	NART40VX	NART40UUVX	40 <sup>-0.012</sup>												76 200	164 200
45	NART45R	NART45UUR	NART45X	NART45UUX	45 <sup>0</sup>	85	32	30	66.5	1	49 300	95 200	16 100	47 000	4 000	915		
	NART45VR	NART45UUVR	NART45VX	NART45UUVX	45 <sup>-0.012</sup>												80 200	181 100
50	NART50R	NART50UUR	NART50X	NART50UUX	50 <sup>0</sup>	90	32	30	76	1	51 100	102 300	17 300	50 000	3 500	980		
	NART50VR	NART50UUVR	NART50VX	NART50UUVX	50 <sup>-0.012</sup>												84 100	198 000

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

### OUTER RINGS TOLERANCE (Outside diameter) (μm)

TYPE	Crowned outer ring	Cylindrical outer ring
NART5	0/-50	0/-8
NART6,NART8,NART10	0/-50	0/-9
NART12,NART15,NART17,NART20	0/-50	0/-11
NART25,NART30,NART35,NART40	0/-50	0/-13
NART45,NART50	0/-50	0/-15

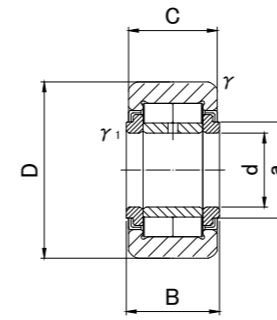


# ROLLER FOLLOWERS

FULL COMPLEMENT DOUBLE ROW  
NON SEPARABLE  
WITH INNER RING



NURT



NURT..R  
NURT..X

## NURT TYPE

Prepacked Grease

Shaft Diameter (mm)	Designation		Dimensions (mm)							Basic dynamic load rating	Basic static load rating	Track load capacity		Limiting speed	Mass		
	Crowned outer ring R500(≤NURT17-1) R1000(NURT20≤)	Cylindrical outer ring	d	D	B	C	a	r <sub>s</sub> min	r <sub>1s</sub> min			Cr N	Cor N			Crowned outer ring	Cylindrical outer ring
	N															N	
15	NURT15R	NURT15X	15 <sup>0</sup>	35	19	18	20	0.6	0.3	23 400	27 200	3 140	11 200	5 200	100		
	NURT15-1R	NURT15-1X	15 <sup>-0.008</sup>	42	19	18	20	0.6	0.3	23 400	27 200	3 930	13 900	5 200	160		
17	NURT17R	NURT17X	17 <sup>0</sup>	40	21	20	22	1	0.5	25 200	30 900	3 720	14 400	4 700	147		
	NURT17-1R	NURT17-1X	17 <sup>-0.008</sup>	47	21	20	22	1	0.5	25 200	30 900	4 550	17 300	4 700	222		
20	NURT20R	NURT20X	20 <sup>0</sup>	47	25	24	27	1	0.5	38 900	48 900	7 150	21 000	3 800	245		
	NURT20-1R	NURT20-1X	20 <sup>-0.010</sup>	52	25	24	27	1	0.5	38 900	48 900	8 230	23 200	3 800	321		
25	NURT25R	NURT25X	25 <sup>0</sup>	52	25	24	31	1	0.5	43 000	58 100	8 230	23 200	3 300	281		
	NURT25-1R	NURT25-1X	25 <sup>-0.010</sup>	62	25	24	31	1	0.5	43 000	58 100	10 500	27 400	3 300	450		
30	NURT30R	NURT30X	30 <sup>0</sup>	62	29	28	38	1	0.5	57 500	74 300	10 500	32 000	2 800	466		
	NURT30-1R	NURT30-1X	30 <sup>-0.010</sup>	72	29	28	38	1	0.5	57 500	74 300	12 900	37 200	2 800	697		
35	NURT35R	NURT35X	35 <sup>0</sup>	72	29	28	44	1.1	0.6	63 300	87 500	12 900	37 200	2 300	630		
	NURT35-1R	NURT35-1X	35 <sup>-0.012</sup>	80	29	28	44	1.1	0.6	63 300	87 500	14 900	41 300	2 300	840		
40	NURT40R	NURT40X	40 <sup>0</sup>	80	32	30	51	1.1	0.6	86 900	124 600	14 900	44 300	1 900	817		
	NURT40-1R	NURT40-1X	40 <sup>-0.012</sup>	90	32	30	51	1.1	0.6	86 900	124 600	17 300	49 800	1 900	1 130		
45	NURT45R	NURT45X	45 <sup>0</sup>	85	32	30	55	1.1	0.6	91 700	137 100	16 100	47 100	1 700	883		
	NURT45-1R	NURT45-1X	45 <sup>-0.012</sup>	100	32	30	55	1.1	0.6	91 700	137 100	19 840	55 400	1 700	1 400		
50	NURT50R	NURT50X	50 <sup>0</sup>	90	32	30	60	1.1	0.6	96 300	149 700	17 300	49 800	1 500	950		
	NURT50-1R	NURT50-1X	50 <sup>-0.012</sup>	110	32	30	60	1.1	0.6	96 300	149 700	22 530	60 900	1 500	1 690		

OUTER RINGS TOLERANCE (Outside diameter) (μm)

TYPE	Crowned outer ring	Cylindrical outer ring
NURT15, NURT15-1, NURT17, NURT17-1, NURT20	0/-50	0/-11
NURT20-1, NURT25, NURT25-1, NURT30, NURT30-1, NURT35, NURT35-1, NURT40	0/-50	0/-13
NURT40-1, NURT45, NURT45-1, NURT50, NURT50-1	0/-50	0/-15

# NEEDLE ROLLER BEARINGS

## STAINLESS STEEL



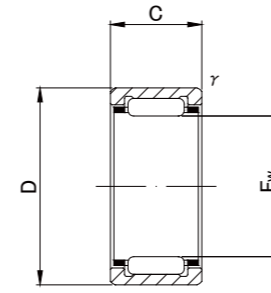
**MACHINED RING  
NEEDLE ROLLER  
BEARINGS  
STAINLESS STEEL  
WITHOUT INNER RING**



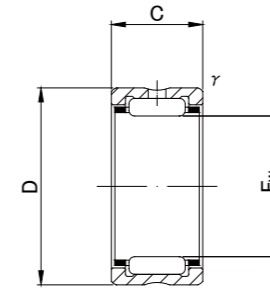
SUS/INOX



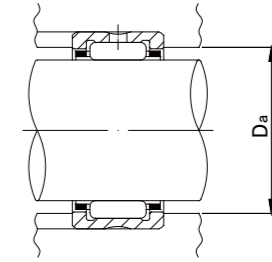
RNA49..M , NK..M



NK..M(Fw ≤ 10)



RNA49..M,NK..M



**RNA49..M NK..M TYPE**

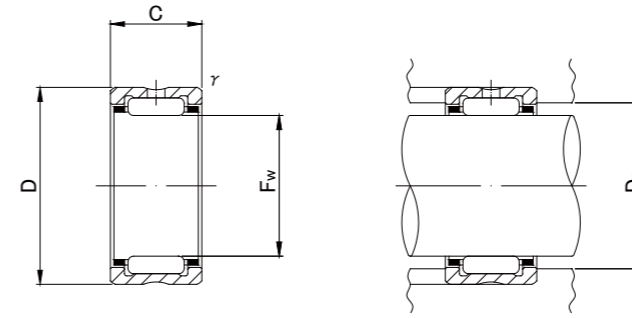
Shaft Diameter (mm)	Designation		Dimensions (mm)				Standard mounting dimensions (mm)	Basic dynamic load rating	Basic static load rating	Limiting speed *	Mass	Usable bearing designation	
	RNA49..M	NK..M	Fw	D	C	fs min						Da MAX	Cr N
5	—	NK5/10M NK5/12M	5 +0.018	10	10	0.15	6.5	2 200	1 700	40 000	3.4	—	—
			5 +0.010	10	12	0.15	6.5	2 800	2 400	40 000	4.2	—	—
6	—	NK6/10M NK6/12M	6 +0.018	12	10	0.015	7.5	2 400	2 100	37 000	5.3	—	—
			6 +0.010	12	12	0.15	7.5	3 100	2 900	37 000	6.4	—	—
7	RNA495M	— NK7/10M NK7/12M	7 +0.022	13	10	0.15	8.5	2 700	2 400	34 000	5.9	—	—
	—		7 +0.013	14	10	0.3	8.5	3 300	2 700	34 000	6.9	—	—
	—		7 —	14	12	0.3	8.5	4 200	3 700	34 000	8.3	—	—
8	RNA496M	— NK8/12M NK8/16M	8 +0.022	15	10	0.15	13.8	3 500	3 100	32 000	7.3	IR6810M	NA496M
	—		8 +0.013	15	12	0.3	13	4 600	4 300	32 000	9	IR5812M	NKI 5/12M
	—		8	15	16	0.3	13	6 500	6 700	32 000	13	IR5816M	NKI 5/16M
9	— RNA497M	NK9/12M NK9/16M —	9 +0.022	16	12	0.3	14	5 000	4 800	30 000	10	IR6912M	NKI 6/12M
			9 +0.013	16	16	0.3	14	6 900	7 500	30 000	13.2	IR6916M	NKI 6/16M
			9	17	10	0.15	15.8	4 100	3 300	30 000	9.3	IR7910M	NA497M
10	— RNA498M	NK10/12M NK10/16M —	10 +0.022	17	12	0.3	15	5 400	5 500	28 000	10.7	IR71012M	NKI 7/12M
			10 +0.013	17	16	0.3	15	7 500	8 400	28 000	14.3	IR71016M	NKI 7/16M
			10	19	11	0.2	17.4	5 700	4 600	28 000	12.6	IR81011M	NA498M
12	— RNA499M	NK12/12M NK12/16M —	12 +0.027	19	12	0.3	17	6 000	6 700	26 000	12.2	IR91212M	NKI 9/12M
			12 +0.016	19	16	0.3	17	8 400	10 300	26 000	16.3	IR91216M	NKI 9/16M
			12	20	11	0.3	18	6 000	5 700	26 000	13.6	IR91211M	NA499M
14	RNA4900M	— NK14/16M NK14/20M	14 +0.027	22	13	0.3	20	8 400	9 200	24 000	16.5	IR101413M	NA4900M
	—		14 +0.016	22	16	0.3	20	10 800	12 600	24 000	21	IR101416M	NKI 10/16
	—		14	22	20	0.3	20	13 600	17 000	24 000	26.5	IR101420M	NKI 10/20
15	—	NK15/16M NK15/20M	15 +0.027	23	16	0.3	21	11 400	13 700	23 000	22.5	—	—
			15 +0.016	23	20	0.3	21	14 300	18 500	23 000	28	—	—

\* Suitable for oil lubrication. In case of grease lubrication, down to 60% of this value.

**MACHINED RING  
NEEDLE ROLLER  
BEARINGS  
STAINLESS STEEL  
WITHOUT INNER RING**




RNA49..M , NK..M



RNA49..M,NK..M

**RNA49..M NK..M TYPE**

Shaft Diameter (mm)	Designation		Dimensions (mm)				Standard mounting dimensions (mm)	Basic dynamic load rating	Basic static load rating	Limiting speed *	Mass	Usable bearing designation								
	RNA49..M	NK..M	Fw	D	C	fs min						Da MAX	Cr N	Cor N	rpm	g (approx)	INNER RING	WITH INNER RING		
16	RNA4901M	—	16	24	13	0.3	22	8 900	10 200	23 000	18.1	IR121613M	NA4901M							
	—	NK16/16M	16 +0.027	24	16	0.3								22	11 300	13 800	23 000	23	IR121616M	NKI 12/16M
	—	NK16/20M	16 +0.016	24	20	0.3								22	14 300	18 700	23 000	29	IR121620M	NKI 12/20M
17	—	NK17/16M	17 +0.027	25	16	0.3	23	11 700	14 900	22 000	24.5	—	—							
	—	NK17/20M	17 +0.016	25	20	0.3								23	14 900	20 300	22 000	30.5	—	—
18	—	NK18/16M	18 +0.027	26	16	0.3	24	12 300	16 100	21 000	25.5	—	—							
	—	NK18/20M	18 +0.016	26	20	0.3								24	15 600	21 700	21 000	32	—	—
19	—	NK19/16M	19 +0.033	27	16	0.3	25	12 800	17 200	21 000	27	IR151916M	NKI 15/16M							
	—	NK19/20M	19 +0.020	27	20	0.3								25	16 200	23 200	21 000	34	IR151920M	NKI 15/20M
20	RNA4902M	—	20 +0.033 +0.020	28	13	0.3	26	10 000	12 600	20 000	21.5	IR152013M	NA4902M							
22	RNA4903M	—	22 +0.033 +0.020	30	13	0.3	28	10 800	14 300	18 000	23.5	IR172213M	NA4903M							
25	RNA4904M	—	25 +0.033 +0.020	37	17	0.3	35	19 300	23 000	16 000	55.5	IR202517M	NA4904M							
30	RNA4905M	—	30 +0.033 +0.020	42	17	0.3	40	21 800	28 200	13 000	64	IR253017M	NA4905M							

\* Suitable for oil lubrication. In case of grease lubrication, down to 60% of this value.

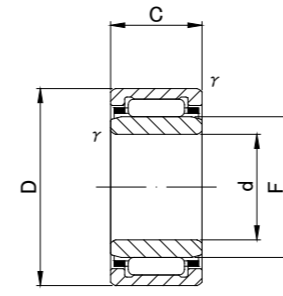
**MACHINED RING  
NEEDLE ROLLER  
BEARINGS  
STAINLESS STEEL  
WITH INNER RING**



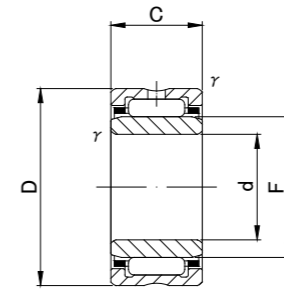
SUS/INOX



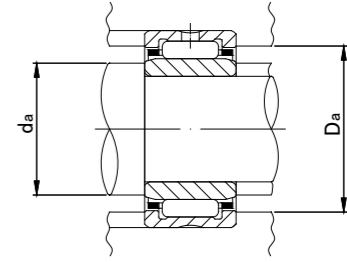
NA49..M ,NKI..M



NKI..M(d ≤ 8)



NA49..M,NKI..M



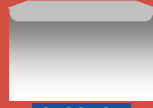
**NA49..M ,NKI..M TYPE**

Shaft Diameter (mm)	Designation		Dimensions (mm)					Standard mounting dimensions (mm)			Basic dynamic load rating	Basic static load rating	Limiting speed *	Mass	Usable bearing designation	
	NA49..M	NKI..M	d	D	C	r's min	F	da		Da MAX	Cr N	Cor N	rpm	g (approx)	OUTER RING	INNER RING
								MIN	MAX							
5	NA495M	—	5	13	10	0.15	7	6.2	6.7	11.8	2 700	2 400	34 000	7.3	RNA495M	IR5710M
	—	NKI 5/12M	5 <sup>0</sup> <sub>-0.008</sub>	15	12	0.3	8	7	7.7	13	4 600	4 300	32 000	11.9	NK8/12M	IR5812M
	—	NKI 5/16M	5	15	16	0.3	8	7	7.7	13	6 500	6 700	32 000	16.7	NK8/16M	IR5816M
6	NA496M	—	6	15	10	0.15	8	7.2	7.7	13.8	3 500	3 100	32 000	9.1	RNA496M	IR6810M
	—	NKI 6/12M	6 <sup>0</sup> <sub>-0.008</sub>	16	12	0.3	9	8	8.7	14	5 000	4 800	30 000	13	NK9/12M	IR6912M
	—	NKI 6/16M	6	16	16	0.3	9	8	8.7	14	6 900	7 500	30 000	17.5	NK9/16M	IR6916M
7	NA497M	—	7	17	10	0.15	9	8.2	8.7	15.8	4 100	3 300	30 000	11.2	RNA497M	IR7910M
	—	NKI 7/12M	7 <sup>0</sup> <sub>-0.008</sub>	17	12	0.3	10	9	9.7	15	5 400	5 500	28 000	14.3	NK10/12M	IR71012M
	—	NKI 7/16M	7	17	16	0.3	10	9	9.7	15	7 500	8 400	28 000	19.2	NK10/16M	IR71016M
8	NA498M	—	8 <sup>0</sup> <sub>-0.008</sub>	19	11	0.2	10	9.2	9.7	17.4	5 700	4 600	28 000	15	RNA498M	IR81011M
9	—	NKI 9/12M	9	19	12	0.3	12	11	11.5	17	6 000	6 700	26 000	16.7	NK12/12M	IR91212M
	—	NKI 9/16M	9 <sup>0</sup> <sub>-0.008</sub>	19	16	0.3	12	11	11.5	17	8 400	10 300	26 000	22.5	NK12/16M	IR91216M
	NA499M	—	9	20	11	0.3	12	11	11.5	18	6 000	5 700	26 000	16.7	RNA499M	IR91211M
10	NA4900M	—	10	22	13	0.3	14	12	13	20	8 400	9 200	24 000	24	RNA4900M	IR101413M
	—	NKI 10/16M	10 <sup>0</sup> <sub>-0.008</sub>	22	16	0.3	14	12	13	20	10 800	12 600	24 000	30	NK14/16M	IR101416M
	—	NKI 10/20M	10	22	20	0.3	14	12	13	20	13 600	17 000	24 000	38	NK14/20M	IR101420M
12	NA4901M	—	12	24	13	0.3	16	14	15	22	8 900	10 200	23 000	26.5	RNA4901M	IR121613M
	—	NKI 12/16M	12 <sup>0</sup> <sub>-0.008</sub>	24	16	0.3	16	14	15	22	11 300	13 800	23 000	33.5	NK16/16M	IR121616M
	—	NKI 12/20M	12	24	20	0.3	16	14	15	22	14 300	18 700	23 000	42.5	NK16/20M	IR121620M
15	—	NKI 15/16M	15	27	16	0.3	19	17	18	25	12 800	17 200	21 000	39.5	NK19/16M	IR151916M
	—	NKI 15/20M	15 <sup>0</sup> <sub>-0.008</sub>	27	20	0.3	19	17	18	25	16 200	23 200	21 000	50	NK19/20M	IR151920M
	NA4902M	—	15	28	13	0.3	20	17	19	26	10 000	12 600	20 000	35	RNA4902M	IR152013M
17	NA4903M	—	17 <sup>0</sup> <sub>-0.008</sub>	30	13	0.3	22	19	21	28	10 800	14 300	18 000	39	RNA4903M	IR172213M
20	NA4904M	—	20 <sup>0</sup> <sub>-0.010</sub>	37	17	0.3	25	22	24	35	19 300	23 000	16 000	78.5	RNA4904M	IR202517M
25	NA4905M	—	25 <sup>0</sup> <sub>-0.010</sub>	42	17	0.3	30	27	29	40	21 800	28 200	13 000	92.5	RNA4905M	IR253017M

\* Suitable for oil lubrication. In case of grease lubrication, down to 60% of this value.

# INNER RINGS STAINLESS STEEL

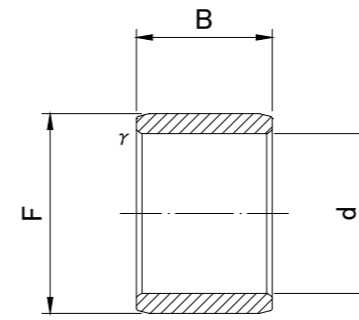
STAINLESS STEEL



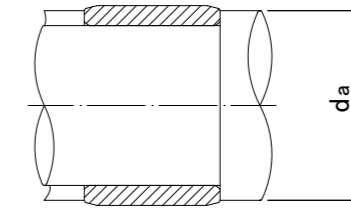
SUS/INOX



IR..M



IR..M

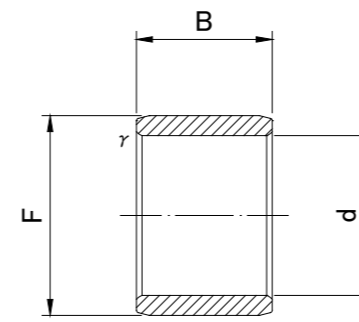


## IR..M TYPE

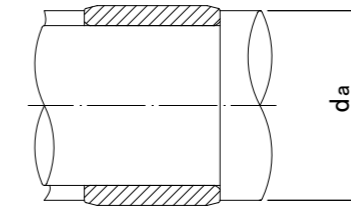
Shaft Diameter (mm)	Designation	Dimensions (mm)				Standard mounting dimensions (mm)		Mass (g approx)	Usable bearing designation	
		d	F	B	r <sub>s</sub> min	da			RNA49..M	NK..M
						MIN	MAX			
5	IR 5710M	5	7	10	0.15	6.2	6.7	1.4	RNA495M	—
	IR 5812M	5 <sup>0</sup> <sub>-0.008</sub>	8	12	0.3	7	7.7	3	—	NK8/12M
	IR 5816M	5	8	16	0.3	7	7.7	4	—	NK8/16M
6	IR 6810M	6	8	10	0.15	7.2	7.7	1.7	RNA496M	—
	IR 6912M	6 <sup>0</sup> <sub>-0.008</sub>	9	12	0.3	8	8.7	3.2	—	NK9/12M
	IR 6916M	6	9	16	0.3	8	8.7	4.3	—	NK9/16M
	IR 61010M	6	10	10	0.3	8	9.7	4	—	—
7	IR 7910M	7	9	10	0.15	8.2	8.7	1.9	RNA497M	—
	IR 71012M	7 <sup>0</sup> <sub>-0.008</sub>	10	12	0.3	9	9.7	3.6	—	NK10/12M
	IR 71016M	7	10	16	0.3	9	9.7	5	—	NK10/16M
8	IR 81011M	8 <sup>0</sup> <sub>-0.008</sub>	10	11	0.15	9.2	9.7	2.4	RNA498M	—
	IR 81210M	8	12	10	0.3	10	11	4.8	—	—
9	IR 91211M	9	12	11	0.3	11	11.5	3.1	RNA499M	—
	IR 91212M	9 <sup>0</sup> <sub>-0.008</sub>	12	12	0.3	11	11.5	4.5	—	NK12/12M
	IR 91216M	9	12	16	0.3	11	11.5	6	—	NK12/16M
10	IR 101412M	10	14	12	0.3	12	13	7	—	—
	IR 101413M	10 <sup>0</sup> <sub>-0.008</sub>	14	13	0.3	12	13	7.5	RNA4900M	—
	IR 101416M	10	14	16	0.3	12	13	9	—	NK14/16M
	IR 101420M	10	14	20	0.3	12	13	11.5	—	NK14/20M
12	IR 121612M	12	16	12	0.3	14	15	8	—	—
	IR 121613M	12 <sup>0</sup> <sub>-0.008</sub>	16	13	0.3	14	15	8.5	RNA4901M	—
	IR 121616M	12	16	16	0.3	14	15	10.5	—	NK16/16M
	IR 121620M	12	16	20	0.3	14	15	13.5	—	NK16/20M
15	IR 151916M	15	19	16	0.3	17	18	12.5	—	NK19/16M
	IR 151920M	15 <sup>0</sup> <sub>-0.008</sub>	19	20	0.3	17	18	16	—	NK19/20M
	IR 152012M	15	20	12	0.3	17	19	12	—	—
	IR 152013M	15	20	13	0.3	17	19	13.5	RNA4902M	—
17	IR 172213M	17 <sup>0</sup> <sub>-0.008</sub>	22	13	0.3	19	21	15.5	RNA4903M	—
	IR 172216M	17	22	16	0.3	19	21	19	—	—



IR..M



IR..M



IR..M TYPE

Shaft Diameter (mm)	Designation	Dimensions (mm)				Standard mounting dimensions (mm)	Mass	Usable bearing designation			
		d	F	B	r/s min			da		RNA49..M	NK..M
								MIN	MAX		
20	IR 202516M	20 <sup>0</sup>	25	16	0.3	22	24	— RNA4904M	—		
	IR 202517M	20 <sup>-0.010</sup>	25	17	0.3	22	24				
25	IR 253016M	25 <sup>0</sup>	30	16	0.3	27	29	— RNA4905M	—		
	IR253017M	25 <sup>-0.010</sup>	30	17	0.3	27	29				
30	IR 303820M	30 <sup>0</sup> -0.010	38	20	0.6	34	37	—	—		
35	IR 354220M	35 <sup>0</sup> -0.012	42	20	0.6	39	41	—	—		
50	IR 506020M	50 <sup>0</sup> -0.012	60	20	1	55	59	—	—		

IR..M

IR..M

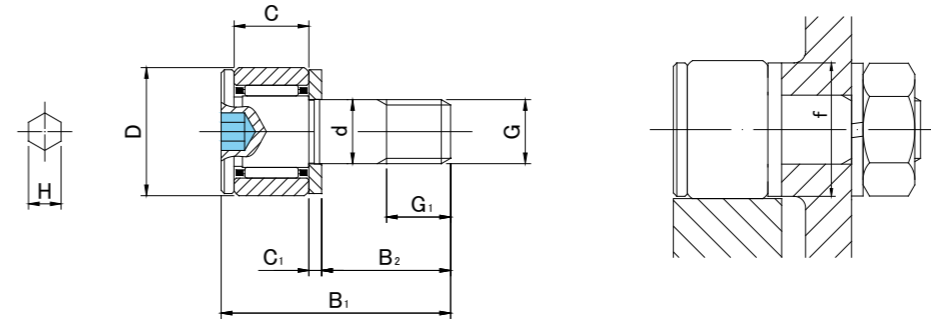
# CAM FOLLOWERS

# STAINLESS STEEL





**CAM FOLLOWERS**  
**STAINLESS STEEL**  
 MINIATURE TYPE  
 HEXAGON SOCKET ON STUD HEAD  
 SUS/INOX



**CFS..MA TYPE**

Prepacked Grease

Stud diameter (mm)	Designation	Dimensions (mm)											Basic dynamic load rating	Basic static load rating	Largest permissible load	Max tightening torque	Mass
		Cylindrical outer ring		D	C	d	G	G1	B1	B2	C1	H					
h6 tolerance	With cage	Full roller															
2.5	CFS 2.5MA	—	5	3	2.5	M2.5×0.45	2.5	9.5	5	0.7	0.9	4.8	370	300	260	0.2	1
	0 -0.006	—											CFS 2.5VMA	920	990		
3	CFS 3MA	—	6	4	3	M3×0.5	3	11.5	6	0.7	1.5	5.8	570	560	360	0.3	2
	0 -0.006	—											CFS 3VMA	1 260	1 620		
4	CFS 4MA	—	8	5	4	M4×0.7	4	15	8	1	2	7.7	990	990	780	0.6	4
	0 -0.008	—											CFS 4VMA	2 160	2 790		
5	CFS 5MA	—	10	6	5	M5×0.8	5	18	10	1	2.5	9.6	1 440	1 710	1 420	1.3	7
	0 -0.008	—											CFS 5VMA	2 880	4 330		
6	CFS 6MA	—	12	7	6	M6×1	6	21.5	12	1.2	3	11.6	1 890	1 980	2 110	2.3	13
	0 -0.008	—											CFS 6VMA	4 240	5 760		

OUTER RINGS TOLERANCE (µm)

TYPE	Cylindrical outer ring
CFS2.5M,CFS3M,CFS4M,CFS5M,CFS6M	0/-8

ACCESSORIES

TYPE	
All types	NUT Attached

CFS..MA

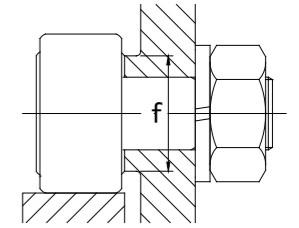
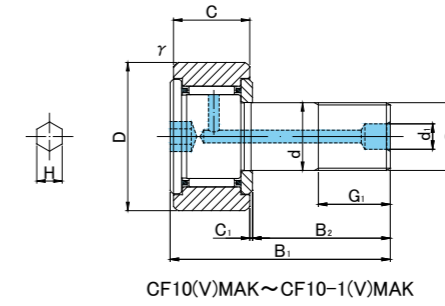
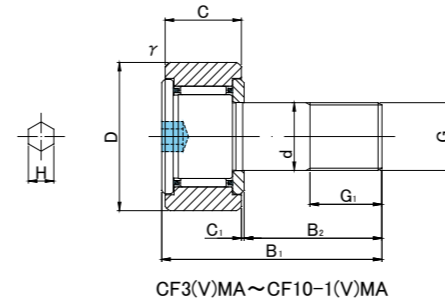
CFS..MA



CF..MA



CF..VMA



CF..MA TYPE

Prepacked Grease

Stud diameter (mm)	h7 tolerance	Designation				Dimensions (mm)														Basic dynamic load rating Cr N	Basic static load rating Cor N	Largest permissible load N	Limiting speed * rpm	Track load capacity		Max tightening torque N·m	Mass g (approx)
		Cylindrical outer ring		Crowned outer ring R250(CF3 ~ CF5) R500(CF6 ~ CF10-1)		D	C	d	G	G1	B1	B2	B3	C1	d1	d2	H	r <sub>s</sub> min	f min					Cylindrical outer ring N	Crowned outer ring N		
		Without seals	With seals	Without seals	With seals																						
3	0 -0.010	CF 3MA	CF 3MUUA	CF 3MRA	CF 3MUURA	10	7	3	M3×0.5	5	17	9	—	0.5	—	—	1.5	0.2	6.8	1 350	1 080	360	47 000	1 370	540	0.4	4.5
		CF 3VMA	CF 3VMUUA	CF 3VMRA	CF 3VMUURA															2 570	2 300	360	18 800				
4	0 -0.012	CF 4MA	CF 4MUUA	CF 4MRA	CF 4MUURA	12	8	4	M4×0.7	6	20	11	—	0.5	—	—	2	0.3	8.6	1 890	1 880	780	37 000	1 760	690	1	7.5
		CF 4VMA	CF 4VMUUA	CF 4VMRA	CF 4VMUURA															3 680	3 950	780	14 800				
5	0 -0.012	CF 5MA	CF 5MUUA	CF 5MRA	CF 5MUURA	13	9	5	M5×0.8	7.5	23	13	—	0.5	—	—	2.5	0.3	9.7	2 880	2 540	1 420	29 000	2 250	780	2	10.5
		CF 5VMA	CF 5VMUUA	CF 5VMRA	CF 5VMUURA															4 690	5 060	1 420	11 600				
6	0 -0.012	CF 6MA	CF 6MUUA	CF 6MRA	CF 6MUURA	16	11	6	M6×1	8	28	16	—	0.6	—	—	3	0.3	11	3 330	3 330	2 110	25 000	3 430	1 080	3	18.5
		CF 6VMA	CF 6VMUUA	CF 6VMRA	CF 6VMUURA															6 400	7 840	2 110	12 000				
8	0 -0.015	CF 8MA	CF 8MUUA	CF 8MRA	CF 8MUURA	19	11	8	M8×1.25	10	32	20	—	0.6	—	—	4	0.3	13	3 960	4 330	4 710	20 000	4 020	1 370	8	28.5
		CF 8VMA	CF 8VMUUA	CF 8VMRA	CF 8VMUURA															7 470	10 270	4 710	9 000				
10	0 -0.015	CF10MA	CF10MUUA	CF10MRA	CF10MUURA	22	12	10	M10×1.25	12	36	23	—	0.6	—	—	5	0.3	15	4 950	6 310	6 860	17 000	4 700	1 670	15	45
		CF10VMA	CF10VMUUA	CF10VMRA	CF10VMUURA															8 740	13 340	7 450	7 500				
10	0 -0.015	CF10-1MA	CF10-1MUUA	CF10-1MRA	CF10-1MUURA	26	12	10	M10×1.25	12	36	23	—	0.6	—	—	5	0.3	15	4 950	6 310	6 860	17 000	5 490	2 060	15	60
		CF10-1VMA	CF10-1VMUUA	CF10-1VMRA	CF10-1VMUURA															8 740	13 340	7 450	7 500				
10	0 -0.015	CF10MAK	CF10MUUAK	CF10MRAK	CF10MUURAK	22	12	10	M10×1	12	36	23	—	0.6	4	—	5	0.3	15	4 950	6 310	6 860	17 000	4 700	1 670	15	45
		CF10VMAK	CF10VMUAK	CF10VMRAK	CF10VMUURAK															8 740	13 340	7 450	7 500				
10	0 -0.015	CF10-1MAK	CF10-1MUUAK	CF10-1MRAK	CF10-1MUURAK	26	12	10	M10×1	12	36	23	—	0.6	4	—	5	0.3	15	4 950	6 310	6 860	17 000	5 490	2 060	15	60
		CF10-1VMAK	CF10-1VMUAK	CF10-1VMRAK	CF10-1VMUURAK															8 740	13 340	7 450	7 500				

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

OUTER RINGS TOLERANCE (µm)

TYPE	Cylindrical outer ring	Crowned outer ring
CF3M,CF4M,CF5M,CF6M	0/-8	0/-50
CF8M,CF10M,CF10-1M,CF12M	0/-9	0/-50
CF12-1M,CF16M,CF18M,CF20-1M	0/-11	0/-50
CF20M,CF24M,CF24-1M,CF30M	0/-13	0/-50
CF30-1M,CF30-2M	0/-15	0/-50

ACCESSORIES

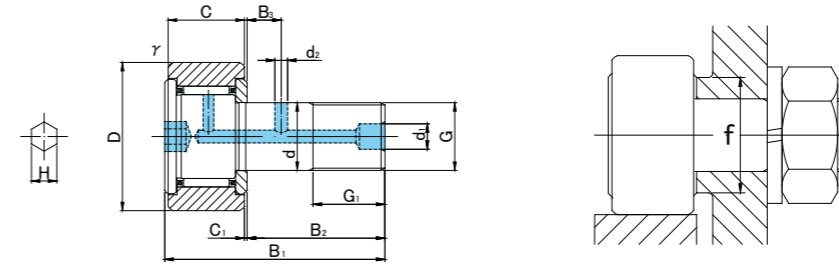
TYPE	STOP PLUG	RESIN PLUG	NUT
CF3M/CF4M/CF5M/CF6M/CF8M/CF10M/CF10-1M	—	—	Attached
CF10MK/CF10-1MK	φ 4 Attached	φ 4 Attached	Attached
CF12M/CF12-1M/CF16M/CF18M	φ 6 Attached	φ 6 Attached	Attached
CF20M/CF20-1M/CF24M/CF24-1M/CF30M/CF30-1M/CF30-2M	φ 8 Attached	φ 8 Attached	Attached



CF..MA



CF..VMA



CF..MA TYPE

Prepacked Grease

Stud diameter (mm)	h7 tolerance	Designation				Dimensions (mm)														Basic dynamic load rating Cr N	Basic static load rating Cor N	Largest permissible load N	Limiting speed * rpm	Track load capacity		Max tightening torque N·m	Mass g (approx)
		Cylindrical outer ring		Crowned outer ring R500(CF12 ~ CF18) R1000(CF20 ≤)		D	C	d	G	G1	B1	B2	B3	C1	d1	d2	H	rs min	f min					Cylindrical outer ring N	Crowned outer ring N		
		Without seals	With seals	Without seals	With seals																						
12	0 -0.018	CF12MA	CF12MUUA	CF12MRA	CF12MUURA	30	14	12	M12×1.5	13	40	25	6	0.6	6	3	6	0.6	20	7 300	9 010	9 800	14 000	7 060	2 450	22	95
		CF12VMA	CF12VMUUA	CF12VMRA	CF12VMUURA															12 350	18 120	11 270	6 000				
12	0 -0.018	CF12-1MA	CF12-1MUUA	CF12-1MRA	CF12-1MUURA	32	14	12	M12×1.5	13	40	25	6	0.6	6	3	6	0.6	20	7 300	9 010	9 800	14 000	7 450	2 740	22	105
		CF12-1VMA	CF12-1VMUUA	CF12-1VMRA	CF12-1VMUURA															12 350	18 120	11 270	6 000				
16	0 -0.018	CF16MA	CF16MUUA	CF16MRA	CF16MUURA	35	18	16	M16×1.5	17	52	32.5	8	0.8	6	3	6	0.6	24	11 080	16 860	18 330	10 000	11 200	3 140	58	170
		CF16VMA	CF16VMUUA	CF16VMRA	CF16VMUURA															19 020	34 610	19 800	4 500				
18	0 -0.018	CF18MA	CF18MUUA	CF18MRA	CF18MUURA	40	20	18	M18×1.5	19	58	36.5	8	0.8	6	3	6	1	26	13 520	23 180	25 200	8 500	14 400	3 720	87	250
		CF18VMA	CF18VMUUA	CF18VMRA	CF18VMUURA															23 250	47 240	26 560	3 500				
20	0 -0.021	CF20MA	CF20MUUA	CF20MRA	CF20MUURA	52	24	20	M20×1.5	21	66	40.5	9	0.8	8	4	8	1	36	19 020	31 830	32 140	7 000	23 200	8 230	120	460
		CF20VMA	CF20VMUUA	CF20VMRA	CF20VMUURA															30 470	59 320	32 140	3 500				
20	0 -0.021	CF20-1MA	CF20-1MUUA	CF20-1MRA	CF20-1MUURA	47	24	20	M20×1.5	21	66	40.5	9	0.8	8	4	8	1	36	19 020	31 830	32 140	7 000	21 000	7 150	120	385
		CF20-1VMA	CF20-1VMUUA	CF20-1VMRA	CF20-1VMUURA															30 470	59 320	32 140	3 500				
24	0 -0.021	CF24MA	CF24MUUA	CF24MRA	CF24MUURA	62	29	24	M24×1.5	25	80	49.5	11	0.8	8	4	8	1	40	28 040	48 410	49 500	6 500	34 200	10 500	220	815
		CF24VMA	CF24VMUUA	CF24VMRA	CF24VMUURA															42 820	84 650	49 500	3 000				
24	0 -0.021	CF24-1MA	CF24-1MUUA	CF24-1MRA	CF24-1MUURA	72	29	24	M24×1.5	25	80	49.5	11	0.8	8	4	8	1	40	28 040	48 410	49 500	6 500	39 800	12 900	220	1 140
		CF24-1VMA	CF24-1VMUUA	CF24-1VMRA	CF24-1VMUURA															42 820	84 650	49 500	3 000				
30	0 -0.021	CF30MA	CF30MUUA	CF30MRA	CF30MUURA	80	35	30	M30×1.5	32	100	63	15	1	8	4	8	1	46	41 740	78 250	73 700	5 000	52 600	14 900	450	1 870
		CF30VMA	CF30VMUUA	CF30VMRA	CF30VMUURA															62 210	132 530	73 700	2 200				
30	0 -0.021	CF30-1MA	CF30-1MUUA	CF30-1MRA	CF30-1MUURA	85	35	30	M30×1.5	32	100	63	15	1	8	4	8	1	46	41 740	78 250	73 700	5 000	56 000	56 000	450	2 030
		CF30-1VMA	CF30-1VMUUA	CF30-1VMRA	CF30-1VMUURA															62 210	132 530	73 700	2 200				
30	0 -0.021	CF30-2MA	CF30-2MUUA	CF30-2MRA	CF30-2MUURA	90	35	30	M30×1.5	32	100	63	15	1	8	4	8	1	46	41 740	78 250	73 700	5 000	59 300	59 300	450	2 220
		CF30-2VMA	CF30-2VMUUA	CF30-2VMRA	CF30-2VMUURA															62 210	132 530	73 700	2 200				

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

OUTER RINGS TOLERANCE (µm)

TYPE	Cylindrical outer ring	Crowned outer ring
CF3M,CF4M,CF5M,CF6M	0/-8	0/-50
CF8M,CF10M,CF10-1M,CF12M	0/-9	0/-50
CF12-1M,CF16M,CF18M,CF20-1M	0/-11	0/-50
CF20M,CF24M,CF24-1M,CF30M	0/-13	0/-50
CF30-1M,CF30-2M	0/-15	0/-50

ACCESSORIES

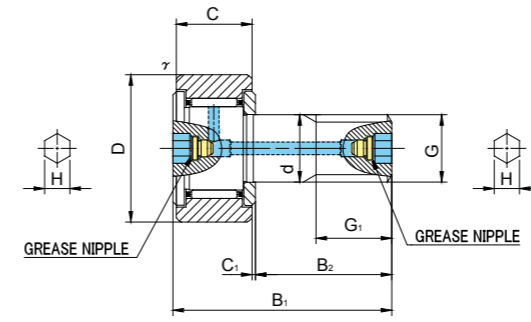
TYPE	STOP PLUG	RESIN PLUG	NUT
CF3M/CF4M/CF5M/CF6M/CF8M/CF10M/CF10-1M	—	—	Attached
CF10MK/CF10-1MK	φ 4 Attached	φ 4 Attached	Attached
CF12M/CF12-1M/CF16M/CF18M	φ 6 Attached	φ 6 Attached	Attached
CF20M/CF20-1M/CF24M/CF24-1M/CF30M/CF30-1M/CF30-2M	φ 8 Attached	φ 8 Attached	Attached



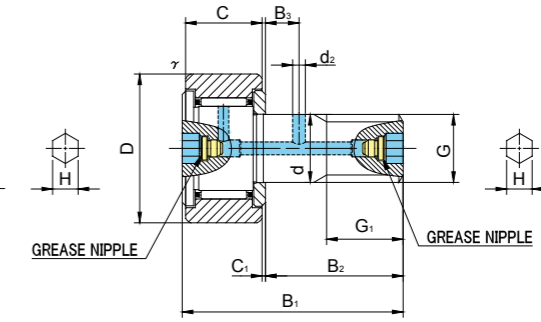
CF..MAB



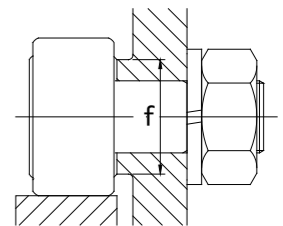
CF..VMAB



CF10(V)ABK~CF10-1(V)MAB



CF12(V)AB~CF18(V)MAB



CF..MAB TYPE

Prepacked Grease

Stud diameter (mm)	h7 tolerance	Designation				Dimensions (mm)															Basic dynamic load rating Cr N	Basic static load rating Cor N	Largest permissible load N	Limiting speed * rpm	Track load capacity		Max tightening torque N·m	Mass g (approx)
		Cylindrical outer ring		Crowned outer ring R500(CF10 ~ CF18)		D	C	d	G	G1	B1	B2	B3	C1	d2	H	r <sub>s</sub> min	f min	Cylindrical outer ring N	Crowned outer ring N								
		Without seals	With seals	Without seals	With seals																							
10	0 -0.015	CF10MABK	CF10MUUABK	CF10MRABK	CF10MUURABK	22	12	10	M10×1	12	36	23	—	0.6	—	5	0.3	15	4 950	6 310	6 860	17 000	4 700	1 670	15	45		
		CF10VMABK	CF10VMUUABK	CF10VMRABK	CF10VMUURABK														8 740	13 340	7 450	7 500						
10	0 -0.015	CF10-1MABK	CF10-1MUUABK	CF10-1MRABK	CF10-1MUURABK	26	12	10	M10×1	12	36	23	—	0.6	—	5	0.3	15	4 950	6 310	6 860	17 000	5 490	2 060	15	60		
		CF10-1VMABK	CF10-1VMUUABK	CF10-1VMRABK	CF10-1VMUURABK														8 740	13 340	7 450	7 500						
12	0 -0.018	CF12MAB	CF12MUUAB	CF12MRAB	CF12MUURAB	30	14	12	M12×1.5	13	40	25	6	0.6	3	6	0.6	20	7 300	9 010	9 800	14 000	7 060	2 450	22	95		
		CF12VMAB	CF12VMUUAB	CF12VMRAB	CF12VMUURAB														12 350	18 120	11 270	6 000						
12	0 -0.018	CF12-1MAB	CF12-1MUUAB	CF12-1MRAB	CF12-1MUURAB	32	14	12	M12×1.5	13	40	25	6	0.6	3	6	0.6	20	7 300	9 010	9 800	14 000	7 450	2 740	22	105		
		CF12-1VMAB	CF12-1VMUUAB	CF12-1VMRAB	CF12-1VMUURAB														12 350	18 120	11 270	6 000						
16	0 -0.018	CF16MAB	CF16MUUAB	CF16MRAB	CF16MUURAB	35	18	16	M16×1.5	17	52	32.5	8	0.8	3	6	0.6	24	11 080	16 860	18 330	10 000	11 200	3 140	58	170		
		CF16VMAB	CF16VMUUAB	CF16VMRAB	CF16VMUURAB														19 020	34 610	19 800	4 500						
18	0 -0.018	CF18MAB	CF18MUUAB	CF18MRAB	CF18MUURAB	40	20	18	M18×1.5	19	58	36.5	8	0.8	3	6	1	26	13 520	23 180	25 200	8 500	14 400	3 720	87	250		
		CF18VMAB	CF18VMUUAB	CF18VMRAB	CF18VMUURAB														23 250	47 240	26 560	3 500						

CF..MAB TYPE has oil holes (grease nipple) which are prepared in the stud head and thread side, also an oil hole is prepared outer surface of stud.

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

OUTER RINGS TOLERANCE (µm)

TYPE	Cylindrical outer ring	Crowned outer ring
CF10,CF10-1,CF12	0/-9	0/-50
CF12-1,CF16,CF18,CF20-1	0/-11	0/-50
CF20,CF24,CF24-1,CF30	0/-13	0/-50
CF30-1,CF30-2	0/-15	0/-50

ACCESSORIES

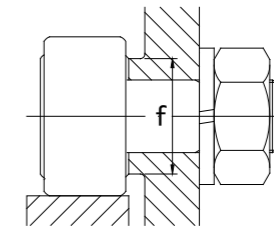
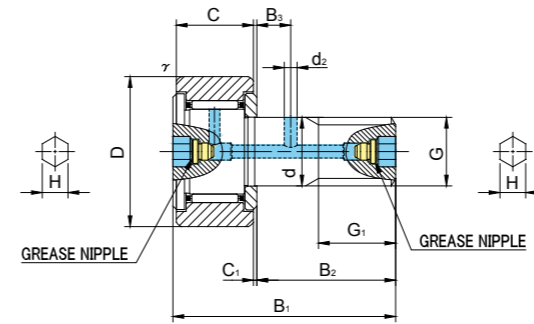
TYPE	Grease Nipple Installed	NUT Attached
All types		



CF..MAB



CF..VMAB



CF..MAB TYPE

Prepacked Grease

Stud diameter (mm)	h7 tolerance	Designation				Dimensions (mm)														Basic dynamic load rating Cr N	Basic static load rating Cor N	Largest permissible load N	Limiting speed * rpm	Track load capacity		Max tightening torque N·m	Mass g (approx)
		Cylindrical outer ring		Crowned outer ring R1000(CF20 ≤)		D	C	d	G	G1	B1	B2	B3	C1	d2	H	r <sub>s</sub> min	f min	Cylindrical outer ring N					Crowned outer ring N			
		Without seals	With seals	Without seals	With seals																						
20	0 -0.021	CF20MAB	CF20MUUAB	CF20MRAB	CF20MUURAB	52	24	20	M20×1.5	21	66	40.5	9	0.8	4	8	1	36	19 020	31 830	32 140	7 000	23 200	8 230	120	460	
		CF20VMAB	CF20VMUUAB	CF20VMRAB	CF20VMUURAB														30 470	59 320	32 140	3 500					
20	0 -0.021	CF20-1MAB	CF20-1MUUAB	CF20-1MRAB	CF20-1MUURAB	47	24	20	M20×1.5	21	66	40.5	9	0.8	4	8	1	36	19 020	31 830	32 140	7 000	21 000	7 150	120	385	
		CF20-1VMAB	CF20-1VMUUAB	CF20-1VMRAB	CF20-1VMUURAB														30 470	59 320	32 140	3 500					
24	0 -0.021	CF24MAB	CF24MUUAB	CF24MRAB	CF24MUURAB	62	29	24	M24×1.5	25	80	49.5	11	0.8	4	8	1	40	28 040	48 410	49 500	6 500	34 200	10 500	220	815	
		CF24VMAB	CF24VMUUAB	CF24VMRAB	CF24VMUURAB														42 820	84 650	49 500	3 000					
24	0 -0.021	CF24-1MAB	CF24-1MUUAB	CF24-1MRAB	CF24-1MUURAB	72	29	24	M24×1.5	25	80	49.5	11	0.8	4	8	1	40	28 040	48 410	49 500	6 500	39 800	12 900	220	1 140	
		CF24-1VMAB	CF24-1VMUUAB	CF24-1VMRAB	CF24-1VMUURAB														42 820	84 650	49 500	3 000					
30	0 -0.021	CF30MAB	CF30MUUAB	CF30MRAB	CF30MUURAB	80	35	30	M30×1.5	32	100	63	15	1	4	8	1	46	41 740	78 250	73 700	5 000	52 600	14 900	450	1 870	
		CF30VMAB	CF30VMUUAB	CF30VMRAB	CF30VMUURAB														62 210	132 530	73 700	2 200					
30	0 -0.021	CF30-1MAB	CF30-1MUUAB	CF30-1MRAB	CF30-1MUURAB	85	35	30	M30×1.5	32	100	63	15	1	4	8	1	46	41 740	78 250	73 700	5 000	56 000	16 100	450	2 030	
		CF30-1VMAB	CF30-1VMUUAB	CF30-1VMRAB	CF30-1VMUURAB														62 210	132 530	73 700	2 200					
30	0 -0.021	CF30-2MAB	CF30-2MUUAB	CF30-2MRAB	CF30-2MUURAB	90	35	30	M30×1.5	32	100	63	15	1	4	8	1	46	41 740	78 250	73 700	5 000	59 300	17 300	450	2 220	
		CF30-2VMAB	CF30-2VMUUAB	CF30-2VMRAB	CF30-2VMUURAB														62 210	132 530	73 700	2 200					

CF..MAB TYPE has oil holes (grease nipple) which are prepared in the stud head and thread side, also an oil hole is prepared outer surface of stud.

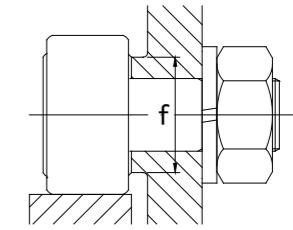
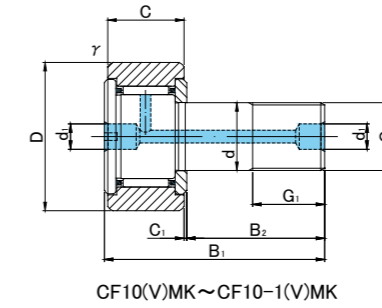
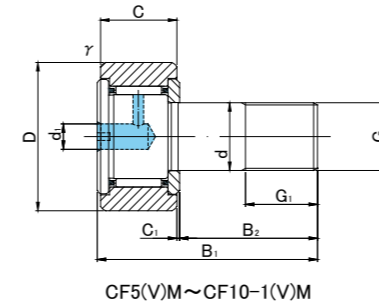
\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

OUTER RINGS TOLERANCE (µm)

TYPE	Cylindrical outer ring	Crowned outer ring
CF10,CF10-1,CF12	0/-9	0/-50
CF12-1,CF16,CF18,CF20-1	0/-11	0/-50
CF20,CF24,CF24-1,CF30	0/-13	0/-50
CF30-1,CF30-2	0/-15	0/-50

ACCESSORIES

TYPE		
All types	Installed	Attached



CF..M TYPE

Prepacked Grease

Stud diameter (mm)	h7 tolerance	Designation				Dimensions (mm)														Basic dynamic load rating Cr N	Basic static load rating Cor N	Largest permissible load N	Limiting speed * rpm	Track load capacity		Max tightening torque N·m	Mass g (approx)
		Cylindrical outer ring		Crowned outer ring R250(CF5) R500(CF6 ~ CF10-1)		D	C	d	G	G1	B1	B2	B3	C1	d1	d2	r/s min	f min	Cylindrical outer ring N					Crowned outer ring N			
		Without seals	With seals	Without seals	With seals																						
5	0 -0.012	CF 5M	CF 5MUU	CF 5MR	CF 5MUUR	13	9	5	M5x0.8	7.5	23	13	—	0.5	3.1	—	0.3	9.7	2 880	2 540	1 420	29 000	2 250	780	2	10.5	
		CF 5VM	CF 5VMUU	CF 5VMR	CF 5VMUUR														4 690	5 060	1 420	11 600					
6	0 -0.012	CF 6M	CF 6MUU	CF 6MR	CF 6MUUR	16	11	6	M6x1	8	28	16	—	0.6	4	—	0.3	11	3 330	3 330	2 110	25 000	3 430	1 080	3	18.5	
		CF 6VM	CF 6VMUU	CF 6VMR	CF 6VMUUR														6 400	7 840	2 110	12 000					
8	0 -0.015	CF 8M	CF 8MUU	CF 8MR	CF 8MUUR	19	11	8	M8x1.25	10	32	20	—	0.6	4	—	0.3	13	3 960	4 330	4 710	20 000	4 020	1 370	8	28.5	
		CF 8VM	CF 8VMUU	CF 8VMR	CF 8VMUUR														7 470	10 270	4 710	9 000					
10	0 -0.015	CF10M	CF10MUU	CF10MR	CF10MUUR	22	12	10	M10x1.25	12	36	23	—	0.6	4	—	0.3	15	4 950	6 310	6 860	17 000	4 700	1 670	15	45	
		CF10VM	CF10VMUU	CF10VMR	CF10VMUUR														8 740	13 340	7 450	7 500					
10	0 -0.015	CF10-1M	CF10-1MUU	CF10-1MR	CF10-1MUUR	26	12	10	M10x1.25	12	36	23	—	0.6	4	—	0.3	15	4 950	6 310	6 860	17 000	5 490	2 060	15	60	
		CF10-1VM	CF10-1VMUU	CF10-1VMR	CF10-1VMUUR														8 740	13 340	7 450	7 500					
10	0 -0.015	CF10MK	CF10MUUK	CF10MRK	CF10MUURK	22	12	10	M10x1	12	36	23	—	0.6	4	—	0.3	15	4 950	6 310	6 860	17 000	4 700	1 670	15	45	
		CF10VMK	CF10VMUUK	CF10VMRK	CF10VMUURK														8 740	13 340	7 450	7 500					
10	0 -0.015	CF10-1MK	CF10-1MUUK	CF10-1MRK	CF10-1MUURK	26	12	10	M10x1	12	36	23	—	0.6	4	—	0.3	15	4 950	6 310	6 860	17 000	5 490	2 060	15	60	
		CF10-1VMK	CF10-1VMUUK	CF10-1VMRK	CF10-1VMUURK														8 740	13 340	7 450	7 500					

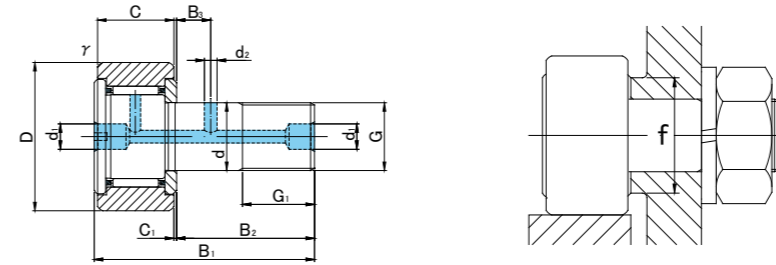
\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

OUTER RINGS TOLERANCE (µm)

TYPE	Cylindrical outer ring	Crowned outer ring
CF5M,CF6M	0/-8	0/-50
CF8M,CF10M,CF10-1M,CF12M	0/-9	0/-50
CF12-1M,CF16M,CF18M,CF20-1M	0/-11	0/-50
CF20M,CF24M,CF24-1M,CF30M	0/-13	0/-50
CF30-1M,CF30-2M	0/-15	0/-50

ACCESSORIES

TYPE	STOP PLUG	RESIN PLUG	NUT
CF5M	—	—	Attached
CF6M/CF8M/CF10M/CF10-1M	—	φ 4 Attached	Attached
CF10MK/CF10-1MK	φ 4 Attached	φ 4 Attached	Attached
CF12M/CF12-1M/CF16M/CF18M	φ 6 Attached	φ 6 Attached	Attached
CF20M/CF20-1M/CF24M/CF24-1M/CF30M/CF30-1M/CF30-2M	φ 8 Attached	φ 8 Attached	Attached



CF..M TYPE

Prepacked Grease

Stud diameter (mm)	h7 tolerance	Designation				Dimensions (mm)													Basic dynamic load rating Cr N	Basic static load rating Cor N	Largest permissible load N	Limiting speed * rpm	Track load capacity		Max tightening torque N·m	Mass g (approx)
		Cylindrical outer ring		Crowned outer ring R500(CF12 ~ CF18) R1000(CF20 ≤)		D	C	d	G	G1	B1	B2	B3	C1	d1	d2	rs min	f min					Cylindrical outer ring N	Crowned outer ring N		
		Without seals	With seals	Without seals	With seals																					
12	0 -0.018	CF12M	CF12MUU	CF12MR	CF12MUUR	30	14	12	M12×1.5	13	40	25	6	0.6	6	3	0.6	20	7 300	9 010	9 800	14 000	7 060	2 450	22	95
		CF12VM	CF12VMUU	CF12VMR	CF12VMUUR														12 350	18 120	11 270	6 000				
12	0 -0.018	CF12-1M	CF12-1MUU	CF12-1MR	CF12-1MUUR	32	14	12	M12×1.5	13	40	25	6	0.6	6	3	0.6	20	7 300	9 010	9 800	14 000	7 450	2 740	22	105
		CF12-1VM	CF12-1VMUU	CF12-1VMR	CF12-1VMUUR														12 350	18 120	11 270	6 000				
16	0 -0.018	CF16M	CF16MUU	CF16MR	CF16MUUR	35	18	16	M16×1.5	17	52	32.5	8	0.8	6	3	0.6	24	11 080	16 860	18 330	10 000	11 200	3 140	58	170
		CF16VM	CF16VMUU	CF16VMR	CF16VMUUR														19 020	34 610	19 800	4 500				
18	0 -0.018	CF18M	CF18MUU	CF18MR	CF18MUUR	40	20	18	M18×1.5	19	58	36.5	8	0.8	6	3	1	26	13 520	23 180	25 200	8 500	14 400	3 720	87	250
		CF18VM	CF18VMUU	CF18VMR	CF18VMUUR														23 250	47 240	26 560	3 500				
20	0 -0.021	CF20M	CF20MUU	CF20MR	CF20MUUR	52	24	20	M20×1.5	21	66	40.5	9	0.8	8	4	1	36	19 020	31 830	32 140	7 000	23 200	8 230	120	460
		CF20VM	CF20VMUU	CF20VMR	CF20VMUUR														30 470	59 320	32 140	3 500				
20	0 -0.021	CF20-1M	CF20-1MUU	CF20-1MR	CF20-1MUUR	47	24	20	M20×1.5	21	66	40.5	9	0.8	8	4	1	36	19 020	31 830	32 140	7 000	21 000	7 150	120	385
		CF20-1VM	CF20-1VMUU	CF20-1VMR	CF20-1VMUUR														30 470	59 320	32 140	3 500				
24	0 -0.021	CF24M	CF24MUU	CF24MR	CF24MUUR	62	29	24	M24×1.5	25	80	49.5	11	0.8	8	4	1	40	28 040	48 410	49 500	6 500	34 200	10 500	220	815
		CF24VM	CF24VMUU	CF24VMR	CF24VMUUR														42 820	84 650	49 500	3 000				
24	0 -0.021	CF24-1M	CF24-1MUU	CF24-1MR	CF24-1MUUR	72	29	24	M24×1.5	25	80	49.5	11	0.8	8	4	1	40	28 040	48 410	49 500	6 500	39 800	12 900	220	1 140
		CF24-1VM	CF24-1VMUU	CF24-1VMR	CF24-1VMUUR														42 820	84 650	49 500	3 000				
30	0 -0.021	CF30M	CF30MUU	CF30MR	CF30MUUR	80	35	30	M30×1.5	32	100	63	15	1	8	4	1	46	41 740	78 250	73 700	5 000	52 600	14 900	450	1 870
		CF30VM	CF30VMUU	CF30VMR	CF30VMUUR														62 210	132 530	73 700	2 200				
30	0 -0.021	CF30-1M	CF30-1MUU	CF30-1MR	CF30-1MUUR	85	35	30	M30×1.5	32	100	63	15	1	8	4	1	46	41 740	78 250	73 700	5 000	56 000	16 100	450	2 030
		CF30-1VM	CF30-1VMUU	CF30-1VMR	CF30-1VMUUR														62 210	132 530	73 700	2 200				
30	0 -0.021	CF30-2M	CF30-2MUU	CF30-2MR	CF30-2MUUR	90	35	30	M30×1.5	32	100	63	15	1	8	4	1	46	41 740	78 250	73 700	5 000	59 300	17 300	450	2 220
		CF30-2VM	CF30-2VMUU	CF30-2VMR	CF30-2VMUUR														62 210	132 530	73 700	2 200				

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

OUTER RINGS TOLERANCE (µm)

TYPE	Cylindrical outer ring	Crowned outer ring
CF5M,CF6M	0/-8	0/-50
CF8M,CF10M,CF10-1M,CF12M	0/-9	0/-50
CF12-1M,CF16M,CF18M,CF20-1M	0/-11	0/-50
CF20M,CF24M,CF24-1M,CF30M	0/-13	0/-50
CF30-1M,CF30-2M	0/-15	0/-50

ACCESSORIES

TYPE	STOP PLUG	RESIN PLUG	NUT
CF5M	—	—	Attached
CF6M/CF8M/CF10M/CF10-1M	—	φ 4 Attached	Attached
CF10MK/CF10-1MK	φ 4 Attached	φ 4 Attached	Attached
CF12M/CF12-1M/CF16M/CF18M	φ 6 Attached	φ 6 Attached	Attached
CF20M/CF20-1M/CF24M/CF24-1M/CF30M/CF30-1M/CF30-2M	φ 8 Attached	φ 8 Attached	Attached

**CAM FOLLOWERS**  
**STAINLESS STEEL**  
 HEXAGON SOCKET ON THREAD SIDE  
 SCREWDRIVER SLOT HEAD

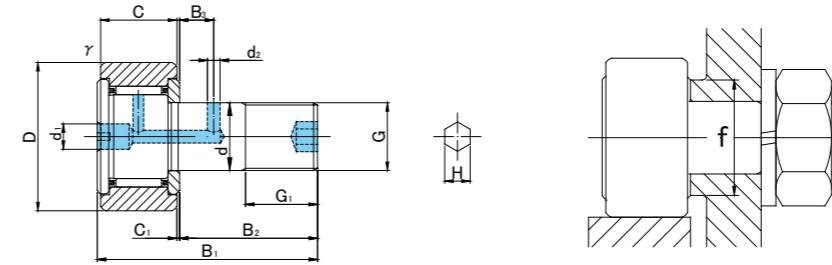
SUS/INOX



CF..MB



CF..VMB



**CF..MB TYPE**

Prepacked Grease

Stud diameter (mm)	Designation	Dimensions (mm)																Basic dynamic load rating	Basic static load rating	Largest permissible load	Limiting speed *	Track load capacity		Max tightening torque	Mass						
		Cylindrical outer ring				Crowned outer ring R500 (CF12 ~ CF18) R1000 (CF20 ≤)				D	C	G	G1	B1	B2	B3	C1					d1	d2			H	rs min	f min	Cr N	Cor N	N
d	h7 tolerance	Without seals	With seals	Without seals	With seals																										
12	0 -0.018	CF12MB	CF12MUUB	CF12MRB	CF12MUURB	30	14	M12×1.5	13	40	25	6	0.6	6	3	6	0.6	20	7 300	9 010	9 800	14 000	7 060	2 450	22	95					
		CF12VMB	CF12VMUUB	CF12VMRB	CF12VMUURB														12 350	18 120	11 270	6 000									
12	0 -0.018	CF12-1MB	CF12-1MUUB	CF12-1MRB	CF12-1MUURB	32	14	M12×1.5	13	40	25	6	0.6	6	3	6	0.6	20	7 300	9 010	9 800	14 000	7 450	2 740	22	105					
		CF12-1VMB	CF12-1VMUUB	CF12-1VMRB	CF12-1VMUURB														12 350	18 120	11 270	6 000									
16	0 -0.018	CF16MB	CF16MUUB	CF16MRB	CF16MUURB	35	18	M16×1.5	17	52	32.5	8	0.8	6	3	6	0.6	24	11 080	16 860	18 330	10 000	11 200	3 140	58	170					
		CF16VMB	CF16VMUUB	CF16VMRB	CF16VMUURB														19 020	34 610	19 800	4 500									
18	0 -0.018	CF18MB	CF18MUUB	CF18MRB	CF18MUURB	40	20	M18×1.5	19	58	36.5	8	0.8	6	3	6	1	26	13 520	23 180	25 200	8 500	14 400	3 720	87	250					
		CF18VMB	CF18VMUUB	CF18VMRB	CF18VMUURB														23 250	47 240	26 560	3 500									
20	0 -0.021	CF20MB	CF20MUUB	CF20MRB	CF20MUURB	52	24	M20×1.5	21	66	40.5	9	0.8	8	4	8	1	36	19 020	31 830	32 140	7 000	23 200	8 230	120	460					
		CF20VMB	CF20VMUUB	CF20VMRB	CF20VMUURB														30 470	59 320	32 140	3 500									
20	0 -0.021	CF20-1MB	CF20-1MUUB	CF20-1MRB	CF20-1MUURB	47	24	M20×1.5	21	66	40.5	9	0.8	8	4	8	1	36	19 020	31 830	32 140	7 000	21 000	7 150	120	385					
		CF20-1VMB	CF20-1VMUUB	CF20-1VMRB	CF20-1VMUURB														30 470	59 320	32 140	3 500									
24	0 -0.021	CF24MB	CF24MUUB	CF24MRB	CF24MUURB	62	29	M24×1.5	25	80	49.5	11	0.8	8	4	8	1	40	28 040	48 410	49 500	6 500	34 200	10 500	220	815					
		CF24VMB	CF24VMUUB	CF24VMRB	CF24VMUURB														42 820	84 650	49 500	3 000									
24	0 -0.021	CF24-1MB	CF24-1MUUB	CF24-1MRB	CF24-1MUURB	72	29	M24×1.5	25	80	49.5	11	0.8	8	4	8	1	40	28 040	48 410	49 500	6 500	39 800	12 900	220	1 140					
		CF24-1VMB	CF24-1VMUUB	CF24-1VMRB	CF24-1VMUURB														42 820	84 650	49 500	3 000									
30	0 -0.021	CF30MB	CF30MUUB	CF30MRB	CF30MUURB	80	35	M30×1.5	32	100	63	15	1	8	4	8	1	46	41 740	78 250	73 700	5 000	52 600	14 900	450	1 870					
		CF30VMB	CF30VMUUB	CF30VMRB	CF30VMUURB														62 210	132 530	73 700	2 200									
30	0 -0.021	CF30-1MB	CF30-1MUUB	CF30-1MRB	CF30-1MUURB	85	35	M30×1.5	32	100	63	15	1	8	4	8	1	46	41 740	78 250	73 700	5 000	56 000	16 100	450	2 030					
		CF30-1VMB	CF30-1VMUUB	CF30-1VMRB	CF30-1VMUURB														62 210	132 530	73 700	2 200									
30	0 -0.021	CF30-2MB	CF30-2MUUB	CF30-2MRB	CF30-2MUURB	90	35	M30×1.5	32	100	63	15	1	8	4	8	1	46	41 740	78 250	73 700	5 000	59 300	17 300	450	2 220					
		CF30-2VMB	CF30-2VMUUB	CF30-2VMRB	CF30-2VMUURB														62 210	132 530	73 700	2 200									

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

OUTER RINGS TOLERANCE (µm)

TYPE	Cylindrical outer ring	Crowned outer ring
CF12M	0/-9	0/-50
CF12-1M,CF16M,CF18M,CF20-1M	0/-11	0/-50
CF20M,CF24M,CF24-1M,CF30M	0/-13	0/-50
CF30-1M,CF30-2M	0/-15	0/-50

ACCESSORIES

TYPE	STOP PLUG	RESIN PLUG	NUT
CF3M/CF4M/CF5M	—	—	Attached
CF6M/CF8M/CF10M/CF10-1M	—	—	Attached
CF12M/CF12-1M/CF16M/CF18M	φ 6 Attached	φ 6 Attached	Attached
CF20M/CF20-1M/CF24M/CF24-1M/CF30M/CF30-1M/CF30-2M	φ 8 Attached	φ 8 Attached	Attached



**CAM FOLLOWERS**  
**STAINLESS STEEL**  
**SOLID ECCENTRIC TYPE**  
**HEXAGON SOCKET ON STUD HEAD**

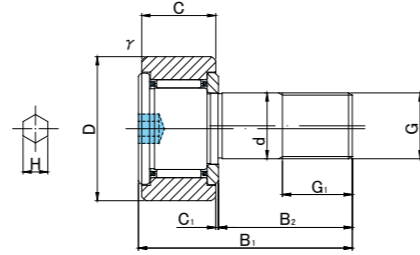
**SUS/INOX**



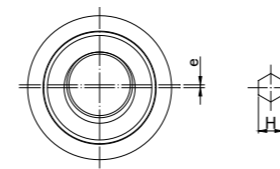
CFH..MA



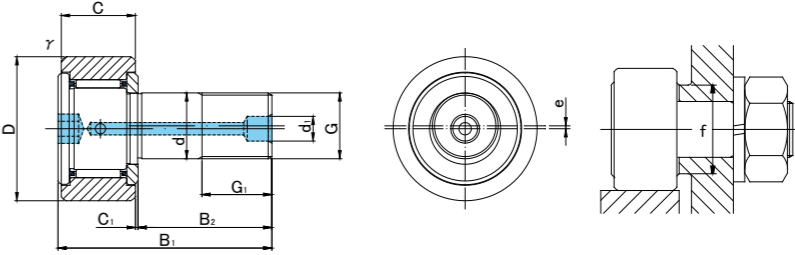
CFH..VMA



CFH5(V)MA~CFH10-1(V)MA



CFH12(V)MA~CFH12-1(V)MA



**CFH..MA TYPE**

Prepacked Grease

Stud diameter (mm)	Designation				Dimensions (mm)														Basic dynamic load rating	Basic static load rating	Largest permissible load	Limiting speed *	Track load capacity		Max tightening torque	Mass					
	Cylindrical outer ring		Crowned outer ring R500(CF5 ~ CF12)		D	C	d	G	G1	B1	B2	C1	d1	H	r <sub>s</sub> min	e	f min	Cr N					Cor N	N			rpm	Cylindrical outer ring N	Crowned outer ring N	N·m	g (approx)
	Without seals	With seals	Without seals	With seals																											
5	0 -0.012	CFH 5MA	CFH 5MUUA	CFH 5MRA	CFH 5MUURA	13	9	5	M5×0.8	7.5	23	13	0.5	—	2.5	0.3	0.2	9.7	2 880	2 540	1 420	29 000	2 250	780	2	10.5					
		CFH 5VMA	CFH 5VMUUA	CFH 5VMRA	CFH 5VMUURA														4 690	5 060	1 420	11 600									
6	0 -0.012	CFH 6MA	CFH 6MUUA	CFH 6MRA	CFH 6MUURA	16	11	6	M6×1	8	28	16	0.6	—	3	0.3	0.25	11	3 330	3 330	2 110	25 000	3 430	1 080	3	18.5					
		CFH 6VMA	CFH 6VMUUA	CFH 6VMRA	CFH 6VMUURA														6 400	7 840	2 110	12 000									
8	0 -0.015	CFH 8MA	CFH 8MUUA	CFH 8MRA	CFH 8MUURA	19	11	8	M8×1.25	10	32	20	0.6	—	4	0.3	0.25	13	3 960	4 330	4 710	20 000	4 020	1 370	8	28.5					
		CFH 8VMA	CFH 8VMUUA	CFH 8VMRA	CFH 8VMUURA														7 470	10 270	4 710	9 000									
10	0 -0.015	CFH10MA	CFH10MUUA	CFH10MRA	CFH10MUURA	22	12	10	M10×1.25	12	36	23	0.6	—	5	0.3	0.3	15	4 950	6 310	6 860	17 000	4 700	1 670	15	45					
		CFH10VMA	CFH10VMUUA	CFH10VMRA	CFH10VMUURA														8 740	13 340	7 450	7 500									
10	0 -0.015	CFH10-1MA	CFH10-1MUUA	CFH10-1MRA	CFH10-1MUURA	26	12	10	M10×1.25	12	36	23	0.6	—	5	0.3	0.3	15	4 950	6 310	6 860	17 000	5 490	2 060	15	60					
		CFH10-1VMA	CFH10-1VMUUA	CFH10-1VMRA	CFH10-1VMUURA														8 740	13 340	7 450	7 500									
12	0 -0.018	CFH12MA	CFH12MUUA	CFH12MRA	CFH12MUURA	30	14	12	M12×1.5	13	40	25	0.6	6	6	0.6	0.4	20	7 300	9 010	9 800	14 000	7 060	2 450	22	95					
		CFH12VMA	CFH12VMUUA	CFH12VMRA	CFH12VMUURA														12 350	18 120	11 270	6 000									
12	0 -0.018	CFH12-1MA	CFH12-1MUUA	CFH12-1MRA	CFH12-1MUURA	32	14	12	M12×1.5	13	40	25	0.6	6	6	0.6	0.4	20	7 300	9 010	9 800	14 000	7 450	2 740	22	105					
		CFH12-1VMA	CFH12-1VMUUA	CFH12-1VMRA	CFH12-1VMUURA														12 350	18 120	11 270	6 000									

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

OUTER RINGS TOLERANCE (µm)

TYPE	Cylindrical outer ring	Crowned outer ring
CF5M,CF6M	0/-8	0/-50
CF8M,CF10M,CF10-1M,CF12M	0/-9	0/-50
CF12-1M,CF16M,CF18M,CF20-1M	0/-11	0/-50
CF20M,CF24M,CF24-1M,CF30M	0/-13	0/-50
CF30-1M,CF30-2M	0/-15	0/-50

ACCESSORIES

TYPE	STOP PLUG	RESIN PLUG	NUT
CF3M/CF4M/CF5M	—	—	Attached
CF6M/CF8M/CF10M/CF10-1M	—	—	Attached
CF12M/CF12-1M/CF16M/CF18M	φ 6 Attached	φ 6 Attached	Attached
CF20M/CF20-1M/CF24M/CF24-1M/CF30M/CF30-1M/CF30-2M	φ 8 Attached	φ 8 Attached	Attached

**CAM FOLLOWERS**  
**STAINLESS STEEL**  
 SOLID ECCENTRIC TYPE  
 HEXAGON SOCKET ON STUD HEAD

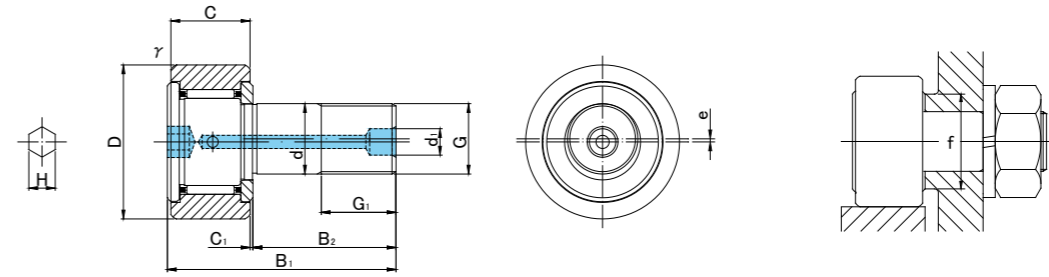
SUS/INOX



CFH..MA



CFH..VMA



**CFH..MA TYPE**

Prepacked Grease

Stud diameter (mm)	h7 tolerance	Designation				Dimensions (mm)														Basic dynamic load rating	Basic static load rating	Largest permissible load	Limiting speed *	Track load capacity		Max tightening torque	Mass					
		Cylindrical outer ring		Crowned outer ring R500(CF16 ~ CF18) R1000(CF20 ≤)		D	C	d	G	G1	B1	B2	C1	d1	H	rs min	e	f min	Cr N					Cor N	N			rpm	Cylindrical outer ring N	Crowned outer ring N	N·m	g (approx)
		Without seals	With seals	Without seals	With seals																											
16	0 -0.018	CFH16MA	CFH16MUUA	CFH16MRA	CFH16MUURA	35	18	16	M16×1.5	17	52	32.5	0.8	6	6	0.6	0.5	24	11 080	16 860	18 330	10 000	11 200	3 140	58	170						
		CFH16VMA	CFH16VMUUA	CFH16VMRA	CFH16VMUURA														19 020	34 610	19 800	4 500										
18	0 -0.018	CFH18MA	CFH18MUUA	CFH18MRA	CFH18MUURA	40	20	18	M18×1.5	19	58	36.5	0.8	6	6	1	0.6	26	13 520	23 180	25 200	8 500	14 400	3 720	87	250						
		CFH18VMA	CFH18VMUUA	CFH18VMRA	CFH18VMUURA														23 250	47 240	26 560	3 500										
20	0 -0.021	CFH20MA	CFH20MUUA	CFH20MRA	CFH20MUURA	52	24	20	M20×1.5	21	66	40.5	0.8	8	8	1	0.7	36	19 020	31 830	32 140	7 000	23 200	8 230	120	460						
		CFH20VMA	CFH20VMUUA	CFH20VMRA	CFH20VMUURA														30 470	59 320	32 140	3 500										
20	0 -0.021	CFH20-1MA	CFH20-1MUUA	CFH20-1MRA	CFH20-1MUURA	47	24	20	M20×1.5	21	66	40.5	0.8	8	8	1	0.7	36	19 020	31 830	32 140	7 000	21 000	7 150	120	385						
		CFH20-1VMA	CFH20-1VMUUA	CFH20-1VMRA	CFH20-1VMUURA														30 470	59 320	32 140	3 500										
24	0 -0.021	CFH24MA	CFH24MUUA	CFH24MRA	CFH24MUURA	62	29	24	M24×1.5	25	80	49.5	0.8	8	8	1	0.8	40	28 040	48 410	49 500	6 500	34 200	10 500	220	815						
		CFH24VMA	CFH24VMUUA	CFH24VMRA	CFH24VMUURA														42 820	84 650	49 500	3 000										
24	0 -0.021	CFH24-1MA	CFH24-1MUUA	CFH24-1MRA	CFH24-1MUURA	72	29	24	M24×1.5	25	80	49.5	0.8	8	8	1	0.8	40	28 040	48 410	49 500	6 500	39 800	12 900	220	1 140						
		CFH24-1VMA	CFH24-1VMUUA	CFH24-1VMRA	CFH24-1VMUURA														42 820	84 650	49 500	3 000										
30	0 -0.021	CFH30MA	CFH30MUUA	CFH30MRA	CFH30MUURA	80	35	30	M30×1.5	32	100	63	1	8	8	1	1	46	41 740	78 250	73 700	5 000	52 600	14 900	450	1 870						
		CFH30VMA	CFH30VMUUA	CFH30VMRA	CFH30VMUURA														62 210	132 530	73 700	2 200										
30	0 -0.021	CFH30-1MA	CFH30-1MUUA	CFH30-1MRA	CFH30-1MUURA	85	35	30	M30×1.5	32	100	63	1	8	8	1	1	46	41 740	78 250	73 700	5 000	56 000	16 100	450	2 030						
		CFH30-1VMA	CFH30-1VMUUA	CFH30-1VMRA	CFH30-1VMUURA														62 210	132 530	73 700	2 200										
30	0 -0.021	CFH30-2MA	CFH30-2MUUA	CFH30-2MRA	CFH30-2MUURA	90	35	30	M30×1.5	32	100	63	1	8	8	1	1	46	41 740	78 250	73 700	5 000	59 300	17 300	450	2 220						
		CFH30-2VMA	CFH30-2VMUUA	CFH30-2VMRA	CFH30-2VMUURA														62 210	132 530	73 700	2 200										

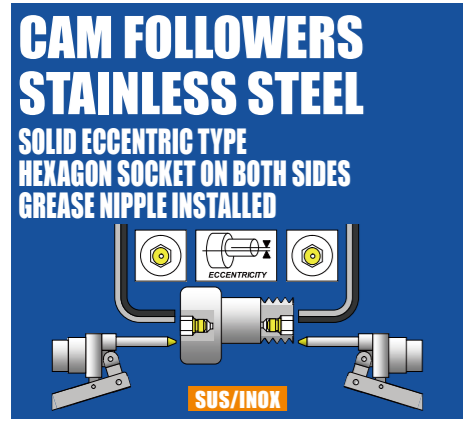
\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

OUTER RINGS TOLERANCE (µm)

TYPE	Cylindrical outer ring	Crowned outer ring
CF5M,CF6M	0/-8	0/-50
CF8M,CF10M,CF10-1M,CF12M	0/-9	0/-50
CF12-1M,CF16M,CF18M,CF20-1M	0/-11	0/-50
CF20M,CF24M,CF24-1M,CF30M	0/-13	0/-50
CF30-1M,CF30-2M	0/-15	0/-50

ACCESSORIES

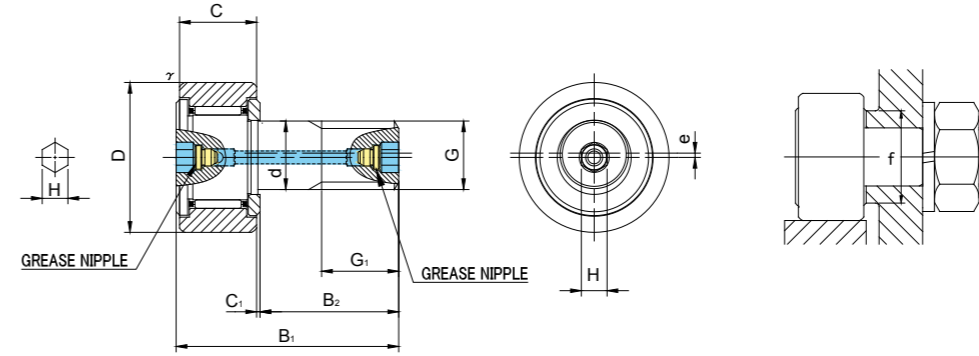
TYPE	STOP PLUG	RESIN PLUG	NUT
CF3M/CF4M/CF5M	—	—	Attached
CF6M/CF8M/CF10M/CF10-1M	—	—	Attached
CF12M/CF12-1M/CF16M/CF18M	φ 6 Attached	φ 6 Attached	Attached
CF20M/CF20-1M/CF24M/CF24-1M/CF30M/CF30-1M/CF30-2M	φ 8 Attached	φ 8 Attached	Attached



CFH..MAB



CFH..VMAB



CFH..MAB TYPE

Prepacked Grease

Stud diameter (mm)	Designation	Dimensions (mm)															Basic dynamic load rating	Basic static load rating	Largest permissible load	Limiting speed *	Track load capacity		Max tightening torque	Mass
		Cylindrical outer ring				Crowned outer ring R500(CF12 ~ CF18) R1000(CF20 ≤)				Eccentricity											Cylindrical outer ring N	Crowned outer ring N		
h7 tolerance	Without seals	With seals	Without seals	With seals	D	C	d	G	G1	B1	B2	C1	H	r <sub>s</sub> min	e	f min	Cr N	Cor N	N	rpm	Cylindrical outer ring N	Crowned outer ring N	N-m	g (approx)
12	CFH12MAB	CFH12MUAB	CFH12MRAB	CFH12MUURAB	30	14	12	M12×1.5	13	40	25	0.6	6	0.6	0.4	20	7 300	9 010	9 800	14 000	7 060	2 450	22	95
	CFH12VMAB	CFH12VMUAB	CFH12VMRAB	CFH12VMUURAB													12 350	18 120	11 270	6 000				
12	CFH12-1MAB	CFH12-1MUAB	CFH12-1MRAB	CFH12-1MUURAB	32	14	12	M12×1.5	13	40	25	0.6	6	0.6	0.4	20	7 300	9 010	9 800	14 000	7 450	2 740	22	105
	CFH12-1VMAB	CFH12-1VMUAB	CFH12-1VMRAB	CFH12-1VMUURAB													12 350	18 120	11 270	6 000				
16	CFH16MAB	CFH16MUAB	CFH16MRAB	CFH16MUURAB	35	18	16	M16×1.5	17	52	32.5	0.8	6	0.6	0.5	24	11 080	16 860	18 330	10 000	11 200	3 140	58	170
	CFH16VMAB	CFH16VMUAB	CFH16VMRAB	CFH16VMUURAB													19 020	34 610	19 800	4 500				
18	CFH18MAB	CFH18MUAB	CFH18MRAB	CFH18MUURAB	40	20	18	M18×1.5	19	58	36.5	0.8	6	1	0.6	26	13 520	23 180	25 200	8 500	14 400	3 720	87	250
	CFH18VMAB	CFH18VMUAB	CFH18VMRAB	CFH18VMUURAB													23 250	47 240	26 560	3 500				
20	CFH20MAB	CFH20MUAB	CFH20MRAB	CFH20MUURAB	52	24	20	M20×1.5	21	66	40.5	0.8	8	1	0.7	36	19 020	31 830	32 140	7 000	23 200	8 230	120	460
	CFH20VMAB	CFH20VMUAB	CFH20VMRAB	CFH20VMUURAB													30 470	59 320	32 140	3 500				
20	CFH20-1MAB	CFH20-1MUAB	CFH20-1MRAB	CFH20-1MUURAB	47	24	20	M20×1.5	21	66	40.5	0.8	8	1	0.7	36	19 020	31 830	32 140	7 000	21 000	7 150	120	385
	CFH20-1VMAB	CFH20-1VMUAB	CFH20-1VMRAB	CFH20-1VMUURAB													30 470	59 320	32 140	3 500				

CFH..MAB TYPE has oil holes (grease nipple) which are prepared in the stud head and thread side, also an oil hole is prepared outer surface of stud.

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

OUTER RINGS TOLERANCE (μm)

TYPE	Cylindrical outer ring	Crowned outer ring
CF12	0/-9	0/-50
CF12-1,CF16,CF18,CF20-1	0/-11	0/-50
CF20,CF24,CF24-1,CF30	0/-13	0/-50
CF30-1,CF30-2	0/-15	0/-50

ACCESSORIES

TYPE	Grease Nipple	NUT
All types	Installed	Attached

**CAM FOLLOWERS**  
**STAINLESS STEEL**  
SOLID ECCENTRIC TYPE  
HEXAGON SOCKET ON BOTH SIDES  
GREASE NIPPLE INSTALLED

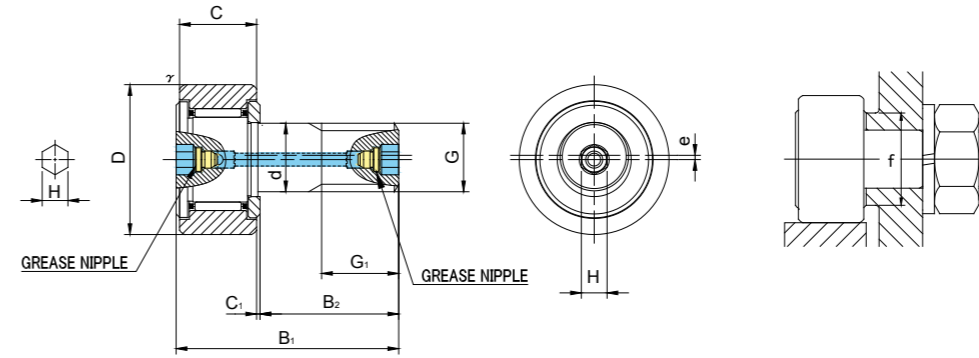
SUS/INOX



CFH..MAB



CFH..VMAB



**CFH..MAB TYPE**

Prepacked Grease

Stud diameter (mm)	Designation	Dimensions (mm)															Basic dynamic load rating	Basic static load rating	Largest permissible load	Limiting speed *	Track load capacity		Max tightening torque	Mass
		Cylindrical outer ring				Crowned outer ring R1000(CF24 ≤)				Other dimensions											Cylindrical outer ring N	Crowned outer ring N		
h7 tolerance	Without seals	With seals	Without seals	With seals	D	C	d	G	G1	B1	B2	C1	H	r <sub>s</sub> min	e	f min	Cr N	Cor N	N	rpm	Cylindrical outer ring N	Crowned outer ring N	N-m	g (approx)
24	CFH24MAB	CFH24MUAB	CFH24MRAB	CFH24MUURAB	62	29	24	M24×1.5	25	80	49.5	0.8	8	1	0.8	40	28 040	48 410	49 500	6 500	34 200	10 500	220	815
	CFH24VMAB	CFH24VMUAB	CFH24VMRAB	CFH24VMUURAB													42 820	84 650	49 500	3 000				
24	CFH24-1MAB	CFH24-1MUAB	CFH24-1MRAB	CFH24-1MUURAB	72	29	24	M24×1.5	25	80	49.5	0.8	8	1	0.8	40	28 040	48 410	49 500	6 500	39 800	12 900	220	1 140
	CFH24-1VMAB	CFH24-1VMUAB	CFH24-1VMRAB	CFH24-1VMUURAB													42 820	84 650	49 500	3 000				
30	CFH30MAB	CFH30MUAB	CFH30MRAB	CFH30MUURAB	80	35	30	M30×1.5	32	100	63	1	8	1	1	46	41 740	78 250	73 700	5 000	52 600	14 900	450	1 870
	CFH30VMAB	CFH30VMUAB	CFH30VMRAB	CFH30VMUURAB													62 210	132 530	73 700	2 200				
30	CFH30-1MAB	CFH30-1MUAB	CFH30-1MRAB	CFH30-1MUURAB	85	35	30	M30×1.5	32	100	63	1	8	1	1	46	41 740	78 250	73 700	5 000	56 000	16 100	450	2 030
	CFH30-1VMAB	CFH30-1VMUAB	CFH30-1VMRAB	CFH30-1VMUURAB													62 210	132 530	73 700	2 200				
30	CFH30-2MAB	CFH30-2MUAB	CFH30-2MRAB	CFH30-2MUURAB	90	35	30	M30×1.5	32	100	63	1	8	1	1	46	41 740	78 250	73 700	5 000	59 300	17 300	450	2 220
	CFH30-2VMAB	CFH30-2VMUAB	CFH30-2VMRAB	CFH30-2VMUURAB													62 210	132 530	73 700	2 200				

CFH..MAB TYPE has oil holes (grease nipple) which are prepared in the stud head and thread side, also an oil hole is prepared outer surface of stud.

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

OUTER RINGS TOLERANCE (µm)

TYPE	Cylindrical outer ring	Crowned outer ring
CF12	0/-9	0/-50
CF12-1,CF16,CF18,CF20-1	0/-11	0/-50
CF20,CF24,CF24-1,CF30	0/-13	0/-50
CF30-1,CF30-2	0/-15	0/-50

ACCESSORIES

TYPE	Grease Nipple	NUT
All types	Installed	Attached

**CAM FOLLOWERS**  
**STAINLESS STEEL**  
SOLID ECCENTRIC TYPE  
SCREWDRIIVER SLOT HEAD

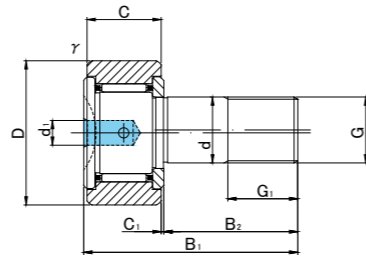
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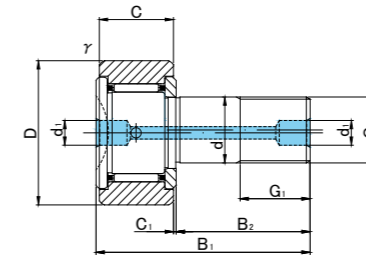
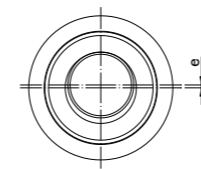
CFH..M



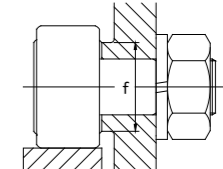
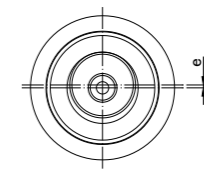
CFH..VM



CFH5(V)M~CFH10-1(V)M



CFH12(V)M~CFH18(V)M



**CFH..M TYPE**

Prepacked Grease

Stud diameter (mm)	Designation				Dimensions (mm)													Basic dynamic load rating	Basic static load rating	Largest permissible load	Limiting speed *	Track load capacity		Max tightening torque	Mass					
	Cylindrical outer ring		Crowned outer ring R250(CF5) R500(CF6 ~ CF18)		D	C	d	G	G1	B1	B2	C1	d1	r <sub>s</sub> min	e	f min	Cr N					Cor N	N			rpm	Cylindrical outer ring N	Crowned outer ring N	N·m	g (approx)
	Without seals	With seals	Without seals	With seals																										
5	0 -0.012	CFH 5M	CFH 5MUU	CFH 5MR	CFH 5MUUR	13	9	5	M5×0.8	7.5	23	13	0.5	3.1	0.3	0.2	9.7	2 880	2 540	1 420	29 000	2 250	780	2	10.5					
		CFH 5VM	CFH 5VMUU	CFH 5VMR	CFH 5VMUUR																									
6	0 -0.012	CFH 6M	CFH 6MUU	CFH 6MR	CFH 6MUUR	16	11	6	M6×1	8	28	16	0.6	4	0.3	0.25	11	3 330	3 330	2 110	25 000	3 430	1 080	3	18.5					
		CFH 6VM	CFH 6VMUU	CFH 6VMR	CFH 6VMUUR																									
8	0 -0.015	CFH 8M	CFH 8MUU	CFH 8MR	CFH 8MUUR	19	11	8	M8×1.25	10	32	20	0.6	4	0.3	0.25	13	3 960	4 330	4 710	20 000	4 020	1 370	8	28.5					
		CFH 8VM	CFH 8VMUU	CFH 8VMR	CFH 8VMUUR																									
10	0 -0.015	CFH10M	CFH10MUU	CFH10MR	CFH10MUUR	22	12	10	M10×1.25	12	36	23	0.6	4	0.3	0.3	15	4 950	6 310	6 860	17 000	4 700	1 670	15	45					
		CFH10VM	CFH10VMUU	CFH10VMR	CFH10VMUUR																									
10	0 -0.015	CFH10-1M	CFH10-1MUU	CFH10-1MR	CFH10-1MUUR	26	12	10	M10×1.25	12	36	23	0.6	4	0.3	0.3	15	4 950	6 310	6 860	17 000	5 490	2 060	15	60					
		CFH10-1VM	CFH10-1VMUU	CFH10-1VMR	CFH10-1VMUUR																									
12	0 -0.018	CFH12M	CFH12MUU	CFH12MR	CFH12MUUR	30	14	12	M12×1.5	13	40	25	0.6	6	0.6	0.4	20	7 300	9 010	9 800	14 000	7 060	2 450	22	95					
		CFH12VM	CFH12VMUU	CFH12VMR	CFH12VMUUR																									
12	0 -0.018	CFH12-1M	CFH12-1MUU	CFH12-1MR	CFH12-1MUUR	32	14	12	M12×1.5	13	40	25	0.6	6	0.6	0.4	20	7 300	9 010	9 800	14 000	7 450	2 740	22	105					
		CFH12-1VM	CFH12-1VMUU	CFH12-1VMR	CFH12-1VMUUR																									
16	0 -0.018	CFH16M	CFH16MUU	CFH16MR	CFH16MUUR	35	18	16	M16×1.5	17	52	32.5	0.8	6	0.6	0.5	24	11 080	16 860	18 330	10 000	11 200	3 140	58	170					
		CFH16VM	CFH16VMUU	CFH16VMR	CFH16VMUUR																									
18	0 -0.018	CFH18M	CFH18MUU	CFH18MR	CFH18MUUR	40	20	18	M18×1.5	19	58	36.5	0.8	6	1	0.6	26	13 520	23 180	25 200	8 500	14 400	3 720	87	250					
		CFH18VM	CFH18VMUU	CFH18VMR	CFH18VMUUR																									

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

OUTER RINGS TOLERANCE (μm)

TYPE	Cylindrical outer ring	Crowned outer ring
CF5M,CF6M	0/-8	0/-50
CF8M,CF10M,CF10-1M,CF12M	0/-9	0/-50
CF12-1M,CF16M,CF18M,CF20-1M	0/-11	0/-50
CF20M,CF24M,CF24-1M,CF30M	0/-13	0/-50
CF30-1M,CF30-2M	0/-15	0/-50

ACCESSORIES

TYPE	STOP PLUG	RESIN PLUG	NUT
CF5M	—	—	Attached
CF6M/CF8M/CF10M/CF10-1M	—	φ 4 Attached	Attached
CF12M/CF12-1M/CF16M/CF18M	φ 6 Attached	φ 6 Attached	Attached
CF20M/CF20-1M/CF24M/CF24-1M/CF30M/CF30-1M/CF30-2M	φ 8 Attached	φ 8 Attached	Attached

**CAM FOLLOWERS**  
**STAINLESS STEEL**  
 SOLID ECCENTRIC TYPE  
 SCREWDRIVER SLOT HEAD

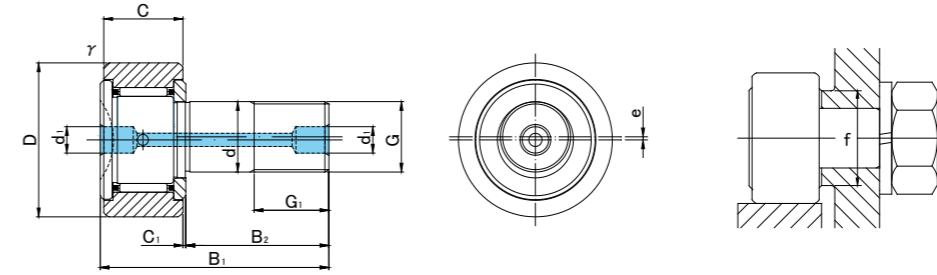
SUS/INOX



CFH..M



CFH..VM



**CFH..M TYPE**

Prepacked Grease

Stud diameter (mm)	h7 tolerance	Designation				Dimensions (mm)												Basic dynamic load rating Cr N	Basic static load rating Cor N	Largest permissible load N	Limiting speed * rpm	Track load capacity		Max tightening torque N·m	Mass g (approx)
		Cylindrical outer ring		Crowned outer ring R1000(CF20 ≤)		D	C	d	G	G1	B1	B2	C1	d1	r/min	e	f min					Cylindrical outer ring N	Crowned outer ring N		
20	0 -0.021	CFH20M	CFH20MUU	CFH20MR	CFH20MUUR	52	24	20	M20×1.5	21	66	40.5	0.8	8	1	0.7	36	19 020	31 830	32 140	7 000	23 200	8 230	120	460
		CFH20VM	CFH20VMUU	CFH20VMR	CFH20VMUUR													30 470	59 320	32 140	3 500				
20	0 -0.021	CFH20-1M	CFH20-1MUU	CFH20-1MR	CFH20-1MUUR	47	24	20	M20×1.5	21	66	40.5	0.8	8	1	0.7	36	19 020	31 830	32 140	7 000	21 000	7 150	120	385
		CFH20-1VM	CFH20-1VMUU	CFH20-1VMR	CFH20-1VMUUR													30 470	59 320	32 140	3 500				
24	0 -0.021	CFH24M	CFH24MUU	CFH24MR	CFH24MUUR	62	29	24	M24×1.5	25	80	49.5	0.8	8	1	0.8	40	28 040	48 410	49 500	6 500	34 200	10 500	220	815
		CFH24VM	CFH24VMUU	CFH24VMR	CFH24VMUUR													42 820	84 650	49 500	3 000				
24	0 -0.021	CFH24-1M	CFH24-1MUU	CFH24-1MR	CFH24-1MUUR	72	29	24	M24×1.5	25	80	49.5	0.8	8	1	0.8	40	28 040	48 410	49 500	6 500	39 800	12 900	220	1 140
		CFH24-1VM	CFH24-1VMUU	CFH24-1VMR	CFH24-1VMUUR													42 820	84 650	49 500	3 000				
30	0 -0.021	CFH30M	CFH30MUU	CFH30MR	CFH30MUUR	80	35	30	M30×1.5	32	100	63	1	8	1	1	46	41 740	78 250	73 700	5 000	52 600	14 900	450	1 870
		CFH30VM	CFH30VMUU	CFH30VMR	CFH30VMUUR													62 210	132 530	73 700	2 200				
30	0 -0.021	CFH30-1M	CFH30-1MUU	CFH30-1MR	CFH30-1MUUR	85	35	30	M30×1.5	32	100	63	1	8	1	1	46	41 740	78 250	73 700	5 000	56 000	16 100	450	2 030
		CFH30-1VM	CFH30-1VMUU	CFH30-1VMR	CFH30-1VMUUR													62 210	132 530	73 700	2 200				
30	0 -0.021	CFH30-2M	CFH30-2MUU	CFH30-2MR	CFH30-2MUUR	90	35	30	M30×1.5	32	100	63	1	8	1	1	46	41 740	78 250	73 700	5 000	59 300	17 300	450	2 220
		CFH30-2VM	CFH30-2VMUU	CFH30-2VMR	CFH30-2VMUUR													62 210	132 530	73 700	2 200				

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

OUTER RINGS TOLERANCE (µm)

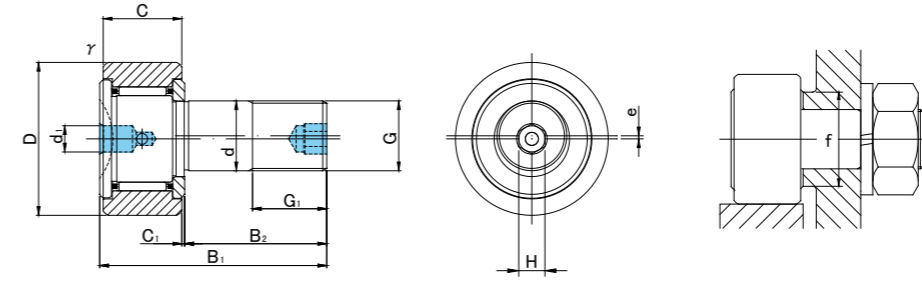
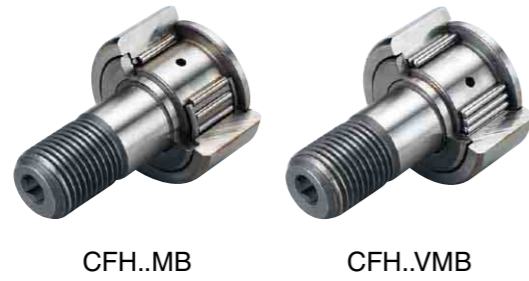
TYPE	Cylindrical outer ring	Crowned outer ring
CF5M,CF6M	0/-8	0/-50
CF8M,CF10M,CF10-1M,CF12M	0/-9	0/-50
CF12-1M,CF16M,CF18M,CF20-1M	0/-11	0/-50
CF20M,CF24M,CF24-1M,CF30M	0/-13	0/-50
CF30-1M,CF30-2M	0/-15	0/-50

ACCESSORIES

TYPE	STOP PLUG	RESIN PLUG	NUT
CF5M	—	—	Attached
CF6M/CF8M/CF10M/CF10-1M	—	φ 4 Attached	Attached
CF12M/CF12-1M/CF16M/CF18M	φ 6 Attached	φ 6 Attached	Attached
CF20M/CF20-1M/CF24M/CF24-1M/CF30M/CF30-1M/CF30-2M	φ 8 Attached	φ 8 Attached	Attached

**CAM FOLLOWERS  
STAINLESS STEEL**  
SOLID ECCENTRIC TYPE  
HEXAGON SOCKET ON THREAD SIDE  
SCREWDRIVER SLOT HEAD

SUS/INOX



**CFH..MB TYPE**

Prepacked Grease

Stud diameter (mm)	h7 tolerance	Designation				Dimensions (mm)															Basic dynamic load rating	Basic static load rating	Largest permissible load	Limiting speed *	Track load capacity		Max tightening torque	Mass				
		Cylindrical outer ring		Crowned outer ring R500(CF12 ~ CF18) R1000(CF20 ≤)		D	C	d	G	G1	B1	B2	C1	d1	H	r <sub>s</sub> min	e	f min	Cr N	Cor N					N	rpm			Cylindrical outer ring N	Crowned outer ring N	N-m	g (approx)
		Without seals	With seals	Without seals	With seals																											
12	0 -0.018	CFH12MB	CFH12MUUB	CFH12MRB	CFH12MUURB	30	14	12	M12×1.5	13	40	25	0.6	6	6	0.6	0.4	20	7 300	9 010	9 800	14 000	7 060	2 450	22	95						
		CFH12VMB	CFH12VMUUB	CFH12VMRB	CFH12VMUURB																											
12	0 -0.018	CFH12-1MB	CFH12-1MUUB	CFH12-1MRB	CFH12-1MUURB	32	14	12	M12×1.5	13	40	25	0.6	6	6	0.6	0.4	20	7 300	9 010	9 800	14 000	7 450	2 740	22	105						
		CFH12-1VMB	CFH12-1VMUUB	CFH12-1VMRB	CFH12-1VMUURB																											
16	0 -0.018	CFH16MB	CFH16MUUB	CFH16MRB	CFH16MUURB	35	18	16	M16×1.5	17	52	32.5	0.8	6	6	0.6	0.5	24	11 080	16 860	18 330	10 000	11 200	3 140	58	170						
		CFH16VMB	CFH16VMUUB	CFH16VMRB	CFH16VMUURB																											
18	0 -0.018	CFH18MB	CFH18MUUB	CFH18MRB	CFH18MUURB	40	20	18	M18×1.5	19	58	36.5	0.8	6	6	1	0.6	26	13 520	23 180	25 200	8 500	14 400	3 720	87	250						
		CFH18VMB	CFH18VMUUB	CFH18VMRB	CFH18VMUURB																											
20	0 -0.021	CFH20MB	CFH20MUUB	CFH20MRB	CFH20MUURB	52	24	20	M20×1.5	21	66	40.5	0.8	8	8	1	0.7	36	19 020	31 830	32 140	7 000	23 200	8 230	120	460						
		CFH20VMB	CFH20VMUUB	CFH20VMRB	CFH20VMUURB																											
20	0 -0.021	CFH20-1MB	CFH20-1MUUB	CFH20-1MRB	CFH20-1MUURB	47	24	20	M20×1.5	21	66	40.5	0.8	8	8	1	0.7	36	19 020	31 830	32 140	7 000	21 000	7 150	120	385						
		CFH20-1VMB	CFH20-1VMUUB	CFH20-1VMRB	CFH20-1VMUURB																											
24	0 -0.021	CFH24MB	CFH24MUUB	CFH24MRB	CFH24MUURB	62	29	24	M24×1.5	25	80	49.5	0.8	8	8	1	0.8	40	28 040	48 410	49 500	6 500	34 200	10 500	220	815						
		CFH24VMB	CFH24VMUUB	CFH24VMRB	CFH24VMUURB																											
24	0 -0.021	CFH24-1MB	CFH24-1MUUB	CFH24-1MRB	CFH24-1MUURB	72	29	24	M24×1.5	25	80	49.5	0.8	8	8	1	0.8	40	28 040	48 410	49 500	6 500	39 800	12 900	220	1 140						
		CFH24-1VMB	CFH24-1VMUUB	CFH24-1VMRB	CFH24-1VMUURB																											
30	0 -0.021	CFH30MB	CFH30MUUB	CFH30MRB	CFH30MUURB	80	35	30	M30×1.5	32	100	63	1	8	8	1	1	46	41 740	78 250	73 700	5 000	52 600	14 900	450	1 870						
		CFH30VMB	CFH30VMUUB	CFH30VMRB	CFH30VMUURB																											
30	0 -0.021	CFH30-1MB	CFH30-1MUUB	CFH30-1MRB	CFH30-1MUURB	85	35	30	M30×1.5	32	100	63	1	8	8	1	1	46	41 740	78 250	73 700	5 000	56 000	16 100	450	2 030						
		CFH30-1VMB	CFH30-1VMUUB	CFH30-1VMRB	CFH30-1VMUURB																											
30	0 -0.021	CFH30-2MB	CFH30-2MUUB	CFH30-2MRB	CFH30-2MUURB	90	35	30	M30×1.5	32	100	63	1	8	8	1	1	46	41 740	78 250	73 700	5 000	59 300	17 300	450	2 220						
		CFH30-2VMB	CFH30-2VMUUB	CFH30-2VMRB	CFH30-2VMUURB																											

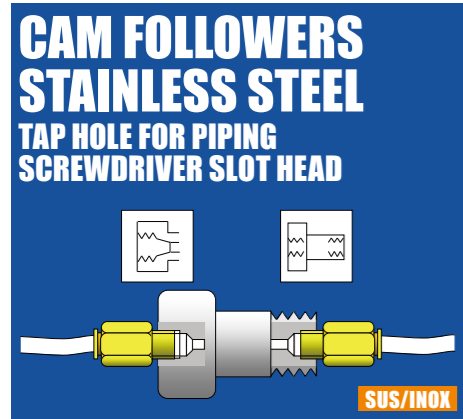
\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

OUTER RINGS TOLERANCE (µm)

TYPE	Cylindrical outer ring	Crowned outer ring
CF12M	0/-9	0/-50
CF12-1M,CF16M,CF18M,CF20-1M	0/-11	0/-50
CF20M,CF24M,CF24-1M,CF30M	0/-13	0/-50
CF30-1M,CF30-2M	0/-15	0/-50

ACCESSORIES

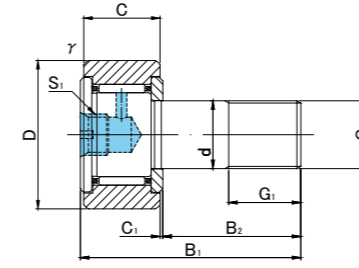
TYPE	STOP PLUG	RESIN PLUG	NUT
CF12M/CF12-1M/CF16M/CF18M	φ 6 Attached	φ 6 Attached	Attached
CF20M/CF20-1M/CF24M/CF24-1M/CF30M/CF30-1M/CF30-2M	φ 8 Attached	φ 8 Attached	Attached



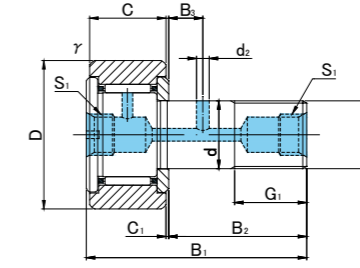
CFT..M



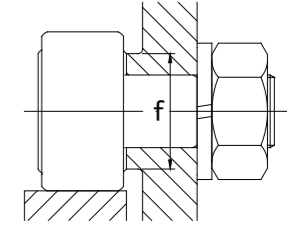
CFT..VM



CFT6(V)M~CFT10-1(V)M



CFT12(V)M~CFT18(V)M



CFT..M TYPE

Prepacked Grease

Stud diameter (mm)	h7 tolerance	Designation				Dimensions (mm)													Basic dynamic load rating Cr N	Basic static load rating Cor N	Largest permissible load N	Limiting speed * rpm	Track load capacity		Max tightening torque N·m	Mass g (approx)
		Cylindrical outer ring		Crowned outer ring R500(CF6 ~ CF18)		D	C	d	G	G1	B1	B2	B3	C1	S1	d2	r <sub>s</sub> min	f min					Cylindrical outer ring N	Crowned outer ring N		
		Without seals	With seals	Without seals	With seals																					
6	0 -0.012	CFT 6M	CFT 6MUU	CFT 6MR	CFT 6MUUR	16	11	6	M6×1	8	28	16	—	0.6	M6×0.75	—	0.3	11	3 330	3 330	2 110	25 000	3 430	1 080	3	18.5
		CFT 6VM	CFT 6VMUU	CFT 6VMR	CFT 6VMUUR														6 400	7 840	2 110	12 000				
8	0 -0.015	CFT 8M	CFT 8MUU	CFT 8MR	CFT 8MUUR	19	11	8	M8×1.25	10	32	20	—	0.6	M6×0.75	—	0.3	13	3 960	4 330	4 710	20 000	4 020	1 370	8	28.5
		CFT 8VM	CFT 8VMUU	CFT 8VMR	CFT 8VMUUR														7 470	10 270	4 710	9 000				
10	0 -0.015	CFT10M	CFT10MUU	CFT10MR	CFT10MUUR	22	12	10	M10×1.25	12	36	23	—	0.6	M6×0.75	—	0.3	15	4 950	6 310	6 860	17 000	4 700	1 670	15	45
		CFT10VM	CFT10VMUU	CFT10VMR	CFT10VMUUR														8 740	13 340	7 450	7 500				
10	0 -0.015	CFT10-1M	CFT10-1MUU	CFT10-1MR	CFT10-1MUUR	26	12	10	M10×1.25	12	36	23	—	0.6	M6×0.75	—	0.3	15	4 950	6 310	6 860	17 000	5 490	2 060	15	60
		CFT10-1VM	CFT10-1VMUU	CFT10-1VMR	CFT10-1VMUUR														8 740	13 340	7 450	7 500				
12	0 -0.018	CFT12M	CFT12MUU	CFT12MR	CFT12MUUR	30	14	12	M12×1.5	13	40	25	6	0.6	M6×0.75	3	0.6	20	7 300	9 010	7 840	14 000	7 060	2 450	22	95
		CFT12VM	CFT12VMUU	CFT12VMR	CFT12VMUUR														12 350	18 120	9 010	6 000				
12	0 -0.018	CFT12-1M	CFT12-1MUU	CFT12-1MR	CFT12-1MUUR	32	14	12	M12×1.5	13	40	25	6	0.6	M6×0.75	3	0.6	20	7 300	9 010	7 840	14 000	7 450	2 740	22	105
		CFT12-1VM	CFT12-1VMUU	CFT12-1VMR	CFT12-1VMUUR														12 350	18 120	9 010	6 000				
16	0 -0.018	CFT16M	CFT16MUU	CFT16MR	CFT16MUUR	35	18	16	M16×1.5	17	52	32.5	8	0.8	Rc1/8	3	0.6	24	11 080	16 860	14 660	10 000	11 200	3 140	58	170
		CFT16VM	CFT16VMUU	CFT16VMR	CFT16VMUUR														19 020	34 610	15 840	4 500				
18	0 -0.018	CFT18M	CFT18MUU	CFT18MR	CFT18MUUR	40	20	18	M18×1.5	19	58	36.5	8	0.8	Rc1/8	3	1	26	13 520	23 180	20 160	8 500	14 400	3 720	87	250
		CFT18VM	CFT18VMUU	CFT18VMR	CFT18VMUUR														23 250	47 240	21 240	3 500				

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

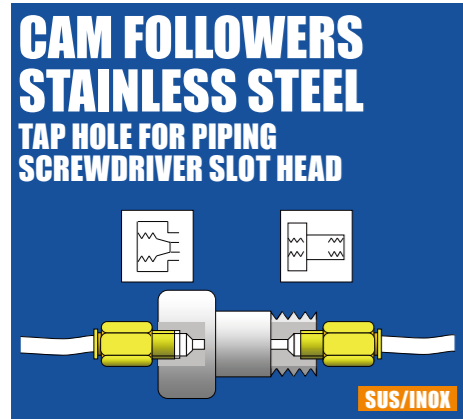
OUTER RINGS TOLERANCE (µm)

TYPE	Cylindrical outer ring	Crowned outer ring
CF6M	0/-8	0/-50
CF8M,CF10M,CF10-1M,CF12M	0/-9	0/-50
CF12-1M,CF16M,CF18M,CF20-1M	0/-11	0/-50
CF20M,CF24M,CF24-1M,CF30M	0/-13	0/-50
CF30-1M,CF30-2M	0/-15	0/-50

ACCESSORIES

TYPE	Image
All types	NUT Attached

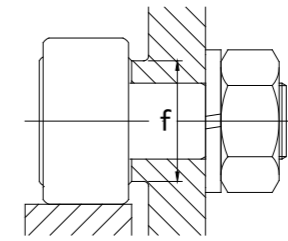
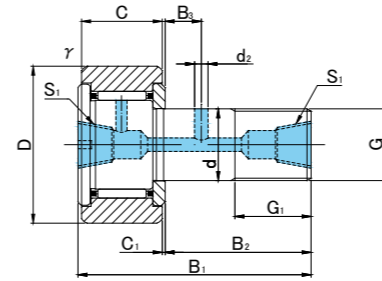




CFT..M



CFT..VM



CFT..M TYPE

Prepacked Grease

Stud diameter (mm)	h7 tolerance	Designation				Dimensions (mm)											Basic dynamic load rating Cr N	Basic static load rating Cor N	Largest permissible load N	Limiting speed * rpm	Track load capacity		Max tightening torque N·m	Mass g (approx)		
		Cylindrical outer ring		Crowned outer ring R1000(CF20 ≤)		D	C	d	G	G1	B1	B2	B3	C1	S1	d2					r <sub>s</sub> min	f min			Cylindrical outer ring N	Crowned outer ring N
20	0 -0.021	CFT20M	CFT20MUU	CFT20MR	CFT20MUUR	52	24	20	M20×1.5	21	66	40.5	9	0.8	Rc1/8	4	1	36	19 020	31 830	25 710	7 000	23 200	8 230	120	460
		CFT20VM	CFT20VMUU	CFT20VMR	CFT20VMUUR														30 470	59 320	25 710	3 500				
20	0 -0.021	CFT20-1M	CFT20-1MUU	CFT20-1MR	CFT20-1MUUR	47	24	20	M20×1.5	21	66	40.5	9	0.8	Rc1/8	4	1	36	19 020	31 830	25 710	7 000	21 000	7 150	120	385
		CFT20-1VM	CFT20-1VMUU	CFT20-1VMR	CFT20-1VMUUR														30 470	59 320	25 710	3 500				
24	0 -0.021	CFT24M	CFT24MUU	CFT24MR	CFT24MUUR	62	29	24	M24×1.5	25	80	49.5	11	0.8	Rc1/8	4	1	40	28 040	48 410	39 600	6 500	34 200	10 500	220	815
		CFT24VM	CFT24VMUU	CFT24VMR	CFT24VMUUR														42 820	84 650	39 600	3 000				
24	0 -0.021	CFT24-1M	CFT24-1MUU	CFT24-1MR	CFT24-1MUUR	72	29	24	M24×1.5	25	80	49.5	11	0.8	Rc1/8	4	1	40	28 040	48 410	39 600	6 500	39 800	12 900	220	1 140
		CFT24-1VM	CFT24-1VMUU	CFT24-1VMR	CFT24-1VMUUR														42 820	84 650	39 600	3 000				
30	0 -0.021	CFT30M	CFT30MUU	CFT30MR	CFT30MUUR	80	35	30	M30×1.5	32	100	63	15	1	Rc1/8	4	1	46	41 740	78 250	58 960	5 000	52 600	14 900	450	1 870
		CFT30VM	CFT30VMUU	CFT30VMR	CFT30VMUUR														62 210	132 530	58 960	2 200				
30	0 -0.021	CFT30-1M	CFT30-1MUU	CFT30-1MR	CFT30-1MUUR	85	35	30	M30×1.5	32	100	63	15	1	Rc1/8	4	1	46	41 740	78 250	58 960	5 000	56 000	56 000	450	2 030
		CFT30-1VM	CFT30-1VMUU	CFT30-1VMR	CFT30-1VMUUR														62 210	132 530	58 960	2 200				
30	0 -0.021	CFT30-2M	CFT30-2MUU	CFT30-2MR	CFT30-2MUUR	90	35	30	M30×1.5	32	100	63	15	1	Rc1/8	4	1	46	41 740	78 250	58 960	5 000	59 300	59 300	450	2 220
		CFT30-2VM	CFT30-2VMUU	CFT30-2VMR	CFT30-2VMUUR														62 210	132 530	58 960	2 200				

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

OUTER RINGS TOLERANCE (μm)

TYPE	Cylindrical outer ring	Crowned outer ring
CF6M	0/-8	0/-50
CF8M,CF10M,CF10-1M,CF12M	0/-9	0/-50
CF12-1M,CF16M,CF18M,CF20-1M	0/-11	0/-50
CF20M,CF24M,CF24-1M,CF30M	0/-13	0/-50
CF30-1M,CF30-2M	0/-15	0/-50

ACCESSORIES

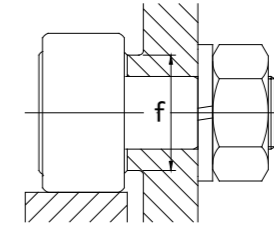
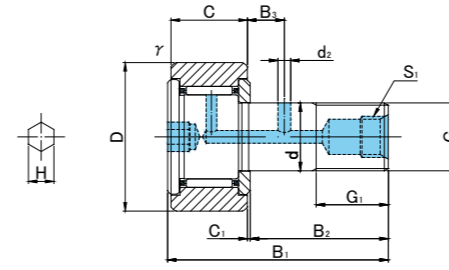
TYPE	Image
All types	NUT Attached



CFT..MA



CFT..VMA



CFT..MA TYPE

Prepacked Grease

Stud diameter (mm)	h7 tolerance	Designation				Dimensions (mm)															Basic dynamic load rating	Basic static load rating	Largest permissible load	Limiting speed *	Track load capacity		Max tightening torque	Mass
		Cylindrical outer ring		Crowned outer ring R500(CF12 ~ CF18) R1000(CF20 ≤)		D	C	d	G	G1	B1	B2	B3	C1	S1	d2	H	rs min	f min	Cr N					Cor N	N		
12	0 -0.018	CFT12MA	CFT12MUUA	CFT12MRA	CFT12MUURA	30	14	12	M12×1.5	13	40	25	6	0.6	M6×0.75	3	6	0.6	20	7 300	9 010	7 840	14 000	7 060	2 450	22	95	
		CFT12VMA	CFT12VMUUA	CFT12VMRA	CFT12VMUURA															12 350	18 120	9 010	6 000					
12	0 -0.018	CFT12-1MA	CFT12-1MUUA	CFT12-1MRA	CFT12-1MUURA	32	14	12	M12×1.5	13	40	25	6	0.6	M6×0.75	3	6	0.6	20	7 300	9 010	7 840	14 000	7 450	2 740	22	105	
		CFT12-1VMA	CFT12-1VMUUA	CFT12-1VMRA	CFT12-1VMUURA															12 350	18 120	9 010	6 000					
16	0 -0.018	CFT16MA	CFT16MUUA	CFT16MRA	CFT16MUURA	35	18	16	M16×1.5	17	52	32.5	8	0.8	Rc1/8	3	6	0.6	24	11 080	16 860	14 660	10 000	11 200	3 140	58	170	
		CFT16VMA	CFT16VMUUA	CFT16VMRA	CFT16VMUURA															19 020	34 610	15 840	4 500					
18	0 -0.018	CFT18MA	CFT18MUUA	CFT18MRA	CFT18MUURA	40	20	18	M18×1.5	19	58	36.5	8	0.8	Rc1/8	3	6	1	26	13 520	23 180	20 160	8 500	14 400	3 720	87	250	
		CFT18VMA	CFT18VMUUA	CFT18VMRA	CFT18VMUURA															23 250	47 240	21 240	3 500					
20	0 -0.021	CFT20MA	CFT20MUUA	CFT20MRA	CFT20MUURA	52	24	20	M20×1.5	21	66	40.5	9	0.8	Rc1/8	4	8	1	36	19 020	31 830	25 710	7 000	23 200	8 230	120	460	
		CFT20VMA	CFT20VMUUA	CFT20VMRA	CFT20VMUURA															30 470	59 320	25 710	3 500					
20	0 -0.021	CFT20-1MA	CFT20-1MUUA	CFT20-1MRA	CFT20-1MUURA	47	24	20	M20×1.5	21	66	40.5	9	0.8	Rc1/8	4	8	1	36	19 020	31 830	25 710	7 000	21 000	7 150	120	385	
		CFT20-1VMA	CFT20-1VMUUA	CFT20-1VMRA	CFT20-1VMUURA															30 470	59 320	25 710	3 500					
24	0 -0.021	CFT24MA	CFT24MUUA	CFT24MRA	CFT24MUURA	62	29	24	M24×1.5	25	80	49.5	11	0.8	Rc1/8	4	8	1	40	28 040	48 410	39 600	6 500	34 200	10 500	220	815	
		CFT24VMA	CFT24VMUUA	CFT24VMRA	CFT24VMUURA															42 820	84 650	39 600	3 000					
24	0 -0.021	CFT24-1MA	CFT24-1MUUA	CFT24-1MRA	CFT24-1MUURA	72	29	24	M24×1.5	25	80	49.5	11	0.8	Rc1/8	4	8	1	40	28 040	48 410	39 600	6 500	39 800	12 900	220	1 140	
		CFT24-1VMA	CFT24-1VMUUA	CFT24-1VMRA	CFT24-1VMUURA															42 820	84 650	39 600	3 000					
30	0 -0.021	CFT30MA	CFT30MUUA	CFT30MRA	CFT30MUURA	80	35	30	M30×1.5	32	100	63	15	1	Rc1/8	4	8	1	46	41 740	78 250	58 960	5 000	52 600	14 900	450	1 870	
		CFT30VMA	CFT30VMUUA	CFT30VMRA	CFT30VMUURA															62 210	132 530	58 960	2 200					
30	0 -0.021	CFT30-1MA	CFT30-1MUUA	CFT30-1MRA	CFT30-1MUURA	85	35	30	M30×1.5	32	100	63	15	1	Rc1/8	4	8	1	46	41 740	78 250	58 960	5 000	56 000	56 000	450	2 030	
		CFT30-1VMA	CFT30-1VMUUA	CFT30-1VMRA	CFT30-1VMUURA															62 210	132 530	58 960	2 200					
30	0 -0.021	CFT30-2MA	CFT30-2MUUA	CFT30-2MRA	CFT30-2MUURA	90	35	30	M30×1.5	32	100	63	15	1	Rc1/8	4	8	1	46	41 740	78 250	58 960	5 000	59 300	59 300	450	2 220	
		CFT30-2VMA	CFT30-2VMUUA	CFT30-2VMRA	CFT30-2VMUURA															62 210	132 530	58 960	2 200					

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

OUTER RINGS TOLERANCE (µm)

TYPE	Cylindrical outer ring	Crowned outer ring
CF12M	0/-9	0/-50
CF12-1M,CF16M,CF18M,CF20-1M	0/-11	0/-50
CF20M,CF24M,CF24-1M,CF30M	0/-13	0/-50
CF30-1M,CF30-2M	0/-15	0/-50

ACCESSORIES

TYPE	
All types	NUT Attached

# ROLLER FOLLOWERS

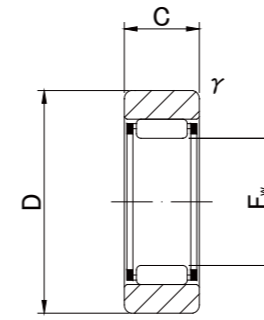
# STAINLESS STEEL



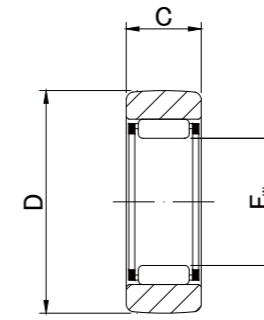
**ROLLER FOLLOWERS**  
**STAINLESS STEEL**  
SEPARABLE  
WITHOUT INNER RING




RNAS.T..M



RNAS.T..M



RNAS.T..MR

**RNAS.T..M TYPE**

Prepacked Grease

Shaft Diameter (mm)	Designation		Dimensions (mm)				Basic dynamic load rating	Basic static load rating	Track load capacity		Limiting speed *	Mass		
	Cylindrical outer ring	Crowned outer ring (R500)	Fw	D	C	r/s min			Cr N	Cor N			Cylindrical outer ring N	Crowned outer ring N
<b>7</b>	<b>RNAS.T 5M</b>	<b>RNAS.T 5MR</b>	7 <sup>+0.022</sup> / <sub>+0.013</sub>	<b>16</b>	7.8	0.3	2 520	2 190	2 350	1 080	30 000	8.9		
<b>10</b>	<b>RNAS.T 6M</b>	<b>RNAS.T 6MR</b>	10 <sup>+0.027</sup> / <sub>+0.016</sub>	<b>19</b>	9.8	0.3	3 790	4 180	3 530	1 370	20 000	13.9		
<b>12</b>	<b>RNAS.T 8M</b>	<b>RNAS.T 8MR</b>	12 <sup>+0.027</sup> / <sub>+0.016</sub>	<b>24</b>	9.8	0.6	5 220	5 410	4 020	1 860	17 000	23.5		
<b>14</b>	<b>RNAS.T10M</b>	<b>RNAS.T10MR</b>	14 <sup>+0.027</sup> / <sub>+0.016</sub>	<b>30</b>	11.8	1	8 920	8 890	5 590	2 450	15 000	42.5		
<b>16</b>	<b>RNAS.T12M</b>	<b>RNAS.T12MR</b>	16 <sup>+0.027</sup> / <sub>+0.016</sub>	<b>32</b>	11.8	1	9 560	10 020	5 980	2 740	13 000	49.5		
<b>20</b>	<b>RNAS.T15M</b>	<b>RNAS.T15MR</b>	20 <sup>+0.033</sup> / <sub>+0.020</sub>	<b>35</b>	11.8	1	11 310	13 150	6 570	3 140	10 000	50		
<b>22</b>	<b>RNAS.T17M</b>	<b>RNAS.T17MR</b>	22 <sup>+0.033</sup> / <sub>+0.020</sub>	<b>40</b>	15.8	1	16 000	19 220	10 900	3 720	9 500	90		
<b>25</b>	<b>RNAS.T20M</b>	<b>RNAS.T20MR</b>	25 <sup>+0.033</sup> / <sub>+0.020</sub>	<b>47</b>	15.8	1	17 660	22 540	12 700	4 610	8 500	135		
<b>30</b>	<b>RNAS.T25M</b>	<b>RNAS.T25MR</b>	30 <sup>+0.033</sup> / <sub>+0.020</sub>	<b>52</b>	15.8	1	19 040	26 120	14 100	5 290	7 000	135		
<b>38</b>	<b>RNAS.T30M</b>	<b>RNAS.T30MR</b>	38 <sup>+0.041</sup> / <sub>+0.025</sub>	<b>62</b>	19.8	1	27 870	41 760	22 100	6 660	5 500	255		
<b>42</b>	<b>RNAS.T35M</b>	<b>RNAS.T35MR</b>	42 <sup>+0.041</sup> / <sub>+0.025</sub>	<b>72</b>	19.8	1	29 620	46 550	25 700	8 130	5 000	375		
<b>50</b>	<b>RNAS.T40M</b>	<b>RNAS.T40MR</b>	50 <sup>+0.041</sup> / <sub>+0.025</sub>	<b>80</b>	19.8	1.5	32 840	56 210	26 900	9 310	4 000	420		
<b>55</b>	<b>RNAS.T45M</b>	<b>RNAS.T45MR</b>	55 <sup>+0.049</sup> / <sub>+0.030</sub>	<b>85</b>	19.8	1.5	34 130	61 080	28 500	10 100	4 000	460		
<b>60</b>	<b>RNAS.T50M</b>	<b>RNAS.T50MR</b>	60 <sup>+0.049</sup> / <sub>+0.030</sub>	<b>90</b>	19.8	1.5	35 600	66 050	30 200	11 000	3 500	500		

\* Suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible.

OUTER RINGS TOLERANCE

TYPE	Cylindrical outer ring	Crowned outer ring
RNAS.T5M	0/-8	0/-50
RNAS.T6M,RNAS.T8M,RNAS.T10M	0/-9	0/-50
RNAS.T12M,RNAS.T15M,RNAS.T17M,RNAS.T20M	0/-11	0/-50
RNAS.T25M,RNAS.T30M,RNAS.T35M,RNAS.T40M	0/-13	0/-50
RNAS.T45M,RNAS.T50M	0/-15	0/-50

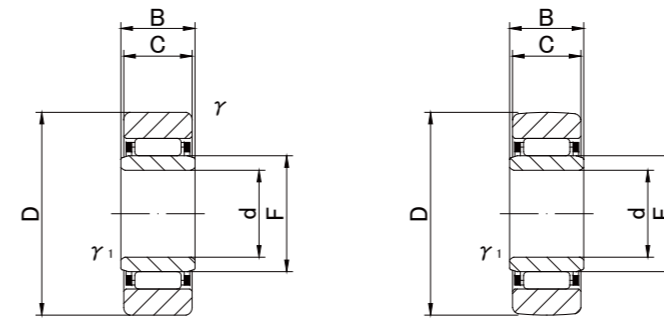
**ROLLER FOLLOWERS**  
**STAINLESS STEEL**  
SEPARABLE WITH INNER RING



SUS/INOX



NAST..M



NAST..M

NAST..MR

**NAST..M TYPE**

Prepacked Grease

Shaft Diameter (mm)	Designation		Dimensions (mm)							Basic dynamic load rating	Basic static load rating	Track load capacity		Limiting speed *	Mass
	Cylindrical outer ring	Crowned outer ring (R500)	d	D	B	C	r <sub>s</sub> min	r <sub>1s</sub> min	F			Cr N	Cor N		
6	NAST 6M	NAST 6MR	6 <sup>0</sup> <sub>-0.008</sub>	19	10	9.8	0.3	0.3	10	3 790	4 180	3 530	1 370	20 000	17.8
8	NAST 8M	NAST 8MR	8 <sup>0</sup> <sub>-0.008</sub>	24	10	9.8	0.6	0.3	12	5 220	5 410	4 020	1 860	17 000	28
10	NAST10M	NAST10MR	10 <sup>0</sup> <sub>-0.008</sub>	30	12	11.8	1	0.3	14	8 920	8 890	5 590	2 450	15 000	50
12	NAST12M	NAST12MR	12 <sup>0</sup> <sub>-0.008</sub>	32	12	11.8	1	0.3	16	9 560	10 020	5 980	2 740	13 000	58
15	NAST15M	NAST15MR	15 <sup>0</sup> <sub>-0.008</sub>	35	12	11.8	1	0.3	20	11 310	13 150	6 570	3 140	10 000	62
17	NAST17M	NAST17MR	17 <sup>0</sup> <sub>-0.010</sub>	40	16	15.8	1	0.3	22	16 000	19 220	10 900	3 720	9 500	110
20	NAST20M	NAST20MR	20 <sup>0</sup> <sub>-0.010</sub>	47	16	15.8	1	0.3	25	17 660	22 540	12 700	4 610	8 500	155
25	NAST25M	NAST25MR	25 <sup>0</sup> <sub>-0.010</sub>	52	16	15.8	1	0.3	30	19 040	26 120	14 100	5 290	7 000	180
30	NAST30M	NAST30MR	30 <sup>0</sup> <sub>-0.010</sub>	62	20	19.8	1	0.6	38	27 870	41 760	22 100	6 660	5 500	320
35	NAST35M	NAST35MR	35 <sup>0</sup> <sub>-0.012</sub>	72	20	19.8	1	0.6	42	29 620	46 550	25 700	8 130	5 000	440
40	NAST40M	NAST40MR	40 <sup>0</sup> <sub>-0.012</sub>	80	20	19.8	1.5	1	50	32 840	56 210	26 900	9 310	4 000	530
45	NAST45M	NAST45MR	45 <sup>0</sup> <sub>-0.012</sub>	85	20	19.8	1.5	1	55	34 130	61 080	28 500	10 100	4 000	580
50	NAST50M	NAST50MR	50 <sup>0</sup> <sub>-0.012</sub>	90	20	19.8	1.5	1	60	35 600	66 050	30 200	11 000	3 500	635

\* Suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible.

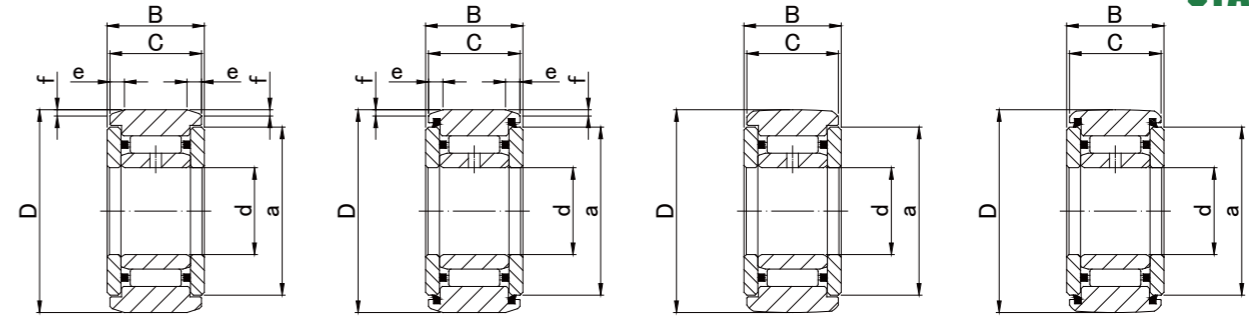
OUTER RINGS TOLERANCE (Outside diameter) (μm)

TYPE	Cylindrical outer ring	Crowned outer ring
NAST6M,NAST8M,NAST10M	0/-9	0/-50
NAST12M,NAST15M,NAST17M,NAST20M	0/-11	0/-50
NAST25M,NAST30M,NAST35M,NAST40M	0/-13	0/-50
NAST45M,NAST50M	0/-15	0/-50

**ROLLER FOLLOWERS STAINLESS STEEL**  
SEPARABLE WITH INNER RING WITH SHIELD



NAST..MZZ



NAST..MZZ

NAST..MZZUU

NAST..MZZR

NAST..MZZUUR

**NAST..MZZ TYPE**

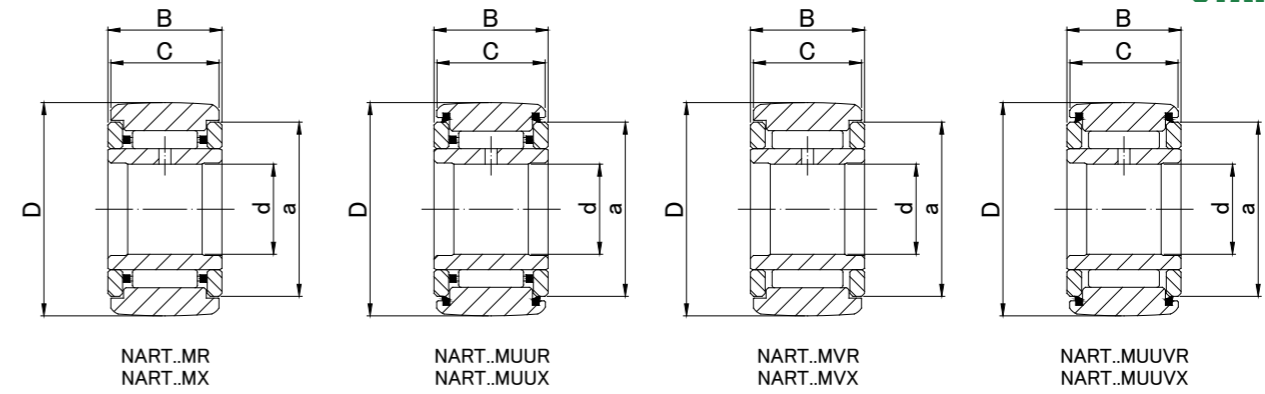
Prepacked Grease

Shaft Diameter (mm)	Designation				Dimensions (mm)									Basic dynamic load rating Cr N	Basic static load rating Cor N	Track load capacity		Limiting speed* rpm	Mass g (approx)
	Cylindrical outer ring		Crowned outer ring (R500)		d	D	B	C	a	e	f	r/s min	Cylindrical outer ring N			Crowned outer ring N			
	Without seals	With seals	Without seals	With seals															
<b>6</b>	<b>NAST 6MZZ</b>	<b>NAST 6MZZUU</b>	<b>NAST 6MZZR</b>	<b>NAST 6MZZUUR</b>	6 <sup>0</sup> <sub>-0.008</sub>	<b>19</b>	14	13.8	14	2.5	0.8	0.3	3 790	4 180	3 530	1 370	20 000	24.5	
<b>8</b>	<b>NAST 8MZZ</b>	<b>NAST 8MZZUU</b>	<b>NAST 8MZZR</b>	<b>NAST 8MZZUUR</b>	8 <sup>0</sup> <sub>-0.008</sub>	<b>24</b>	14	13.8	17.5	2.5	0.8	0.6	5 220	5 410	4 510	1 860	17 000	39	
<b>10</b>	<b>NAST10MZZ</b>	<b>NAST10MZZUU</b>	<b>NAST10MZZR</b>	<b>NAST10MZZUUR</b>	10 <sup>0</sup> <sub>-0.008</sub>	<b>30</b>	16	15.8	23.5	2.5	0.8	1	8 920	8 890	6 860	2 450	15 000	65	
<b>12</b>	<b>NAST12MZZ</b>	<b>NAST12MZZUU</b>	<b>NAST12MZZR</b>	<b>NAST12MZZUUR</b>	12 <sup>0</sup> <sub>-0.008</sub>	<b>32</b>	16	15.8	25.5	2.5	0.8	1	9 560	10 020	7 350	2 740	13 000	75	
<b>15</b>	<b>NAST15MZZ</b>	<b>NAST15MZZUU</b>	<b>NAST15MZZR</b>	<b>NAST15MZZUUR</b>	15 <sup>0</sup> <sub>-0.008</sub>	<b>35</b>	16	15.8	29	2.5	0.8	1	11 310	13 150	8 040	3 140	10 000	83	
<b>17</b>	<b>NAST17MZZ</b>	<b>NAST17MZZUU</b>	<b>NAST17MZZR</b>	<b>NAST17MZZUUR</b>	17 <sup>0</sup> <sub>-0.010</sub>	<b>40</b>	20	19.8	32.5	3	1	1	16 000	19 220	11 800	3 720	9 500	135	
<b>20</b>	<b>NAST20MZZ</b>	<b>NAST20MZZUU</b>	<b>NAST20MZZR</b>	<b>NAST20MZZUUR</b>	20 <sup>0</sup> <sub>-0.010</sub>	<b>47</b>	20	19.8	38	3	1	1	17 660	22 540	13 800	4 610	8 500	195	
<b>25</b>	<b>NAST25MZZ</b>	<b>NAST25MZZUU</b>	<b>NAST25MZZR</b>	<b>NAST25MZZUUR</b>	25 <sup>0</sup> <sub>-0.010</sub>	<b>52</b>	20	19.8	43	3	1	1	19 040	26 120	15 300	5 290	7 000	225	
<b>30</b>	<b>NAST30MZZ</b>	<b>NAST30MZZUU</b>	<b>NAST30MZZR</b>	<b>NAST30MZZUUR</b>	30 <sup>0</sup> <sub>-0.010</sub>	<b>62</b>	25	24.8	50.5	4	1.2	1	27 870	41 760	22 100	6 660	5 500	400	
<b>35</b>	<b>NAST35MZZ</b>	<b>NAST35MZZUU</b>	<b>NAST35MZZR</b>	<b>NAST35MZZUUR</b>	35 <sup>0</sup> <sub>-0.012</sub>	<b>72</b>	25	24.8	53.5	4	1.2	1	29 620	46 550	25 700	8 130	5 000	550	
<b>40</b>	<b>NAST40MZZ</b>	<b>NAST40MZZUU</b>	<b>NAST40MZZR</b>	<b>NAST40MZZUUR</b>	40 <sup>0</sup> <sub>-0.012</sub>	<b>80</b>	26	25.8	61.5	4	1.2	1.5	32 840	56 210	30 300	9 310	4 000	710	
<b>45</b>	<b>NAST45MZZ</b>	<b>NAST45MZZUU</b>	<b>NAST45MZZR</b>	<b>NAST45MZZUUR</b>	45 <sup>0</sup> <sub>-0.012</sub>	<b>85</b>	26	25.8	66.5	4	1.2	1.5	34 130	61 080	31 100	10 100	4 000	760	
<b>50</b>	<b>NAST50MZZ</b>	<b>NAST50MZZUU</b>	<b>NAST50MZZR</b>	<b>NAST50MZZUUR</b>	50 <sup>0</sup> <sub>-0.012</sub>	<b>90</b>	26	25.8	76	4	1.2	1.5	35 600	66 050	34 000	11 000	3 500	830	

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

OUTER RINGS TOLERANCE (Outside diameter) (µm)

TYPE	Cylindrical outer ring	Crowned outer ring
NAST6M,NAST8M,NAST10M	0/-9	0/-50
NAST12M,NAST15M,NAST17M,NAST20M	0/-11	0/-50
NAST25M,NAST30M,NAST35M,NAST40M	0/-13	0/-50
NAST45M,NAST50M	0/-15	0/-50



**NART.. M TYPE**

Prepacked Grease

Shaft Diameter (mm)	Designation				Dimensions (mm)							Basic dynamic load rating	Basic static load rating	Track load capacity		Limiting speed *	Mass	
	Crowned outer ring R500( ≤ NART17R) R1000(NART20R ≤ )		Cylindrical outer ring		d	D	B	C	a	fs min	Cr N			Cor N	Crowned outer ring N			Cylindrical outer ring N
	Without seals	With seals	Without seals	With seals														
5	NART 5MR	NART 5MUUR	NART 5MX	NART 5MUUX	5 <sub>0</sub>	16	12	11	12	0.3	3 330	3 420	1 080	3 430	25 000	14.5		
	NART 5MVR	NART 5MUUVR	NART 5MVX	NART 5MUUVX	5 <sub>-0.008</sub>	16	12	11	12	0.3	6 210	7 670	1 080	3 430	8 500	15.1		
6	NART 6MR	NART 6MUUR	NART 6MX	NART 6MUUX	6 <sub>0</sub>	19	12	11	14	0.3	3 860	4 320	1 370	4 020	20 000	20.5		
	NART 6MVR	NART 6MUUVR	NART 6MVX	NART 6MUUVX	6 <sub>-0.008</sub>	19	12	11	14	0.3	7 020	9 470	1 370	4 020	7 000	21.5		
8	NART 8MR	NART 8MUUR	NART 8MX	NART 8MUUX	8 <sub>0</sub>	24	15	14	17.5	0.3	6 070	6 710	1 860	5 950	17 000	41.5		
	NART 8MVR	NART 8MUUVR	NART 8MVX	NART 8MUUVX	8 <sub>-0.008</sub>	24	15	14	17.5	0.3	10 850	14 350	1 860	5 950	5 500	42.5		
10	NART10MR	NART10MUUR	NART10MX	NART10MUUX	10 <sub>0</sub>	30	15	14	23.5	0.6	7 910	7 630	2 450	7 060	15 000	64.5		
	NART10MVR	NART10MUUVR	NART10MVX	NART10MUUVX	10 <sub>-0.008</sub>	30	15	14	23.5	0.6	14 350	16 650	2 450	7 060	5 000	66.5		
12	NART12MR	NART12MUUR	NART12MX	NART12MUUX	12 <sub>0</sub>	32	15	14	25.5	0.6	8 370	8 460	2 740	7 450	13 000	71		
	NART12MVR	NART12MUUVR	NART12MVX	NART12MUUVX	12 <sub>-0.008</sub>	32	15	14	25.5	0.6	15 450	18 860	2 740	7 450	4 500	73		
15	NART15MR	NART15MUUR	NART15MX	NART15MUUX	15 <sub>0</sub>	35	19	18	29	0.6	13 240	16 190	3 140	11 200	10 000	102		
	NART15MVR	NART15MUUVR	NART15MVX	NART15MUUVX	15 <sub>-0.008</sub>	35	19	18	29	0.6	23 090	33 480	3 140	11 200	3 500	106		
17	NART17MR	NART17MUUR	NART17MX	NART17MUUX	17 <sub>0</sub>	40	21	20	32.5	1	17 110	20 700	3 720	14 400	9 500	149		
	NART17MVR	NART17MUUVR	NART17MVX	NART17MUUVX	17 <sub>-0.008</sub>	40	21	20	32.5	1	29 440	42 500	3 720	14 400	3 000	155		
20	NART20MR	NART20MUUR	NART20MX	NART20MUUX	20 <sub>0</sub>	47	25	24	38	1	22 170	30 080	7 150	21 000	8 000	250		
	NART20MVR	NART20MUUVR	NART20MVX	NART20MUUVX	20 <sub>-0.010</sub>	47	25	24	38	1	38 360	61 910	7 150	21 000	2 500	255		
25	NART25MR	NART25MUUR	NART25MX	NART25MUUX	25 <sub>0</sub>	52	25	24	43	1	23 730	34 500	8 230	23 200	7 000	285		
	NART25MVR	NART25MUUVR	NART25MVX	NART25MUUVX	25 <sub>-0.010</sub>	52	25	24	43	1	41 860	72 680	8 230	23 200	2 500	295		
30	NART30MR	NART30MUUR	NART30MX	NART30MUUX	30 <sub>0</sub>	62	29	28	50.5	1	33 300	52 340	10 500	33 000	5 500	470		
	NART30MVR	NART30MUUVR	NART30MVX	NART30MUUVX	30 <sub>-0.010</sub>	62	29	28	50.5	1	55 010	101 560	10 500	33 000	1 800	485		
35	NART35MR	NART35MUUR	NART35MX	NART35MUUX	35 <sub>0</sub>	72	29	28	53.5	1	35 140	57 770	12 900	38 000	5 000	640		
	NART35MVR	NART35MUUVR	NART35MVX	NART35MUUVX	35 <sub>-0.012</sub>	72	29	28	53.5	1	57 960	111 780	12 900	38 000	1 700	655		
40	NART40MR	NART40MUUR	NART40MX	NART40MUUX	40 <sub>0</sub>	80	32	30	61.5	1	42 500	77 920	14 900	44 400	4 000	845		
	NART40MVR	NART40MUUVR	NART40MVX	NART40MUUVX	40 <sub>-0.012</sub>	80	32	30	61.5	1	70 100	151 060	14 900	44 000	1 400	865		
45	NART45MR	NART45MUUR	NART45MX	NART45MUUX	45 <sub>0</sub>	85	32	30	66.5	1	45 350	87 580	16 100	47 000	4 000	915		
	NART45MVR	NART45MUUVR	NART45MVX	NART45MUUVX	45 <sub>-0.012</sub>	85	32	30	66.5	1	73 780	166 610	16 100	47 000	1 300	935		
50	NART50MR	NART50MUUR	NART50MX	NART50MUUX	50 <sub>0</sub>	90	32	30	76	1	47 010	94 110	17 300	50 000	3 500	980		
	NART50MVR	NART50MUUVR	NART50MVX	NART50MUUVX	50 <sub>-0.012</sub>	90	32	30	76	1	77 370	182 160	17 300	50 000	1 200	1 010		

\* Without seals, suitable for grease lubrication. In case of oil lubrication, up to 130% of this value shall be permissible, and 70% of this value shall apply for types with seals.

OUTER RINGS TOLERANCE (Outside diameter) (µm)

TYPE	Crowned outer ring	Cylindrical outer ring
NART5M	0/-50	0/-8
NART6M,NART8M,NART10M	0/-50	0/-9
NART12M,NART15M,NART17M,NART20M	0/-50	0/-11
NART25M,NART30M,NART35M,NART40M	0/-50	0/-13
NART45M,NART50M	0/-50	0/-15

# INTERCHANGE TABLE

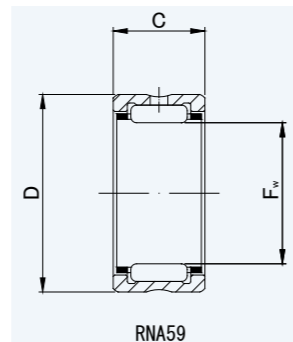
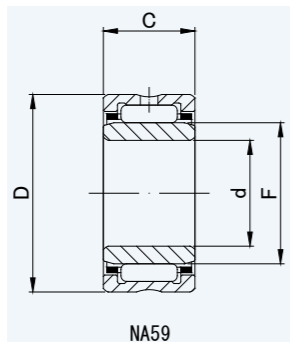






**MACHINED RING  
NEEDLE ROLLER  
BEARINGS**  
WITH INNER RING  
WITHOUT INNER RING

**NA59, RNA59**



**NA59, RNA59**

DIMENSION TABLE

INTERCHANGE TABLE

JNS NUMBER WITH INNER RING	Mass (Approx.)	JNS NUMBER WITHOUT INNER RING	Mass (Approx.)	JNS NUMBER Assembled INNER RING	Dimensions(mm)				Basic dynamic load rating	Basic static load rating	IKO		INA		NTN		TORRINGTON(KOYO)	
					d	Fw (F)	D	C			Cr N	Cor N	WITH INNER RING	WITHOUT INNER RING	WITH INNER RING	WITHOUT INNER RING	WITH INNER RING	WITHOUT INNER RING
NA 59	g	RNA 59	g	IR	d	Fw (F)	D	C	Cr N	Cor N	—	—	—	—	NA 59	RNA 59	—	—
<b>NA 5902</b>	52	<b>RNA 5902</b>	33	<b>IR152018</b>	15	20	28	18	15 700	22 100	—	—	—	—	NA5902	RNA5902	—	—
<b>NA 5903</b>	56	<b>RNA 5903</b>	35	<b>IR172218</b>	17	22	30	18	16 900	24 900	—	—	—	—	NA5903	RNA5903	—	—
<b>NA 5904</b>	115	<b>RNA 5904</b>	84	<b>IR202523</b>	20	25	37	23	29 400	38 600	—	—	—	—	NA5904	RNA5904	—	—
<b>NA 59/22</b>	134	<b>RNA 59/22</b>	92	<b>IR222823</b>	22	28	39	23	29 800	44 400	—	—	—	—	NA59/22	RNA59/22	—	—
<b>NA 5905</b>	139	<b>RNA 5905</b>	101	<b>IR253023</b>	25	30	42	23	33 200	47 500	—	—	—	—	NA5905	RNA5905	—	—
<b>NA 59/28</b>	142	<b>RNA 59/28</b>	108	<b>IR283223</b>	28	32	45	23	34 300	50 500	—	—	—	—	NA59/28	RNA59/28	—	—
<b>NA 5906</b>	152	<b>RNA 5906</b>	108	<b>IR303523</b>	30	35	47	23	35 200	53 700	—	—	—	—	NA5906	RNA5906	—	—
<b>NA 59/32</b>	241	<b>RNA 59/32</b>	149	<b>IR324027</b>	32	40	52	27	41 900	69 900	—	—	—	—	NA59/32	RNA59/32	—	—
<b>NA 5907</b>	256	<b>RNA 5907</b>	176	<b>IR354227</b>	35	42	55	27	42 900	73 200	—	—	—	—	NA5907	RNA5907	—	—
<b>NA 5908</b>	348	<b>RNA 5908</b>	225	<b>IR404830</b>	40	48	62	30	58 000	103 000	—	—	—	—	NA5908	RNA5908	—	—
<b>NA 5909</b>	396	<b>RNA 5909</b>	232	<b>IR455230</b>	45	52	68	30	60 700	112 000	—	—	—	—	NA5909	RNA5909	—	—
<b>NA 5910</b>	498	<b>RNA 5910</b>	289	<b>IR505830</b>	50	58	72	30	64 400	126 000	—	—	—	—	NA5910	RNA5910	—	—
<b>NA 5911</b>	559	<b>RNA 5911</b>	367	<b>IR556334</b>	55	63	80	34	82 600	154 000	—	—	—	—	NA5911	RNA5911	—	—
<b>NA 5912</b>	614	<b>RNA 5912</b>	408	<b>IR606834</b>	60	68	85	34	86 100	167 000	—	—	—	—	NA5912	RNA5912	—	—
<b>NA 5913</b>	655	<b>RNA 5913</b>	462	<b>IR657234</b>	65	72	90	34	89 900	180 000	—	—	—	—	NA5913	RNA5913	—	—
<b>NA 5914</b>	1 060	<b>RNA 5914</b>	706	<b>IR708040</b>	70	80	100	40	112 000	232 000	—	—	—	—	NA5914	RNA5914	—	—
<b>NA 5915</b>	1 130	<b>RNA 5915</b>	745	<b>IR758540</b>	75	85	105	40	116 000	249 000	—	—	—	—	NA5915	RNA5915	—	—
<b>NA 5916</b>	1 150	<b>RNA 5916</b>	787	<b>IR809040</b>	80	90	110	40	117 000	257 000	—	—	—	—	NA5916	RNA5916	—	—
<b>NA 5917</b>	1 760	<b>RNA 5917</b>	1 000	<b>IR8510046</b>	85	100	120	46	144 000	346 000	—	—	—	—	NA5917	RNA5917	—	—
<b>NA 5918</b>	1 840	<b>RNA 5918</b>	1 040	<b>IR9010546</b>	90	105	125	46	148 000	365 000	—	—	—	—	NA5918	RNA5918	—	—
<b>NA 5919</b>	1 980	<b>RNA 5919</b>	1 130	<b>IR9511046</b>	95	110	130	46	152 000	384 000	—	—	—	—	NA5919	RNA5919	—	—



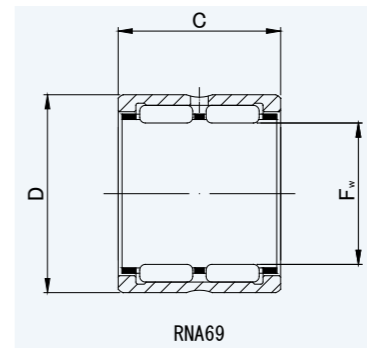
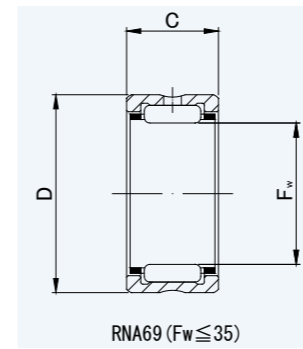
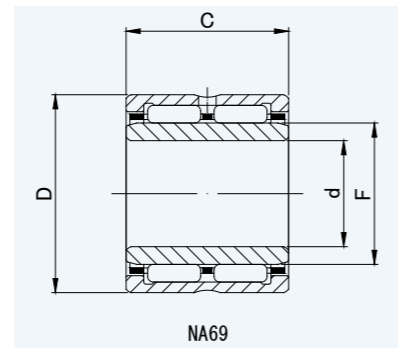
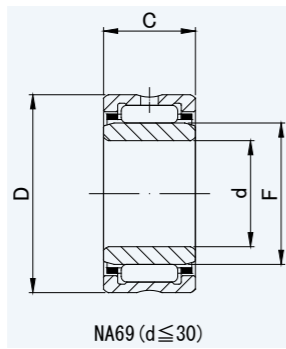
INTERCHANGE



INTERCHANGE

**MACHINED RING  
NEEDLE ROLLER  
BEARINGS**  
WITH INNER RING  
WITHOUT INNER RING

**NA69, RNA69**



**NA69, RNA69**

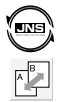
DIMENSION TABLE

INTERCHANGE TABLE

JNS NUMBER WITH INNER RING	Mass (Approx.)	JNS NUMBER WITHOUT INNER RING	Mass (Approx.)	JNS NUMBER Assembled INNER RING	Dimensions(mm)				Basic dynamic load rating	Basic static load rating	IKO		INA		NTN		TORRINGTON(KOYO)	
											WITH INNER RING	WITHOUT INNER RING	WITH INNER RING	WITHOUT INNER RING	WITH INNER RING	WITHOUT INNER RING	WITH INNER RING	WITHOUT INNER RING
NA 69	g	RNA 69	g	IR	d	Fw (F)	D	C	Cr N	Cor N	NA 69	RNA 69	NA 69	RNA 69	NA 69	RNA 69	NA 69	RNA 69
NA 6901	44.5	RNA 6901	30	IR121622	12	16	24	22	17 100	23 000	NA6901	RNA6901	NA6901	RNA6901	NA6901R	RNA6901R	NA6901	RNA6901
NA 6902	61	RNA 6902	37	IR152023	15	20	28	23	19 300	28 700	NA6902	RNA6902	NA6902	RNA6902	NA6902R	RNA6902R	NA6902	RNA6902
NA 6903	67	RNA 6903	40.5	IR172223	17	22	30	23	20 800	32 500	NA6903	RNA6903	NA6903	RNA6903	NA6903R	RNA6903R	NA6903	RNA6903
NA 6904	136	RNA 6904	95.5	IR202530	20	25	37	30	35 400	48 800	NA6904	RNA6904	NA6904	RNA6904	NA6904R	RNA6904R	NA6904	RNA6904
NA 69/22	152	RNA 69/22	97.5	IR222830	22	28	39	30	36 300	56 900	NA69/22	RNA69/22	NA69/22	RNA69/22	NA69/22R	RNA69/22R	NA69/22	RNA69/22
NA 6905	160	RNA 6905	111	IR253030	25	30	42	30	42 100	64 200	NA6905	RNA6905	NA6905	RNA6905	NA6905R	RNA6905R	NA6905	RNA6905
NA 69/28	176	RNA 69/28	133	IR283230	28	32	45	30	41 800	64 700	NA69/28	RNA69/28	NA69/28	RNA69/28	NA69/28R	RNA69/28R	NA69/28	RNA69/28
NA 6906	184	RNA 6906	125	IR303530	30	35	47	30	43 100	69 000	NA6906	RNA6906	NA6906	RNA6906	NA6906R	RNA6906R	NA6906	RNA6906
NA 69/32	295	RNA 69/32	172	IR324036	32	40	52	36	53 500	95 700	NA69/32	RNA69/32	NA69/32	RNA69/32	NA69/32R	RNA69/32R	NA69/32	RNA69/32
NA 6907	320	RNA 6907	200	IR354236	35	42	55	36	54 800	100 000	NA6907	RNA6907	NA6907	RNA6907	NA6907R	RNA6907R	NA6907	RNA6907
NA 6908	440	RNA 6908	275	IR404840	40	48	62	40	71 300	134 400	NA6908	RNA6908	NA6908	RNA6908	NA6908R	RNA6908R	NA6908	RNA6908
NA 6909	520	RNA 6909	355	IR455240	45	52	68	40	74 600	147 100	NA6909	RNA6909	NA6909	RNA6909	NA6909R	RNA6909R	NA6909	RNA6909
NA 6910	530	RNA 6910	320	IR505840	50	58	72	40	79 100	163 800	NA6910	RNA6910	NA6910	RNA6910	NA6910R	RNA6910R	NA6910	RNA6910
NA 6911	730	RNA 6911	475	IR556345	55	63	80	45	99 000	194 200	NA6911	RNA6911	NA6911	RNA6911	NA6911R	RNA6911R	NA6911	RNA6911
NA 6912	785	RNA 6912	510	IR606845	60	68	85	45	103 000	210 800	NA6912	RNA6912	NA6912	RNA6912	NA6912R	RNA6912R	NA6912	RNA6912
NA 6913	840	RNA 6913	585	IR657245	65	72	90	45	107 900	226 500	NA6913	RNA6913	NA6913	RNA6913	NA6913R	RNA6913R	NA6913	RNA6913
NA 6914	1 400	RNA 6914	910	IR708054	70	80	100	54	133 400	310 900	NA6914	RNA6914	NA6914	RNA6914	NA6914R	RNA6914R	NA6914	RNA6914
NA 6915	1 480	RNA 6915	960	IR758554	75	85	105	54	138 300	330 500	NA6915	RNA6915	NA6915	RNA6915	NA6915R	RNA6915R	NA6915	RNA6915
NA 6916	1 560	RNA 6916	1 010	IR809054	80	90	110	54	143 200	350 100	NA6916	RNA6916	NA6916	RNA6916	NA6916R	RNA6916R	NA6916	RNA6916
NA 6917	2 340	RNA 6917	1 300	IR8510063	85	100	120	63	172 600	466 800	NA6917	RNA6917	NA6917	RNA6917	NA6917R	RNA6917R	NA6917	RNA6917
NA 6918	2 460	RNA 6918	1 360	IR9010563	90	105	125	63	177 500	490 300	NA6918	RNA6918	NA6918	RNA6918	NA6918R	RNA6918R	NA6918	RNA6918
NA 6919	2 580	RNA 6919	1 420	IR9511063	95	110	130	63	182 400	514 800	NA6919	RNA6919	NA6919	RNA6919	NA6919R	RNA6919R	NA6919	RNA6919

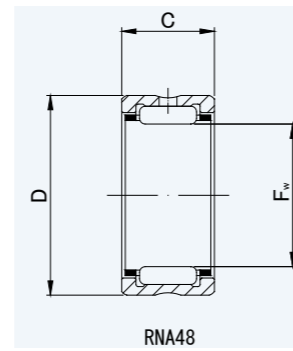
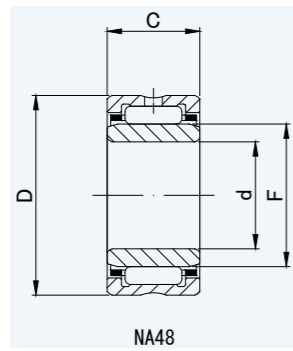


INTERCHANGE



INTERCHANGE

**MACHINED RING  
NEEDLE ROLLER  
BEARINGS**  
WITH INNER RING  
WITHOUT INNER RING



**NA48, RNA48**

**NA48, RNA48**

DIMENSION TABLE

INTERCHANGE TABLE

JNS NUMBER WITH INNER RING	Mass (Approx.)	JNS NUMBER WITHOUT INNER RING	Mass (Approx.)	JNS NUMBER Assembled INNER RING	Dimensions(mm)				Basic dynamic load rating	Basic static load rating	IKO		INA		NTN		TORRINGTON(KOYO)	
											WITH INNER RING	WITHOUT INNER RING	WITH INNER RING	WITHOUT INNER RING	WITH INNER RING	WITHOUT INNER RING	WITH INNER RING	WITHOUT INNER RING
NA 48	g	RNA 48	g	IR	d	Fw (F)	D	C	Cr N	Cor N	NA 48	RNA 48	NA 48	RNA 48	NA 48	RNA 48	NA 48	RNA 48
<b>NA 4822</b>	1 200	<b>RNA4822</b>	790	<b>IR11012030</b>	110	120	140	30	93 000	239 000	NA4822	RNA4822	NA4822	RNA4822	NA4822	RNA4822	NA4822	RNA4822
<b>NA 4824</b>	1 300	<b>RNA4824</b>	850	<b>IR12013030</b>	120	130	150	30	97 000	259 000	NA4824	RNA4824	NA4824	RNA4824	NA4824	RNA4824	NA4824	RNA4824
<b>NA 4826</b>	1 960	<b>RNA4826</b>	1 100	<b>IR13014535</b>	130	145	165	35	117 000	340 000	NA4826	RNA4826	NA4826	RNA4826	NA4826	RNA4826	NA4826	RNA4826
<b>NA 4828</b>	2 100	<b>RNA4828</b>	1 170	<b>IR14015535</b>	140	155	175	35	121 000	363 000	NA4828	RNA4828	NA4828	RNA4828	NA4828	RNA4828	NA4828	RNA4828
<b>NA 4830</b>	2 880	<b>RNA4830</b>	1 750	<b>IR15016540</b>	150	165	190	40	168 000	446 000	NA4830	RNA4830	NA4830	RNA4830	NA4830	RNA4830	NA4830	RNA4830
<b>NA 4832</b>	3 050	<b>RNA4832</b>	1 850	<b>IR16017540</b>	160	175	200	40	173 000	474 000	NA4832	RNA4832	NA4832	RNA4832	NA4832	RNA4832	NA4832	RNA4832



INTERCHANGE



INTERCHANGE

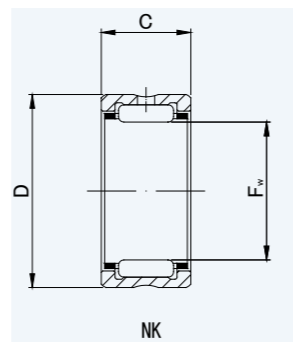
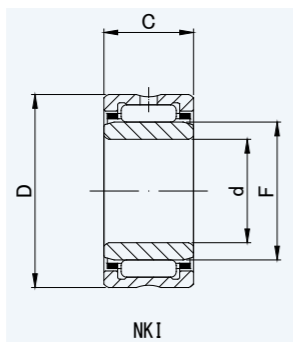




# MACHINED RING NEEDLE ROLLER BEARINGS

WITH INNER RING  
WITHOUT INNER RING

NK, NKI



## NK, NKI

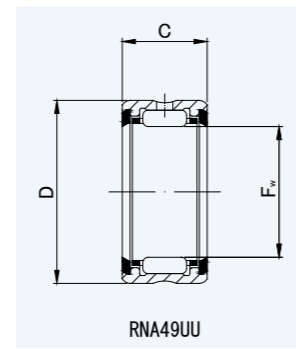
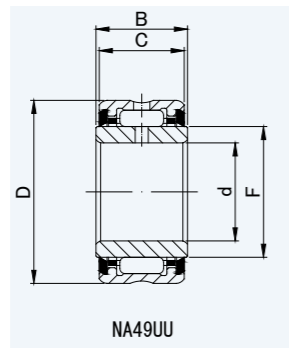
DIMENSION TABLE

INTERCHANGE TABLE

JNS NUMBER WITH INNER RING	Mass (Approx.)	JNS NUMBER WITHOUT INNER RING	Mass (Approx.)	JNS NUMBER Assembled INNER RING	Dimensions(mm)				Basic dynamic load rating	Basic static load rating	IKO		INA		NTN		TORRINGTON(KOYO)	
					d	Fw (F)	D	C			WITH INNER RING	WITHOUT INNER RING	WITH INNER RING	WITHOUT INNER RING	WITH INNER RING	WITHOUT INNER RING	WITH INNER RING	WITHOUT INNER RING
NKI	g	NK	g	IR	d	Fw (F)	D	C	Cr N	Cor N	TAFI	TAF	NKI	NK	NK+IR	NK	NKJ	NK
—	—	<b>NK65/25</b>	225	—	—	65	78	25	49 600	111 800	—	TAF657825	—	NK65/25	—	NK65/25R	—	NK65/25
—	—	<b>NK65/35</b>	315	—	—	65	78	35	67 000	164 800	—	TAF657835	—	NK65/35	—	NK65/35R	—	NK65/35
<b>NKI 60/25</b>	395	<b>NK68/25</b>	250	<b>IR606825</b>	60	68	82	25	54 800	116 700	TAFI 608225	TAF688225	NKI 60/25	NK68/25	NK68/25R + IR606825	NK68/25R	NKJ 60/25	NK68/25
<b>NKI 60/35</b>	560	<b>NK68/35</b>	350	<b>IR606835</b>	60	68	82	35	72 100	165 700	TAFI 608235	TAF688235	NKI 60/35	NK68/35	NK68/35R + IR606835	NK68/35R	NKJ 60/35	NK68/35
—	—	<b>NK70/25</b>	280	—	—	70	85	25	55 500	120 600	—	TAF708525	—	NK70/25	—	NK70/25R	—	NK70/25
—	—	<b>NK70/35</b>	395	—	—	70	85	35	73 000	170 600	—	TAF708535	—	NK70/35	—	NK70/35R	—	NK70/35
—	—	<b>NK73/25</b>	335	—	—	73	90	25	61 100	126 500	—	TAF739025	—	NK73/25	—	NK73/25R	—	NK73/25
<b>NKI 65/35</b>	710	<b>NK73/35</b>	475	<b>IR657335</b>	65	73	90	35	80 400	180 400	TAFI 659035	TAF739035	NKI 65/35	NK73/35	NK73/35R + IR657335	NK73/35R	NKJ 65/35	NK73/35
—	—	<b>NK75/25</b>	345	—	—	75	92	25	62 200	130 400	—	TAF759225	—	NK75/25	—	NK75/25R	—	NK75/25
—	—	<b>NK75/35</b>	485	—	—	75	92	35	82 700	186 300	—	TAF759235	—	NK75/35	—	NK75/35R	—	NK75/35
<b>NKI 70/25</b>	540	<b>NK80/25</b>	315	<b>IR708025</b>	70	80	95	25	59 400	137 300	TAFI 709525	TAF809525	NKI 70/25	NK80/25	NK80/25R + IR708025	NK80/25R	NKJ 70/25	NK80/25
<b>NKI 70/35</b>	755	<b>NK80/35</b>	445	<b>IR708035</b>	70	80	95	35	78 100	194 200	TAFI 709535	TAF809535	NKI 70/35	NK80/35	NK80/35R + IR708035	NK80/35R	NKJ 70/35	NK80/35
<b>NKI 75/25</b>	675	<b>NK85/25</b>	435	<b>IR758525</b>	75	85	105	25	76 400	145 100	TAFI 7510525	TAF8510525	NKI 75/25	NK85/25	NK85/25R + IR758525	NK85/25R	NKJ 75/25	NK85/25
<b>NKI 75/35</b>	945	<b>NK85/35</b>	610	<b>IR758535</b>	75	85	105	35	102 000	209 900	TAFI 7510535	TAF8510535	NKI 75/35	NK85/35	NK85/35R + IR758535	NK85/35R	NKJ 75/35	NK85/35
<b>NKI 80/25</b>	710	<b>NK90/25</b>	456	<b>IR809025</b>	80	90	110	25	77 400	150 000	TAFI 8011025	TAF9011025	NKI 80/25	NK90/25	NK90/25R + IR809025	NK90/25R	NKJ 80/25	NK90/25
<b>NKI 80/35</b>	995	<b>NK90/35</b>	640	<b>IR809035</b>	80	90	110	35	103 000	216 700	TAFI 8011035	TAF9011035	NKI 80/35	NK90/35	NK90/35R + IR809035	NK90/35R	NKJ 80/35	NK90/35
<b>NKI 85/26</b>	775	<b>NK95/26</b>	495	<b>IR859526</b>	85	95	115	26	79 700	158 900	TAFI 8511526	TAF9511526	NKI 85/26	NK95/26	NK95/26R + IR859526	NK95/26R	NKJ 85/26	NK95/26
<b>NKI 85/36</b>	1 080	<b>NK95/36</b>	690	<b>IR859536</b>	85	95	115	36	106 900	230 500	TAFI 8511536	TAF9511536	NKI 85/36	NK95/36	NK95/36R + IR859536	NK95/36R	NKJ 85/36	NK95/36
<b>NKI 90/26</b>	820	<b>NK100/26</b>	525	<b>IR9010026</b>	90	100	120	26	82 500	168 700	TAFI 9012026	TAF10012026	NKI 90/26	NK100/26	NK100/26R + IR9010026	NK100/26R	NKJ 90/26	NK100/26
<b>NKI 90/36</b>	1 140	<b>NK100/36</b>	725	<b>IR9010036</b>	90	100	120	36	109 800	244 200	TAFI 9012036	TAF10012036	NKI 90/36	NK100/36	NK100/36R + IR9010036	NK100/36R	NKJ 90/36	NK100/36
<b>NKI 95/26</b>	860	<b>NK105/26</b>	545	<b>IR9510526</b>	95	105	125	26	84 700	177 500	TAFI 9512526	TAF10512526	NKI 95/26	NK105/26	NK105/26R + IR9510526	NK105/26R	NKJ 95/26	NK105/26
<b>NKI 95/36</b>	1 190	<b>NK105/36</b>	760	<b>IR9510536</b>	95	105	125	36	112 800	257 900	TAFI 9512536	TAF10512536	NKI 95/36	NK105/36	NK105/36R + IR9510536	NK105/36R	NKJ 95/36	NK105/36
<b>NKI 100/30</b>	1 040	<b>NK110/30</b>	660	<b>IR10011030</b>	100	110	130	30	105 900	239 300	TAFI 10013030	TAF11013030	NKI 100/30	NK110/30	NK110/30R + IR10011030	NK110/30R	NKJ 100/30	NK110/30
<b>NKI 100/40</b>	1 380	<b>NK110/40</b>	880	<b>IR10011040</b>	100	110	130	40	133 400	323 600	TAFI 10013040	TAF11013040	NKI 100/40	NK110/40	NK110/40R + IR10011040	NK110/40R	NKJ 100/40	NK110/40

NK type of 10mm or less inscribed circle diameter (Fw) is without oil hole.  
NKI type of 8mm or less inscribed circle diameter (d) is without oil hole.

**MACHINED RING  
NEEDLE ROLLER  
BEARINGS**  
SEALED, WITH INNER RING  
SEALED, WITHOUT INNER RING



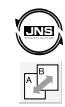
**NA49UU, RNA49UU**

**NA49UU, RNA49UU**

DIMENSION TABLE

INTERCHANGE TABLE

JNS NUMBER WITH INNER RING	Mass (Approx.)	JNS NUMBER WITHOUT INNER RING	Mass (Approx.)	JNS NUMBER Assembled INNER RING	Dimensions(mm)				Basic dynamic load rating	Basic static load rating	IKO		INA		NTN		TORRINGTON(KOYO)	
											WITH INNER RING	WITHOUT INNER RING	WITH INNER RING	WITHOUT INNER RING	WITH INNER RING	WITHOUT INNER RING	WITH INNER RING	WITHOUT INNER RING
NA 49UU	g	RNA 49UU	g	IRZ	d	Fw (F)	D	C	Cr N	Cor N	NA 49UU	RNA 49UU	NA 49.2RS	RNA 49.2RS	NA 49LL	RNA 49LL	NA 49.2RS	RNA 49.2RS
<b>NA 4900UU</b>	25	<b>RNA 4900UU</b>	16	<b>IRZ101414</b>	10	14	22	13	8 000	8 500	NA4900UU	RNA4900UU	NA4900.2RS	RNA4900.2RS	NA4900LL	RNA4900LL	NA4900.2RS	RNA4900.2RS
<b>NA 4901UU</b>	28	<b>RNA 4901UU</b>	18	<b>IRZ121614</b>	12	16	24	13	8 400	9 300	NA4901UU	RNA4901UU	NA4901.2RS	RNA4901.2RS	NA4901LL	RNA4901LL	NA4901.2RS	RNA4901.2RS
<b>NA 4902UU</b>	36	<b>RNA 4902UU</b>	22	<b>IRZ152014</b>	15	20	28	13	9 600	11 700	NA4902UU	RNA4902UU	NA4902.2RS	RNA4902.2RS	NA4902LL	RNA4902LL	NA4902.2RS	RNA4902.2RS
<b>NA 4903UU</b>	40	<b>RNA 4903UU</b>	23	<b>IRZ172214</b>	17	22	30	13	10 300	13 100	NA4903UU	RNA4903UU	NA4903.2RS	RNA4903.2RS	NA4903LL	RNA4903LL	NA4903.2RS	RNA4903.2RS
<b>NA 4904UU</b>	78	<b>RNA 4904UU</b>	55	<b>IRZ202518</b>	20	25	37	17	17 900	20 500	NA4904UU	RNA4904UU	NA4904.2RS	RNA4904.2RS	NA4904LL	RNA4904LL	NA4904.2RS	RNA4904.2RS
<b>NA 4905UU</b>	93	<b>RNA 4905UU</b>	63	<b>IRZ253018</b>	25	30	42	17	20 300	25 100	NA4905UU	RNA4905UU	NA4905.2RS	RNA4905.2RS	NA4905LL	RNA4905LL	NA4905.2RS	RNA4905.2RS
<b>NA 4906UU</b>	106	<b>RNA 4906UU</b>	71	<b>IRZ303518</b>	30	35	47	17	21 600	28 400	NA4906UU	RNA4906UU	NA4906.2RS	RNA4906.2RS	NA4906LL	RNA4906LL	NA4906.2RS	RNA4906.2RS
<b>NA 4907UU</b>	179	<b>RNA 4907UU</b>	110	<b>IRZ354221</b>	35	42	55	20	30 100	46 300	NA4907UU	RNA4907UU	NA4907.2RS	RNA4907.2RS	NA4907LL	RNA4907LL	NA4907.2RS	RNA4907.2RS
<b>NA 4908UU</b>	245	<b>RNA 4908UU</b>	150	<b>IRZ404823</b>	40	48	62	22	37 200	58 300	NA4908UU	RNA4908UU	NA4908.2RS	RNA4908.2RS	NA4908LL	RNA4908LL	NA4908.2RS	RNA4908.2RS
<b>NA 4909UU</b>	290	<b>RNA 4909UU</b>	190	<b>IRZ455223</b>	45	52	68	22	38 800	63 400	NA4909UU	RNA4909UU	NA4909.2RS	RNA4909.2RS	NA4909LL	RNA4909LL	NA4909.2RS	RNA4909.2RS
<b>NA 4910UU</b>	300	<b>RNA 4910UU</b>	180	<b>IRZ505823</b>	50	58	72	22	41 300	71 100	NA4910UU	RNA4910UU	NA4910.2RS	RNA4910.2RS	NA4910LL	RNA4910LL	NA4910.2RS	RNA4910.2RS



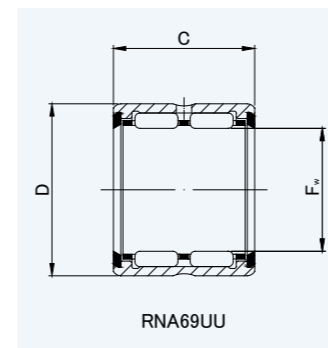
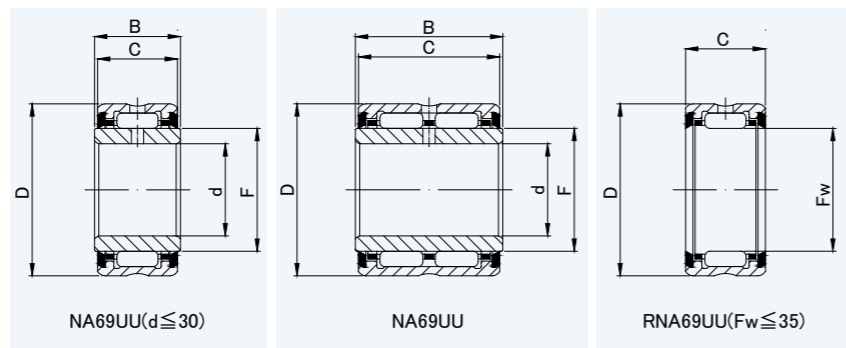
INTERCHANGE



INTERCHANGE



**MACHINED RING  
NEEDLE ROLLER  
BEARINGS**  
SEALED, WITH INNER RING  
SEALED, WITHOUT INNER RING



**NA69UU, RNA69UU**

**NA69UU, RNA69UU**

DIMENSION TABLE

INTERCHANGE TABLE

JNS NUMBER WITH INNER RING	Mass (Approx.)	JNS NUMBER WITHOUT INNER RING	Mass (Approx.)	JNS NUMBER Assembled INNER RING	Dimensions(mm)				Basic dynamic load rating	Basic static load rating	IKO		INA		NTN		TORRINGTON(KOYO)	
											WITH INNER RING	WITHOUT INNER RING	WITH INNER RING	WITHOUT INNER RING	WITH INNER RING	WITHOUT INNER RING	WITH INNER RING	WITHOUT INNER RING
NA 69UU	g	RNA 69UU	g	IRZ	d	Fw (F)	D	C	Cr N	Cor N	NA 69UU	RNA 69UU	—	—	—	—	—	—
<b>NA 6901UU</b>	46	<b>RNA 6901UU</b>	30	<b>IRZ121623</b>	12	16	24	22	15 600	20 400	NA6901UU	RNA6901UU	—	—	—	—	—	—
<b>NA 6902UU</b>	63	<b>RNA 6902UU</b>	38	<b>IRZ152024</b>	15	20	28	23	18 400	27 100	NA6902UU	RNA6902UU	—	—	—	—	—	—
<b>NA 6903UU</b>	69	<b>RNA 6903UU</b>	40	<b>IRZ172224</b>	17	22	30	23	19 800	30 600	NA6903UU	RNA6903UU	—	—	—	—	—	—
<b>NA 6904UU</b>	140	<b>RNA 6904UU</b>	96	<b>IRZ202531</b>	20	25	37	30	33 000	44 500	NA6904UU	RNA6904UU	—	—	—	—	—	—
<b>NA 6905UU</b>	162	<b>RNA 6905UU</b>	110	<b>IRZ253031</b>	25	30	42	30	39 200	58 600	NA6905UU	RNA6905UU	—	—	—	—	—	—
<b>NA 6906UU</b>	185	<b>RNA 6906UU</b>	130	<b>IRZ303531</b>	30	35	47	30	40 100	63 100	NA6906UU	RNA6906UU	—	—	—	—	—	—
<b>NA 6907UU</b>	320	<b>RNA 6907UU</b>	200	<b>IRZ354237</b>	35	42	55	36	51 600	92 600	NA6907UU	RNA6907UU	—	—	—	—	—	—
<b>NA 6908UU</b>	440	<b>RNA 6908UU</b>	270	<b>IRZ404841</b>	40	48	62	40	63 700	116 700	NA6908UU	RNA6908UU	—	—	—	—	—	—
<b>NA 6909UU</b>	510	<b>RNA 6909UU</b>	355	<b>IRZ455241</b>	45	52	68	40	66 700	126 500	NA6909UU	RNA6909UU	—	—	—	—	—	—
<b>NA 6910UU</b>	530	<b>RNA 6910UU</b>	320	<b>IRZ505841</b>	50	58	72	40	70 800	142 200	NA6910UU	RNA6910UU	—	—	—	—	—	—



INTERCHANGE

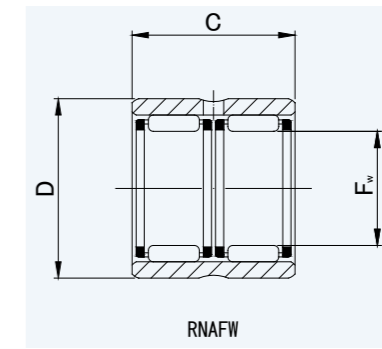
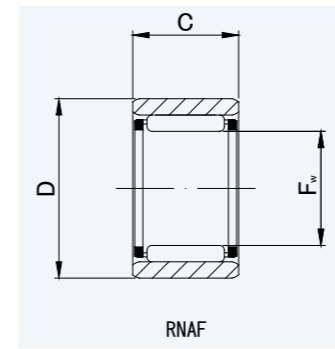
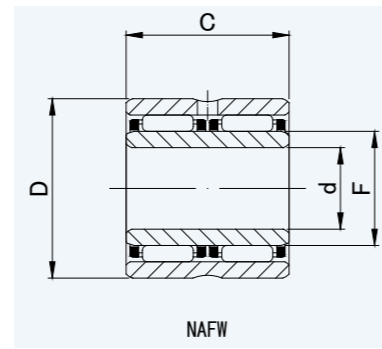
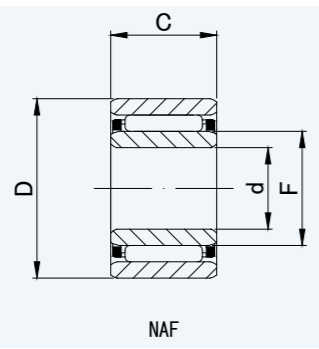


INTERCHANGE





**MACHINED RING  
NEEDLE ROLLER  
BEARINGS**  
WITH INNER RING  
WITHOUT INNER RING



**NAF, RNAF**

**NAF, RNAF**

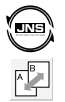
DIMENSION TABLE

INTERCHANGE TABLE

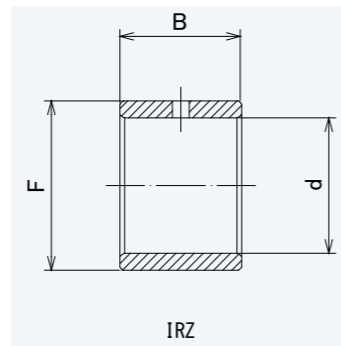
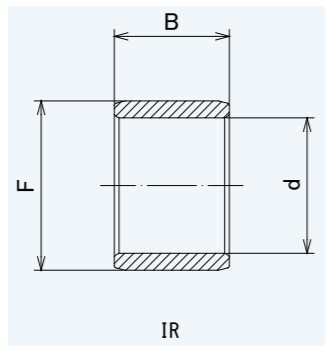
JNS NUMBER WITH INNER RING	Mass (Approx.)	JNS NUMBER WITHOUT INNER RING	Mass (Approx.)	JNS NUMBER Assembled INNER RING	Dimensions(mm)				Basic dynamic load rating	Basic static load rating	INA		IKO		NTN		TORRINGTON(KOYO)	
					d	Fw (F)	D	C			WITH INNER RING	WITHOUT INNER RING	WITH INNER RING	WITHOUT INNER RING	WITH INNER RING	WITHOUT INNER RING	WITH INNER RING	WITHOUT INNER RING
NAF(W)	g	RNAF(W)	g	IR	d	Fw (F)	D	C	Cr N	Cor N	NAO	RNAO	NAF(W)	RNAF(W)	NAO	RNAO	NAO	RNAO
<b>NAF8011030</b>	930	<b>RNAF9011030</b>	620	<b>IR809030</b>	80	90	110	30	69 500	173 600	NAO80X110X30	RNAO90X110X30	NAF8011030	RNAF9011030	NAO-80X110X30	RNAO-90X110X30	NAO80X110X30	—
<b>NAF8511530</b>	970	<b>RNAF9511530</b>	650	<b>IR859530</b>	85	95	115	30	70 900	182 400	—	—	NAF8511530	RNAF9511530	NAO-85X115X30	RNAO-95X115X30	NAO85X115X30	—
<b>NAF9012030</b>	1 040	<b>RNAF10012030</b>	690	<b>IR9010030</b>	90	100	120	30	72 600	191 200	NAO90X120X30	RNAO100X120X30	NAF9012030	RNAF10012030	NAO-90X120X30	RNAO-100X120X30	NAO90X120X30	RNAO100X120X30



INTERCHANGE



INTERCHANGE

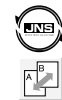


## IR, IRZ

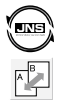
DIMENSION TABLE

INTERCHANGE TABLE

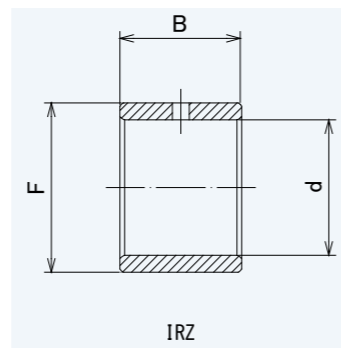
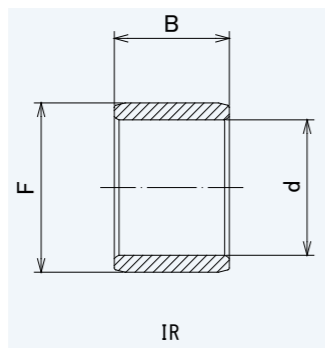
JNS NUMBER INNER RING	Mass (Approx.) g	Dimensions(mm)			JNS USABLE BEARING NUMBER		IKO	INA	NTN	TORRINGTON(KOYO)
		d	F	B			LRT / IRT LRTZ	IR	IR	JR JRZ
IR 5812	3	5	8	12	NK 8/12	—	LRT5812	IR5X8X12	IR5X8X12	JR5X8X12
IR 5816	4	5	8	16	NK 8/16	—	LRT5816	IR5X8X16	IR5X8X16	JR5X8X16
IR 6810	1.7	6	8	10	RNA 496	—	LRT6810	IR6X8X10	IR6X8X10	—
IR 6912	3.2	6	9	12	NK 9/12	—	LRT6912	IR6X9X12	IR6X9X12	JR6X9X12
IR 6916	4.3	6	9	16	NK 9/16	—	LRT6916	IR6X9X16	IR6X9X16	JR6X9X16
IR 61010	4	6	10	10	RNAF 101710	—	LRT61010	IR6X10X10	IR6X10X10	JR6X10X10
IR 7910	1.9	7	9	10	RNA 497	—	LRT7910	IR7X9X10	IR7X9X10	—
IR 71010.5	3.2	7	10	10.5	—	—	IRT710	IR7X10X10.5	IR7X10X10.5	JR7X10X10.5
IR 71012	3.6	7	10	12	NK 10/12	RNAF 102012	LRT71012	IR7X10X12	IR7X10X12	JR7X10X12
IR 71012.5	3.9	7	10	12.5	—	—	IRT712	—	—	—
IR 71015.5	4.8	7	10	15.5	—	—	IRT715	—	—	—
IR 71016	5	7	10	16	NK 10/16	—	LRT71016	IR7X10X16	IR7X10X16	JR7X10X16
IR 81011	2.4	8	10	11	RNA 498	—	LRT81011	IR8X10X11	IR8X10X11	—
IR 81210	4.8	8	12	10	—	—	—	IR8X12X10	IR8X12X10	JR8X12X10
IR 81210.5	5.1	8	12	10.5	—	—	IRT810	IR8X12X10.5	IR8X12X10.5	JR8X12X10.5
IR 81212.5	6	8	12	12.5	—	—	IRT812	IR8X12X12.5	IR8X12X12.5	JR8X12X12.5
IR 81215.5	7.5	8	12	15.5	—	—	IRT815	—	—	—
IR 91211	3.1	9	12	11	RNA 499	—	LRT91211	IR9X12X11	IR9X12X11	—
IR 91212	4.5	9	12	12	NK 12/12	RNAF 122212	LRT91212	IR9X12X12	IR9X12X12	JR9X12X12
IR 91216	6	9	12	16	NK 12/16	—	LRT91216	IR9X12X16	IR9X12X16	JR9X12X16
IR 101312.5	5.2	10	13	12.5	—	—	IRT1012	IR10X13X12.5	IR10X13X12.5	JR10X13X12.5
IR 101412	7	10	14	12	RNAF 142612	—	LRT101412	IR10X14X12	IR10X14X12	JR10X14X12
IR 101412.5	7.2	10	14	12.5	—	—	IRT1012-2	—	—	—
IR 101413	7.5	10	14	13	RNA 4900	RNAF 142213	LRT101413	IR10X14X13	IR10X14X13	JR10X14X13
IRZ 101414	8	10	14	14	RNA 4900UU	—	LRTZ101414	IR10X14X14	IR10X14X14D	JRZ10X14X14J51
IR 101416	9	10	14	16	NK 14/16	—	LRT101416	IR10X14X16	IR10X14X16	JR10X14X16
IR 101416.5	9.6	10	14	16.5	—	—	IRT1016-2	—	—	—
IR 101420	11.5	10	14	20	NK 14/20	RNAFW 142220	LRT101420	IR10X14X20	IR10X14X20	JR10X14X20
IR 101420.5	11.9	10	14	20.5	—	—	IRT1020-2	—	—	—
IR 101510.5	7.9	10	15	10.5	—	—	IRT1010-1	—	—	—
IR 101515.5	11.7	10	15	15.5	—	—	IRT1015-1	—	IR10X15X15.5	—
IR 101520.5	15.5	10	15	20.5	—	—	IRT1020-1	—	IR10X15X20.5	—
IR 101525.5	19.3	10	15	25.5	—	—	IRT1025-1	—	—	—
IR 121512.5	6.1	12	15	12.5	—	—	IRT1212	IR12X15X12.5	IR12X15X12.5	—
IR 121516	7.8	12	15	16	—	—	—	IR12X15X16	IR12X15X16	—
IR 121516.5	8.1	12	15	16.5	—	—	LRT121516	—	—	JR12X15X16.5
IR 121522.5	11	12	15	22.5	—	—	IRT1222	IR12X15X22.5	—	JR12X15X22.5



INTERCHANGE



INTERCHANGE

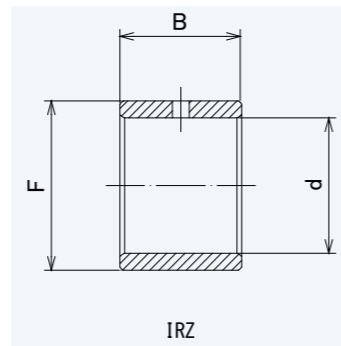
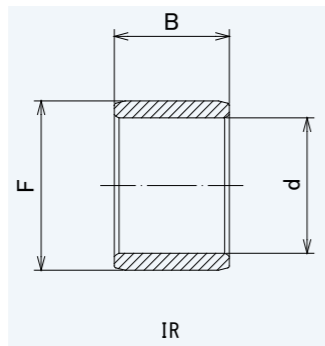


## IR, IRZ

DIMENSION TABLE

INTERCHANGE TABLE

JNS NUMBER INNER RING	Mass (Approx.) g	Dimensions(mm)			JNS USABLE BEARING NUMBER		IKO	INA	NTN	TORRINGTON(KOYO)
		d	F	B			LRT / IRT LRTZ	IR	IR	JR JRZ
IR 121612	8	12	16	12	RNAF 162812	—	LRT121612	IR12X16X12	IR12X16X12	JR12X16X12
IR 121612.5	8.5	12	16	12.5	—	—	IRT1212-1	—	—	—
IR 121613	8.5	12	16	13	RNA 4901	RNAF 162413	LRT121613	IR12X16X13	IR12X16X13	JR12X16X13
IRZ 121614	9.6	12	16	14	RNA 4901UU	—	LRTZ121614	IR12X16X14	IR12X16X14D	JRZ12X16X14JS1
IR 121616	10.5	12	16	16	NK 16/16	—	LRT121616	IR12X16X16	IR12X16X16	JR12X16X16
IR 121616.5	11.2	12	16	16.5	—	—	IRT1216-1	—	—	—
IR 121620	13.5	12	16	20	NK 16/20	RNAFW 162420	LRT121620	IR12X16X20	IR12X16X20	JR12X16X20
IR 121620.5	13.9	12	16	20.5	—	—	IRT1220-1	—	—	—
IR 121622	14.5	12	16	22	RNA 6901	—	LRT121622	IR12X16X22	IR12X16X22	JR12X16X22
IR 121622.5	15.2	12	16	22.5	—	—	IRT1222-1	—	—	—
IRZ 121623	15.5	12	16	23	RNA 6901UU	—	LRTZ121623	—	—	—
IR 121715.5	13.6	12	17	15.5	—	—	IRT1215-2	—	—	—
IR 121720.5	18	12	17	20.5	—	—	IRT1220-2	—	IR12X17X20.5	—
IR 141717	9.5	14	17	17	—	—	LRT141717	IR14X17X17	IR14X17X17	—
IR 151812.5	7.5	15	18	12.5	—	—	IRT1512	IR15X18X12.5	IR15X18X12.5	—
IR 151815.5	9.3	15	18	15.5	—	—	IRT1515	—	—	—
IR 151816.5	9.9	15	18	16.5	—	—	IRT1516	IR15X18X16.5	IR15X18X16.5	JR15X18X16.5
IR 151820.5	12.3	15	18	20.5	—	—	IRT1520	—	IR15X18X20.5	—
IR 151825.5	15.2	15	18	25.5	—	—	IRT1525	—	IR15X18X25.5	—
IR 151916	12.5	15	19	16	NK 19/16	—	LRT151916	IR15X19X16	IR15X19X16	JR15X19X16
IR 151916.5	13.6	15	19	16.5	—	—	IRT1516-1	—	—	—
IR 151920	16	15	19	20	NK 19/20	—	LRT151920	IR15X19X20	IR15X19X20	JR15X19X20
IR 151920.5	12.3	15	19	20.5	—	—	IRT1520-1	—	—	—
IR 152012	12	15	20	12	RNAF 203212	—	LRT152012	IR15X20X12	IR15X20X12	JR15X20X12
IR 152013	13.5	15	20	13	RNA 4902	RNAF 202813	LRT152013	IR15X20X13	IR15X20X13	JR15X20X13
IRZ 152014	14.5	15	20	14	RNA 4902UU	—	LRTZ152014	IR15X20X14	IR15X20X14D	JRZ15X20X14JS1
IR 152015.5	16.4	15	20	15.5	—	—	IRT1515-2	—	—	—
IR 152018	19	15	20	18	RNA 5902	—	—	—	IR15X20X18	—
IR 152020.5	21.5	15	20	20.5	—	—	IRT1520-2	—	IR15X20X20.5	—
IR 152023	24	15	20	23	RNA 6902	—	LRT152023	IR15X20X23	IR15X20X23	JR15X20X23
IRZ 152024	25	15	20	24	RNA 6902UU	—	LRTZ152024	—	—	—
IR 152026	28	15	20	26	RNAFW 202826	—	LRT152026	IR15X20X26	IR15X20X26	JR15X20X26
IR 172016.5	11.1	17	20	16.5	—	—	IRT1716	IR17X20X16.5	IR17X20X16.5	JR17X20X16.5
IR 172020	14	17	20	20	—	—	—	IR17X20X20	IR17X20X20	JR17X20X20
IR 172020.5	13.7	17	20	20.5	—	—	IRT1720	IR17X20X20.5	IR17X20X20.5	JR17X20X20.5
IR 172030.5	20.5	17	20	30.5	—	—	IRT1730	IR17X20X30.5	IR17X20X30.5	JR17X20X30.5
IR 172215.5	18.3	17	22	15.5	—	—	IRT1715-2	—	—	—

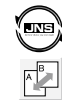


## IR, IRZ

DIMENSION TABLE

INTERCHANGE TABLE

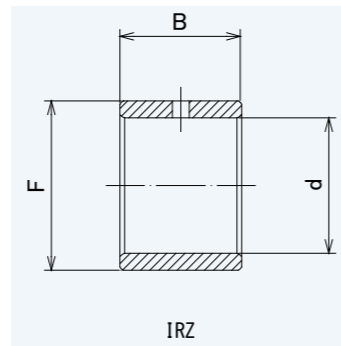
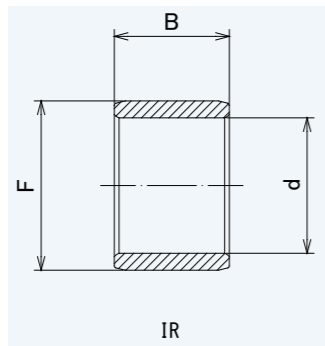
JNS NUMBER INNER RING	Mass (Approx.) g	Dimensions(mm)			JNS USABLE BEARING NUMBER		IKO	INA	NTN	TORRINGTON(KOYO)
		d	F	B			LRT / IRT LRTZ	IR	IR	JR JRZ
IR 172116	14.5	17	21	16	NK 21/16	—	LRT172116	IR17X21X16	IR17X21X16	JR17X21X16
IR 172216.5	19.4	17	22	16.5	—	—	IRT1716-2	—	—	—
IR 172120	18	17	21	20	NK 21/20	—	LRT172120	IR17X21X20	IR17X21X20	JR17X21X20
IR 172213	15.5	17	22	13	RNA 4903	RNAF 223013	LRT172213	IR17X22X13	IR17X22X13	JR17X22X13
IRZ 172214	16.5	17	22	14	RNA 4903UU	—	LRTZ172214	IR17X22X14	IR17X22X14D	JRZ17X22X14JS1
IR 172216	19	17	22	16	RNAF 223516	—	LRT172216	IR17X22X16	IR17X22X16	JR17X22X16
IR 172218	21	17	22	18	RNA 5903	—	—	—	IR17X22X18	—
IR 172223	26.5	17	22	23	RNA 6903	—	LRT172223	IR17X22X23	IR17X22X23	JR17X22X23
IRZ 172224	28	17	22	24	RNA 6903UU	—	LRTZ172224	—	—	—
IR 172225.5	30	17	22	25.5	—	—	IRT1725-2	—	—	—
IR 172226	31	17	22	26	RNAFW 223026	—	LRT172226	IR17X22X26	IR17X22X26	JR17X22X26
IR 172232	38	17	22	32	RNAFW 223532	—	LRT172232	IR17X22X32	IR17X22X32	JR17X22X32
IR 202416	16.5	20	24	16	NK 24/16	—	LRT202416	IR20X24X16	IR20X24X16	JR20X24X16
IR 202416.5	17.5	20	24	16.5	—	—	IRT2016	—	—	—
IR 202420	20.5	20	24	20	NK 24/20	—	LRT202420	IR20X24X20	IR20X24X20	JR20X24X20
IR 202420.5	22	20	24	20.5	—	—	IRT2020	—	—	—
IR 202510.5	14.3	20	25	10.5	—	—	IRT2010-1	—	—	—
IR 202515.5	21	20	25	15.5	—	—	IRT2015-1	—	—	—
IR 202516	22	20	25	16	RNAF 253716	—	LRT202516	IR20X25X16	IR20X25X16	JR20X25X16
IR 202517	23	20	25	17	RNA 4904	RNAF 253517	LRT202517	IR20X25X17	IR20X25X17	JR20X25X17
IRZ 202518	24	20	25	18	RNA 4904UU	—	LRTZ202518	IR20X25X18	IR20X25X18D	JRZ20X25X18JS1
IR 202520	27	20	25	20	—	—	—	IR20X25X20	IR20X25X20	—
IR 202520.5	28	20	25	20.5	—	—	LRT202520	IR20X25X20.5	IR20X25X20.5	JR20X25X20.5
IR 202523	31	20	25	23	RNA 5904	—	—	—	IR20X25X23	—
IR 202525.5	34.5	20	25	25.5	—	—	IRT2025-1	—	—	—
IR 202526	36	20	25	26	RNAFW 253526	—	LRT202526	IR20X25X26	IR20X25X26	JR20X25X26
IR 202526.5	36	20	25	26.5	—	—	IRT2026-1	IR20X25X26.5	IR20X25X26.5	JR20X25X26.5
IR 202530	40.5	20	25	30	RNA 6904	—	LRT202530	IR20X25X30	IR20X25X30	JR20X25X30
IRZ 202531	41.5	20	25	31	RNA 6904UU	—	LRTZ202531	—	—	—
IR 202532	44	20	25	32	RNAFW 253732	—	LRT202532	IR20X25X32	IR20X25X32	JR20X25X32
IR 222616	17.5	22	26	16	NK 26/16	—	LRT222616	IR22X26X16	IR22X26X16	JR22X26X16
IR 222620	24	22	26	20	NK 26/20	—	LRT222620	IR22X26X20	IR22X26X20	JR22X26X20
IR 222817	30.5	22	28	17	RNA 49/22	—	LRT222817	IR22X28X17	IR22X28X17	JR22X28X17
IR 222820.5	37	22	28	20.5	—	—	IRT2220-1	IR22X28X20.5	IR22X28X20.5	JR22X28X20.5
IR 222823	42	22	28	23	RNA 59/22	—	—	—	IR22X28X23	—
IR 222830	55	22	28	30	RNA 69/22	—	LRT222830	IR22X28X30	IR22X28X30	JR22X28X30
IR 252920	25	25	29	20	NK 29/20	—	LRT252920	IR25X29X20	IR25X29X20	JR25X29X20



INTERCHANGE



INTERCHANGE



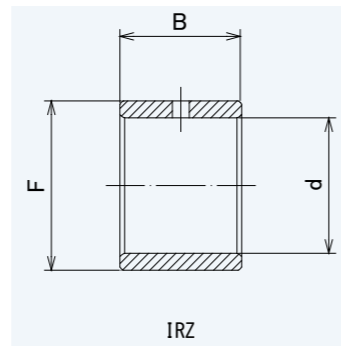
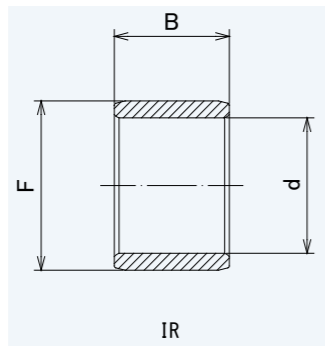
## IR, IRZ

DIMENSION TABLE

INTERCHANGE TABLE

JNS NUMBER INNER RING	Mass (Approx.) g	Dimensions(mm)			JNS USABLE BEARING NUMBER		IKO	INA	NTN	TORRINGTON(KOYO)
		d	F	B			LRT / IRT LRTZ	IR	IR	JR JRZ
IR 252930	38	25	29	30	NK 29/30	—	LRT252930	IR25X29X30	IR25X29X30	JR25X29X30
IR 253015	24.5	25	30	15	—	—	—	—	—	—
IR 253015.5	25.5	25	30	15.5	—	—	IRT2515-1	—	—	—
IR 253016	28	25	30	16	RNAF 304216	—	LRT253016	IR25X30X16	IR25X30X16	JR25X30X16
IR 253017	28.5	25	30	17	RNA 4905	RNAF 304017	LRT253017	IR25X30X17	IR25X30X17	JR25X30X17
IRZ 253018	29.5	25	30	18	RNA 4905UU	—	LRTZ253018	IR25X30X18	IR25X30X18	JRZ25X30X18JS1
IR 253020	33	25	30	20	—	—	—	IR25X30X20	IR25X30X20	JR25X30X20
IR 253020.5	34	25	30	20.5	—	—	LRT253020	IR25X30X20.5	IR25X30X20.5	JR25X30X20.5
IR 253023	38	25	30	23	RNA 5905	—	—	—	IR25X30X23	—
IR 253025.5	42.5	25	30	25.5	—	—	IRT2525-1	—	—	—
IR 253026	44.5	25	30	26	RNAFW 304026	—	LRT253016	IR25X30X26	IR25X30X26	JR25X30X26
IR 253026.5	44	25	30	26.5	—	—	IRT2526-1	IR253026.5	—	JR25X30X26.5
IR 253030	49	25	30	30	RNA 6905	—	LRT253030	IR25X30X30	IR25X30X30	JR25X30X30
IR 253030.5	50.5	25	30	30.5	—	—	IRT2530-1	—	—	—
IRZ 253031	51	25	30	31	RNA 6905UU	—	LRTZ253031	—	—	—
IR 253032	54	25	30	32	RNAFW 304232	—	LRT253032	IR25X30X32	IR25X30X32	JR25X30X32
IR 253038.5	64	25	30	38.5	—	—	IRT2538-1	IR25X30X38.5	—	JR25X30X38.5
IR 283217	24.5	28	32	17	RNA 49/28	—	LRT283217	IR28X32X17	IR28X32X17	JR28X32X17
IR 283220	28.5	28	32	20	NK 32/20	—	LRT283220	IR28X32X20	IR28X32X20	JR28X32X20
IR 283220.5	29.5	28	32	20.5	—	—	IRT2820	—	—	—
IR 283223	34	28	32	23	RNA 59/28	—	—	—	IR28X32X23	—
IR 283230	43	28	32	30	RNA 69/28	NK 32/30	LRT283230	IR28X32X30	IR28X32X30	JR28X32X30
IR 283230.5	44	28	32	30.5	—	—	IRT2830	—	—	—
IR 303516	31.5	30	35	16	RNAF 354716	—	LRT303516	IR30X35X16	IR30X35X16	JR30X35X16
IR 303517	33.5	30	35	17	RNA 4906	RNAF 354517	LRT303517	IR30X35X17	IR30X35X17	JR30X35X17
IRZ 303518	35	30	35	18	RNA 4906UU	—	LRTZ303818	IR30X35X18	IR30X35X18D	JRZ30X35X18JS1
IR 303520	38.5	30	35	20	NK 35/20	—	LRT303520	IR30X35X20	IR30X35X20	JR30X35X20
IR 303520.5	40	30	35	20.5	—	—	IRT3020	IR30X35X20.5	IR30X35X20.5	JR30X35X20.5
IR 303523	44	30	35	23	RNA 5906	—	—	—	IR30X35X23	—
IR 303525.5	51	30	35	25.5	—	—	IRT3025	—	—	—
IR 303526	52	30	35	26	RNAFW 354526	—	LRT303526	IR30X35X26	IR30X35X26	JR30X35X26
IR 303530	59	30	35	30	RNA 6906	NK 35/30	LRT303530	IR30X35X30	IR30X35X30	JR30X35X30
IR 303530.5	60	30	35	30.5	—	—	IRT3030	—	—	—
IRZ 303531	61	30	35	31	RNA 6906UU	—	LRTZ303531	IR30X35X31	—	—
IR 303532	64	30	35	32	RNAFW 354732	—	LRT303532	IR30X35X32	IR30X35X32	JR30X35X32
IR 303820	65	30	38	20	—	—	—	IR30X38X20	IR30X38X20	—
IR 323720	43.5	32	37	20	NK 37/20	—	LRT323720	IR32X37X20	IR32X37X20	JR32X37X20



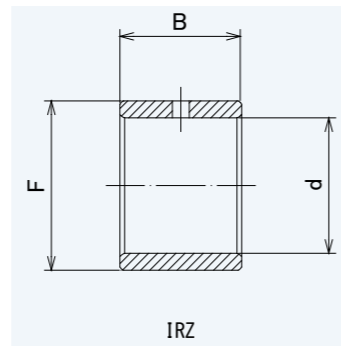
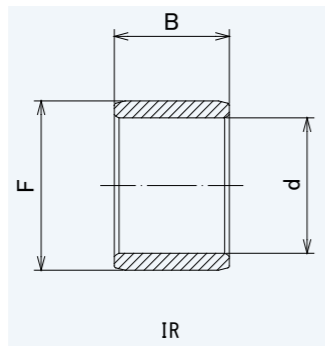


## IR, IRZ

DIMENSION TABLE

INTERCHANGE TABLE

JNS NUMBER INNER RING	Mass (Approx.) g	Dimensions(mm)			JNS USABLE BEARING NUMBER		IKO	INA	NTN	TORRINGTON(KOYO)
		d	F	B			LRT / IRT LRTZ	IR	IR	JR JRZ
IR 323730	63	32	37	30	NK 37/30	—	LRT323730	IR32X37X30	IR32X37X30	JR32X37X30
IR 324020	69	32	40	20	RNA 49/32	—	LRT324020	IR32X40X20	IR32X40X20	JR32X40X20
IR 324027	92	32	40	27	RNA 59/32	—	—	—	IR32X40X27	—
IR 324036	123	32	40	36	RNA 69/32	—	LRT324036	IR32X40X36	IR32X40X36	JR32X40X36
IR 354017	39	35	40	17	RNAF 405017	—	LRT354017	IR35X40X17	IR35X40X17	JR35X40X17
IR 354020	46	35	40	20	NK 40/20	RNAF 405520	LRT354020	IR35X40X20	IR35X40X20	JR35X40X20
IR 354020.5	46.5	35	40	20.5	—	—	IRT3520	IR35X40X20.5	IR35X40X20.5	JR35X40X20.5
IR 354025.5	46	35	40	25.5	—	—	IRT3525	—	—	—
IR 354030	67	35	40	30	NK 40/30	—	LRT354030	IR35X40X30	IR35X40X30	JR35X40X30
IR 354034	78	35	40	34	RNAFW 405034	—	LRT354034	IR35X40X34	IR35X40X34	JR35X40X34
IR 354040	95	35	40	40	RNAFW 405540	—	LRT354040	IR35X40X40	IR35X40X40	JR35X40X40
IR 354220	65	35	42	20	RNA 4907	—	LRT354220	IR35X42X20	IR35X42X20	JR35X42X20
IRZ 354221	67	35	42	21	RNA 4907UU	—	LRTZ354221	IR35X42X21	—	—
IR 354227	80	35	42	27	RNA 5907	—	—	—	IR35X42X27	—
IR 354236	120	35	42	36	RNA 6907	—	LRT354236	IR35X42X36	IR35X42X36	JR35X42X36
IRZ 354237	120	35	42	37	RNA 6907UU	—	LRTZ354237	—	—	—
IR 384320	49.5	38	43	20	NK 43/20	—	LRT384320	IR38X43X20	IR38X43X20	JR38X43X20
IR 384330	72	38	43	30	NK 43/30	—	LRT384330	IR38X43X30	—	—
IR 404517	44.5	40	45	17	RNAF 455517	—	LRT404517	IR40X45X17	IR40X45X17	JR40X45X17
IR 404520	51	40	45	20	NK 45/20	RNAF 456220	LRT404520	IR40X45X20	IR40X45X20	JR40X45X20
IR 404520.5	52.5	40	45	20.5	—	—	IRT4020	IR40X45X20.5	IR40X45X20.5	JR40X45X20.5
IR 404525.5	65.5	40	45	25.5	—	—	IRT4025	—	—	—
IR 404530	77	40	45	30	NK 45/30	—	LRT404530	IR40X45X30	IR40X45X30	JR40X45X30
IR 404530.5	78.5	40	45	30.5	—	—	IRT4030	—	—	—
IR 404534	88	40	45	34	RNAFW 455534	—	LRT404534	IR40X45X34	IR40X45X34	JR40X45X34
IR 404540	105	40	45	40	RNAFW 456240	—	LRT404540	IR40X45X40	IR40X45X40	JR40X45X40
IR 404540.5	104	40	45	40.5	—	—	IRT4040	—	—	—
IR 404822	93	40	48	22	RNA 4908	—	LRT404822	IR40X48X22	IR40X48X22	JR40X48X22
IRZ 404823	95	40	48	23	RNA 4908UU	—	LRTZ404823	IR40X48X23	—	—
IR 404830	123	40	48	30	RNA 5908	—	—	—	IR40X48X30	—
IR 404840	165	40	48	40	RNA 6908	—	LRT404840	IR40X48X40	IR40X48X40	JR40X48X40
IRZ 404841	170	40	48	41	RNA 6908UU	—	LRTZ404841	—	—	—
IR 424720	54	42	47	20	NK 47/20	—	LRT424720	IR42X47X20	IR42X47X20	JR42X47X20
IR 424730	81	42	47	30	NK 47/30	—	LRT424730	IR42X47X30	IR42X47X30	JR42X47X30
IR 455020	58	45	50	20	RNAF 506220	—	LRT455020	IR45X50X20	IR45X50X20	JR45X50X20
IR 455025	71	45	50	25	NK 50/25	—	LRT455025	IR45X50X25	IR45X50X25	JR45X50X25
IR 455025.5	73	45	50	25.5	—	—	IRT4525	IR45X50X25.5	IR45X50X25.5	JR45X50X25.5



## IR, IRZ

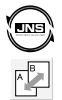
DIMENSION TABLE

INTERCHANGE TABLE

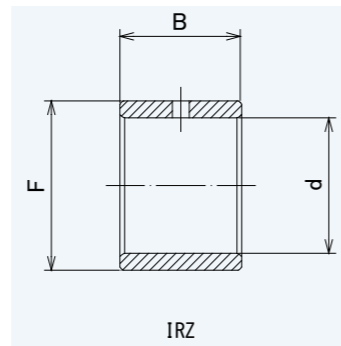
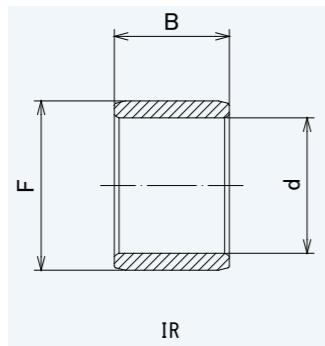
JNS NUMBER INNER RING	Mass (Approx.) g	Dimensions(mm)			JNS USABLE BEARING NUMBER		IKO	INA	NTN	TORRINGTON(KOYO)
		d	F	B			LRT / IRT LRTZ	IR	IR	JR JRZ
IR 455030.5	87.5	45	50	30.5	—	—	IRT4530	—	—	—
IR 455035	95	45	50	35	NK 50/35	—	LRT455035	IR45X50X35	IR45X50X35	JR45X50X35
IR 455040	115	45	50	40	RNAFW 506240	—	LRT455040	IR45X50X40	IR45X50X40	JR45X50X40
IR 455222	88	45	52	22	RNA 4909	—	LRT455222	IR45X52X22	IR45X52X22	JR45X52X22
IRZ 455223	93	45	52	23	RNA 4909UU	—	LRTZ455223	IR45X52X23	IR45X52X23D	JRZ45X52X23JS1
IR 455230	123	45	52	30	RNA 5909	—	—	—	IR45X52X30	—
IR 455240	165	45	52	40	RNA 6909	—	LRT455240	IR45X52X40	IR45X52X40	JR45X52X40
IRZ 455241	170	45	52	41	RNA 6909UU	—	LRTZ455241	—	—	—
IR 455520	120	45	55	20	RNAF 557220	—	LRT455520	IR45X55X20	IR45X55X20	JR45X55X20
IR 455522	130	45	55	22	—	—	—	IR45X55X22	IR45X55X22	JR45X55X22
IR 455540	245	45	55	40	RNAFW 557240	—	LRT455540	IR45X55X40	IR45X55X40	JR45X55X40
IR 505520	63	50	55	20	RNAF 556820	—	LRT505520	IR50X55X20	IR50X55X20	JR50X55X20
IR 505525	77	50	55	25	NK 55/25	—	LRT505525	IR50X55X25	IR50X55X25	JR50X55X25
IR 505535	110	50	55	35	NK 55/35	—	LRT505535	IR50X55X35	IR50X55X35	JR50X55X35
IR 505540	130	50	55	40	RNAFW 556840	—	LRT505540	IR50X55X40	IR50X55X40	JR50X55X40
IR 505822	116	50	58	22	RNA 4910	—	LRT505822	IR50X58X22	IR50X58X22	JR50X58X22
IRZ 505823	118	50	58	23	RNA 4910UU	—	LRTZ505823	IR50X58X23	IR50X58X23D	JRZ50X58X23JS1
IR 505830	159	50	58	30	RNA 5910	—	—	—	IR50X58X30	—
IR 505840	210	50	58	40	RNA 6910	—	LRT505840	IR50X58X40	IR50X58X40	JR50X58X40
IRZ 505841	215	50	58	41	RNA 6910UU	—	LRTZ505841	—	—	—
IR 506020	135	50	60	20	RNAF 607820	—	LRT506020	IR50X60X20	IR50X60X20	JR50X60X20
IR 506025	163	50	60	25	—	—	—	IR50X60X25	IR50X60X25	JR50X60X25
IR 506040	265	50	60	40	RNAFW 607840	—	LRT506040	IR50X60X40	IR50X60X40	JR50X60X40
IR 556025	88	55	60	25	NK 60/25	—	LRT556025	IR55X60X25	IR55X60X25	JR55X60X25
IR 556035	120	55	60	35	NK 60/35	—	LRT556035	IR55X60X35	IR55X60X35	JR55X60X35
IR 556325	145	55	63	25	RNA 4911	—	LRT556325	IR55X63X25	IR55X63X25	JR55X63X25
IR 556334	192	55	63	34	RNA 5911	—	—	—	IR55X63X34	—
IR 556345	255	55	63	45	RNA 6911	—	LRT556345	IR55X63X45	IR55X63X45	JR55X63X45
IR 556530	220	55	65	30	RNAF 658530	—	LRT556530	IR55X65X30	IR55X65X30	JR55X65X30
IR 556560	435	55	65	60	RNAFW 658560	—	LRT556560	IR55X65X60	IR55X65X60	JR55X65X60
IR 606825	150	60	68	25	RNA 4912	NK 68/25	LRT606825	IR60X68X25	IR60X68X25	JR60X68X25
IR 606834	206	60	68	34	RNA 5912	—	—	—	IR60X68X34	—
IR 606835	210	60	68	35	NK 68/35	—	LRT606835	IR60X68X35	IR60X68X35	JR60X68X35
IR 606845	275	60	68	45	RNA 6912	—	LRT606845	IR60X68X45	IR60X68X45	JR60X68X45
IR 607025	195	60	70	25	—	—	—	IR60X70X25	IR60X70X25	JR60X70X25
IR 607030	240	60	70	30	RNAF 709030	—	LRT607030	IR60X70X30	IR60X70X30	JR60X70X30
IR 607060	480	60	70	60	RNAFW 709060	—	LRT607060	IR60X70X60	IR60X70X60	JR60X70X60



INTERCHANGE



INTERCHANGE

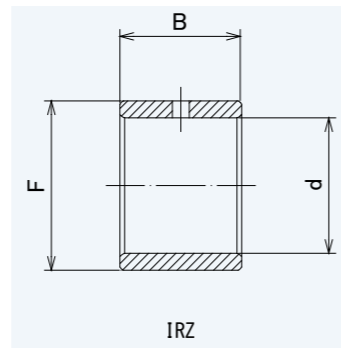
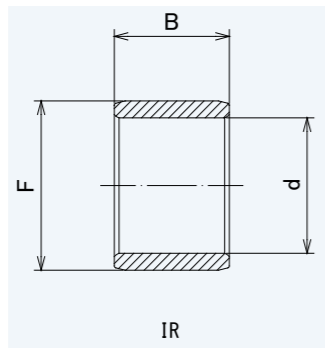


## IR, IRZ

DIMENSION TABLE

INTERCHANGE TABLE

JNS NUMBER INNER RING	Mass (Approx.) g	Dimensions(mm)			JNS USABLE BEARING NUMBER		IKO	INA	NTN	TORRINGTON(KOYO)
		d	F	B			LRT / IRT LRTZ	IR	IR	JR JRZ
IR 657225	145	65	72	25	RNA 4913	—	LRT657225	IR65X72X25	IR65X72X25	JR65X72X25
IR 657234	193	65	72	34	RNA 5913	—	—	—	IR65X72X34	—
IR 657245	255	65	72	45	RNA 6913	—	LRT657245	IR65X72X45	IR65X72X45	JR65X72X45
IR 657335	235	65	73	35	NK 73/35	—	LRT657335	IR65X73X35	IR65X73X35	JR65X73X35
IR 657530	260	65	75	30	RNAF 759530	—	LRT657530	IR65X75X30	IR65X75X30	JR65X75X30
IR 657560	520	65	75	60	RNAFW 759560	—	LRT657560	IR65X75X60	IR65X75X60	JR65X75X60
IR 708025	225	70	80	25	NK 80/25	—	LRT708025	IR70X80X25	IR70X80X25	JR70X80X25
IR 708030	275	70	80	30	RNA 4914	RNAF 8010030	LRT708030	IR70X80X30	IR70X80X30	JR70X80X30
IR 708035	310	70	80	35	NK 80/35	—	LRT708035	IR70X80X35	IR70X80X35	JR70X80X35
IR 708040	358	70	80	40	RNA 5914	—	—	—	IR70X80X40	—
IR 708054	490	70	80	54	RNA 6914	—	LRT708054	IR70X80X54	IR70X80X54	JR70X80X54
IR 708060	560	70	80	60	RNAFW 8010060	—	LRT708060	IR70X80X60	IR70X80X60	JR70X80X60
IR 758525	240	75	85	25	NK 85/25	—	LRT758525	IR75X85X25	IR75X85X25	JR75X85X25
IR 758530	290	75	85	30	RNA 4915	RNAF 8510530	LRT758530	IR75X85X30	IR75X85X30	JR75X85X30
IR 758535	335	75	85	35	NK 85/35	—	LRT758535	IR75X85X35	IR75X85X35	JR75X85X35
IR 758540	385	75	85	40	RNA 5915	—	—	—	IR75X85X40	—
IR 758554	520	75	85	54	RNA 6915	—	LRT758554	IR75X85X54	IR75X85X54	JR75X85X54
IR 809025	255	80	90	25	NK 90/25	—	LRT809025	IR80X90X25	IR80X90X25	JR80X90X25
IR 809030	310	80	90	30	RNA 4916	RNAF 9011030	LRT809030	IR80X90X30	IR80X90X30	JR80X90X30
IR 809035	355	80	90	35	NK 90/35	—	LRT809035	IR80X90X35	IR80X90X35	JR80X90X35
IR 809040	408	80	90	40	RNA 5916	—	—	—	IR80X90X40	—
IR 809054	550	80	90	54	RNA 6916	—	LRT809054	IR80X90X54	IR80X90X54	JR80X90X54
IR 859526	280	85	95	26	NK 95/26	—	LRT859526	IR85X95X26	IR85X95X26	JR85X95X26
IR 859530	330	85	95	30	RNAF 9511530	—	LRT859530	IR85X95X30	IR85X95X30	JR85X95X30
IR 859536	390	85	95	36	NK 95/36	—	LRT859536	IR85X95X36	IR85X95X36	JR85X95X36
IR 8510035	575	85	100	35	RNA 4917	—	LRT8510035	IR85X100X35	IR85X100X35	JR85X100X35
IR 8510046	760	85	100	46	RNA 5917	—	—	—	IR85X100X46	—
IR 8510063	1 040	85	100	63	RNA 6917	—	LRT8510063	IR85X100X63	IR85X100X63	JR85X100X63
IR 9010026	295	90	100	26	NK 100/26	—	LRT9010026	IR90X100X26	IR90X100X26	JR90X100X26
IR 9010030	355	90	100	30	RNAF 10012030	—	LRT9010030	IR90X100X30	IR90X100X30	JR90X100X30
IR 9010036	415	90	100	36	NK 100/36	—	LRT9010036	IR90X100X36	IR90X100X36	JR90X100X36
IR 9010535	610	90	105	35	RNA 4918	—	LRT9010535	IR90X105X35	IR90X105X35	JR90X105X35
IR 9010546	800	90	105	46	RNA 5918	—	—	—	IR90X105X46	—
IR 9010563	1 100	90	105	63	RNA 6918	—	LRT9010563	IR90X105X63	IR90X105X63	JR90X105X63
IR 9510526	315	95	105	26	NK 105/26	—	LRT9510526	IR95X105X26	IR95X105X26	JR95X105X26
IR 9510536	430	95	105	36	NK 105/36	—	LRT9510536	IR95X105X36	IR95X105X36	JR95X105X36
IR 9511035	650	95	110	35	RNA 4919	—	LRT9511035	IR95X110X35	IR95X110X35	JR95X110X35

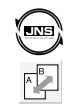


## IR, IRZ

DIMENSION TABLE

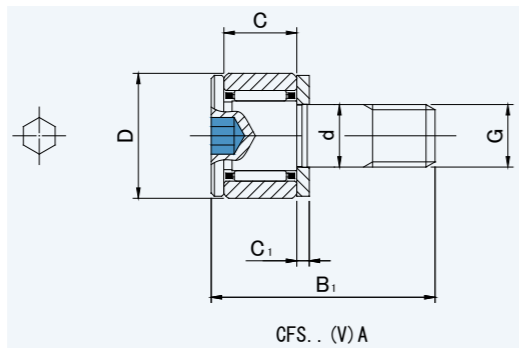
INTERCHANGE TABLE

JNS NUMBER INNER RING	Mass (Approx.) g	Dimensions(mm)			JNS USABLE BEARING NUMBER		IKO	INA	NTN	TORRINGTON(KOYO)
		d	F	B			LRT / IRT LRTZ	IR	IR	JR JRZ
IR 9511046	850	95	110	46	RNA 5919	—	—	IR95X110X46	—	
IR 9511063	1 160	95	110	63	RNA 6919	—	LRT9511063	IR95X110X63	IR95X110X63	JR95X110X63
IR 10011030	380	100	110	30	NK 110/30	—	LRT10011030	IR100X110X30	IR100X110X30	JR100X110X30
IR 10011040	500	100	110	40	NK 110/40	—	LRT10011040	IR100X110X40	IR100X110X40	JR100X110X40
IR 10011540	700	100	115	40	RNA 4920	—	LRT10011540	IR100X115X40	IR100X115X40	JR100X115X40
IR 11012030	410	110	120	30	RNA 4822	—	LRT11012030	IR110X120X30	IR110X120X30	JR110X120X30
IR 11012540	840	110	125	40	RNA 4922	—	LRT11012540	IR110X125X40	IR110X125X40	JR110X125X40
IR 12013030	450	120	130	30	RNA 4824	—	LRT12013030	IR120X130X30	IR120X130X30	JR120X130X30
IR 12013545	1 030	120	135	45	RNA 4924	—	LRT12013545	IR120X135X45	IR120X135X45	JR120X135X45
IR 13014535	860	130	145	35	RNA 4826	—	LRT13014535	IR130X145X35	IR130X145X35	JR130X145X35
IR 13015050	1 670	130	150	50	RNA 4926	—	LRT13015050	IR130X150X50	IR130X150X50	JR130X150X50
IR 14015535	930	140	155	35	RNA 4828	—	LRT14015535	IR140X155X35	IR140X155X35	JR140X155X35
IR 14016050	1 790	140	160	50	RNA 4928	—	LRT14016050	IR140X160X50	IR140X160X50	JR140X160X50
IR 15016540	1 130	150	165	40	RNA 4830	—	LRT15016540	IR150X165X40	IR150X165X40	JR150X165X40
IR 16017540	1 200	160	175	40	RNA 4832	—	LRT16017540	IR160X175X40	IR160X175X40	JR160X175X40



# CAM FOLLOWERS

MINIATURE TYPE  
HEXAGON SOCKET ON STUD HEAD



CFS..A

## CFS..A

DIMENSION TABLE

INTERCHANGE TABLE

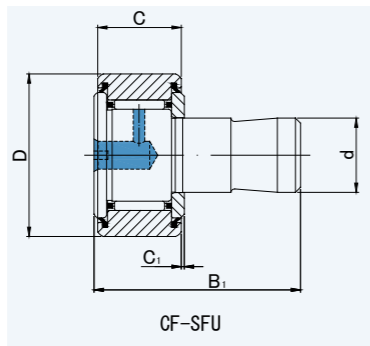
JNS NUMBER CYLINDRICAL OUTER RING	Mass (Approx.) g	Dimensions(mm)						Basic dynamic load rating Cr N	Basic static load rating Cor N	INA	IKO	NTN	MCGILL
		d	D	C	G	B1	C1			CYLINDRICAL OUTER RING	CYLINDRICAL OUTER RING	CYLINDRICAL OUTER RING	CYLINDRICAL OUTER RING
CFS	g	d	D	C	G	B1	C1	Cr N	Cor N	—	CFS	KRM	—
<b>CFS 2.5A</b>	<b>1</b>	2.5	5	3	M2.5×0.45	9.5	0.7	410	335	—	CFS2.5	KRM5XT2H/3A	—
<b>CFS 2.5VA</b>	<b>1</b>	2.5	5	3	M2.5×0.45	9.5	0.7	1 000	1 080	—	CFS2.5V	KRMV5XT2H/3A	—
<b>CFS 3A</b>	<b>2</b>	3	6	4	M3×0.5	11.5	0.7	630	610	—	CFS3	KRM6XT2H/3A	—
<b>CFS 3VA</b>	<b>2</b>	3	6	4	M3×0.5	11.5	0.7	1 370	1 770	—	CFS3V	KRMV6XT2H/3A	—
<b>CFS 4A</b>	<b>4</b>	4	8	5	M4×0.7	15	1	1 080	1 080	—	CFS4	KRM8XT2H/3A	—
<b>CFS 4VA</b>	<b>4</b>	4	8	5	M4×0.7	15	1	2 350	3 040	—	CFS4V	KRMV8XT2H/3A	—
<b>CFS 5A</b>	<b>7</b>	5	10	6	M5×0.8	18	1	1 570	1 860	—	CFS5	KRM10XT2H/3A	—
<b>CFS 5VA</b>	<b>7</b>	5	10	6	M5×0.8	18	1	3 140	4 710	—	CFS5V	KRMV10XT2H/3A	—
<b>CFS 6A</b>	<b>13</b>	6	12	7	M6×1	21.5	1.2	2 060	2 160	—	CFS6	KRM12XT2H/3A	—
<b>CFS 6VA</b>	<b>13</b>	6	12	7	M6×1	21.5	1.2	4 610	6 270	—	CFS6V	KRMV12XT2H/3A	—



INTERCHANGE



INTERCHANGE



**CF-SFU, R**

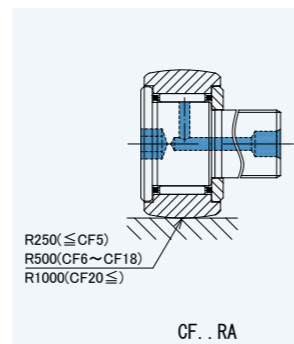
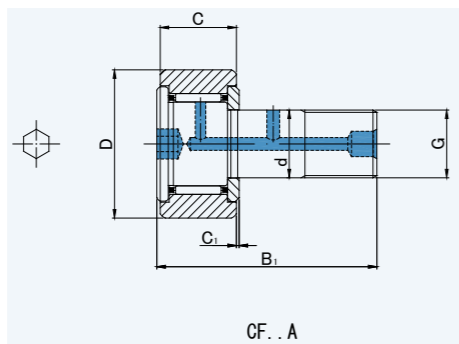
DIMENSION TABLE

INTERCHANGE TABLE

JNS NUMBER CYLINDRICAL OUTER RING	JNS NUMBER CROWNED OUTER RING	Mass (Approx.) g	Dimensions(mm)					Basic dynamic load rating Cr N	Basic static load rating Cor N	INA		IKO		NTN		MCGILL	
			d	D	C	B1	C1			CYLINDRICAL OUTER RING	CROWNED OUTER RING	CYLINDRICAL OUTER RING	CROWNED OUTER RING	CYLINDRICAL OUTER RING	CROWNED OUTER RING	CYLINDRICAL OUTER RING	CROWNED OUTER RING
CF-SFU	CF-SFU..R									—	—	CF-SFU	—	KRX	KRX	—	—
<b>CF-SFU-6</b>	<b>CF-SFU-6R</b>	<b>19</b>	6	16	11	32	0.6	3 630	3 630	—	—	CF-SFU-6	—	KRX6X16X32-2	KRX6X16X32-4	—	—
<b>CF-SFU-6V</b>	<b>CF-SFU-6VR</b>	<b>19</b>	6	16	11	32	0.6	6 960	8 530	—	—	—	—	—	—	—	—
<b>CF-SFU-8</b>	<b>CF-SFU-8R</b>	<b>28.5</b>	8	19	11	32	0.6	4 310	4 710	—	—	CF-SFU-8	—	KRX8X19X32-7	KRX8X19X32-9	—	—
<b>CF-SFU-8V</b>	<b>CF-SFU-8VR</b>	<b>28.5</b>	8	19	11	32	0.6	8 130	11 170	—	—	—	—	—	—	—	—
<b>CF-SFU-10</b>	<b>CF-SFU-10R</b>	<b>43</b>	10	22	12	33	0.6	5 390	6 860	—	—	CF-SFU-10	—	KRX10X22X33-1	KRX10X22X33-3	—	—
<b>CF-SFU-10V</b>	<b>CF-SFU-10VR</b>	<b>43</b>	10	22	12	33	0.6	9 510	14 500	—	—	—	—	—	—	—	—
<b>CF-SFU-10-1</b>	<b>CF-SFU-10-1R</b>	<b>58.5</b>	10	26	12	33	0.6	5 390	6 860	—	—	CF-SFU-10-1	—	KRX10X26X33-2	KRX10X26X33-4	—	—
<b>CF-SFU-10-1V</b>	<b>CF-SFU-10-1VR</b>	<b>58.5</b>	10	26	12	33	0.6	9 510	14 500	—	—	—	—	—	—	—	—
<b>CF-SFU-12</b>	<b>CF-SFU-12R</b>	<b>93</b>	12	30	14	35	0.6	7 940	9 800	—	—	CF-SFU-12	—	KRX12X30X35	KRX12X30X35-3	—	—
<b>CF-SFU-12V</b>	<b>CF-SFU-12VR</b>	<b>93</b>	12	30	14	35	0.6	13 430	19 700	—	—	—	—	—	—	—	—
<b>CF-SFU-12-1</b>	<b>CF-SFU-12-1R</b>	<b>103</b>	12	32	14	35	0.6	7 940	9 800	—	—	CF-SFU-12-1	—	KRX12X32X35-1	KRX12X32X35-3	—	—
<b>CF-SFU-12-1V</b>	<b>CF-SFU-12-1VR</b>	<b>103</b>	12	32	14	35	0.6	13 430	19 700	—	—	—	—	—	—	—	—
<b>CF-SFU-16</b>	<b>CF-SFU-16R</b>	<b>163.5</b>	16	35	18	44.5	0.8	12 050	18 330	—	—	CF-SFU-16	—	KRX16X35X44.5-3	KRX16X35X44.5-1	—	—
<b>CF-SFU-16V</b>	<b>CF-SFU-16VR</b>	<b>163.5</b>	16	35	18	44.5	0.8	20 680	37 630	—	—	—	—	—	—	—	—
<b>CF-SFU-18</b>	<b>CF-SFU-18R</b>	<b>235</b>	18	40	20	46.5	0.8	14 700	25 200	—	—	CF-SFU-18	—	KRX18X40X46.5-4	KRX18X40X46.5-6	—	—
<b>CF-SFU-18V</b>	<b>CF-SFU-18VR</b>	<b>235</b>	18	40	20	46.5	0.8	25 280	51 350	—	—	—	—	—	—	—	—
<b>CF-SFU-20</b>	<b>CF-SFU-20R</b>	<b>436</b>	20	52	24	50.5	0.8	20 680	34 600	—	—	CF-SFU-20	—	KRX20X47X50.5-3	KRX20X47X50.5-1	—	—
<b>CF-SFU-20V</b>	<b>CF-SFU-20VR</b>	<b>436</b>	20	52	24	50.5	0.8	33 120	64 480	—	—	—	—	—	—	—	—
<b>CF-SFU-20-1</b>	<b>CF-SFU-20-1R</b>	<b>361</b>	20	47	24	50.5	0.8	20 680	34 600	—	—	CF-SFU-20-1	—	KRX20X52X50.5-1	KRX20X52X50.5-3	—	—
<b>CF-SFU-20-1V</b>	<b>CF-SFU-20-1VR</b>	<b>361</b>	20	47	24	50.5	0.8	33 120	64 480	—	—	—	—	—	—	—	—







**CF..A, RA**

DIMENSION TABLE

INTERCHANGE TABLE

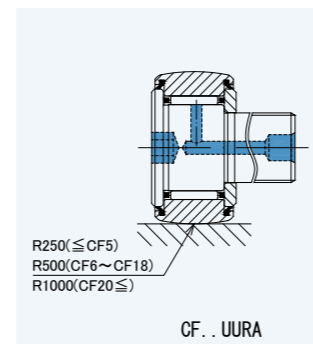
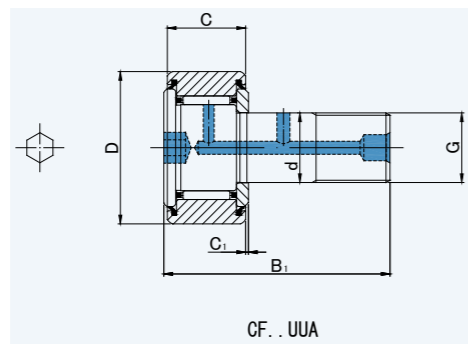
JNS NUMBER CYLINDRICAL OUTER RING	JNS NUMBER CROWNED OUTER RING	Mass (Approx.) g	Dimensions(mm)						Basic dynamic load rating Cr N	Basic static load rating Cor N	INA		NTN		IKO		MCGILL	
			d	D	C	G	B1	C1			CYLINDRICAL OUTER RING	CROWNED OUTER RING	CYLINDRICAL OUTER RING	CROWNED OUTER RING	CYLINDRICAL OUTER RING	CROWNED OUTER RING	CYLINDRICAL OUTER RING	CROWNED OUTER RING
CF..A	CF..RA										KR-XSK	KR-SK	KR-XH	KR-H	CF-B	CF-BR	MCFR-BX	MCFR-B
<b>CF30A</b>	<b>CF30RA</b>	<b>1 870</b>	30	80	35	M30×1.5	100	1	45 370	85 060	KR80X-SK	KR80-SK	KR80XH	KR80H	CF30B	CF30BR	MCFR-80BX	MCFR-80B
<b>CF30VA</b>	<b>CF30VRA</b>	<b>1 870</b>	30	80	35	M30×1.5	100	1	67 620	144 060	KRV80X-SK	KRV80-SK	KRV80XH/3AS	KRV80H/3AS	CF30VB	CF30VBR	MCF-80BX	MCF-80B
<b>CF30-1A</b>	<b>CF30-1RA</b>	<b>2 030</b>	30	85	35	M30×1.5	100	1	45 370	85 060	KR85X-SK	KR85-SK	—	—	CF30-1B	CF30-1BR	MCFR-85BX	MCFR-85B
<b>CF30-1VA</b>	<b>CF30-1VRA</b>	<b>2 030</b>	30	85	35	M30×1.5	100	1	67 620	144 060	KRV85X-SK	KRV85-SK	—	—	CF30-1VB	CF30-1VBR	MCF-85BX	MCF-85B
<b>CF30-2A</b>	<b>CF30-2RA</b>	<b>2 220</b>	30	90	35	M30×1.5	100	1	45 370	85 060	KR90X-SK	KR90-SK	KR90XH	KR90H	CF30-2B	CF30-2BR	MCFR-90BX	MCFR-90B
<b>CF30-2VA</b>	<b>CF30-2VRA</b>	<b>2 220</b>	30	90	35	M30×1.5	100	1	67 620	144 060	KRV90X-SK	KRV90-SK	KRV90XH/3AS	KRV90H/3AS	CF30-2VB	CF30-2VBR	MCF-90BX	MCF-90B

Stud diameter (d) 3 to 10mm : No grease refilling hole is provided (except "K" type)









**CF..UUA, UURA**

DIMENSION TABLE

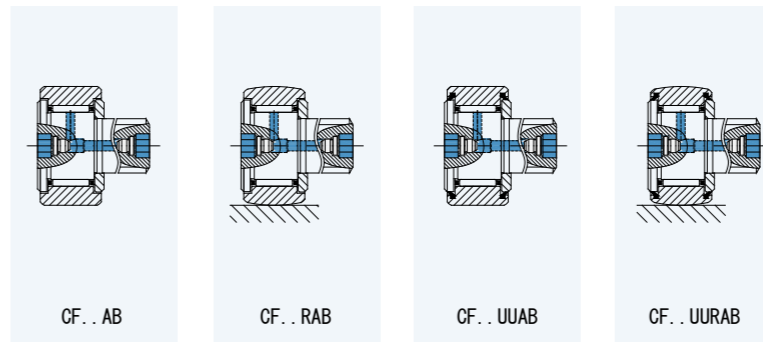
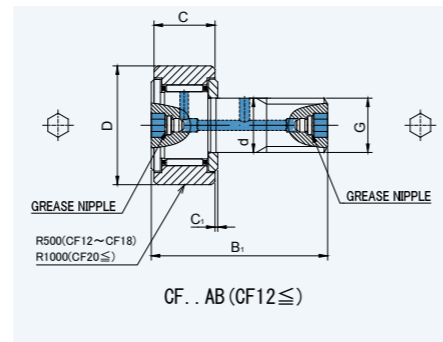
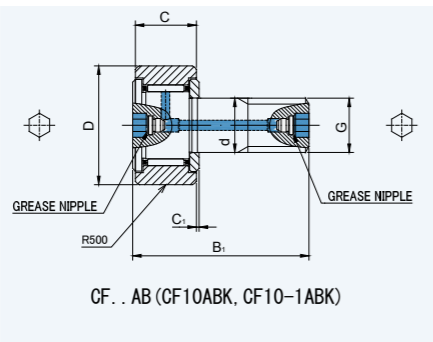
INTERCHANGE TABLE

JNS NUMBER CYLINDRICAL OUTER RING	JNS NUMBER CROWNED OUTER RING	Mass (Approx.)	Dimensions(mm)						Basic dynamic load rating	Basic static load rating	INA		NTN		IKO		MCGILL	
			d	D	C	G	B1	C1			CYLINDRICAL OUTER RING	CROWNED OUTER RING	CYLINDRICAL OUTER RING	CROWNED OUTER RING	CYLINDRICAL OUTER RING	CROWNED OUTER RING	CYLINDRICAL OUTER RING	CROWNED OUTER RING
CF..UUA	CF..UURA	g	d	D	C	G	B1	C1	Cr N	Cor N	KR-XSKPP	KR-SKPP	KR-LLXH	KR-LLH	CF-BUU	CF-BUUR	MCFR-SBX	MCFR-SB
<b>CF30VUUA</b>	<b>CF30VUURA</b>	<b>1 870</b>	30	80	35	M30×1.5	100	1	67 620	144 060	KRV80X-SK-PP	KRV80-SK-PP	KRV80XLLH/3AS	KRV80LLH/3AS	CF30VBUU	CF30VBUUR	MCF-80SBX	MCF-80SB
<b>CF30-1UUA</b>	<b>CF30-1UURA</b>	<b>2 030</b>	30	85	35	M30×1.5	100	1	45 370	85 060	KR85X-SK-PP	KR85-SK-PP	—	—	CF30-1BUU	CF30-1BUUR	MCFR-85SBX	MCFR-85SB
<b>CF30-1VUUA</b>	<b>CF30-1VUURA</b>	<b>2 030</b>	30	85	35	M30×1.5	100	1	67 620	144 060	KRV85X-SK-PP	KRV85-SK-PP	—	—	CF30-1VBUU	CF30-1VBUUR	MCF-85SBX	MCF-85SB
<b>CF30-2UUA</b>	<b>CF30-2UURA</b>	<b>2 220</b>	30	90	35	M30×1.5	100	1	45 370	85 060	KR90X-SK-PP	KR90-SK-PP	KR90XLLH	KR90LLH	CF30-2BUU	CF30-2BUUR	MCFR-90SBX	MCFR-90SB
<b>CF30-2VUUA</b>	<b>CF30-2VUURA</b>	<b>2 220</b>	30	90	35	M30×1.5	100	1	67 620	144 060	KRV90X-SK-PP	KRV90-SK-PP	KRV90XLLH/3AS	KRV90LLH/3AS	CF30-2VBUU	CF30-2VBUUR	MCF-90SBX	MCF-90SB

Stud diameter (d) 3 to 10mm : No grease refilling hole is provided (except "K" type)



**CAM FOLLOWERS**  
HEXAGON SOCKET ON BOTH SIDES  
GREASE NIPPLE INSTALLED



**CF..AB, RAB, UUAB, UURAB**

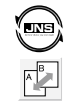
**CF..AB, RAB, UUAB, UURAB**

DIMENSION TABLE

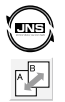
JNS NUMBER CYLINDRICAL OUTER RING WITHOUT SEALS	JNS NUMBER CROWNED OUTER RING WITHOUT SEALS	JNS NUMBER CYLINDRICAL OUTER RING WITH SEALS	JNS NUMBER CROWNED OUTER RING WITH SEALS	Mass (Approx.)	Dimensions(mm)						Basic dynamic load rating	Basic static load rating
CF..AB	CF..RAB	CF..UUAB	CF..UURAB	g	d	D	C	G	B1	C1	Cr N	Cor N
CF10ABK	CF10RABK	CF10UUABK	CF10UURABK	45	10	22	12	M10×1	36	0.6	4 700	1 670
CF10VABK	CF10VRABK	CF10UUABK	CF10UURABK	45	10	22	12	M10×1	36	0.6	4 700	1 670
CF10-1ABK	CF10-1RABK	CF10-1UUABK	CF10-1UURABK	60	10	26	12	M10×1	36	0.6	5 490	2 060
CF10-1VABK	CF10-1VRABK	CF10-1UUABK	CF10-1UURABK	60	10	26	12	M10×1	36	0.6	5 490	2 060
CF12AB	CF12RAB	CF12UUAB	CF12UURAB	95	12	30	14	M12×1.5	40	0.6	7 060	2 450
CF12VAB	CF12VRAB	CF12UUAB	CF12UURAB	95	12	30	14	M12×1.5	40	0.6	7 060	2 450
CF12-1AB	CF12-1RAB	CF12-1UUAB	CF12-1UURAB	105	12	32	14	M12×1.5	40	0.6	7 450	2 740
CF12-1VAB	CF12-1VRAB	CF12-1UUAB	CF12-1UURAB	105	12	32	14	M12×1.5	40	0.6	7 450	2 740
CF16AB	CF16RAB	CF16UUAB	CF16UURAB	170	16	35	18	M16×1.5	52	0.8	11 200	3 140
CF16VAB	CF16VRAB	CF16UUAB	CF16UURAB	170	16	35	18	M16×1.5	52	0.8	11 200	3 140
CF18AB	CF18RAB	CF18UUAB	CF18UURAB	250	18	40	20	M18×1.5	58	0.8	14 400	3 720
CF18VAB	CF18VRAB	CF18UUAB	CF18UURAB	250	18	40	20	M18×1.5	58	0.8	14 400	3 720
CF20AB	CF20RAB	CF20UUAB	CF20UURAB	460	20	52	24	M20×1.5	66	0.8	23 200	8 230
CF20VAB	CF20VRAB	CF20UUAB	CF20UURAB	460	20	52	24	M20×1.5	66	0.8	23 200	8 230
CF20-1AB	CF20-1RAB	CF20-1UUAB	CF20-1UURAB	385	20	47	24	M20×1.5	66	0.8	21 000	7 150
CF20-1VAB	CF20-1VRAB	CF20-1UUAB	CF20-1UURAB	385	20	47	24	M20×1.5	66	0.8	21 000	7 150
CF24AB	CF24RAB	CF24UUAB	CF24UURAB	815	24	62	29	M24×1.5	80	0.8	34 200	10 500
CF24VAB	CF24VRAB	CF24UUAB	CF24UURAB	815	24	62	29	M24×1.5	80	0.8	34 200	10 500
CF24-1AB	CF24-1RAB	CF24-1UUAB	CF24-1UURAB	1 140	24	72	29	M24×1.5	80	0.8	39 800	12 900
CF24-1VAB	CF24-1VRAB	CF24-1UUAB	CF24-1UURAB	1 140	24	72	29	M24×1.5	80	0.8	39 800	12 900
CF30AB	CF30RAB	CF30UUAB	CF30UURAB	1 870	30	80	35	M30×1.5	100	1	52 600	14 900
CF30VAB	CF30VRAB	CF30UUAB	CF30UURAB	1 870	30	80	35	M30×1.5	100	1	52 600	14 900
CF30-1AB	CF30-1RAB	CF30-1UUAB	CF30-1UURAB	2 030	30	85	35	M30×1.5	100	1	56 000	16 100
CF30-1VAB	CF30-1VRAB	CF30-1UUAB	CF30-1UURAB	2 030	30	85	35	M30×1.5	100	1	56 000	16 100
CF30-2AB	CF30-2RAB	CF30-2UUAB	CF30-2UURAB	2 220	30	90	35	M30×1.5	100	1	59 300	17 300
CF30-2VAB	CF30-2VRAB	CF30-2UUAB	CF30-2UURAB	2 220	30	90	35	M30×1.5	100	1	59 300	17 300

INTERCHANGE TABLE

INA				NTN		IKO		MCGILL	
CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITH SEALS	CROWNED OUTER RING WITH SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS
KR-X	KR	KR-PPX	KR-PP	—	—	—	—	—	—
KR22X	KR22	KR22PPX	KR22PP	—	—	—	—	—	—
KRV22X	KRV22	KRV22PPX	KRV22PP	—	—	—	—	—	—
KR26X	KR26	KR26PPX	KR26PP	—	—	—	—	—	—
KRV26X	KRV26	KRV26PPX	KRV26PP	—	—	—	—	—	—
KR30X	KR30	KR30PPX	KR30PP	—	—	—	—	—	—
KRV30X	KRV30	KRV30PPX	KRV30PP	—	—	—	—	—	—
KR32X	KR32	KR32PPX	KR32PP	—	—	—	—	—	—
KRV32X	KRV32	KRV32PPX	KRV32PP	—	—	—	—	—	—
KR35X	KR35	KR35PPX	KR35PP	—	—	—	—	—	—
KRV35X	KRV35	KRV35PPX	KRV35PP	—	—	—	—	—	—
KR40X	KR40	KR40PPX	KR40PP	—	—	—	—	—	—
KRV40X	KRV40	KRV40PPX	KRV40PP	—	—	—	—	—	—
KR52X	KR52	KR52PPX	KR52PP	—	—	—	—	—	—
KRV52X	KRV52	KRV52PPX	KRV52PP	—	—	—	—	—	—
KR47X	KR47	KR47PPX	KR47PP	—	—	—	—	—	—
KRV47X	KRV47	KRV47PPX	KRV47PP	—	—	—	—	—	—
KR62X	KR62	KR62PPX	KR62PP	—	—	—	—	—	—
KRV62X	KRV62	KRV62PPX	KRV62PP	—	—	—	—	—	—
KR72X	KR72	KR72PPX	KR72PP	—	—	—	—	—	—
KRV72X	KRV72	KRV72PPX	KRV72PP	—	—	—	—	—	—
KR80X	KR80	KR80PPX	KR80PP	—	—	—	—	—	—
KRV80X	KRV80	KRV80PPX	KRV80PP	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
KR90X	KR90	KR90PPX	KR90PP	—	—	—	—	—	—
KRV90X	KRV90	KRV90PPX	KRV90PP	—	—	—	—	—	—



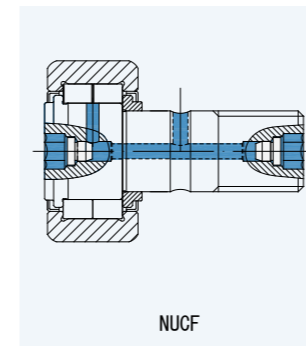
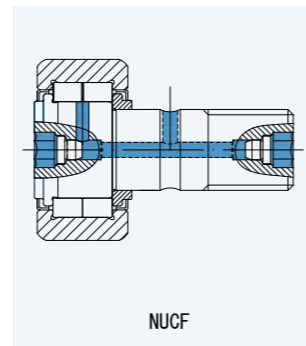
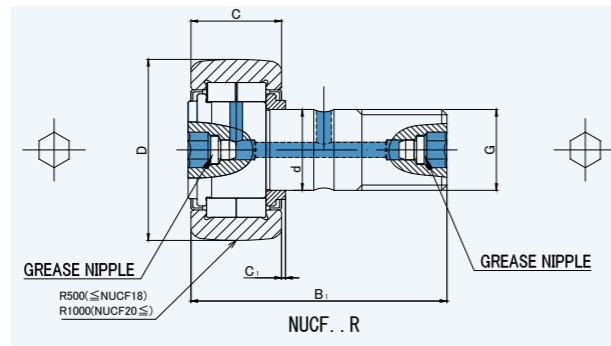
INTERCHANGE



INTERCHANGE

**CAM FOLLOWERS**  
**FULL COMPLIMENT DOUBLE ROW**  
**HEXAGON SOCKET ON BOTH SIDES**  
**GREASE NIPPLE INSTALLED**

**NUCF..AB, RAB**



**NUCF..AB, RAB**

DIMENSION TABLE

INTERCHANGE TABLE

JNS NUMBER CYLINDRICAL OUTER RING	JNS NUMBER CROWNED OUTER RING	Mass (Approx.)	Dimensions(mm)						Basic dynamic load rating	Basic static load rating	INA		NTN		IKO		MCGILL	
			d	D	C	G	B1	C1			Cr N	Cor N	CYLINDRICAL OUTER RING	CROWNED OUTER RING	CYLINDRICAL OUTER RING	CROWNED OUTER RING	CYLINDRICAL OUTER RING	CROWNED OUTER RING
NUCF..AB	NUCF..RAB	g	d	D	C	G	B1	C1	Cr N	Cor N	—	NUKR	NUKR..X	NUKR	—	NUCF..R	MCFD..X	MCFD
<b>NUCF16AB</b>	<b>NUCF16RAB</b>	<b>165</b>	16	35	18	M16x1.5	32.5	0.8	22 300	25 700	—	NUKR35	NUKR35XH	NUKR35H	—	NUCF16BR	MCFD-35X	MCFD-35
<b>NUCF18AB</b>	<b>NUCF18RAB</b>	<b>242</b>	18	40	20	M18x1.5	36.5	0.8	24 100	29 100	—	NUKR40	NUKR40XH	NUKR40H	—	NUCF18BR	MCFD-40X	MCFD-40
<b>NUCF20-1AB</b>	<b>NUCF20-1RAB</b>	<b>380</b>	20	47	24	M20x1.5	40.5	0.8	38 500	48 000	—	NUKR47	NUKR47XH	NUKR47H	—	NUCF20-1BR	MCFD-47X	MCFD-47
<b>NUCF20AB</b>	<b>NUCF20RAB</b>	<b>450</b>	20	52	24	M20x1.5	40.5	0.8	42 500	57 500	—	NUKR52	NUKR52XH	NUKR52H	—	NUCF20BR	MCFD-52X	MCFD-52
<b>NUCF24AB</b>	<b>NUCF24RAB</b>	<b>795</b>	24	62	28	M24x1.5	49.5	1.3	56 500	72 500	—	NUKR62	NUKR62XH	NUKR62H	—	NUCF24BR	MCFD-62X	MCFD-62
<b>NUCF24-1AB</b>	<b>NUCF24-1RAB</b>	<b>1 010</b>	24	72	28	M24x1.5	49.5	1.3	62 000	85 500	—	NUKR72	NUKR72XH	NUKR72H	—	NUCF24-1BR	MCFD-72X	MCFD-72
<b>NUCF30AB</b>	<b>NUCF30RAB</b>	<b>1 540</b>	30	80	35	M30x1.5	63	1	101 000	151 000	—	NUKR80	NUKR80XH	NUKR80H	—	NUCF30BR	MCFD-80X	MCFD-80
<b>NUCF30-2AB</b>	<b>NUCF30-2RAB</b>	<b>1 960</b>	30	90	35	M30x1.5	63	1	101 000	151 000	—	NUKR90	NUKR90XH	NUKR90H	—	NUCF30-2BR	MCFD-90X	MCFD-90



INTERCHANGE



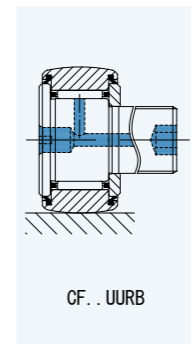
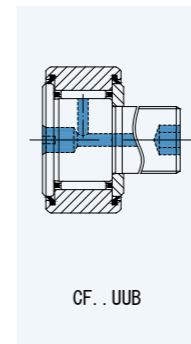
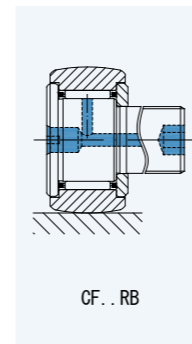
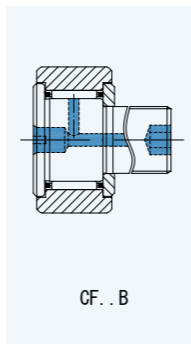
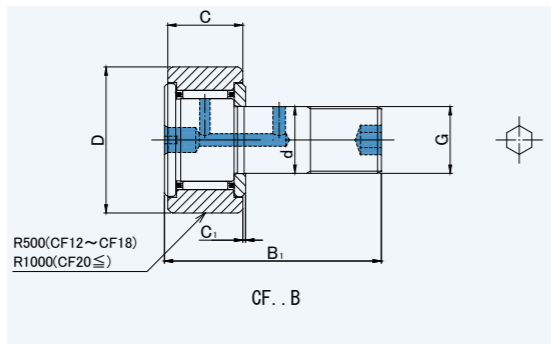
INTERCHANGE





# CAM FOLLOWERS

## HEXAGON SOCKET ON THREAD SIDE SCREWDRIVER SLOT HEAD



# CF..B, RB, UUB, UURB

## CF..B, RB, UUB, UURB

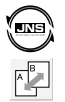
DIMENSION TABLE

INTERCHANGE TABLE

JNS NUMBER CYLINDRICAL OUTER RING WITHOUT SEALS	JNS NUMBER CROWNED OUTER RING WITHOUT SEALS	JNS NUMBER CYLINDRICAL OUTER RING WITH SEALS	JNS NUMBER CROWNED OUTER RING WITH SEALS	Mass (Approx.)	Dimensions(mm)						Basic dynamic load rating	Basic static load rating	INA		NTN		IKO		MCGILL	
					d	D	C	G	B1	C1			Cr N	Cor N	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS
CF..B	CF..RB	CF..UUB	CF..UURB	g	d	D	C	G	B1	C1	Cr N	Cor N	—	—	—	—	—	—	—	—
CF12B	CF12RB	CF12UUB	CF12UURB	95	12	30	14	M12×1.5	40	0.6	7 940	9 800	—	—	—	—	—	—	—	—
CF12VB	CF12VRB	CF12VUUB	CF12VUURB	95	12	30	14	M12×1.5	40	0.6	13 430	19 700	—	—	—	—	—	—	—	—
CF12-1B	CF12-1RB	CF12-1UUB	CF12-1UURB	105	12	32	14	M12×1.5	40	0.6	7 940	9 800	—	—	—	—	—	—	—	—
CF12-1VB	CF12-1VRB	CF12-1VUUB	CF12-1VUURB	105	12	32	14	M12×1.5	40	0.6	13 430	19 700	—	—	—	—	—	—	—	—
CF16B	CF16RB	CF16UUB	CF16UURB	170	16	35	18	M16×1.5	52	0.8	12 050	18 330	—	—	—	—	—	—	—	—
CF16VB	CF16VRB	CF16VUUB	CF16VUURB	170	16	35	18	M16×1.5	52	0.8	20 680	37 630	—	—	—	—	—	—	—	—
CF18B	CF18RB	CF18UUB	CF18UURB	250	18	40	20	M18×1.5	58	0.8	14 700	25 200	—	—	—	—	—	—	—	—
CF18VB	CF18VRB	CF18VUUB	CF18VUURB	250	18	40	20	M18×1.5	58	0.8	25 280	51 350	—	—	—	—	—	—	—	—
CF20B	CF20RB	CF20UUB	CF20UURB	460	20	52	24	M20×1.5	66	0.8	20 680	34 600	—	—	—	—	—	—	—	—
CF20VB	CF20VRB	CF20VUUB	CF20VUURB	460	20	52	24	M20×1.5	66	0.8	33 120	64 480	—	—	—	—	—	—	—	—
CF20-1B	CF20-1RB	CF20-1UUB	CF20-1UURB	385	20	47	24	M20×1.5	66	0.8	20 680	34 600	—	—	—	—	—	—	—	—
CF20-1VB	CF20-1VRB	CF20-1VUUB	CF20-1VUURB	385	20	47	24	M20×1.5	66	0.8	33 120	64 480	—	—	—	—	—	—	—	—
CF24B	CF24RB	CF24UUB	CF24UURB	815	24	62	29	M24×1.5	80	0.8	30 480	52 630	—	—	—	—	—	—	—	—
CF24VB	CF24VRB	CF24VUUB	CF24VUURB	815	24	62	29	M24×1.5	80	0.8	46 550	92 020	—	—	—	—	—	—	—	—
CF24-1B	CF24-1RB	CF24-1UUB	CF24-1UURB	1 140	24	72	29	M24×1.5	80	0.8	30 480	52 630	—	—	—	—	—	—	—	—
CF24-1VB	CF24-1VRB	CF24-1VUUB	CF24-1VUURB	1 140	24	72	29	M24×1.5	80	0.8	46 550	92 020	—	—	—	—	—	—	—	—
CF30B	CF30RB	CF30UUB	CF30UURB	1 870	30	80	35	M30×1.5	100	1	45 370	85 060	—	—	—	—	—	—	—	—
CF30VB	CF30VRB	CF30VUUB	CF30VUURB	1 870	30	80	35	M30×1.5	100	1	67 620	144 060	—	—	—	—	—	—	—	—
CF30-1B	CF30-1RB	CF30-1UUB	CF30-1UURB	2 030	30	85	35	M30×1.5	100	1	45 370	85 060	—	—	—	—	—	—	—	—
CF30-1VB	CF30-1VRB	CF30-1VUUB	CF30-1VUURB	2 030	30	85	35	M30×1.5	100	1	67 620	144 060	—	—	—	—	—	—	—	—
CF30-2B	CF30-2RB	CF30-2UUB	CF30-2UURB	2 220	30	90	35	M30×1.5	100	1	45 370	85 060	—	—	—	—	—	—	—	—
CF30-2VB	CF30-2VRB	CF30-2VUUB	CF30-2VUURB	2 220	30	90	35	M30×1.5	100	1	67 620	144 060	—	—	—	—	—	—	—	—



INTERCHANGE

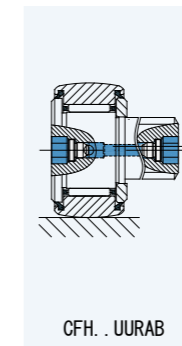
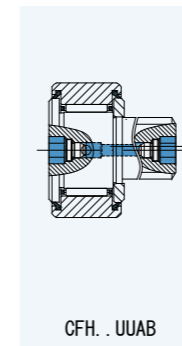
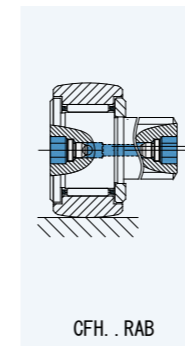
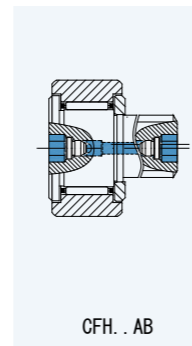
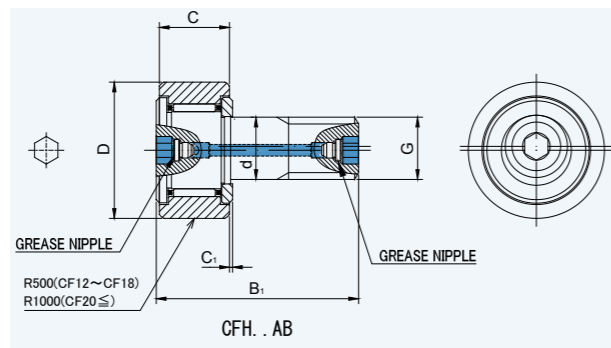


INTERCHANGE





**CAM FOLLOWERS**  
**SOLID ECCENTRIC TYPE**  
**HEXAGON SOCKET ON BOTH SIDES**  
**GREASE NIPPLE INSTALLED**



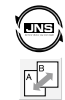
**CFH..AB, RAB, UUAB, UURAB**

**CFH..AB, RAB, UUAB, UURAB**

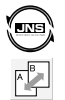
DIMENSION TABLE

INTERCHANGE TABLE

JNS NUMBER CYLINDRICAL OUTER RING WITHOUT SEALS	JNS NUMBER CROWNED OUTER RING WITHOUT SEALS	JNS NUMBER CYLINDRICAL OUTER RING WITH SEALS	JNS NUMBER CROWNED OUTER RING WITH SEALS	Mass (Approx.) g	Dimensions(mm)						Basic dynamic load rating Cr N	Basic static load rating Cor N	INA		NTN		IKO		MCGILL	
					d	D	C	G	B1	C1			CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS
CFH..AB	CFH..RAB	CFH..UUAB	CFH..UURAB										—	—	—	—	—	—	—	—
CFH12AB	CFH12RAB	CFH12UUAB	CFH12UURAB	95	12	30	14	M12×1.5	40	0.6	7 940	9 800	—	—	—	—	—	—	—	—
CFH12VAB	CFH12VRAB	CFH12VUUAB	CFH12VUURAB	95	12	30	14	M12×1.5	40	0.6	13 430	19 700	—	—	—	—	—	—	—	—
CFH12-1AB	CFH12-1RAB	CFH12-1UUAB	CFH12-1UURAB	105	12	32	14	M12×1.5	40	0.6	7 940	9 800	—	—	—	—	—	—	—	—
CFH12-1VAB	CFH12-1VRAB	CFH12-1VUUAB	CFH12-1VUURAB	105	12	32	14	M12×1.5	40	0.6	13 430	19 700	—	—	—	—	—	—	—	—
CFH16AB	CFH16RAB	CFH16UUAB	CFH16UURAB	170	16	35	18	M16×1.5	52	0.8	12 050	18 330	—	—	—	—	—	—	—	—
CFH16VAB	CFH16VRAB	CFH16VUUAB	CFH16VUURAB	170	16	35	18	M16×1.5	52	0.8	20 680	37 630	—	—	—	—	—	—	—	—
CFH18AB	CFH18RAB	CFH18UUAB	CFH18UURAB	250	18	40	20	M18×1.5	58	0.8	14 700	25 200	—	—	—	—	—	—	—	—
CFH18VAB	CFH18VRAB	CFH18VUUAB	CFH18VUURAB	250	18	40	20	M18×1.5	58	0.8	25 280	51 350	—	—	—	—	—	—	—	—
CFH20AB	CFH20RAB	CFH20UUAB	CFH20UURAB	460	20	52	24	M20×1.5	66	0.8	20 680	34 600	—	—	—	—	—	—	—	—
CFH20VAB	CFH20VRAB	CFH20VUUAB	CFH20VUURAB	460	20	52	24	M20×1.5	66	0.8	33 120	64 480	—	—	—	—	—	—	—	—
CFH20-1AB	CFH20-1RAB	CFH20-1UUAB	CFH20-1UURAB	385	20	47	24	M20×1.5	66	0.8	20 680	34 600	—	—	—	—	—	—	—	—
CFH20-1VAB	CFH20-1VRAB	CFH20-1VUUAB	CFH20-1VUURAB	385	20	47	24	M20×1.5	66	0.8	33 120	64 480	—	—	—	—	—	—	—	—
CFH24AB	CFH24RAB	CFH24UUAB	CFH24UURAB	815	24	62	29	M24×1.5	80	0.8	30 480	52 630	—	—	—	—	—	—	—	—
CFH24VAB	CFH24VRAB	CFH24VUUAB	CFH24VUURAB	815	24	62	29	M24×1.5	80	0.8	46 550	92 020	—	—	—	—	—	—	—	—
CFH24-1AB	CFH24-1RAB	CFH24-1UUAB	CFH24-1UURAB	1 140	24	72	29	M24×1.5	80	0.8	30 480	52 630	—	—	—	—	—	—	—	—
CFH24-1VAB	CFH24-1VRAB	CFH24-1VUUAB	CFH24-1VUURAB	1 140	24	72	29	M24×1.5	80	0.8	46 550	92 020	—	—	—	—	—	—	—	—
CFH30AB	CFH30RAB	CFH30UUAB	CFH30UURAB	1 870	30	80	35	M30×1.5	100	1	45 370	85 060	—	—	—	—	—	—	—	—
CFH30VAB	CFH30VRAB	CFH30VUUAB	CFH30VUURAB	1 870	30	80	35	M30×1.5	100	1	67 620	144 060	—	—	—	—	—	—	—	—
CFH30-1AB	CFH30-1RAB	CFH30-1UUAB	CFH30-1UURAB	2 030	30	85	35	M30×1.5	100	1	45 370	85 060	—	—	—	—	—	—	—	—
CFH30-1VAB	CFH30-1VRAB	CFH30-1VUUAB	CFH30-1VUURAB	2 030	30	85	35	M30×1.5	100	1	67 620	144 060	—	—	—	—	—	—	—	—
CFH30-2AB	CFH30-2RAB	CFH30-2UUAB	CFH30-2UURAB	2 220	30	90	35	M30×1.5	100	1	45 370	85 060	—	—	—	—	—	—	—	—
CFH30-2VAB	CFH30-2VRAB	CFH30-2VUUAB	CFH30-2VUURAB	2 220	30	90	35	M30×1.5	100	1	67 620	144 060	—	—	—	—	—	—	—	—



INTERCHANGE



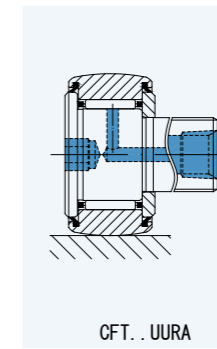
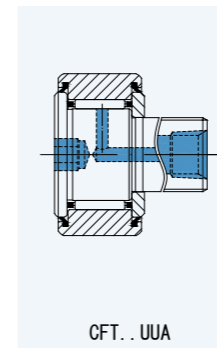
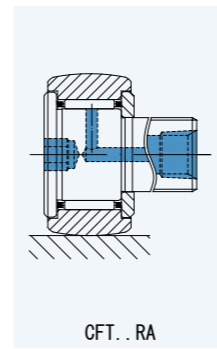
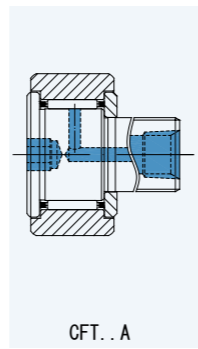
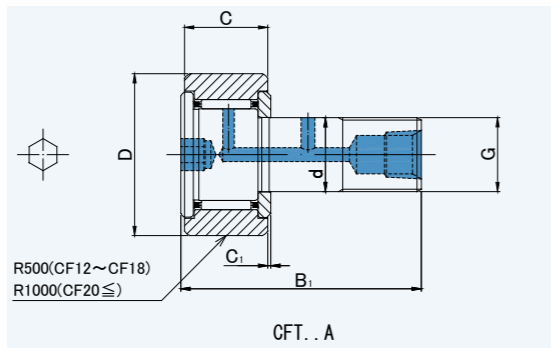
INTERCHANGE





# CAM FOLLOWERS

TAP HOLE FOR PIPING  
HEXAGON SOCKET ON STUD HEAD



# CFT..A, RA, UUA, UURA

## CFT..A, RA, UUA, UURA

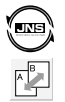
DIMENSION TABLE

INTERCHANGE TABLE

JNS NUMBER CYLINDRICAL OUTER RING WITHOUT SEALS	JNS NUMBER CROWNED OUTER RING WITHOUT SEALS	JNS NUMBER CYLINDRICAL OUTER RING WITH SEALS	JNS NUMBER CROWNED OUTER RING WITH SEALS	Mass (Approx.)	Dimensions(mm)						Basic dynamic load rating	Basic static load rating	INA		NTN		IKO		MCGILL	
					d	D	C	G	B1	C1			CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS
CFT..A	CFT..RA	CFT..UUA	CFT..UURA	g	d	D	C	G	B1	C1	Cr N	Cor N	—	—	—	—	—	—	—	—
CFT12A	CFT12RA	CFT12UUA	CFT12UURA	95	12	30	14	M12×1.5	40	0.6	7 940	9 800	—	—	—	—	—	—	—	—
CFT12VA	CFT12VRA	CFT12VUUA	CFT12VUURA	95	12	30	14	M12×1.5	40	0.6	13 430	19 700	—	—	—	—	—	—	—	—
CFT12-1A	CFT12-1RA	CFT12-1UUA	CFT12-1UURA	105	12	32	14	M12×1.5	40	0.6	7 940	9 800	—	—	—	—	—	—	—	—
CFT12-1VA	CFT12-1VRA	CFT12-1VUUA	CFT12-1VUURA	105	12	32	14	M12×1.5	40	0.6	13 430	19 700	—	—	—	—	—	—	—	—
CFT16A	CFT16RA	CFT16UUA	CFT16UURA	170	16	35	18	M16×1.5	52	0.8	12 050	18 330	—	—	—	—	—	—	—	—
CFT16VA	CFT16VRA	CFT16VUUA	CFT16VUURA	170	16	35	18	M16×1.5	52	0.8	20 680	37 630	—	—	—	—	—	—	—	—
CFT18A	CFT18RA	CFT18UUA	CFT18UURA	250	18	40	20	M18×1.5	58	0.8	14 700	25 200	—	—	—	—	—	—	—	—
CFT18VA	CFT18VRA	CFT18VUUA	CFT18VUURA	250	18	40	20	M18×1.5	58	0.8	25 280	51 350	—	—	—	—	—	—	—	—
CFT20A	CFT20RA	CFT20UUA	CFT20UURA	460	20	52	24	M20×1.5	66	0.8	20 680	34 600	—	—	—	—	—	—	—	—
CFT20VA	CFT20VRA	CFT20VUUA	CFT20VUURA	460	20	52	24	M20×1.5	66	0.8	33 120	64 480	—	—	—	—	—	—	—	—
CFT20-1A	CFT20-1RA	CFT20-1UUA	CFT20-1UURA	385	20	47	24	M20×1.5	66	0.8	20 680	34 600	—	—	—	—	—	—	—	—
CFT20-1VA	CFT20-1VRA	CFT20-1VUUA	CFT20-1VUURA	385	20	47	24	M20×1.5	66	0.8	33 120	64 480	—	—	—	—	—	—	—	—
CFT24A	CFT24RA	CFT24UUA	CFT24UURA	815	24	62	29	M24×1.5	80	0.8	30 480	52 630	—	—	—	—	—	—	—	—
CFT24VA	CFT24VRA	CFT24VUUA	CFT24VUURA	815	24	62	29	M24×1.5	80	0.8	46 550	92 020	—	—	—	—	—	—	—	—
CFT24-1A	CFT24-1RA	CFT24-1UUA	CFT24-1UURA	1 140	24	72	29	M24×1.5	80	0.8	30 480	52 630	—	—	—	—	—	—	—	—
CFT24-1VA	CFT24-1VRA	CFT24-1VUUA	CFT24-1VUURA	1 140	24	72	29	M24×1.5	80	0.8	46 550	92 020	—	—	—	—	—	—	—	—
CFT30A	CFT30RA	CFT30UUA	CFT30UURA	1 870	30	80	35	M30×1.5	100	1	45 370	85 060	—	—	—	—	—	—	—	—
CFT30VA	CFT30VRA	CFT30VUUA	CFT30VUURA	1 870	30	80	35	M30×1.5	100	1	67 620	144 060	—	—	—	—	—	—	—	—
CFT30-1A	CFT30-1RA	CFT30-1UUA	CFT30-1UURA	2 030	30	85	35	M30×1.5	100	1	45 370	85 060	—	—	—	—	—	—	—	—
CFT30-1VA	CFT30-1VRA	CFT30-1VUUA	CFT30-1VUURA	2 030	30	85	35	M30×1.5	100	1	67 620	144 060	—	—	—	—	—	—	—	—
CFT30-2A	CFT30-2RA	CFT30-2UUA	CFT30-2UURA	2 220	30	90	35	M30×1.5	100	1	45 370	85 060	—	—	—	—	—	—	—	—
CFT30-2VA	CFT30-2VRA	CFT30-2VUUA	CFT30-2VUURA	2 220	30	90	35	M30×1.5	100	1	67 620	144 060	—	—	—	—	—	—	—	—



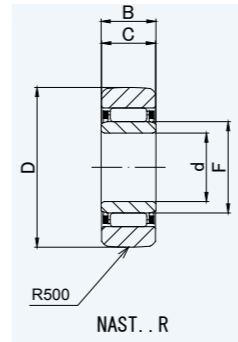
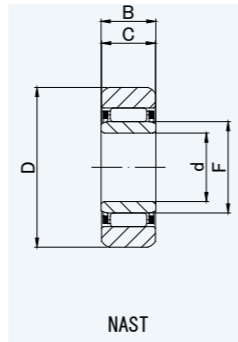
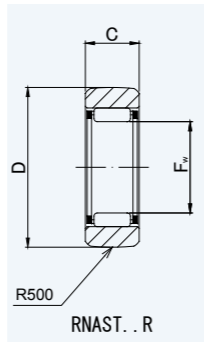
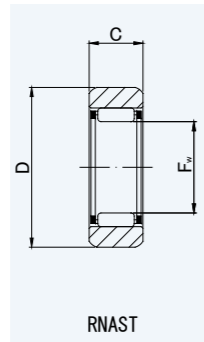
INTERCHANGE



INTERCHANGE

**ROLLER FOLLOWERS**  
SEPARABLE WITHOUT INNER RING

**RNAST,RNAST..R,NAST,NAST..R**



**RNAST,RNAST..R,NAST,NAST..R**

DIMENSION TABLE

INTERCHANGE TABLE

JNS NUMBER CYLINDRICAL OUTER RING	JNS NUMBER CROWNED OUTER RING	Weight	JNS NUMBER CYLINDRICAL OUTER RING WITH INNER RING	JNS NUMBER CROWNED OUTER RING WITH INNER RING	Weight	Dimensions(mm)					Basic dynamic load rating	Basic static load rating	INA				NTN				IKO				TORRINGTON(KOYO)			
						Fw (F)	D	d	C	B			Cr N	Cor N	CYLINDRICAL OUTER RING WITHOUT INNER RING	CROWNED OUTER RING WITHOUT INNER RING	CYLINDRICAL OUTER RING WITH INNER RING	CROWNED OUTER RING WITH INNER RING	CYLINDRICAL OUTER RING WITHOUT INNER RING	CROWNED OUTER RING WITHOUT INNER RING	CYLINDRICAL OUTER RING WITH INNER RING	CROWNED OUTER RING WITH INNER RING	CYLINDRICAL OUTER RING WITHOUT INNER RING	CROWNED OUTER RING WITHOUT INNER RING	CYLINDRICAL OUTER RING WITH INNER RING	CROWNED OUTER RING WITH INNER RING		
RNAS	RNAS..R	g	NAST	NAST..R	g	Fw (F)	D	d	C	B	Cr N	Cor N	RSTO-X	RSTO	STO-X	STO	RNAB-X	RNAB	NAB-X	NAB	RNAS	RNAS..R	NAST	NAST..R	RSTO-DZ	RSTO	STO-DZ	STO
RNAS5	RNAS5R	8.9	—	—	—	7	16	—	7.8	—	2 740	2 390	RSTO5TNX	RSTO5TN	—	—	RNAB2/5XT2	RNAB2/5T2	—	—	RNAS5	RNAS5R	—	—	RSTO5TN	RSTO5TN	—	—
RNAS6	RNAS6R	13.9	NAST6	NAST6R	17.8	10	19	6	9.8	10	4 120	4 550	RSTO6TNX	RSTO6TN	STO6TNX	STO6TN	RNAB2/6XT2	RNAB2/6T2	NAB2/6XT2	NAB2/6T2	RNAS6	RNAS6R	NAST6	NAST6R	RSTO6DZ	RSTO6	STO6DZ	STO6TN
RNAS8	RNAS8R	23.5	NAST8	NAST8R	28	12	24	8	9.8	10	5 680	5 890	RSTO8TNX	RSTO8TN	STO8TNX	STO8TN	RNAB2/8X	RNAB2/8	NAB2/8X	NAB2/8	RNAS8	RNAS8R	NAST8	NAST8R	RSTO8DZ	RSTO8	STO8DZ	STO8TN
RNAS10	RNAS10R	42.5	NAST10	NAST10R	50	14	30	10	11.8	12	9 700	9 670	RSTO10X	RSTO10	STO10X	STO10	RNAB200X	RNAB200	NAB200X	NAB200	RNAS10	RNAS10R	NAST10	NAST10R	RSTO10DZ	RSTO10	STO10DZ	STO10
RNAS12	RNAS12R	49.5	NAST12	NAST12R	58	16	32	12	11.8	12	10 400	10 900	RSTO12X	RSTO12	STO12X	STO12	RNAB201X	RNAB201	NAB201X	NAB201	RNAS12	RNAS12R	NAST12	NAST12R	RSTO12DZ	RSTO12	STO12DZ	STO12
RNAS15	RNAS15R	50	NAST15	NAST15R	62	20	35	15	11.8	12	12 300	14 300	RSTO15X	RSTO15	STO15X	STO15	RNAB202X	RNAB202	NAB202X	NAB202	RNAS15	RNAS15R	NAST15	NAST15R	RSTO15DZ	RSTO15	STO15DZ	STO15
RNAS17	RNAS17R	90	NAST17	NAST17R	110	22	40	17	15.8	16	17 400	20 900	RSTO17X	RSTO17	STO17X	STO17	RNAB203X	RNAB203	NAB203X	NAB203	RNAS17	RNAS17R	NAST17	NAST17R	RSTO17DZ	RSTO17	STO17DZ	STO17
RNAS20	RNAS20R	135	NAST20	NAST20R	155	25	47	20	15.8	16	19 200	24 500	RSTO20X	RSTO20	STO20X	STO20	RNAB204X	RNAB204	NAB204X	NAB204	RNAS20	RNAS20R	NAST20	NAST20R	RSTO20DZ	RSTO20	STO20DZ	STO20
RNAS25	RNAS25R	152	NAST25	NAST25R	180	30	52	25	15.8	16	20 700	28 400	RSTO25X	RSTO25	STO25X	STO25	RNAB205X	RNAB205	NAB205X	NAB205	RNAS25	RNAS25R	NAST25	NAST25R	RSTO25DZ	RSTO25	STO25DZ	STO25
RNAS30	RNAS30R	255	NAST30	NAST30R	320	38	62	30	19.8	20	30 300	45 400	RSTO30X	RSTO30	STO30X	STO30	RNAB206X	RNAB206	NAB206X	NAB206	RNAS30	RNAS30R	NAST30	NAST30R	RSTO30DZ	RSTO30	STO30DZ	STO30
RNAS35	RNAS35R	375	NAST35	NAST35R	440	42	72	35	19.8	20	32 200	50 600	RSTO35X	RSTO35	STO35X	STO35	RNAB207X	RNAB207	NAB207X	NAB207	RNAS35	RNAS35R	NAST35	NAST35R	RSTO35DZ	RSTO35	STO35DZ	STO35
RNAS40	RNAS40R	420	NAST40	NAST40R	530	50	80	40	19.8	20	35 700	61 100	RSTO40X	RSTO40	STO40X	STO40	RNAB208X	RNAB208	NAB208X	NAB208	RNAS40	RNAS40R	NAST40	NAST40R	RSTO40DZ	RSTO40	STO40DZ	STO40
RNAS45	RNAS45R	460	NAST45	NAST45R	580	55	85	45	19.8	20	37 100	66 400	RSTO45X	RSTO45	STO45X	STO45	RNAB209X	RNAB209	NAB209X	NAB209	RNAS45	RNAS45R	NAST45	NAST45R	RSTO45DZ	RSTO45	STO45DZ	STO45
RNAS50	RNAS50R	500	NAST50	NAST50R	635	60	90	50	19.8	20	38 700	71 800	RSTO50X	RSTO50	STO50X	STO50	RNAB210X	RNAB210	NAB210X	NAB210	RNAS50	RNAS50R	NAST50	NAST50R	RSTO50DZ	RSTO50	STO50DZ	STO50

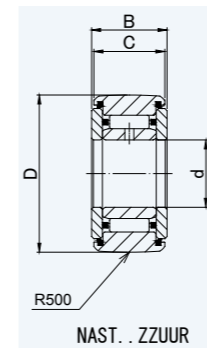
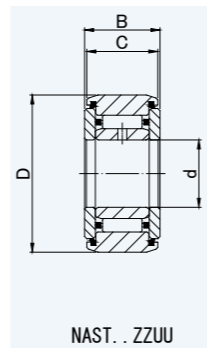
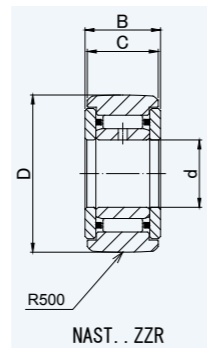
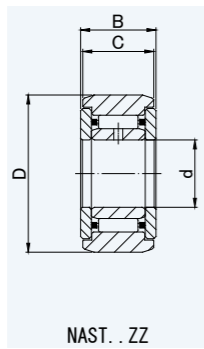


INTERCHANGE



INTERCHANGE

**ROLLER FOLLOWERS**  
SEPARABLE WITH INNER RING WITH SHIELD



**NAST..ZZ, ZZR, ZZUU, ZZUUR**

**NAST..ZZ, ZZR, ZZUU, ZZUUR**

DIMENSION TABLE

INTERCHANGE TABLE

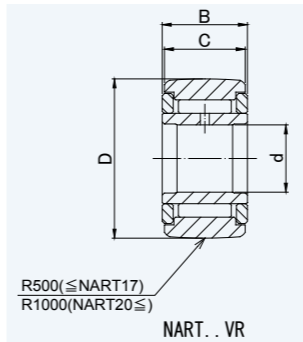
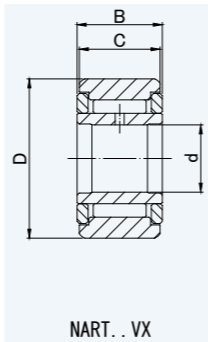
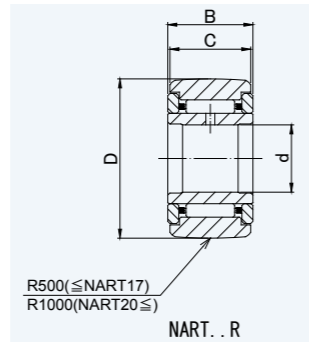
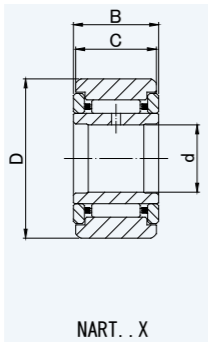
JNS NUMBER CYLINDRICAL OUTER RING WITHOUT SEALS	JNS NUMBER CROWNED OUTER RING WITHOUT SEALS	JNS NUMBER CYLINDRICAL OUTER RING WITH SEALS	JNS NUMBER CROWNED OUTER RING WITH SEALS	Mass (Approx.) g	Dimensions(mm)				Basic dynamic load rating Cr N	Basic static load rating Cor N	INA		NTN		IKO				TORRINGTON(KOYO)			
					CYLINDRICAL OUTER RING	CROWNED OUTER RING	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS			CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITH SEALS	CROWNED OUTER RING WITH SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITH SEALS	CROWNED OUTER RING WITH SEALS				
NAST..ZZ	NAST..ZZR	NAST..ZZUU	NAST..ZZUUR	g	d	D	B	C	Cr N	Cor N	—	—	—	—	NAST..ZZ	NAST..ZZR	NAST..ZZUU	NAST..ZZUUR	STO-ZZ.DZ	STO-ZZ	—	—
NAST6ZZ	NAST6ZZR	NAST6ZZUU	NAST6ZZUUR	24.5	6	19	14	13.8	4 120	4 550	—	—	—	—	NAST6ZZ	NAST6ZZR	NAST6ZZUU	NAST6ZZUUR	STO6ZZ.DZ	STO6ZZ	—	—
NAST8ZZ	NAST8ZZR	NAST8ZZUU	NAST8ZZUUR	39	8	24	14	13.8	5 680	5 890	—	—	—	—	NAST8ZZ	NAST8ZZR	NAST8ZZUU	NAST8ZZUUR	STO8ZZ.DZ	STO8ZZ	—	—
NAST10ZZ	NAST10ZZR	NAST10ZZUU	NAST10ZZUUR	65	10	30	16	15.8	9 700	9 670	—	—	—	—	NAST10ZZ	NAST10ZZR	NAST10ZZUU	NAST10ZZUUR	STO10ZZ.DZ	STO10ZZ	—	—
NAST12ZZ	NAST12ZZR	NAST12ZZUU	NAST12ZZUUR	75	12	32	16	15.8	10 400	10 900	—	—	—	—	NAST12ZZ	NAST12ZZR	NAST12ZZUU	NAST12ZZUUR	STO12ZZ.DZ	STO12ZZ	—	—
NAST15ZZ	NAST15ZZR	NAST15ZZUU	NAST15ZZUUR	83	15	35	16	15.8	12 300	14 300	—	—	—	—	NAST15ZZ	NAST15ZZR	NAST15ZZUU	NAST15ZZUUR	STO15ZZ.DZ	STO15ZZ	—	—
NAST17ZZ	NAST17ZZR	NAST17ZZUU	NAST17ZZUUR	135	17	40	20	19.8	17 400	20 900	—	—	—	—	NAST17ZZ	NAST17ZZR	NAST17ZZUU	NAST17ZZUUR	STO17ZZ.DZ	STO17ZZ	—	—
NAST20ZZ	NAST20ZZR	NAST20ZZUU	NAST20ZZUUR	195	20	47	20	19.8	19 200	24 500	—	—	—	—	NAST20ZZ	NAST20ZZR	NAST20ZZUU	NAST20ZZUUR	STO20ZZ.DZ	STO20ZZ	—	—
NAST25ZZ	NAST25ZZR	NAST25ZZUU	NAST25ZZUUR	225	25	52	20	19.8	20 700	28 400	—	—	—	—	NAST25ZZ	NAST25ZZR	NAST25ZZUU	NAST25ZZUUR	STO25ZZ.DZ	STO25ZZ	—	—
NAST30ZZ	NAST30ZZR	NAST30ZZUU	NAST30ZZUUR	400	30	62	25	24.8	30 300	45 400	—	—	—	—	NAST30ZZ	NAST30ZZR	NAST30ZZUU	NAST30ZZUUR	STO30ZZ.DZ	STO30ZZ	—	—
NAST35ZZ	NAST35ZZR	NAST35ZZUU	NAST35ZZUUR	550	35	72	25	24.8	32 200	50 600	—	—	—	—	NAST35ZZ	NAST35ZZR	NAST35ZZUU	NAST35ZZUUR	STO35ZZ.DZ	STO35ZZ	—	—
NAST40ZZ	NAST40ZZR	NAST40ZZUU	NAST40ZZUUR	710	40	80	26	25.8	35 700	61 100	—	—	—	—	NAST40ZZ	NAST40ZZR	NAST40ZZUU	NAST40ZZUUR	STO40ZZ.DZ	STO40ZZ	—	—
NAST45ZZ	NAST45ZZR	NAST45ZZUU	NAST45ZZUUR	760	45	85	26	25.8	37 100	66 400	—	—	—	—	NAST45ZZ	NAST45ZZR	NAST45ZZUU	NAST45ZZUUR	STO45ZZ.DZ	STO45ZZ	—	—
NAST50ZZ	NAST50ZZR	NAST50ZZUU	NAST50ZZUUR	830	50	90	26	25.8	38 700	71 800	—	—	—	—	NAST50ZZ	NAST50ZZR	NAST50ZZUU	NAST50ZZUUR	STO50ZZ.DZ	STO50ZZ	—	—



INTERCHANGE



INTERCHANGE

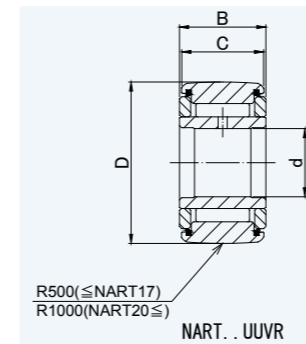
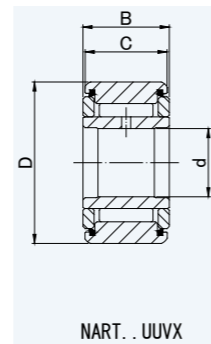
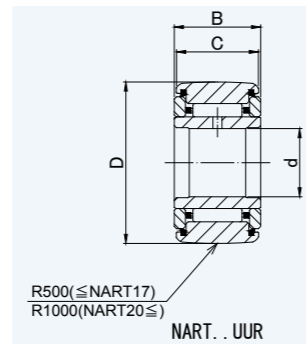
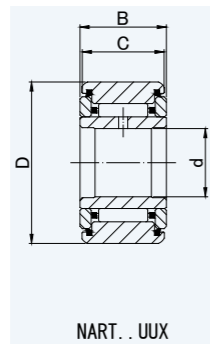


**NART..X, R**

DIMENSION TABLE

INTERCHANGE TABLE

JNS NUMBER CYLINDRICAL OUTER RING	JNS NUMBER CROWNED OUTER RING	Mass (Approx.)	Dimensions(mm)				Basic dynamic load rating	Basic static load rating	INA		NTN		IKO		MCGILL	
			d	D	B	C			CYLINDRICAL OUTER RING	CROWNED OUTER RING	CYLINDRICAL OUTER RING	CROWNED OUTER RING	CYLINDRICAL OUTER RING	CROWNED OUTER RING	CYLINDRICAL OUTER RING	CROWNED OUTER RING
NART..X	NART..R	g	d	D	B	C	Cr N	Cor N	NATR-X	NATR	NATR-X	NATR	—	NART-R	MCYRR-X	MCYRR
<b>NART5X</b>	<b>NART5R</b>	<b>14.5</b>	5	16	12	11	3 620	3 720	NATR5X	NATR5	NATR5X	NATR5	—	NART5R	MCYRR5X	MCYRR5
<b>NART5VX</b>	<b>NART5VR</b>	<b>15.1</b>	5	16	12	11	6 760	8 340	NATV5X	NATV5	NATV5X	NATV5	—	NART5VR	MCYR5X	MCYR5
<b>NART6X</b>	<b>NART6R</b>	<b>20.5</b>	6	19	12	11	4 200	4 700	NATR6X	NATR6	NATR6X	NATR6	—	NART6R	MCYRR6X	MCYRR6
<b>NART6VX</b>	<b>NART6VR</b>	<b>21.5</b>	6	19	12	11	7 640	10 300	NATV6X	NATV6	NATV6X	NATV6	—	NART6VR	MCYR6X	MCYR6
<b>NART8X</b>	<b>NART8R</b>	<b>41.5</b>	8	24	15	14	6 600	7 300	NATR8X	NATR8	NATR8X	NATR8	—	NART8R	MCYRR8X	MCYRR8
<b>NART8VX</b>	<b>NART8VR</b>	<b>42.5</b>	8	24	15	14	11 800	15 600	NATV8X	NATV8	NATV8X	NATV8	—	NART8VR	MCYR8X	MCYR8
<b>NART10X</b>	<b>NART10R</b>	<b>64.5</b>	10	30	15	14	8 600	8 300	NATR10X	NATR10	NATR10X	NATR10	—	NART10R	MCYRR10X	MCYRR10
<b>NART10VX</b>	<b>NART10VR</b>	<b>66.5</b>	10	30	15	14	15 600	18 100	NATV10X	NATV10	NATV10X	NATV10	—	NART10VR	MCYR10X	MCYR10
<b>NART12X</b>	<b>NART12R</b>	<b>71</b>	12	32	15	14	9 100	9 200	NATR12X	NATR12	NATR12X	NATR12	—	NART12R	MCYRR12X	MCYRR12
<b>NART12VX</b>	<b>NART12VR</b>	<b>73</b>	12	32	15	14	16 800	20 500	NATV12X	NATV12	NATV12X	NATV12	—	NART12VR	MCYR12X	MCYR12
<b>NART15X</b>	<b>NART15R</b>	<b>102</b>	15	35	19	18	14 400	17 600	NATR15X	NATR15	NATR15X	NATR15	—	NART15R	MCYRR15X	MCYRR15
<b>NART15VX</b>	<b>NART15VR</b>	<b>106</b>	15	35	19	18	25 100	36 400	NATV15X	NATV15	NATV15X	NATV15	—	NART15VR	MCYR15X	MCYR15
<b>NART17X</b>	<b>NART17R</b>	<b>149</b>	17	40	21	20	18 600	22 500	NATR17X	NATR17	NATR17X	NATR17	—	NART17R	MCYRR17X	MCYRR17
<b>NART17VX</b>	<b>NART17VR</b>	<b>155</b>	17	40	21	20	32 000	46 200	NATV17X	NATV17	NATV17X	NATV17	—	NART17VR	MCYR17X	MCYR17
<b>NART20X</b>	<b>NART20R</b>	<b>250</b>	20	47	25	24	24 100	32 700	NATR20X	NATR20	NATR20X	NATR20	—	NART20R	MCYRR20X	MCYRR20
<b>NART20VX</b>	<b>NART20VR</b>	<b>255</b>	20	47	25	24	41 700	67 300	NATV20X	NATV20	NATV20X	NATV20	—	NART20VR	MCYR20X	MCYR20
<b>NART25X</b>	<b>NART25R</b>	<b>285</b>	25	52	25	24	25 800	37 500	NATR25X	NATR25	NATR25X	NATR25	—	NART25R	MCYRR25X	MCYRR25
<b>NART25VX</b>	<b>NART25VR</b>	<b>295</b>	25	52	25	24	45 500	79 000	NATV25X	NATV25	NATV25X	NATV25	—	NART25VR	MCYR25X	MCYR25
<b>NART30X</b>	<b>NART30R</b>	<b>470</b>	30	62	29	28	36 200	56 900	NATR30X	NATR30	NATR30X	NATR30	—	NART30R	MCYRR30X	MCYRR30
<b>NART30VX</b>	<b>NART30VR</b>	<b>485</b>	30	62	29	28	59 800	110 400	NATV30X	NATV30	NATV30X	NATV30	—	NART30VR	MCYR30X	MCYR30
<b>NART35X</b>	<b>NART35R</b>	<b>640</b>	35	72	29	28	38 200	62 800	NATR35X	NATR35	NATR35X	NATR35	—	NART35R	MCYRR35X	MCYRR35
<b>NART35VX</b>	<b>NART35VR</b>	<b>655</b>	35	72	29	28	63 000	121 500	NATV35X	NATV35	NATV35X	NATV35	—	NART35VR	MCYR35X	MCYR35
<b>NART40X</b>	<b>NART40R</b>	<b>845</b>	40	80	32	30	46 200	84 700	NATR40X	NATR40	NATR40X	NATR40	—	NART40R	MCYRR40X	MCYRR40
<b>NART40VX</b>	<b>NART40VR</b>	<b>865</b>	40	80	32	30	76 200	164 200	NATV40X	NATV40	NATV40X	NATV40	—	NART40VR	MCYR40X	MCYR40
<b>NART45X</b>	<b>NART45R</b>	<b>915</b>	45	85	32	30	49 300	95 200	NATR45X	NATR45	NATR45X	NATR45	—	NART45R	MCYRR45X	MCYRR45
<b>NART45VX</b>	<b>NART45VR</b>	<b>935</b>	45	85	32	30	80 200	181 100	NATV45X	NATV45	NATV45X	NATV45	—	NART45VR	MCYR45X	MCYR45
<b>NART50X</b>	<b>NART50R</b>	<b>980</b>	50	90	32	30	51 100	102 300	NATR50X	NATR50	NATR50X	NATR50	—	NART50R	MCYRR50X	MCYRR50
<b>NART50VX</b>	<b>NART50VR</b>	<b>1 010</b>	50	90	32	30	84 100	198 000	NATV50X	NATV50	NATV50X	NATV50	—	NART50VR	MCYR50X	MCYR50



**NART..UUX, UUR**

DIMENSION TABLE

INTERCHANGE TABLE

JNS NUMBER CYLINDRICAL OUTER RING	JNS NUMBER CROWNED OUTER RING	Mass (Approx.) g	Dimensions(mm)				Basic dynamic load rating Cr N	Basic static load rating Cor N	INA		NTN		IKO		MCGILL	
			d	D	B	C			CYLINDRICAL OUTER RING	CROWNED OUTER RING	CYLINDRICAL OUTER RING	CROWNED OUTER RING	CYLINDRICAL OUTER RING	CROWNED OUTER RING	CYLINDRICAL OUTER RING	CROWNED OUTER RING
NART..UUX	NART..UUR	g	d	D	B	C	Cr N	Cor N	NATR-PPX	NATR-PP	NATR-XLL	NATR-LL	—	NART-UUR	MCYRR-SX	MCYRR-S
<b>NART5UUX</b>	<b>NART5UUR</b>	<b>14.5</b>	5	16	12	11	3 620	3 720	NATR5PPX	NATR5PP	NATR5XLL	NATR5LL	—	NART5UUR	MCYRR5SX	MCYRR5S
<b>NART5UUVX</b>	<b>NART5UUVR</b>	<b>15.1</b>	5	16	12	11	6 760	8 340	NATV5PPX	NATV5PP	NATV5XLL	NATV5LL	—	NART5VUUR	MCYR5SX	MCYR5S
<b>NART6UUX</b>	<b>NART6UUR</b>	<b>20.5</b>	6	19	12	11	4 200	4 700	NATR6PPX	NATR6PP	NATR6XLL	NATR6LL	—	NART6UUR	MCYRR6SX	MCYRR6S
<b>NART6UUVX</b>	<b>NART6UUVR</b>	<b>21.5</b>	6	19	12	11	7 640	10 300	NATV6PPX	NATV6PP	NATV6XLL	NATV6LL	—	NART6VUUR	MCYR6SX	MCYR6S
<b>NART8UUX</b>	<b>NART8UUR</b>	<b>41.5</b>	8	24	15	14	6 600	7 300	NATR8PPX	NATR8PP	NATR8XLL	NATR8LL	—	NART8UUR	MCYRR8SX	MCYRR8S
<b>NART8UUVX</b>	<b>NART8UUVR</b>	<b>42.5</b>	8	24	15	14	11 800	15 600	NATV8PPX	NATV8PP	NATV8XLL	NATV8LL	—	NART8VUUR	MCYR8SX	MCYR8S
<b>NART10UUX</b>	<b>NART10UUR</b>	<b>64.5</b>	10	30	15	14	8 600	8 300	NATR10PPX	NATR10PP	NATR10XLL	NATR10LL	—	NART10UUR	MCYRR10SX	MCYRR10S
<b>NART10UUVX</b>	<b>NART10UUVR</b>	<b>66.5</b>	10	30	15	14	15 600	18 100	NATV10PPX	NATV10PP	NATV10XLL	NATV10LL	—	NART10VUUR	MCYR10SX	MCYR10S
<b>NART12UUX</b>	<b>NART12UUR</b>	<b>71</b>	12	32	15	14	9 100	9 200	NATR12PPX	NATR12PP	NATR12XLL	NATR12LL	—	NART12UUR	MCYRR12SX	MCYRR12S
<b>NART12UUVX</b>	<b>NART12UUVR</b>	<b>73</b>	12	32	15	14	16 800	20 500	NATV12PPX	NATV12PP	NATV12XLL	NATV12LL	—	NART12VUUR	MCYR12SX	MCYR12S
<b>NART15UUX</b>	<b>NART15UUR</b>	<b>102</b>	15	35	19	18	14 400	17 600	NATR15PPX	NATR15PP	NATR15XLL	NATR15LL	—	NART15UUR	MCYRR15SX	MCYRR15S
<b>NART15UUVX</b>	<b>NART15UUVR</b>	<b>106</b>	15	35	19	18	25 100	36 400	NATV15PPX	NATV15PP	NATV15XLL	NATV15LL	—	NART15VUUR	MCYR15SX	MCYR15S
<b>NART17UUX</b>	<b>NART17UUR</b>	<b>149</b>	17	40	21	20	18 600	22 500	NATR17PPX	NATR17PP	NATR17XLL	NATR17LL	—	NART17UUR	MCYRR17SX	MCYRR17S
<b>NART17UUVX</b>	<b>NART17UUVR</b>	<b>155</b>	17	40	21	20	32 000	46 200	NATV17PPX	NATV17PP	NATV17XLL	NATV17LL	—	NART17VUUR	MCYR17SX	MCYR17S
<b>NART20UUX</b>	<b>NART20UUR</b>	<b>250</b>	20	47	25	24	24 100	32 700	NATR20PPX	NATR20PP	NATR20XLL	NATR20LL	—	NART20UUR	MCYRR20SX	MCYRR20S
<b>NART20UUVX</b>	<b>NART20UUVR</b>	<b>255</b>	20	47	25	24	41 700	67 300	NATV20PPX	NATV20PP	NATV20XLL	NATV20LL	—	NART20VUUR	MCYR20SX	MCYR20S
<b>NART25UUX</b>	<b>NART25UUR</b>	<b>285</b>	25	52	25	24	25 800	37 500	NATR25PPX	NATR25PP	NATR25XLL	NATR25LL	—	NART25UUR	MCYRR25SX	MCYRR25S
<b>NART25UUVX</b>	<b>NART25UUVR</b>	<b>295</b>	25	52	25	24	45 500	79 000	NATV25PPX	NATV25PP	NATV25XLL	NATV25LL	—	NART25VUUR	MCYR25SX	MCYR25S
<b>NART30UUX</b>	<b>NART30UUR</b>	<b>470</b>	30	62	29	28	36 200	56 900	NATR30PPX	NATR30PP	NATR30XLL	NATR30LL	—	NART30UUR	MCYRR30SX	MCYRR30S
<b>NART30UUVX</b>	<b>NART30UUVR</b>	<b>485</b>	30	62	29	28	59 800	110 400	NATV30PPX	NATV30PP	NATV30XLL	NATV30LL	—	NART30VUUR	MCYR30SX	MCYR30S
<b>NART35UUX</b>	<b>NART35UUR</b>	<b>640</b>	35	72	29	28	38 200	62 800	NATR35PPX	NATR35PP	NATR35XLL	NATR35LL	—	NART35UUR	MCYRR35SX	MCYRR35S
<b>NART35UUVX</b>	<b>NART35UUVR</b>	<b>655</b>	35	72	29	28	63 000	121 500	NATV35PPX	NATV35PP	NATV35XLL	NATV35LL	—	NART35VUUR	MCYR35SX	MCYR35S
<b>NART40UUX</b>	<b>NART40UUR</b>	<b>845</b>	40	80	32	30	46 200	84 700	NATR40PPX	NATR40PP	NATR40XLL	NATR40LL	—	NART40UUR	MCYRR40SX	MCYRR40S
<b>NART40UUVX</b>	<b>NART40UUVR</b>	<b>865</b>	40	80	32	30	76 200	164 200	NATV40PPX	NATV40PP	NATV40XLL	NATV40LL	—	NART40VUUR	MCYR40SX	MCYR40S
<b>NART45UUX</b>	<b>NART45UUR</b>	<b>915</b>	45	85	32	30	49 300	95 200	NATR45PPX	NATR45PP	NATR45XLL	NATR45LL	—	NART45UUR	MCYRR45SX	MCYRR45S
<b>NART45UUVX</b>	<b>NART45UUVR</b>	<b>935</b>	45	85	32	30	80 200	181 100	NATV45PPX	NATV45PP	NATV45XLL	NATV45LL	—	NART45VUUR	MCYR45SX	MCYR45S
<b>NART50UUX</b>	<b>NART50UUR</b>	<b>980</b>	50	90	32	30	51 100	102 300	NATR50PPX	NATR50PP	NATR50XLL	NATR50LL	—	NART50UUR	MCYRR50SX	MCYRR50S
<b>NART50UUVX</b>	<b>NART50UUVR</b>	<b>1 010</b>	50	90	32	30	84 100	198 000	NATV50PPX	NATV50PP	NATV50XLL	NATV50LL	—	NART50VUUR	MCYR50SX	MCYR50S



INTERCHANGE

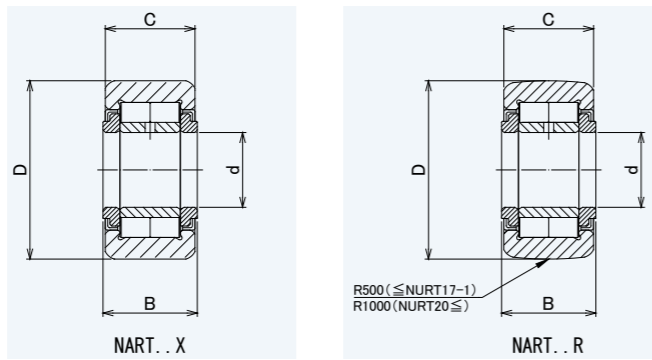


INTERCHANGE



**HEAVY DUTY  
TYPE ROLLER  
FOLLOWERS**  
NON SEPARABLE  
WITH INNER RING

**NURT..X, R**



**NURT..X, R**

DIMENSION TABLE

INTERCHANGE TABLE

JNS NUMBER CYLINDRICAL OUTER RING	JNS NUMBER CROWNED OUTER RING	Mass (Approx.) g	Dimensions(mm)				Basic dynamic load rating Cr N	Basic static load rating Cor N	INA		NTN		IKO		MCGILL	
			d	D	B	C			CYLINDRICAL OUTER RING	CROWNED OUTER RING	CYLINDRICAL OUTER RING	CROWNED OUTER RING	CYLINDRICAL OUTER RING	CROWNED OUTER RING	CYLINDRICAL OUTER RING	CROWNED OUTER RING
NURT..X	NURT..R	g	d	D	B	C	Cr N	Cor N	—	NUTR	NUTR-X	NUTR	NURT	NURT-R	MCYRD-X	MCYRD
<b>NURT15X</b>	<b>NURT15R</b>	<b>100</b>	15	35	19	18	22 300	25 700	—	NUTR15	NUTR202X	NUTR202	NURT15	NURT15R	MCYRD-15X	MCYRD-15
<b>NURT15-1X</b>	<b>NURT15-1R</b>	<b>160</b>	15	42	19	18	22 300	25 700	—	NUTR15 42	NUTR302X	NUTR302	NURT15-1	NURT15-1R	—	—
<b>NURT17X</b>	<b>NURT17R</b>	<b>147</b>	17	40	21	20	24 100	29 100	—	NUTR17	NUTR203X	NUTR203	NURT17	NURT17R	MCYRD-17X	MCYRD-17
<b>NURT17-1X</b>	<b>NURT17-1R</b>	<b>222</b>	17	47	21	20	24 100	29 100	—	NUTR17 47	NUTR303X	NUTR303	NURT17-1	NURT17-1R	—	—
<b>NURT20X</b>	<b>NURT20R</b>	<b>245</b>	20	47	25	24	38 500	48 000	—	NUTR20	NUTR204X	NUTR204	NURT20	NURT20R	MCYRD-20X	MCYRD-20
<b>NURT20-1X</b>	<b>NURT20-1R</b>	<b>321</b>	20	52	25	24	38 500	48 000	—	NUTR20 52	NUTR304X	NUTR304	NURT20-1	NURT20-1R	—	—
<b>NURT25X</b>	<b>NURT25R</b>	<b>281</b>	25	52	25	24	42 500	57 500	—	NUTR25	NUTR205X	NUTR205	NURT25	NURT25R	MCYRD-25X	MCYRD-25
<b>NURT25-1X</b>	<b>NURT25-1R</b>	<b>450</b>	25	62	25	24	42 500	57 500	—	NUTR25 62	NUTR305X	NUTR305	NURT25-1	NURT25-1R	—	—
<b>NURT30X</b>	<b>NURT30R</b>	<b>466</b>	30	62	29	28	56 500	72 500	—	NUTR30	NUTR206X	NUTR206	NURT30	NURT30R	MCYRD-30X	MCYRD-30
<b>NURT30-1X</b>	<b>NURT30-1R</b>	<b>697</b>	30	72	29	28	56 500	72 500	—	NUTR30 72	NUTR306X	NUTR306	NURT30-1	NURT30-1R	—	—
<b>NURT35X</b>	<b>NURT35R</b>	<b>630</b>	35	72	29	28	62 000	85 500	—	NUTR35	NUTR207X	NUTR207	NURT35	NURT35R	MCYRD-35X	MCYRD-35
<b>NURT35-1X</b>	<b>NURT35-1R</b>	<b>840</b>	35	80	29	28	62 000	85 500	—	NUTR35 80	NUTR307X	NUTR307	NURT35-1	NURT35-1R	—	—
<b>NURT40X</b>	<b>NURT40R</b>	<b>817</b>	40	80	32	30	87 000	125 000	—	NUTR40	NUTR208X	NUTR208	NURT40	NURT40R	MCYRD-40X	MCYRD-40
<b>NURT40-1X</b>	<b>NURT40-1R</b>	<b>1 130</b>	40	90	32	30	87 000	125 000	—	NUTR40 90	NUTR308X	NUTR308	NURT40-1	NURT40-1R	—	—
<b>NURT45X</b>	<b>NURT45R</b>	<b>883</b>	45	85	32	30	92 000	137 000	—	NUTR45	NUTR209X	NUTR209	NURT45	NURT45R	MCYRD-45X	MCYRD-45
<b>NURT45-1X</b>	<b>NURT45-1R</b>	<b>1 400</b>	45	100	32	30	92 000	137 000	—	NUTR45 100	NUTR309X	NUTR309	NURT45-1	NURT45-1R	—	—
<b>NURT50X</b>	<b>NURT50R</b>	<b>950</b>	50	90	32	30	96 500	150 000	—	NUTR50	NUTR210X	NUTR210	NURT50	NURT50R	MCYRD-50X	MCYRD-50
<b>NURT50-1X</b>	<b>NURT50-1R</b>	<b>1 690</b>	50	110	32	30	96 500	150 000	—	NUTR50 110	NUTR310X	NUTR310	NURT50-1	NURT50-1R	—	—



INTERCHANGE



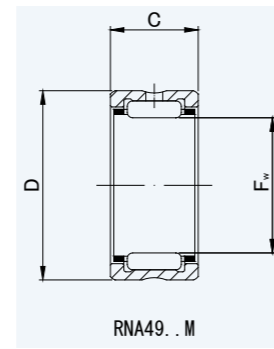
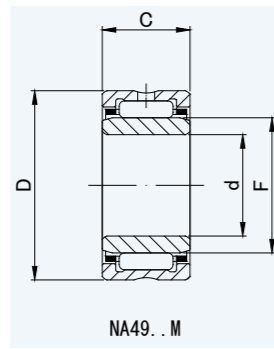
INTERCHANGE

# INTERCHANGE TABLE

## STAINLESS STEEL



**MACHINED RING NEEDLE  
ROLLER BEARINGS  
STAINLESS STEEL**  
WITH INNER RING  
WITHOUT INNER RING



**NA49M, RNA49M**  
**STAINLESS STEEL**

**NA49M, RNA49M**

DIMENSION TABLE

INTERCHANGE TABLE

JNS NUMBER WITH INNER RING	Mass (Approx.)	JNS NUMBER WITHOUT INNER RING	Mass (Approx.)	JNS NUMBER Assembled INNER RING	Dimensions(mm)				Basic dynamic load rating	Basic static load rating	IKO		INA		NTN		TORRINGTON(KOYO)	
											WITH INNER RING	WITHOUT INNER RING	WITH INNER RING	WITHOUT INNER RING	WITH INNER RING	WITHOUT INNER RING	WITH INNER RING	WITHOUT INNER RING
NA 49M	g	RNA 49M	g	IR..M	d	Fw (F)	D	C	Cr N	Cor N	—	—	—	—	—	—	—	—
<b>NA495M</b>	7.3	<b>RNA495M</b>	5.9	<b>IR5710M</b>	5	7	13	10	2 700	2 400	—	—	—	—	—	—	—	—
<b>NA496M</b>	9.1	<b>RNA496M</b>	7.3	<b>IR6810M</b>	6	8	15	10	3 500	3 100	—	—	—	—	—	—	—	—
<b>NA497M</b>	11.2	<b>RNA497M</b>	9.3	<b>IR7910M</b>	7	9	17	10	4 100	3 300	—	—	—	—	—	—	—	—
<b>NA498M</b>	15	<b>RNA498M</b>	12.6	<b>IR81011M</b>	8	10	19	11	5 700	4 600	—	—	—	—	—	—	—	—
<b>NA499M</b>	16.7	<b>RNA499M</b>	13.6	<b>IR91211M</b>	9	12	20	11	6 000	5 700	—	—	—	—	—	—	—	—
<b>NA4900M</b>	24	<b>RNA4900M</b>	16.5	<b>IR101413M</b>	10	14	22	13	8 400	9 200	—	—	—	—	—	—	—	—
<b>NA4901M</b>	26.5	<b>RNA4901M</b>	18.1	<b>IR121613M</b>	12	16	24	13	8 900	10 200	—	—	—	—	—	—	—	—
<b>NA4902M</b>	35	<b>RNA4902M</b>	21.5	<b>IR152013M</b>	15	20	28	13	10 000	12 600	—	—	—	—	—	—	—	—
<b>NA4903M</b>	39	<b>RNA4903M</b>	23.5	<b>IR172213M</b>	17	22	30	13	10 800	14 300	—	—	—	—	—	—	—	—
<b>NA4904M</b>	78.5	<b>RNA4904M</b>	55.5	<b>IR202517M</b>	20	25	37	17	19 300	23 000	—	—	—	—	—	—	—	—
<b>NA49/22M</b>	87	<b>RNA49/22M</b>	56.5	<b>IR222817M</b>	22	28	39	17	19 600	26 400	—	—	—	—	—	—	—	—
<b>NA4905M</b>	92.5	<b>RNA4905M</b>	64	<b>IR253017M</b>	25	30	42	17	21 800	28 200	—	—	—	—	—	—	—	—



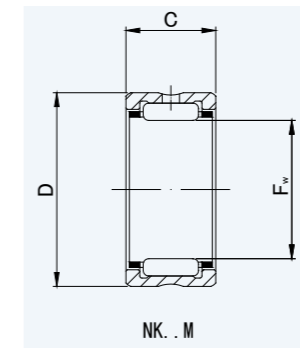
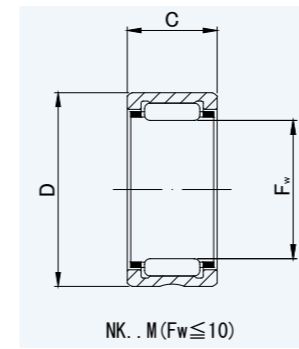
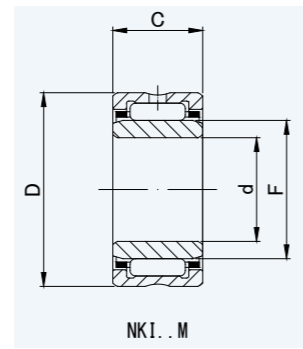
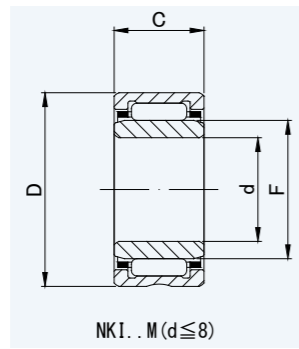
INTERCHANGE



INTERCHANGE

**MACHINED RING NEEDLE  
ROLLER BEARINGS  
STAINLESS STEEL  
WITH INNER RING  
WITHOUT INNER RING**

**NKI..M, NK..M  
STAINLESS STEEL**



**NKI..M, NK..M**

DIMENSION TABLE

INTERCHANGE TABLE

JNS NUMBER WITH INNER RING	Mass (Approx.)	JNS NUMBER WITHOUT INNER RING	Mass (Approx.)	JNS NUMBER Assembled INNER RING	Dimensions(mm)				Basic dynamic load rating	Basic static load rating	IKO		INA		NTN		TORRINGTON(KOYO)	
					d	Fw (F)	D	C			WITH INNER RING	WITHOUT INNER RING	WITH INNER RING	WITHOUT INNER RING	WITH INNER RING	WITHOUT INNER RING	WITH INNER RING	WITHOUT INNER RING
NKI..M	g	NK..M	g	IR..M	d	Fw (F)	D	C	Cr N	Cor N	—	—	—	—	—	—	—	—
—	—	<b>NK5/10M</b>	3.4	—	—	5	10	10	2 200	1 700	—	—	—	—	—	—	—	—
—	—	<b>NK5/12M</b>	4.2	—	—	5	10	12	2 800	2 400	—	—	—	—	—	—	—	—
—	—	<b>NK6/10M</b>	5.3	—	—	6	12	10	2 400	2 100	—	—	—	—	—	—	—	—
—	—	<b>NK6/12M</b>	6.4	—	—	6	12	12	3 100	2 900	—	—	—	—	—	—	—	—
—	—	<b>NK7/10M</b>	6.9	—	—	7	14	10	3 300	2 700	—	—	—	—	—	—	—	—
—	—	<b>NK7/12M</b>	8.3	—	—	7	14	12	4 200	3 700	—	—	—	—	—	—	—	—
<b>NKI 5/12M</b>	11.9	<b>NK8/12M</b>	9	<b>IR5812M</b>	5	8	15	12	4 600	4 300	—	—	—	—	—	—	—	—
<b>NKI 5/16M</b>	16.7	<b>NK8/16M</b>	13	<b>IR5816M</b>	5	8	15	16	6 500	6 700	—	—	—	—	—	—	—	—
<b>NKI 6/12M</b>	13	<b>NK9/12M</b>	10	<b>IR6912M</b>	6	9	16	12	5 000	4 800	—	—	—	—	—	—	—	—
<b>NKI 6/16M</b>	17.5	<b>NK9/16M</b>	13.2	<b>IR6916M</b>	6	9	16	16	6 900	7 500	—	—	—	—	—	—	—	—
<b>NKI 7/12M</b>	14.3	<b>NK10/12M</b>	10.7	<b>IR71012M</b>	7	10	17	12	5 400	5 500	—	—	—	—	—	—	—	—
<b>NKI 7/16M</b>	19.2	<b>NK10/16M</b>	14.3	<b>IR71016M</b>	7	10	17	16	7 500	8 400	—	—	—	—	—	—	—	—
<b>NKI 9/12M</b>	16.7	<b>NK12/12M</b>	12.2	<b>IR91212M</b>	9	12	19	12	6 000	6 700	—	—	—	—	—	—	—	—
<b>NKI 9/16M</b>	22.5	<b>NK12/16M</b>	16.3	<b>IR91216M</b>	9	12	19	16	8 400	10 300	—	—	—	—	—	—	—	—
<b>NKI 10/16M</b>	30	<b>NK14/16M</b>	21	<b>IR101416M</b>	10	14	22	16	10 800	12 600	—	—	—	—	—	—	—	—
<b>NKI 10/20M</b>	38	<b>NK14/20M</b>	26.5	<b>IR101420M</b>	10	14	22	20	13 600	17 000	—	—	—	—	—	—	—	—
—	—	<b>NK15/16M</b>	22.5	—	—	15	23	16	11 400	13 700	—	—	—	—	—	—	—	—
—	—	<b>NK15/20M</b>	28	—	—	15	23	20	14 300	18 500	—	—	—	—	—	—	—	—
<b>NKI 12/16M</b>	33.5	<b>NK16/16M</b>	23	<b>IR121616M</b>	12	16	24	16	11 300	13 800	—	—	—	—	—	—	—	—
<b>NKI 12/20M</b>	42.5	<b>NK16/20M</b>	29	<b>IR121620M</b>	12	16	24	20	14 300	18 700	—	—	—	—	—	—	—	—
—	—	<b>NK17/16M</b>	24.5	—	—	17	25	16	11 700	14 900	—	—	—	—	—	—	—	—
—	—	<b>NK17/20M</b>	30.5	—	—	17	25	20	14 900	20 300	—	—	—	—	—	—	—	—
—	—	<b>NK18/16M</b>	25.5	—	—	18	26	16	12 300	16 100	—	—	—	—	—	—	—	—
—	—	<b>NK18/20M</b>	32	—	—	18	26	20	15 600	21 700	—	—	—	—	—	—	—	—
<b>NKI 15/16M</b>	39.5	<b>NK19/16M</b>	27	<b>IR151916M</b>	15	19	27	16	12 800	17 200	—	—	—	—	—	—	—	—
<b>NKI 15/20M</b>	50	<b>NK19/20M</b>	34	<b>IR151920M</b>	15	19	27	20	16 200	23 200	—	—	—	—	—	—	—	—

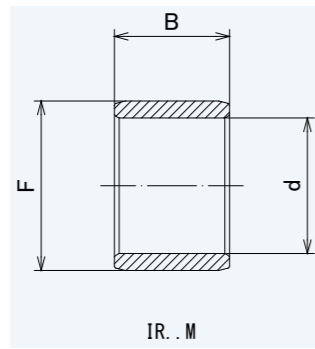
NK type of 10mm or less inscribed circle diameter (Fw) is without oil hole.  
NKI type of 8mm or less inscribed circle diameter (d) is without oil hole.



INTERCHANGE



INTERCHANGE



**IR..M**

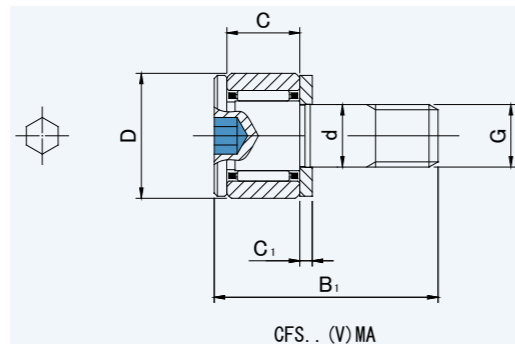
DIMENSION TABLE

INTERCHANGE TABLE

JNS NUMBER WITH INNER RING	Mass (Approx.) g	Dimensions(mm)			JNS USABLE BEARING NUMBER	IKO	INA	NTN	TORRINGTON(KOYO)
		d	F	B					
IR	g	d	F	B		—	—	—	—
IR5710M	1.4	5	7	10	RNA495M	—	—	—	—
IR5812M	3	5	8	12	NK8/12M	—	—	—	—
IR5816M	4	5	8	16	NK8/16M	—	—	—	—
IR6810M	1.7	6	8	10	RNA496M	—	—	—	—
IR6912M	3.2	6	9	12	NK9/12M	—	—	—	—
IR6916M	4.3	6	9	16	NK9/16M	—	—	—	—
IR61010M	4	6	10	10	—	—	—	—	—
IR7910M	1.9	7	9	10	RNA497M	—	—	—	—
IR71012M	3.6	7	10	12	NK10/12M	—	—	—	—
IR71016M	5	7	10	16	NK10/16M	—	—	—	—
IR81011M	2.4	8	10	11	RNA498M	—	—	—	—
IR81210M	4.8	8	12	10	—	—	—	—	—
IR91211M	3.1	9	12	11	RNA499M	—	—	—	—
IR91212M	4.5	9	12	12	NK12/12M	—	—	—	—
IR91216M	6	9	12	16	NK12/16M	—	—	—	—
IR101412M	7	10	14	12	—	—	—	—	—
IR101413M	7.5	10	14	13	RNA4900M	—	—	—	—
IR101416M	9	10	14	16	NK14/16M	—	—	—	—
IR101420M	11.5	10	14	20	NK14/20M	—	—	—	—
IR121612M	8	12	16	12	—	—	—	—	—
IR121613M	8.5	12	16	13	RNA4901M	—	—	—	—
IR121616M	10.5	12	16	16	NK16/16M	—	—	—	—
IR121620M	13.5	12	16	20	NK16/20M	—	—	—	—
IR151916M	12.5	15	19	16	NK19/16M	—	—	—	—
IR151920M	16	15	19	20	NK19/20M	—	—	—	—
IR152012M	12	15	20	12	—	—	—	—	—
IR152013M	13.5	15	20	13	RNA4902M	—	—	—	—
IR172213M	15.5	17	22	13	RNA4903M	—	—	—	—
IR172216M	19	17	22	16	—	—	—	—	—
IR202516M	22	20	25	16	—	—	—	—	—
IR202517M	23	20	25	17	RNA4904M	—	—	—	—
IR253016M	28	25	30	16	—	—	—	—	—
IR253017M	28.5	25	30	17	RNA4905M	—	—	—	—
IR 303820M	65	30	38	20	—	—	—	—	—
IR 354220M	65	35	42	20	—	—	—	—	—
IR 506020M	135	50	60	20	—	—	—	—	—



**CAM FOLLOWERS  
STAINLESS STEEL  
MINIATURE TYPE  
HEXAGON SOCKET ON STUD HEAD**



**CFS..MA  
STAINLESS STEEL**

**CFS..MA**

DIMENSION TABLE

INTERCHANGE TABLE

JNS NUMBER CYLINDRICAL OUTER RING	Mass (Approx.)	Dimensions(mm)						Basic dynamic load rating	Basic static load rating	INA	IKO	NTN	MCGILL
		d	D	C	G	B1	C1			CYLINDRICAL OUTER RING	CYLINDRICAL OUTER RING	CYLINDRICAL OUTER RING	CYLINDRICAL OUTER RING
CFS	g	d	D	C	G	B1	C1	Cr N	Cor N	—	CFS-F	2F-KRM	—
<b>CFS 2.5MA</b>	<b>1</b>	2.5	5	3	M2.5×0.45	9.5	0.7	370	300	—	CFS2.5F	2F-KRM5XT2H/3A	—
<b>CFS 2.5VMA</b>	<b>1</b>	2.5	5	3	M2.5×0.45	9.5	0.7	920	990	—	CFS2.5FV	2F-KRMV5XT2H/3A	—
<b>CFS 3MA</b>	<b>2</b>	3	6	4	M3×0.5	11.5	0.7	570	560	—	CFS3F	2F-KRM6XT2H/3A	—
<b>CFS 3VMA</b>	<b>2</b>	3	6	4	M3×0.5	11.5	0.7	1 260	1 620	—	CFS3FV	2F-KRMV6XT2H/3A	—
<b>CFS 4MA</b>	<b>4</b>	4	8	5	M4×0.7	15	1	990	990	—	CFS4F	2F-KRM8XT2H/3A	—
<b>CFS 4VMA</b>	<b>4</b>	4	8	5	M4×0.7	15	1	2 160	2 790	—	CFS4FV	2F-KRMV8XT2H/3A	—
<b>CFS 5MA</b>	<b>7</b>	5	10	6	M5×0.8	18	1	1 440	1 710	—	CFS5F	2F-KRM10XT2H/3A	—
<b>CFS 5VMA</b>	<b>7</b>	5	10	6	M5×0.8	18	1	2 880	4 330	—	CFS5FV	2F-KRMV10XT2H/3A	—
<b>CFS 6MA</b>	<b>13</b>	6	12	7	M6×1	21.5	1.2	1 890	1 980	—	CFS6F	2F-KRM12XT2H/3A	—
<b>CFS 6VMA</b>	<b>13</b>	6	12	7	M6×1	21.5	1.2	4 240	5 760	—	CFS6FV	2F-KRMV12XT2H/3A	—



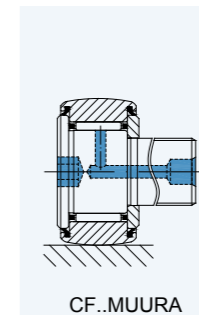
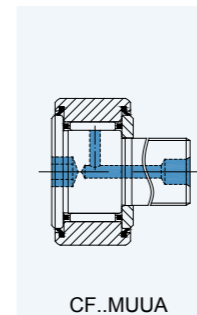
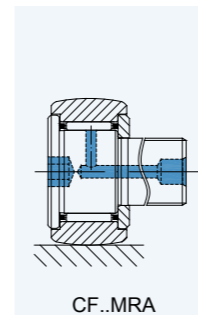
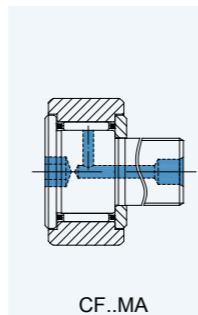
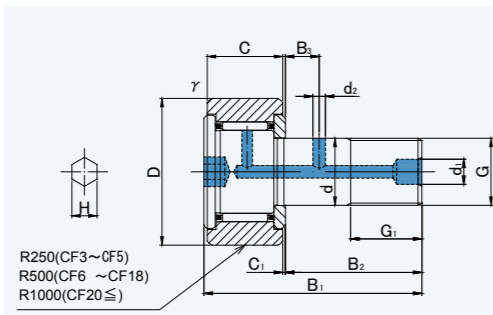
INTERCHANGE



INTERCHANGE



**CAM FOLLOWERS  
STAINLESS STEEL  
HEXAGON SOCKET ON STUD HEAD**



**CF..MA, MRA, MUUA, MUURA  
STAINLESS STEEL**

**CF..MA, MRA, MUUA, MUURA**

DIMENSION TABLE

JNS NUMBER CYLINDRICAL OUTER RING WITHOUT SEALS	JNS NUMBER CROWNED OUTER RING WITHOUT SEALS	JNS NUMBER CYLINDRICAL OUTER RING WITH SEALS	JNS NUMBER CROWNED OUTER RING WITH SEALS	Mass (Approx.)	Dimensions(mm)						Basic dynamic load rating	Basic static load rating
					d	D	C	G	B1	C1		
CF..MA	CF..MRA	CF..MUUA	CF..MUURA	g	d	D	C	G	B1	C1	Cr N	Cor N
CF30MA	CF30MRA	CF30MUUA	CF30MUURA	1 870	30	80	35	M30×1.5	100	1	41 740	78 250
CF30VMA	CF30VMRA	CF30VMUUA	CF30VMUURA	1 870	30	80	35	M30×1.5	100	1	62 210	132 530
CF30-1MA	CF30-1MRA	CF30-1MUUA	CF30-1MUURA	2 030	30	85	35	M30×1.5	100	1	41 740	78 250
CF30-1VMA	CF30-1VMRA	CF30-1VMUUA	CF30-1VMUURA	2 030	30	85	35	M30×1.5	100	1	62 210	132 530
CF30-2MA	CF30-2MRA	CF30-2MUUA	CF30-2MUURA	2 220	30	90	35	M30×1.5	100	1	41 740	78 250
CF30-2VMA	CF30-2VMRA	CF30-2VMUUA	CF30-2VMUURA	2 220	30	90	35	M30×1.5	100	1	62 210	132 530

INTERCHANGE TABLE

INA		NTN		IKO				MCGILL	
CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITH SEALS	CROWNED OUTER RING WITH SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—

Stud diameter (d) 3 to 10mm : No grease refilling hole is provided (except "K" type)



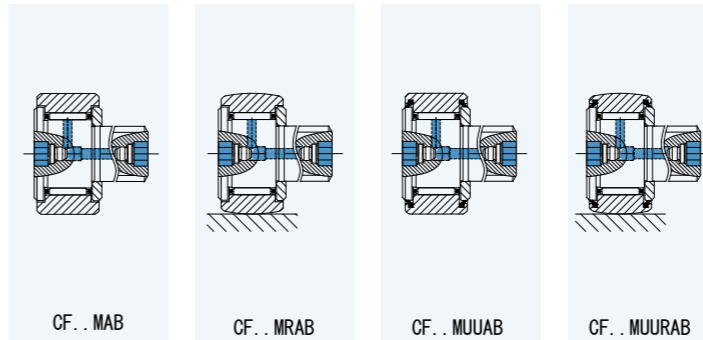
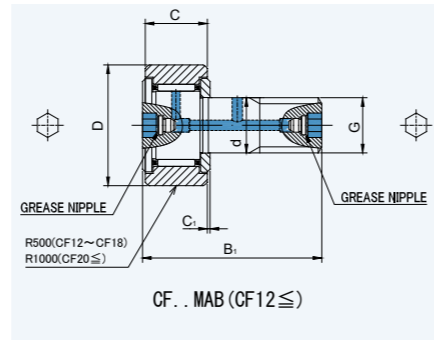
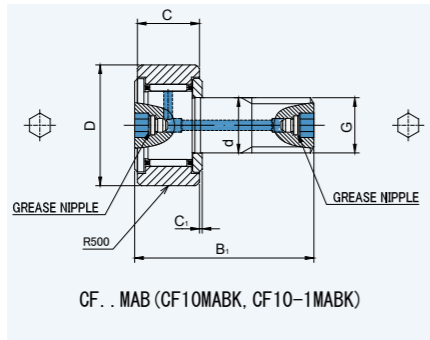
INTERCHANGE



INTERCHANGE



**CAM FOLLOWERS  
STAINLESS STEEL  
HEXAGON SOCKET ON BOTH SIDES  
GREASE NIPPLE INSTALLED**



**CF..MAB, MRAB, MUUAB, MUURAB  
STAINLESS STEEL**

**CF..MAB, MRAB, MUUAB, MUURAB**

DIMENSION TABLE

JNS NUMBER CYLINDRICAL OUTER RING WITHOUT SEALS	JNS NUMBER CROWNED OUTER RING WITHOUT SEALS	JNS NUMBER CYLINDRICAL OUTER RING WITH SEALS	JNS NUMBER CROWNED OUTER RING WITH SEALS	Mass (Approx.) g	Dimensions(mm)						Basic dynamic load rating Cr N	Basic static load rating Cor N	INA		NTN		IKO		MCGILL	
					d	D	C	G	B1	C1			CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS
CF..MAB	CF..MRAB	CF..MUUAB	CF..MUURAB										—	—	—	—	—	—	—	—
CF10MABK	CF10MRABK	CF10MUUABK	CF10MUURABK	45	10	22	12	M10×1	36	0.6	4 950	6 310	—	—	—	—	—	—	—	—
CF10VMABK	CF10VMRABK	CF10VMUUABK	CF10VMUURABK	45	10	22	12	M10×1	36	0.6	8 740	13 340	—	—	—	—	—	—	—	—
CF10-1MABK	CF10-1MRABK	CF10-1MUUABK	CF10-1MUURABK	60	10	26	12	M10×1	36	0.6	4 950	6 310	—	—	—	—	—	—	—	—
CF10-1VMABK	CF10-1VMRABK	CF10-1VMUUABK	CF10-1VMUURABK	60	10	26	12	M10×1	36	0.6	8 740	13 340	—	—	—	—	—	—	—	—
CF12MAB	CF12MRAB	CF12MUUAB	CF12MUURAB	95	12	30	14	M12×1.5	40	0.6	7 300	9 010	—	—	—	—	—	—	—	—
CF12VMAB	CF12VMRAB	CF12VMUUAB	CF12VMUURAB	95	12	30	14	M12×1.5	40	0.6	12 350	18 120	—	—	—	—	—	—	—	—
CF12-1MAB	CF12-1MRAB	CF12-1MUUAB	CF12-1MUURAB	105	12	32	14	M12×1.5	40	0.6	7 300	9 010	—	—	—	—	—	—	—	—
CF12-1VMAB	CF12-1VMRAB	CF12-1VMUUAB	CF12-1VMUURAB	105	12	32	14	M12×1.5	40	0.6	12 350	18 120	—	—	—	—	—	—	—	—
CF16MAB	CF16MRAB	CF16MUUAB	CF16MUURAB	170	16	35	18	M16×1.5	52	0.8	11 080	16 860	—	—	—	—	—	—	—	—
CF16VMAB	CF16VMRAB	CF16VMUUAB	CF16VMUURAB	170	16	35	18	M16×1.5	52	0.8	19 020	34 610	—	—	—	—	—	—	—	—
CF18MAB	CF18MRAB	CF18MUUAB	CF18MUURAB	250	18	40	20	M18×1.5	58	0.8	13 520	23 180	—	—	—	—	—	—	—	—
CF18VMAB	CF18VMRAB	CF18VMUUAB	CF18VMUURAB	250	18	40	20	M18×1.5	58	0.8	23 250	47 240	—	—	—	—	—	—	—	—
CF20MAB	CF20MRAB	CF20MUUAB	CF20MUURAB	460	20	52	24	M20×1.5	66	0.8	19 020	31 830	—	—	—	—	—	—	—	—
CF20VMAB	CF20VMRAB	CF20VMUUAB	CF20VMUURAB	460	20	52	24	M20×1.5	66	0.8	30 470	59 320	—	—	—	—	—	—	—	—
CF20-1MAB	CF20-1MRAB	CF20-1MUUAB	CF20-1MUURAB	385	20	47	24	M20×1.5	66	0.8	19 020	31 830	—	—	—	—	—	—	—	—
CF20-1VMAB	CF20-1VMRAB	CF20-1VMUUAB	CF20-1VMUURAB	385	20	47	24	M20×1.5	66	0.8	30 470	59 320	—	—	—	—	—	—	—	—
CF24MAB	CF24MRAB	CF24MUUAB	CF24MUURAB	815	24	62	29	M24×1.5	80	0.8	28 040	48 410	—	—	—	—	—	—	—	—
CF24VMAB	CF24VMRAB	CF24VMUUAB	CF24VMUURAB	815	24	62	29	M24×1.5	80	0.8	42 820	84 650	—	—	—	—	—	—	—	—
CF24-1MAB	CF24-1MRAB	CF24-1MUUAB	CF24-1MUURAB	1 140	24	72	29	M24×1.5	80	0.8	28 040	48 410	—	—	—	—	—	—	—	—
CF24-1VMAB	CF24-1VMRAB	CF24-1VMUUAB	CF24-1VMUURAB	1 140	24	72	29	M24×1.5	80	0.8	42 820	84 650	—	—	—	—	—	—	—	—
CF30MAB	CF30MRAB	CF30MUUAB	CF30MUURAB	1 870	30	80	35	M30×1.5	100	1	41 740	78 250	—	—	—	—	—	—	—	—
CF30VMAB	CF30VMRAB	CF30VMUUAB	CF30VMUURAB	1 870	30	80	35	M30×1.5	100	1	62 210	132 530	—	—	—	—	—	—	—	—
CF30-1MAB	CF30-1MRAB	CF30-1MUUAB	CF30-1MUURAB	2 030	30	85	35	M30×1.5	100	1	41 740	78 250	—	—	—	—	—	—	—	—
CF30-1VMAB	CF30-1VMRAB	CF30-1VMUUAB	CF30-1VMUURAB	2 030	30	85	35	M30×1.5	100	1	62 210	132 530	—	—	—	—	—	—	—	—
CF30-2MAB	CF30-2MRAB	CF30-2MUUAB	CF30-2MUURAB	2 220	30	90	35	M30×1.5	100	1	41 740	78 250	—	—	—	—	—	—	—	—
CF30-2VMAB	CF30-2VMRAB	CF30-2VMUUAB	CF30-2VMUURAB	2 220	30	90	35	M30×1.5	100	1	62 210	132 530	—	—	—	—	—	—	—	—

INTERCHANGE TABLE



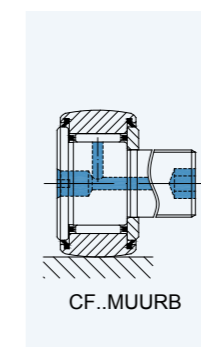
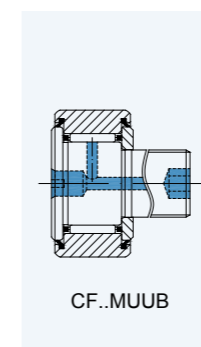
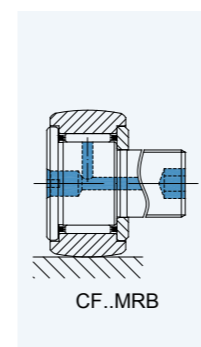
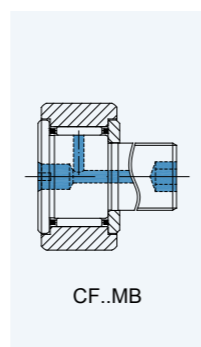
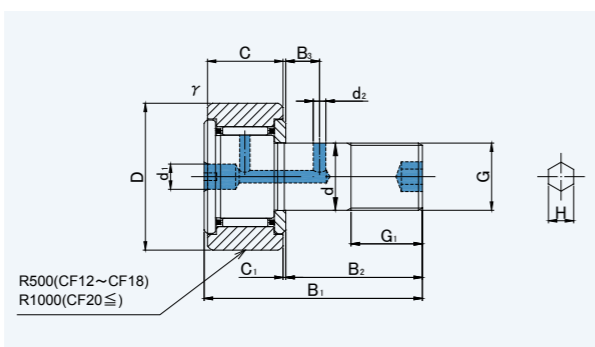
INTERCHANGE



INTERCHANGE



**CAM FOLLOWERS  
STAINLESS STEEL**  
HEXAGON SOCKET ON THREAD SIDE  
SCREWDRIVER SLOT HEAD



**CF..MB, MRB, MUUB, MUURB**  
STAINLESS STEEL

**CF..MB, MRB, MUUB, MUURB**

DIMENSION TABLE

INTERCHANGE TABLE

JNS NUMBER CYLINDRICAL OUTER RING WITHOUT SEALS	JNS NUMBER CROWNED OUTER RING WITHOUT SEALS	JNS NUMBER CYLINDRICAL OUTER RING WITH SEALS	JNS NUMBER CROWNED OUTER RING WITH SEALS	Mass (Approx.)	Dimensions(mm)						Basic dynamic load rating	Basic static load rating	INA		NTN		IKO		MCGILL	
					d	D	C	G	B1	C1			Cr N	Cor N	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS
CF..MB	CF..MRB	CF..MUUB	CF..MUURB	g	d	D	C	G	B1	C1	Cr N	Cor N	—	—	—	—	—	—	—	—
CF12MB	CF12MRB	CF12MUUB	CF12MUURB	95	12	30	14	M12×1.5	40	0.6	7 300	9 010	—	—	—	—	—	—	—	—
CF12VMB	CF12VMRB	CF12VMUUB	CF12VMUURB	95	12	30	14	M12×1.5	40	0.6	12 350	18 120	—	—	—	—	—	—	—	—
CF12-1MB	CF12-1MRB	CF12-1MUUB	CF12-1MUURB	105	12	32	14	M12×1.5	40	0.6	7 300	9 010	—	—	—	—	—	—	—	—
CF12-1VMB	CF12-1VMRB	CF12-1VMUUB	CF12-1VMUURB	105	12	32	14	M12×1.5	40	0.6	12 350	18 120	—	—	—	—	—	—	—	—
CF16MB	CF16MRB	CF16MUUB	CF16MUURB	170	16	35	18	M16×1.5	52	0.8	11 080	16 860	—	—	—	—	—	—	—	—
CF16VMB	CF16VMRB	CF16VMUUB	CF16VMUURB	170	16	35	18	M16×1.5	52	0.8	19 020	34 610	—	—	—	—	—	—	—	—
CF18MB	CF18MRB	CF18MUUB	CF18MUURB	250	18	40	20	M18×1.5	58	0.8	13 520	23 180	—	—	—	—	—	—	—	—
CF18VMB	CF18VMRB	CF18VMUUB	CF18VMUURB	250	18	40	20	M18×1.5	58	0.8	23 250	47 240	—	—	—	—	—	—	—	—
CF20MB	CF20MRB	CF20MUUB	CF20MUURB	460	20	52	24	M20×1.5	66	0.8	19 020	31 830	—	—	—	—	—	—	—	—
CF20VMB	CF20VMRB	CF20VMUUB	CF20VMUURB	460	20	52	24	M20×1.5	66	0.8	30 470	59 320	—	—	—	—	—	—	—	—
CF20-1MB	CF20-1MRB	CF20-1MUUB	CF20-1MUURB	385	20	47	24	M20×1.5	66	0.8	19 020	31 830	—	—	—	—	—	—	—	—
CF20-1VMB	CF20-1VMRB	CF20-1VMUUB	CF20-1VMUURB	385	20	47	24	M20×1.5	66	0.8	30 470	59 320	—	—	—	—	—	—	—	—
CF24MB	CF24MRB	CF24MUUB	CF24MUURB	815	24	62	29	M24×1.5	80	0.8	28 040	48 410	—	—	—	—	—	—	—	—
CF24VMB	CF24VMRB	CF24VMUUB	CF24VMUURB	815	24	62	29	M24×1.5	80	0.8	42 820	84 650	—	—	—	—	—	—	—	—
CF24-1MB	CF24-1MRB	CF24-1MUUB	CF24-1MUURB	1 140	24	72	29	M24×1.5	80	0.8	28 040	48 410	—	—	—	—	—	—	—	—
CF24-1VMB	CF24-1VMRB	CF24-1VMUUB	CF24-1VMUURB	1 140	24	72	29	M24×1.5	80	0.8	42 820	84 650	—	—	—	—	—	—	—	—
CF30MB	CF30MRB	CF30MUUB	CF30MUURB	1 870	30	80	35	M30×1.5	100	1	41 740	78 250	—	—	—	—	—	—	—	—
CF30VMB	CF30VMRB	CF30VMUUB	CF30VMUURB	1 870	30	80	35	M30×1.5	100	1	62 210	132 530	—	—	—	—	—	—	—	—
CF30-1MB	CF30-1MRB	CF30-1MUUB	CF30-1MUURB	2 030	30	85	35	M30×1.5	100	1	41 740	78 250	—	—	—	—	—	—	—	—
CF30-1VMB	CF30-1VMRB	CF30-1VMUUB	CF30-1VMUURB	2 030	30	85	35	M30×1.5	100	1	62 210	132 530	—	—	—	—	—	—	—	—
CF30-2MB	CF30-2MRB	CF30-2MUUB	CF30-2MUURB	2 220	30	90	35	M30×1.5	100	1	41 740	78 250	—	—	—	—	—	—	—	—
CF30-2VMB	CF30-2VMRB	CF30-2VMUUB	CF30-2VMUURB	2 220	30	90	35	M30×1.5	100	1	62 210	132 530	—	—	—	—	—	—	—	—



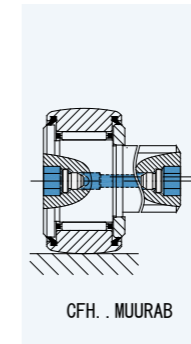
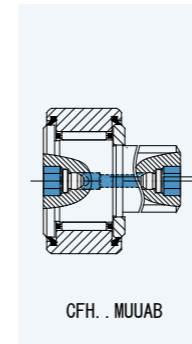
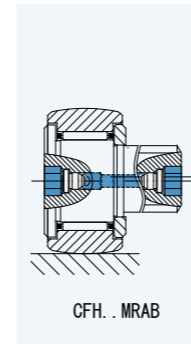
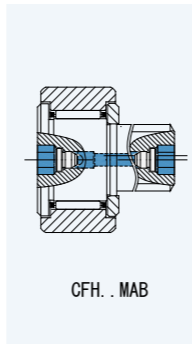
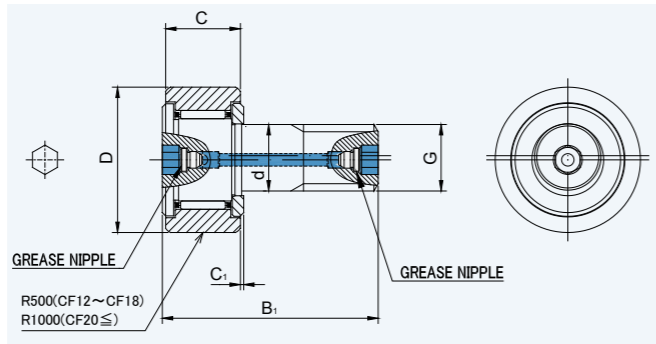
INTERCHANGE



INTERCHANGE



**CAM FOLLOWERS  
STAINLESS STEEL**  
SOLID ECCENTRIC TYPE  
HEXAGON SOCKET ON BOTH SIDES  
GREASE NIPPLE INSTALLED



**CFH..MAB, MRAB, MUUAB, MUURAB**  
STAINLESS STEEL

**CFH..MAB, MRAB, MUUAB, MUURAB**

DIMENSION TABLE

INTERCHANGE TABLE

JNS NUMBER CYLINDRICAL OUTER RING WITHOUT SEALS	JNS NUMBER CROWNED OUTER RING WITHOUT SEALS	JNS NUMBER CYLINDRICAL OUTER RING WITH SEALS	JNS NUMBER CROWNED OUTER RING WITH SEALS	Mass (Approx.) g	Dimensions(mm)						Basic dynamic load rating Cr N	Basic static load rating Cor N	INA		NTN		IKO		MCGILL	
					d	D	C	G	B1	C1			CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS
CFH..MAB	CFH..MRAB	CFH..UUAB	CFH..UURAB										—	—	—	—	—	—	—	—
CFH12MAB	CFH12RMAB	CFH12MUUAB	CFH12MUURAB	95	12	30	14	M12×1.5	40	0.6	7 300	9 010	—	—	—	—	—	—	—	—
CFH12MVAB	CFH12VMRAB	CFH12VMUUAB	CFH12VMUURAB	95	12	30	14	M12×1.5	40	0.6	12 350	18 120	—	—	—	—	—	—	—	—
CFH12-1MAB	CFH12-1MRAB	CFH12-1MUUAB	CFH12-1MUURAB	105	12	32	14	M12×1.5	40	0.6	7 300	9 010	—	—	—	—	—	—	—	—
CFH12-1MVAB	CFH12-1VMRAB	CFH12-1VMUUAB	CFH12-1VMUURAB	105	12	32	14	M12×1.5	40	0.6	12 350	18 120	—	—	—	—	—	—	—	—
CFH16MAB	CFH16RMAB	CFH16MUUAB	CFH16MUURAB	170	16	35	18	M16×1.5	52	0.8	11 080	16 860	—	—	—	—	—	—	—	—
CFH16MVAB	CFH16VMRAB	CFH16VMUUAB	CFH16VMUURAB	170	16	35	18	M16×1.5	52	0.8	19 020	34 610	—	—	—	—	—	—	—	—
CFH18MAB	CFH18RMAB	CFH18MUUAB	CFH18MUURAB	250	18	40	20	M18×1.5	58	0.8	13 520	23 180	—	—	—	—	—	—	—	—
CFH18MVAB	CFH18VMRAB	CFH18VMUUAB	CFH18VMUURAB	250	18	40	20	M18×1.5	58	0.8	23 250	47 240	—	—	—	—	—	—	—	—
CFH20MAB	CFH20RMAB	CFH20MUUAB	CFH20MUURAB	460	20	52	24	M20×1.5	66	0.8	19 020	31 830	—	—	—	—	—	—	—	—
CFH20MVAB	CFH20VMRAB	CFH20VMUUAB	CFH20VMUURAB	460	20	52	24	M20×1.5	66	0.8	30 470	59 320	—	—	—	—	—	—	—	—
CFH20-1MAB	CFH20-1MRAB	CFH20-1MUUAB	CFH20-1MUURAB	385	20	47	24	M20×1.5	66	0.8	19 020	31 830	—	—	—	—	—	—	—	—
CFH20-1MVAB	CFH20-1VMRAB	CFH20-1VMUUAB	CFH20-1VMUURAB	385	20	47	24	M20×1.5	66	0.8	30 470	59 320	—	—	—	—	—	—	—	—
CFH24MAB	CFH24RMAB	CFH24MUUAB	CFH24MUURAB	815	24	62	29	M24×1.5	80	0.8	28 040	48 410	—	—	—	—	—	—	—	—
CFH24MVAB	CFH24VMRAB	CFH24VMUUAB	CFH24VMUURAB	815	24	62	29	M24×1.5	80	0.8	42 820	84 650	—	—	—	—	—	—	—	—
CFH24-1MAB	CFH24-1MRAB	CFH24-1MUUAB	CFH24-1MUURAB	1 140	24	72	29	M24×1.5	80	0.8	28 040	48 410	—	—	—	—	—	—	—	—
CFH24-1MVAB	CFH24-1VMRAB	CFH24-1VMUUAB	CFH24-1VMUURAB	1 140	24	72	29	M24×1.5	80	0.8	42 820	84 650	—	—	—	—	—	—	—	—
CFH30MAB	CFH30RMAB	CFH30MUUAB	CFH30MUURAB	1 870	30	80	35	M30×1.5	100	1	41 740	78 250	—	—	—	—	—	—	—	—
CFH30MVAB	CFH30VMRAB	CFH30VMUUAB	CFH30VMUURAB	1 870	30	80	35	M30×1.5	100	1	62 210	132 530	—	—	—	—	—	—	—	—
CFH30-1MAB	CFH30-1MRAB	CFH30-1MUUAB	CFH30-1MUURAB	2 030	30	85	35	M30×1.5	100	1	41 740	78 250	—	—	—	—	—	—	—	—
CFH30-1MVAB	CFH30-1VMRAB	CFH30-1VMUUAB	CFH30-1VMUURAB	2 030	30	85	35	M30×1.5	100	1	62 210	132 530	—	—	—	—	—	—	—	—
CFH30-2MAB	CFH30-2RMAB	CFH30-2MUUAB	CFH30-2MUURAB	2 220	30	90	35	M30×1.5	100	1	41 740	78 250	—	—	—	—	—	—	—	—
CFH30-2MVAB	CFH30-2VMRAB	CFH30-2VMUUAB	CFH30-2VMUURAB	2 220	30	90	35	M30×1.5	100	1	62 210	132 530	—	—	—	—	—	—	—	—

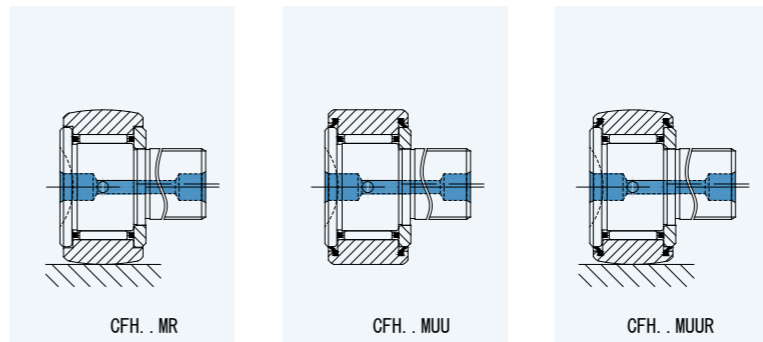
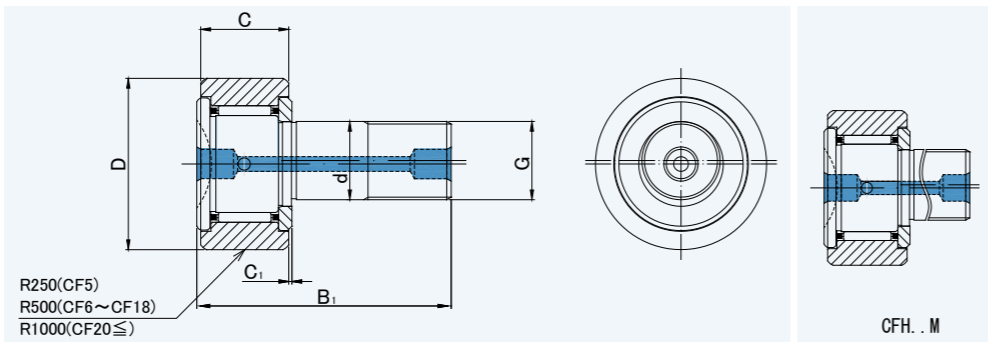


INTERCHANGE



INTERCHANGE

**CAM FOLLOWERS  
STAINLESS STEEL  
SOLID ECCENTRIC TYPE  
SCREWDRIVER SLOT HEAD**



**CFH..M, MR, MUU, MUUR  
STAINLESS STEEL**

**CFH..M, MR, MUU, MUUR**

DIMENSION TABLE

INTERCHANGE TABLE

JNS NUMBER CYLINDRICAL OUTER RING	JNS NUMBER CROWNED OUTER RING	JNS NUMBER CYLINDRICAL OUTER RING WITH SEALS	JNS NUMBER CROWNED OUTER RING WITH SEALS	Mass (Approx.) g	Dimensions(mm)						Basic dynamic load rating Cr N	Basic static load rating Cor N	INA		NTN		IKO		MCGILL	
					d	D	C	G	B1	C1			CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS
CFH..M	CFH..MR	CFH..MUU	CFH..MUUR		d	D	C	G	B1	C1			—	—	—	—	—	—	—	—
CFH5M	CFH5MR	CFH5MUU	CFH5MUUR	10.5	5	13	9	M5×0.8	23	0.5	2 880	2 540	—	—	—	—	—	—	—	—
CFH5VM	CFH5VMR	CFH5VMUU	CFH5VMUUR	10.5	5	13	9	M5×0.8	23	0.5	4 690	5 060	—	—	—	—	—	—	—	—
CFH6M	CFH6MR	CFH6MUU	CFH6MUUR	18.5	6	16	11	M6×1	28	0.6	3 330	3 330	—	—	—	—	—	—	—	—
CFH6VM	CFH6VMR	CFH6VMUU	CFH6VMUUR	18.5	6	16	11	M6×1	28	0.6	6 400	7 840	—	—	—	—	—	—	—	—
CFH8M	CFH8MR	CFH8MUU	CFH8MUUR	28.5	8	19	11	M8×1.25	32	0.6	3 960	4 330	—	—	—	—	—	—	—	—
CFH8VM	CFH8VMR	CFH8VMUU	CFH8VMUUR	28.5	8	19	11	M8×1.25	32	0.6	7 470	10 270	—	—	—	—	—	—	—	—
CFH10M	CFH10MR	CFH10MUU	CFH10MUUR	45	10	22	12	M10×1.25	36	0.6	4 950	6 310	—	—	—	—	—	—	—	—
CFH10VM	CFH10VMR	CFH10VMUU	CFH10VMUUR	45	10	22	12	M10×1.25	36	0.6	8 740	13 340	—	—	—	—	—	—	—	—
CFH10-1M	CFH10-1MR	CFH10-1MUU	CFH10-1MUUR	60	10	26	12	M10×1.25	36	0.6	4 950	6 310	—	—	—	—	—	—	—	—
CFH10-1VM	CFH10-1VMR	CFH10-1VMUU	CFH10-1VMUUR	60	10	26	12	M10×1.25	36	0.6	8 740	13 340	—	—	—	—	—	—	—	—
CFH12M	CFH12MR	CFH12MUU	CFH12MUUR	95	12	30	14	M12×1.5	40	0.6	7 300	9 010	—	—	—	—	—	—	—	—
CFH12VM	CFH12VMR	CFH12VMUU	CFH12VMUUR	95	12	30	14	M12×1.5	40	0.6	12 350	18 120	—	—	—	—	—	—	—	—
CFH12-1M	CFH12-1MR	CFH12-1MUU	CFH12-1MUUR	105	12	32	14	M12×1.5	40	0.6	7 300	9 010	—	—	—	—	—	—	—	—
CFH12-1VM	CFH12-1VMR	CFH12-1VMUU	CFH12-1VMUUR	105	12	32	14	M12×1.5	40	0.6	12 350	18 120	—	—	—	—	—	—	—	—
CFH16M	CFH16MR	CFH16MUU	CFH16MUUR	170	16	35	18	M16×1.5	52	0.8	11 080	16 860	—	—	—	—	—	—	—	—
CFH16VM	CFH16VMR	CFH16VMUU	CFH16VMUUR	170	16	35	18	M16×1.5	52	0.8	19 020	34 610	—	—	—	—	—	—	—	—
CFH18M	CFH18MR	CFH18MUU	CFH18MUUR	250	18	40	20	M18×1.5	58	0.8	13 520	23 180	—	—	—	—	—	—	—	—
CFH18VM	CFH18VMR	CFH18VMUU	CFH18VMUUR	250	18	40	20	M18×1.5	58	0.8	23 250	47 240	—	—	—	—	—	—	—	—
CFH20M	CFH20MR	CFH20MUU	CFH20MUUR	460	20	52	24	M20×1.5	66	0.8	19 020	31 830	—	—	—	—	—	—	—	—
CFH20VM	CFH20VMR	CFH20VMUU	CFH20VMUUR	460	20	52	24	M20×1.5	66	0.8	30 470	59 320	—	—	—	—	—	—	—	—
CFH20-1M	CFH20-1MR	CFH20-1MUU	CFH20-1MUUR	385	20	47	24	M20×1.5	66	0.8	19 020	31 830	—	—	—	—	—	—	—	—
CFH20-1VM	CFH20-1VMR	CFH20-1VMUU	CFH20-1VMUUR	385	20	47	24	M20×1.5	66	0.8	30 470	59 320	—	—	—	—	—	—	—	—
CFH24M	CFH24MR	CFH24MUU	CFH24MUUR	815	24	62	29	M24×1.5	80	0.8	28 040	48 410	—	—	—	—	—	—	—	—
CFH24VM	CFH24VMR	CFH24VMUU	CFH24VMUUR	815	24	62	29	M24×1.5	80	0.8	42 820	84 650	—	—	—	—	—	—	—	—
CFH24-1M	CFH24-1MR	CFH24-1MUU	CFH24-1MUUR	1 140	24	72	29	M24×1.5	80	0.8	28 040	48 410	—	—	—	—	—	—	—	—
CFH24-1VM	CFH24-1VMR	CFH24-1VMUU	CFH24-1VMUUR	1 140	24	72	29	M24×1.5	80	0.8	42 820	84 650	—	—	—	—	—	—	—	—
CFH30M	CFH30MR	CFH30MUU	CFH30MUUR	1 870	30	80	35	M30×1.5	100	1	41 740	78 250	—	—	—	—	—	—	—	—
CFH30VM	CFH30VMR	CFH30VMUU	CFH30VMUUR	1 870	30	80	35	M30×1.5	100	1	62 210	132 530	—	—	—	—	—	—	—	—
CFH30-1M	CFH30-1MR	CFH30-1MUU	CFH30-1MUUR	2 030	30	85	35	M30×1.5	100	1	41 740	78 250	—	—	—	—	—	—	—	—
CFH30-1VM	CFH30-1VMR	CFH30-1VMUU	CFH30-1VMUUR	2 030	30	85	35	M30×1.5	100	1	62 210	132 530	—	—	—	—	—	—	—	—
CFH30-2M	CFH30-2MR	CFH30-2MUU	CFH30-2MUUR	2 220	30	90	35	M30×1.5	100	1	41 740	78 250	—	—	—	—	—	—	—	—
CFH30-2VM	CFH30-2VMR	CFH30-2VMUU	CFH30-2VMUUR	2 220	30	90	35	M30×1.5	100	1	62 210	132 530	—	—	—	—	—	—	—	—

Stud diameter (d) 5 to 10mm : Without oil hole in the thread side.

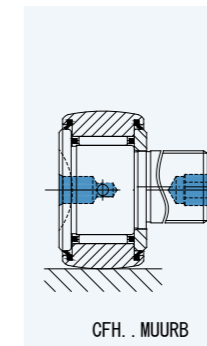
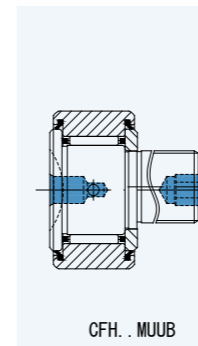
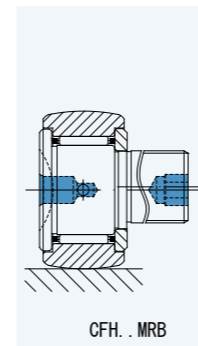
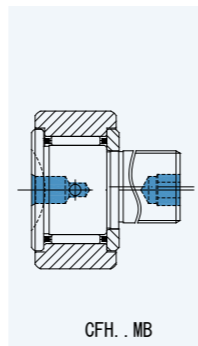
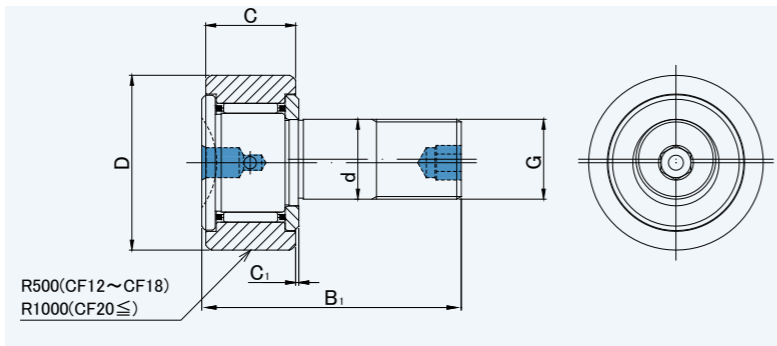


INTERCHANGE



INTERCHANGE

**CAM FOLLOWERS  
STAINLESS STEEL**  
SOLID ECCENTRIC TYPE  
HEXAGON SOCKET ON THREAD SIDE  
SCREWDRIVER SLOT HEAD



**CFH..MB, MRB, MUUB, MUURB**  
STAINLESS STEEL

**CFH..MB, MRB, MUUB, MUURB**

DIMENSION TABLE

INTERCHANGE TABLE

JNS NUMBER CYLINDRICAL OUTER RING	JNS NUMBER CROWNED OUTER RING	JNS NUMBER CYLINDRICAL OUTER RING WITH SEALS	JNS NUMBER CROWNED OUTER RING WITH SEALS	Mass (Approx.) g	Dimensions(mm)						Basic dynamic load rating Cr N	Basic static load rating Cor N	INA		NTN		IKO		MCGILL	
					d	D	C	G	B1	C1			CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS
CFH..MB	CFH..MRB	CFH..MUUB	CFH..MUURB										—	—	—	—	—	—	—	—
CFH12MB	CFH12MRB	CFH12MUUB	CFH12MUURB	95	12	30	14	M12×1.5	40	0.6	7 300	9 010	—	—	—	—	—	—	—	—
CFH12VMB	CFH12VMRB	CFH12VMUUB	CFH12VMUURB	95	12	30	14	M12×1.5	40	0.6	12 350	18 120	—	—	—	—	—	—	—	—
CFH12-1MB	CFH12-1MRB	CFH12-1MUUB	CFH12-1MUURB	105	12	32	14	M12×1.5	40	0.6	7 300	9 010	—	—	—	—	—	—	—	—
CFH12-1VMB	CFH12-1VMRB	CFH12-1VMUUB	CFH12-1VMUURB	105	12	32	14	M12×1.5	40	0.6	12 350	18 120	—	—	—	—	—	—	—	—
CFH16MB	CFH16MRB	CFH16MUUB	CFH16MUURB	170	16	35	18	M16×1.5	52	0.8	11 080	16 860	—	—	—	—	—	—	—	—
CFH16VMB	CFH16VMRB	CFH16VMUUB	CFH16VMUURB	170	16	35	18	M16×1.5	52	0.8	19 020	34 610	—	—	—	—	—	—	—	—
CFH18MB	CFH18MRB	CFH18MUUB	CFH18MUURB	250	18	40	20	M18×1.5	58	0.8	13 520	23 180	—	—	—	—	—	—	—	—
CFH18VMB	CFH18VMRB	CFH18VMUUB	CFH18VMUURB	250	18	40	20	M18×1.5	58	0.8	23 250	47 240	—	—	—	—	—	—	—	—
CFH20MB	CFH20MRB	CFH20MUUB	CFH20MUURB	460	20	52	24	M20×1.5	66	0.8	19 020	31 830	—	—	—	—	—	—	—	—
CFH20VMB	CFH20VMRB	CFH20VMUUB	CFH20VMUURB	460	20	52	24	M20×1.5	66	0.8	30 470	59 320	—	—	—	—	—	—	—	—
CFH20-1MB	CFH20-1MRB	CFH20-1MUUB	CFH20-1MUURB	385	20	47	24	M20×1.5	66	0.8	19 020	31 830	—	—	—	—	—	—	—	—
CFH20-1VMB	CFH20-1VMRB	CFH20-1VMUUB	CFH20-1VMUURB	385	20	47	24	M20×1.5	66	0.8	30 470	59 320	—	—	—	—	—	—	—	—
CFH24MB	CFH24MRB	CFH24MUUB	CFH24MUURB	815	24	62	29	M24×1.5	80	0.8	28 040	48 410	—	—	—	—	—	—	—	—
CFH24VMB	CFH24VMRB	CFH24VMUUB	CFH24VMUURB	815	24	62	29	M24×1.5	80	0.8	42 820	84 650	—	—	—	—	—	—	—	—
CFH24-1MB	CFH24-1MRB	CFH24-1MUUB	CFH24-1MUURB	1 140	24	72	29	M24×1.5	80	0.8	28 040	48 410	—	—	—	—	—	—	—	—
CFH24-1VMB	CFH24-1VMRB	CFH24-1VMUUB	CFH24-1VMUURB	1 140	24	72	29	M24×1.5	80	0.8	42 820	84 650	—	—	—	—	—	—	—	—
CFH30MB	CFH30MRB	CFH30MUUB	CFH30MUURB	1 870	30	80	35	M30×1.5	100	1	41 740	78 250	—	—	—	—	—	—	—	—
CFH30VMB	CFH30VMRB	CFH30VMUUB	CFH30VMUURB	1 870	30	80	35	M30×1.5	100	1	62 210	132 530	—	—	—	—	—	—	—	—
CFH30-1MB	CFH30-1MRB	CFH30-1MUUB	CFH30-1MUURB	2 030	30	85	35	M30×1.5	100	1	41 740	78 250	—	—	—	—	—	—	—	—
CFH30-1VMB	CFH30-1VMRB	CFH30-1VMUUB	CFH30-1VMUURB	2 030	30	85	35	M30×1.5	100	1	62 210	132 530	—	—	—	—	—	—	—	—
CFH30-2MB	CFH30-2MRB	CFH30-2MUUB	CFH30-2MUURB	2 220	30	90	35	M30×1.5	100	1	41 740	78 250	—	—	—	—	—	—	—	—
CFH30-2VMB	CFH30-2VMRB	CFH30-2VMUUB	CFH30-2VMUURB	2 220	30	90	35	M30×1.5	100	1	62 210	132 530	—	—	—	—	—	—	—	—

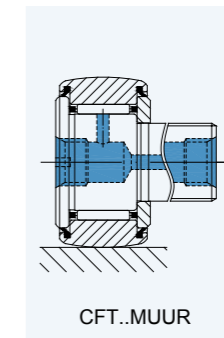
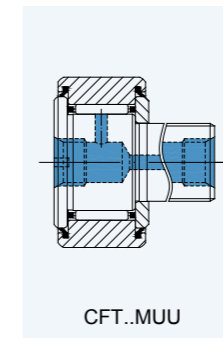
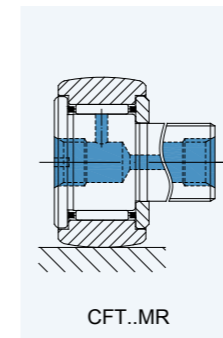
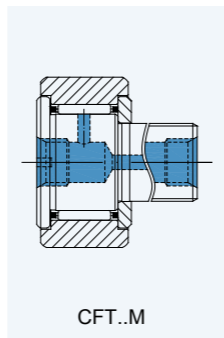
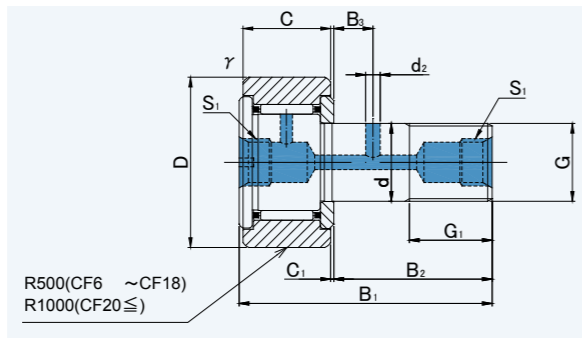


INTERCHANGE



INTERCHANGE

**CAM FOLLOWERS  
STAINLESS STEEL  
TAP HOLE FOR PIPING  
SCREWDRIVER SLOT HEAD**



**CFT..M, MR, MUU, MUUR  
STAINLESS STEEL**

**CFT..M, MR, MUU, MUUR**

DIMENSION TABLE

INTERCHANGE TABLE

JNS NUMBER CYLINDRICAL OUTER RING	JNS NUMBER CROWNED OUTER RING	JNS NUMBER CYLINDRICAL OUTER RING WITH SEALS	JNS NUMBER CROWNED OUTER RING WITH SEALS	Mass (Approx.)	Dimensions(mm)						Basic dynamic load rating	Basic static load rating	INA		NTN		IKO		MCGILL	
					d	D	C	G	B1	C1			Cr N	Cor N	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS
CFT..M	CFT..MR	CFT..MUU	CFT..MUUR	g	d	D	C	G	B1	C1	Cr N	Cor N	—	—	—	—	—	—	—	—
CFT6M	CFT6MR	CFT6MUU	CFT6MUUR	18.5	6	16	11	M6×1	28	0.6	3 330	3 330	—	—	—	—	—	—	—	—
CFT6VM	CFT6VMR	CFT6VMUU	CFT6VMUUR	18.5	6	16	11	M6×1	28	0.6	6 400	7 840	—	—	—	—	—	—	—	—
CFT8M	CFT8MR	CFT8MUU	CFT8MUUR	28.5	8	19	11	M8×1.25	32	0.6	3 960	4 330	—	—	—	—	—	—	—	—
CFT8VM	CFT8VMR	CFT8VMUU	CFT8VMUUR	28.5	8	19	11	M8×1.25	32	0.6	7 470	10 270	—	—	—	—	—	—	—	—
CFT10M	CFT10MR	CFT10MUU	CFT10MUUR	45	10	22	12	M10×1.25	36	0.6	4 950	6 310	—	—	—	—	—	—	—	—
CFT10VM	CFT10VMR	CFT10VMUU	CFT10VMUUR	45	10	22	12	M10×1.25	36	0.6	8 740	13 340	—	—	—	—	—	—	—	—
CFT10-1M	CFT10-1MR	CFT10-1MUU	CFT10-1MUUR	60	10	26	12	M10×1.25	36	0.6	4 950	6 310	—	—	—	—	—	—	—	—
CFT10-1VM	CFT10-1VMR	CFT10-1VMUU	CFT10-1VMUUR	60	10	26	12	M10×1.25	36	0.6	8 740	13 340	—	—	—	—	—	—	—	—
CFT12M	CFT12MR	CFT12MUU	CFT12MUUR	95	12	30	14	M12×1.5	40	0.6	7 300	9 010	—	—	—	—	—	—	—	—
CFT12VM	CFT12VMR	CFT12VMUU	CFT12VMUUR	95	12	30	14	M12×1.5	40	0.6	12 350	18 120	—	—	—	—	—	—	—	—
CFT12-1M	CFT12-1MR	CFT12-1MUU	CFT12-1MUUR	105	12	32	14	M12×1.5	40	0.6	7 300	9 010	—	—	—	—	—	—	—	—
CFT12-1VM	CFT12-1VMR	CFT12-1VMUU	CFT12-1VMUUR	105	12	32	14	M12×1.5	40	0.6	12 350	18 120	—	—	—	—	—	—	—	—
CFT16M	CFT16MR	CFT16MUU	CFT16MUUR	170	16	35	18	M16×1.5	52	0.8	11 080	16 860	—	—	—	—	—	—	—	—
CFT16VM	CFT16VMR	CFT16VMUU	CFT16VMUUR	170	16	35	18	M16×1.5	52	0.8	19 020	34 610	—	—	—	—	—	—	—	—
CFT18M	CFT18MR	CFT18MUU	CFT18MUUR	250	18	40	20	M18×1.5	58	0.8	13 520	23 180	—	—	—	—	—	—	—	—
CFT18VM	CFT18VMR	CFT18VMUU	CFT18VMUUR	250	18	40	20	M18×1.5	58	0.8	23 250	47 240	—	—	—	—	—	—	—	—
CFT20M	CFT20MR	CFT20MUU	CFT20MUUR	460	20	52	24	M20×1.5	66	0.8	19 020	31 830	—	—	—	—	—	—	—	—
CFT20VM	CFT20VMR	CFT20VMUU	CFT20VMUUR	460	20	52	24	M20×1.5	66	0.8	30 470	59 320	—	—	—	—	—	—	—	—
CFT20-1M	CFT20-1MR	CFT20-1MUU	CFT20-1MUUR	385	20	47	24	M20×1.5	66	0.8	19 020	31 830	—	—	—	—	—	—	—	—
CFT20-1VM	CFT20-1VMR	CFT20-1VMUU	CFT20-1VMUUR	385	20	47	24	M20×1.5	66	0.8	30 470	59 320	—	—	—	—	—	—	—	—
CFT24M	CFT24MR	CFT24MUU	CFT24MUUR	815	24	62	29	M24×1.5	80	0.8	28 040	48 410	—	—	—	—	—	—	—	—
CFT24VM	CFT24VMR	CFT24VMUU	CFT24VMUUR	815	24	62	29	M24×1.5	80	0.8	42 820	84 650	—	—	—	—	—	—	—	—
CFT24-1M	CFT24-1MR	CFT24-1MUU	CFT24-1MUUR	1 140	24	72	29	M24×1.5	80	0.8	28 040	48 410	—	—	—	—	—	—	—	—
CFT24-1VM	CFT24-1VMR	CFT24-1VMUU	CFT24-1VMUUR	1 140	24	72	29	M24×1.5	80	0.8	42 820	84 650	—	—	—	—	—	—	—	—
CFT30M	CFT30MR	CFT30MUU	CFT30MUUR	1 870	30	80	35	M30×1.5	100	1	41 740	78 250	—	—	—	—	—	—	—	—
CFT30VM	CFT30VMR	CFT30VMUU	CFT30VMUUR	1 870	30	80	35	M30×1.5	100	1	62 210	132 530	—	—	—	—	—	—	—	—
CFT30-1M	CFT30-1MR	CFT30-1MUU	CFT30-1MUUR	2 030	30	85	35	M30×1.5	100	1	41 740	78 250	—	—	—	—	—	—	—	—
CFT30-1VM	CFT30-1VMR	CFT30-1VMUU	CFT30-1VMUUR	2 030	30	85	35	M30×1.5	100	1	62 210	132 530	—	—	—	—	—	—	—	—
CFT30-2M	CFT30-2MR	CFT30-2MUU	CFT30-2MUUR	2 220	30	90	35	M30×1.5	100	1	41 740	78 250	—	—	—	—	—	—	—	—
CFT30-2VM	CFT30-2VMR	CFT30-2VMUU	CFT30-2VMUUR	2 220	30	90	35	M30×1.5	100	1	62 210	132 530	—	—	—	—	—	—	—	—

Stud diameter (d) 6 to 10mm : Without oil hole in the thread side.



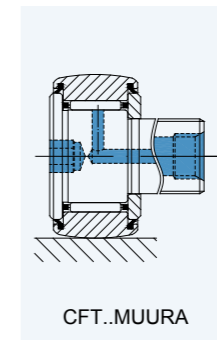
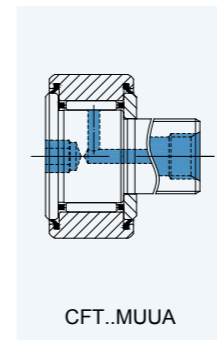
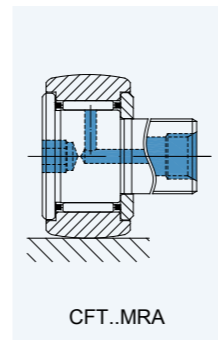
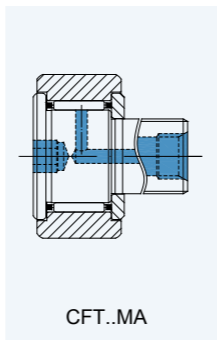
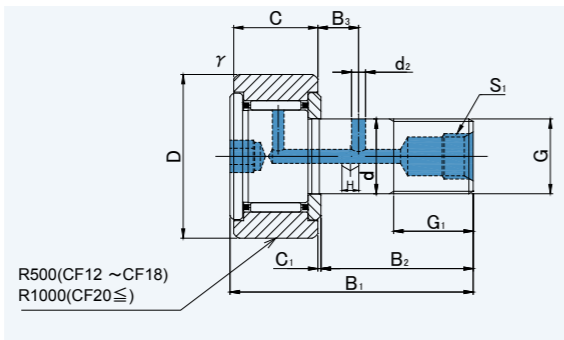
INTERCHANGE



INTERCHANGE



**CAM FOLLOWERS  
STAINLESS STEEL**  
TAP HOLE FOR PIPING  
HEXAGON SOCKET ON STUD HEAD



**CFT..MA, MRA, MUUA, MUURA**  
**STAINLESS STEEL**

**CFT..MA, MRA, MUUA, MUURA**

DIMENSION TABLE

INTERCHANGE TABLE

JNS NUMBER CYLINDRICAL OUTER RING	JNS NUMBER CROWNED OUTER RING	JNS NUMBER CYLINDRICAL OUTER RING WITH SEALS	JNS NUMBER CROWNED OUTER RING WITH SEALS	Mass (Approx.) g	Dimensions(mm)						Basic dynamic load rating Cr N	Basic static load rating Cor N	INA		NTN		IKO		MCGILL	
					d	D	C	G	B1	C1			CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS
CFT..MA	CFH..MRA	CFT..MUUA	CFT..MUURA										—	—	—	—	—	—	—	—
CFT12MA	CFT12MRA	CFT12MUUA	CFT12MUURA	95	12	30	14	M12×1.5	40	0.6	7 300	9 010	—	—	—	—	—	—	—	—
CFT12VMA	CFT12VMRA	CFT12VMUUA	CFT12VMUURA	95	12	30	14	M12×1.5	40	0.6	12 350	18 120	—	—	—	—	—	—	—	—
CFT12-1MA	CFT12-1MRA	CFT12-1MUUA	CFT12-1MUURA	105	12	32	14	M12×1.5	40	0.6	7 300	9 010	—	—	—	—	—	—	—	—
CFT12-1VMA	CFT12-1VMRA	CFT12-1VMUUA	CFT12-1VMUURA	105	12	32	14	M12×1.5	40	0.6	12 350	18 120	—	—	—	—	—	—	—	—
CFT16MA	CFT16MRA	CFT16MUUA	CFT16MUURA	170	16	35	18	M16×1.5	52	0.8	11 080	16 860	—	—	—	—	—	—	—	—
CFT16VMA	CFT16VMRA	CFT16VMUUA	CFT16VMUURA	170	16	35	18	M16×1.5	52	0.8	19 020	34 610	—	—	—	—	—	—	—	—
CFT18MA	CFT18MRA	CFT18MUUA	CFT18MUURA	250	18	40	20	M18×1.5	58	0.8	13 520	23 180	—	—	—	—	—	—	—	—
CFT18VMA	CFT18VMRA	CFT18VMUUA	CFT18VMUURA	250	18	40	20	M18×1.5	58	0.8	23 250	47 240	—	—	—	—	—	—	—	—
CFT20MA	CFT20MRA	CFT20MUUA	CFT20MUURA	460	20	52	24	M20×1.5	66	0.8	19 020	31 830	—	—	—	—	—	—	—	—
CFT20VMA	CFT20VMRA	CFT20VMUUA	CFT20VMUURA	460	20	52	24	M20×1.5	66	0.8	30 470	59 320	—	—	—	—	—	—	—	—
CFT20-1MA	CFT20-1MRA	CFT20-1MUUA	CFT20-1MUURA	385	20	47	24	M20×1.5	66	0.8	19 020	31 830	—	—	—	—	—	—	—	—
CFT20-1VMA	CFT20-1VMRA	CFT20-1VMUUA	CFT20-1VMUURA	385	20	47	24	M20×1.5	66	0.8	30 470	59 320	—	—	—	—	—	—	—	—
CFT24MA	CFT24MRA	CFT24MUUA	CFT24MUURA	815	24	62	29	M24×1.5	80	0.8	28 040	48 410	—	—	—	—	—	—	—	—
CFT24VMA	CFT24VMRA	CFT24VMUUA	CFT24VMUURA	815	24	62	29	M24×1.5	80	0.8	42 820	84 650	—	—	—	—	—	—	—	—
CFT24-1MA	CFT24-1MRA	CFT24-1MUUA	CFT24-1MUURA	1 140	24	72	29	M24×1.5	80	0.8	28 040	48 410	—	—	—	—	—	—	—	—
CFT24-1VMA	CFT24-1VMRA	CFT24-1VMUUA	CFT24-1VMUURA	1 140	24	72	29	M24×1.5	80	0.8	42 820	84 650	—	—	—	—	—	—	—	—
CFT30MA	CFT30MRA	CFT30MUUA	CFT30MUURA	1 870	30	80	35	M30×1.5	100	1	41 740	78 250	—	—	—	—	—	—	—	—
CFT30VMA	CFT30VMRA	CFT30VMUUA	CFT30VMUURA	1 870	30	80	35	M30×1.5	100	1	62 210	132 530	—	—	—	—	—	—	—	—
CFT30-1MA	CFT30-1MRA	CFT30-1MUUA	CFT30-1MUURA	2 030	30	85	35	M30×1.5	100	1	41 740	78 250	—	—	—	—	—	—	—	—
CFT30-1VMA	CFT30-1VMRA	CFT30-1VMUUA	CFT30-1VMUURA	2 030	30	85	35	M30×1.5	100	1	62 210	132 530	—	—	—	—	—	—	—	—
CFT30-2MA	CFT30-2MRA	CFT30-2MUUA	CFT30-2MUURA	2 220	30	90	35	M30×1.5	100	1	41 740	78 250	—	—	—	—	—	—	—	—
CFT30-2VMA	CFT30-2VMRA	CFT30-2VMUUA	CFT30-2VMUURA	2 220	30	90	35	M30×1.5	100	1	62 210	132 530	—	—	—	—	—	—	—	—

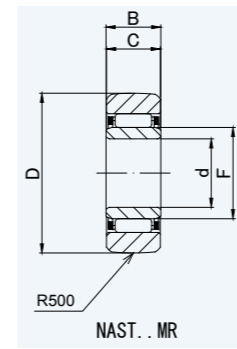
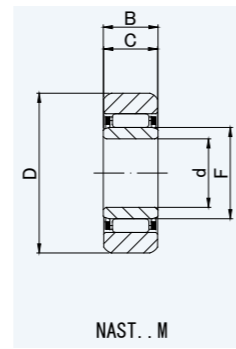
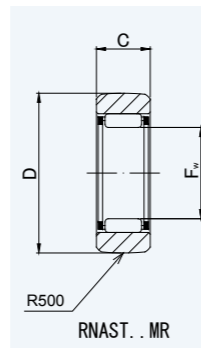
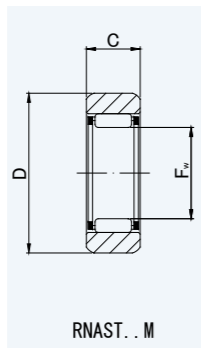


INTERCHANGE



INTERCHANGE

**ROLLER FOLLOWERS  
STAINLESS STEEL**  
SEPARABLE  
WITH INNER RING  
WITHOUT INNER RING



**RNAS...M, MR, NAST...M, MR**  
STAINLESS STEEL

**RNAS...M, MR, NAST...M, MR**

DIMENSION TABLE

JNS NUMBER CYLINDRICAL OUTER RING WITHOUT INNER RING	JNS NUMBER CROWNED OUTER RING WITHOUT INNER RING	Mass (Approx.)	JNS NUMBER CYLINDRICAL OUTER RING WITH INNER RING	JNS NUMBER CROWNED OUTER RING WITH INNER RING	Mass (Approx.)	Dimensions(mm)					Basic dynamic load rating	Basic static load rating	INA		NTN		IKO		TORRINGTON(KOYO)	
						Fw (F)	D	d	C	B			Cr N	Cor N	CYLINDRICAL OUTER RING WITHOUT INNER RING	CROWNED OUTER RING WITHOUT INNER RING	CYLINDRICAL OUTER RING WITHOUT INNER RING	CROWNED OUTER RING WITHOUT INNER RING	CYLINDRICAL OUTER RING WITHOUT INNER RING	CROWNED OUTER RING WITHOUT INNER RING
RNAS...M	RNAS...MR	g	NAST...M	NAST...MR	g	Fw (F)	D	d	C	B	Cr N	Cor N	—	—	—	—	—	—	—	—
<b>RNAS5M</b>	<b>RNAS5MR</b>	<b>8.9</b>	—	—	—	7	16	—	7.8	—	2 520	2 190	—	—	—	—	—	—	—	—
<b>RNAS6M</b>	<b>RNAS6MR</b>	<b>13.9</b>	<b>NAST6M</b>	<b>NAST6MR</b>	<b>17.8</b>	10	19	6	9.8	10	3 790	4 180	—	—	—	—	—	—	—	—
<b>RNAS8M</b>	<b>RNAS8MR</b>	<b>23.5</b>	<b>NAST8M</b>	<b>NAST8MR</b>	<b>28</b>	12	24	8	9.8	10	5 220	5 410	—	—	—	—	—	—	—	—
<b>RNAS10M</b>	<b>RNAS10MR</b>	<b>42.5</b>	<b>NAST10M</b>	<b>NAST10MR</b>	<b>50</b>	14	30	10	11.8	12	8 920	8 890	—	—	—	—	—	—	—	—
<b>RNAS12M</b>	<b>RNAS12MR</b>	<b>49.5</b>	<b>NAST12M</b>	<b>NAST12MR</b>	<b>58</b>	16	32	12	11.8	12	9 560	10 020	—	—	—	—	—	—	—	—
<b>RNAS15M</b>	<b>RNAS15MR</b>	<b>50</b>	<b>NAST15M</b>	<b>NAST15MR</b>	<b>62</b>	20	35	15	11.8	12	11 310	13 150	—	—	—	—	—	—	—	—
<b>RNAS17M</b>	<b>RNAS17MR</b>	<b>90</b>	<b>NAST17M</b>	<b>NAST17MR</b>	<b>110</b>	22	40	17	15.8	16	16 000	19 220	—	—	—	—	—	—	—	—
<b>RNAS20M</b>	<b>RNAS20MR</b>	<b>135</b>	<b>NAST20M</b>	<b>NAST20MR</b>	<b>155</b>	25	47	20	15.8	16	17 660	22 540	—	—	—	—	—	—	—	—
<b>RNAS25M</b>	<b>RNAS25MR</b>	<b>152</b>	<b>NAST25M</b>	<b>NAST25MR</b>	<b>180</b>	30	52	25	15.8	16	19 040	26 120	—	—	—	—	—	—	—	—
<b>RNAS30M</b>	<b>RNAS30MR</b>	<b>255</b>	<b>NAST30M</b>	<b>NAST30MR</b>	<b>320</b>	38	62	30	19.8	20	27 870	41 760	—	—	—	—	—	—	—	—
<b>RNAS35M</b>	<b>RNAS35MR</b>	<b>375</b>	<b>NAST35M</b>	<b>NAST35MR</b>	<b>440</b>	42	72	35	19.8	20	29 620	46 550	—	—	—	—	—	—	—	—
<b>RNAS40M</b>	<b>RNAS40MR</b>	<b>420</b>	<b>NAST40M</b>	<b>NAST40MR</b>	<b>530</b>	50	80	40	19.8	20	32 840	56 210	—	—	—	—	—	—	—	—
<b>RNAS45M</b>	<b>RNAS45MR</b>	<b>460</b>	<b>NAST45M</b>	<b>NAST45MR</b>	<b>580</b>	55	85	45	19.8	20	34 130	61 080	—	—	—	—	—	—	—	—
<b>RNAS50M</b>	<b>RNAS50MR</b>	<b>500</b>	<b>NAST50M</b>	<b>NAST50MR</b>	<b>635</b>	60	90	50	19.8	20	35 600	66 050	—	—	—	—	—	—	—	—

INTERCHANGE TABLE

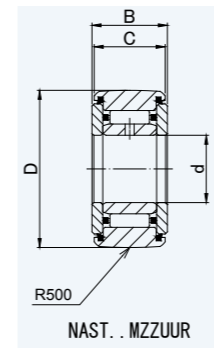
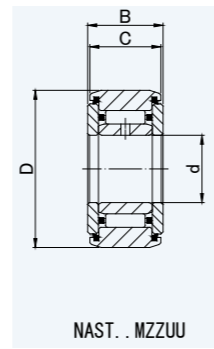
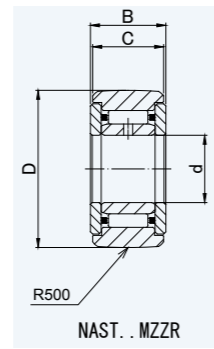
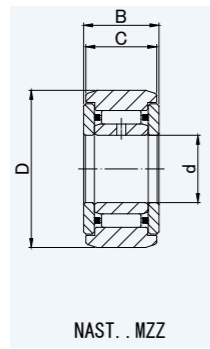


INTERCHANGE



INTERCHANGE

**ROLLER FOLLOWERS  
STAINLESS STEEL**  
SEPARABLE  
WITH INNER RING  
WITH SHIELD



**NAST..MZZ, MZZR, MZZUU, MZZUUR**  
STAINLESS STEEL

**NAST..MZZ, MZZR, MZZUU, MZZUUR**

DIMENSION TABLE

INTERCHANGE TABLE

JNS NUMBER CYLINDRICAL OUTER RING WITHOUT SEALS	JNS NUMBER CROWNED OUTER RING WITHOUT SEALS	JNS NUMBER CYLINDRICAL OUTER RING WITH SEALS	JNS NUMBER CROWNED OUTER RING WITH SEALS	Mass (Approx.) g	Dimensions(mm)				Basic dynamic load rating Cr N	Basic static load rating Cor N	INA		NTN		IKO		TORRINGTON(KOYO)	
					d	D	B	C			CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS
NAST..MZZ	NAST..MZZR	NAST..MZZUU	NAST..MZZUUR	g	d	D	B	C	Cr N	Cor N	—	—	—	—	—	—	—	—
NAST6MZZ	NAST6MZZR	NAST6MZZUU	NAST6MZZUUR	24.5	6	19	14	13.8	3 790	4 180	—	—	—	—	—	—	—	—
NAST8MZZ	NAST8MZZR	NAST8MZZUU	NAST8MZZUUR	39	8	24	14	13.8	5 220	5 410	—	—	—	—	—	—	—	—
NAST10MZZ	NAST10MZZR	NAST10MZZUU	NAST10MZZUUR	65	10	30	16	15.8	8 920	8 890	—	—	—	—	—	—	—	—
NAST12MZZ	NAST12MZZR	NAST12MZZUU	NAST12MZZUUR	75	12	32	16	15.8	9 560	10 020	—	—	—	—	—	—	—	—
NAST15MZZ	NAST15MZZR	NAST15MZZUU	NAST15MZZUUR	83	15	35	16	15.8	11 310	13 150	—	—	—	—	—	—	—	—
NAST17MZZ	NAST17MZZR	NAST17MZZUU	NAST17MZZUUR	135	17	40	20	19.8	16 000	19 220	—	—	—	—	—	—	—	—
NAST20MZZ	NAST20MZZR	NAST20MZZUU	NAST20MZZUUR	195	20	47	20	19.8	17 660	22 540	—	—	—	—	—	—	—	—
NAST25MZZ	NAST25MZZR	NAST25MZZUU	NAST25MZZUUR	225	25	52	20	19.8	19 040	26 120	—	—	—	—	—	—	—	—
NAST30MZZ	NAST30MZZR	NAST30MZZUU	NAST30MZZUUR	400	30	62	25	24.8	27 870	41 760	—	—	—	—	—	—	—	—
NAST35MZZ	NAST35MZZR	NAST35MZZUU	NAST35MZZUUR	550	35	72	25	24.8	29 620	46 550	—	—	—	—	—	—	—	—
NAST40MZZ	NAST40MZZR	NAST40MZZUU	NAST40MZZUUR	710	40	80	26	25.8	32 840	56 210	—	—	—	—	—	—	—	—
NAST45MZZ	NAST45MZZR	NAST45MZZUU	NAST45MZZUUR	760	45	85	26	25.8	34 130	61 080	—	—	—	—	—	—	—	—
NAST50MZZ	NAST50MZZR	NAST50MZZUU	NAST50MZZUUR	830	50	90	26	25.8	35 600	66 050	—	—	—	—	—	—	—	—

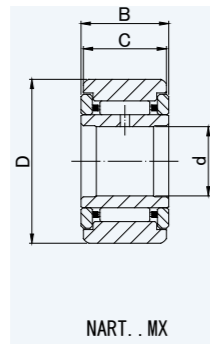


INTERCHANGE

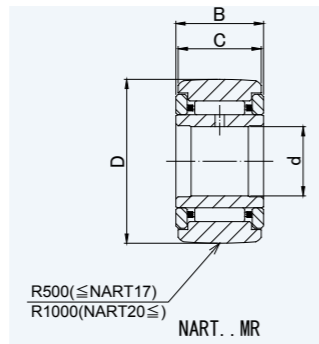


INTERCHANGE

**ROLLER FOLLOWERS  
STAINLESS STEEL  
NON SEPARABLE  
WITH INNER RING**

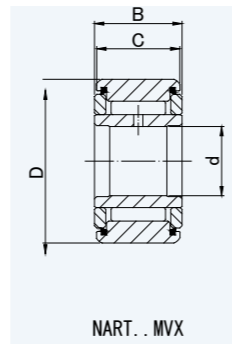


NART..MX

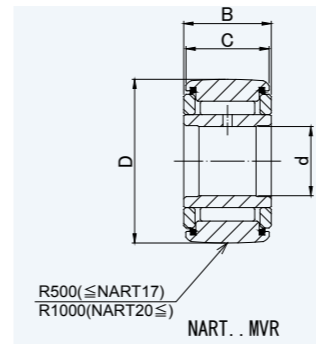


R500( $\leq$ NART17)  
R1000(NART20 $\leq$ )

NART..MR



NART..MVX



R500( $\leq$ NART17)  
R1000(NART20 $\leq$ )

NART..MVR

**NART..MX, MR, MUUX, MUUR  
STAINLESS STEEL**

**NART..MX, MR, MUUX, MUUR**

DIMENSION TABLE

JNS NUMBER CYLINDRICAL OUTER RING WITHOUT SEALS	JNS NUMBER CROWNED OUTER RING WITHOUT SEALS	JNS NUMBER CYLINDRICAL OUTER RING WITH SEALS	JNS NUMBER CROWNED OUTER RING WITH SEALS	Mass (Approx.)	Dimensions(mm)				Basic dynamic load rating	Basic static load rating	INA		NTN		IKO		MCGILL	
					Cr N	Cor N	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS			CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS	CYLINDRICAL OUTER RING WITHOUT SEALS	CROWNED OUTER RING WITHOUT SEALS		
NART..MX	NART..MR	NART..MUUX	NART..MUUR	g	d	D	B	C	Cr N	Cor N	—	—	—	—	—	—	—	—
NART5MX	NART5MR	NART5MUUX	NART5MUUR	14.5	5	16	12	11	3 330	3 420	—	—	—	—	—	—	—	—
NART5MVX	NART5MVR	NART5MUUVX	NART5MUUVR	15.1	5	16	12	11	6 210	7 670	—	—	—	—	—	—	—	—
NART6MX	NART6MR	NART6MUUX	NART6MUUR	20.5	6	19	12	11	3 860	4 320	—	—	—	—	—	—	—	—
NART6MVX	NART6MVR	NART6MUUVX	NART6MUUVR	21.5	6	19	12	11	7 020	9 470	—	—	—	—	—	—	—	—
NART8MX	NART8MR	NART8MUUX	NART8MUUR	41.5	8	24	15	14	6 070	6 710	—	—	—	—	—	—	—	—
NART8MVX	NART8MVR	NART8MUUVX	NART8MUUVR	42.5	8	24	15	14	10 850	14 350	—	—	—	—	—	—	—	—
NART10MX	NART10MR	NART10MUUX	NART10MUUR	64.5	10	30	15	14	7 910	7 630	—	—	—	—	—	—	—	—
NART10MVX	NART10MVR	NART10MUUVX	NART10MUUVR	66.5	10	30	15	14	14 350	16 650	—	—	—	—	—	—	—	—
NART12MX	NART12MR	NART12MUUX	NART12MUUR	71	12	32	15	14	8 370	8 460	—	—	—	—	—	—	—	—
NART12MVX	NART12MVR	NART12MUUVX	NART12MUUVR	73	12	32	15	14	15 450	18 860	—	—	—	—	—	—	—	—
NART15MX	NART15MR	NART15MUUX	NART15MUUR	102	15	35	19	18	13 240	16 190	—	—	—	—	—	—	—	—
NART15MVX	NART15MVR	NART15MUUVX	NART15MUUVR	106	15	35	19	18	23 090	33 480	—	—	—	—	—	—	—	—
NART17MX	NART17MR	NART17MUUX	NART17MUUR	149	17	40	21	20	17 110	20 700	—	—	—	—	—	—	—	—
NART17MVX	NART17MVR	NART17MUUVX	NART17MUUVR	155	17	40	21	20	29 440	42 500	—	—	—	—	—	—	—	—
NART20MX	NART20MR	NART20MUUX	NART20MUUR	250	20	47	25	24	22 170	30 080	—	—	—	—	—	—	—	—
NART20MVX	NART20MVR	NART20MUUVX	NART20MUUVR	255	20	47	25	24	38 360	61 910	—	—	—	—	—	—	—	—
NART25MX	NART25MR	NART25MUUX	NART25MUUR	285	25	52	25	24	23 730	34 500	—	—	—	—	—	—	—	—
NART25MVX	NART25MVR	NART25MUUVX	NART25MUUVR	295	25	52	25	24	41 860	72 680	—	—	—	—	—	—	—	—
NART30MX	NART30MR	NART30MUUX	NART30MUUR	470	30	62	29	28	33 300	52 340	—	—	—	—	—	—	—	—
NART30MVX	NART30MVR	NART30MUUVX	NART30MUUVR	485	30	62	29	28	55 010	101 560	—	—	—	—	—	—	—	—
NART35MX	NART35MR	NART35MUUX	NART35MUUR	640	35	72	29	28	35 140	57 770	—	—	—	—	—	—	—	—
NART35MVX	NART35MVR	NART35MUUVX	NART35MUUVR	655	35	72	29	28	57 960	111 780	—	—	—	—	—	—	—	—
NART40MX	NART40MR	NART40MUUX	NART40MUUR	845	40	80	32	30	42 500	77 920	—	—	—	—	—	—	—	—
NART40MVX	NART40MVR	NART40MUUVX	NART40MUUVR	865	40	80	32	30	70 100	151 060	—	—	—	—	—	—	—	—
NART45MX	NART45MR	NART45MUUX	NART45MUUR	915	45	85	32	30	45 350	87 580	—	—	—	—	—	—	—	—
NART45MVX	NART45MVR	NART45MUUVX	NART45MUUVR	935	45	85	32	30	73 780	166 610	—	—	—	—	—	—	—	—
NART50MX	NART50MR	NART50MUUX	NART50MUUR	980	50	90	32	30	47 010	94 110	—	—	—	—	—	—	—	—
NART50MVX	NART50MVR	NART50MUUVX	NART50MUUVR	1 010	50	90	32	30	77 370	182 160	—	—	—	—	—	—	—	—

INTERCHANGE TABLE



INTERCHANGE



INTERCHANGE

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HEAD OFFICE

OSAKA, JAPAN

NARA, JAPAN



NARA PLANT

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