

# Cam Followers / Roller Followers

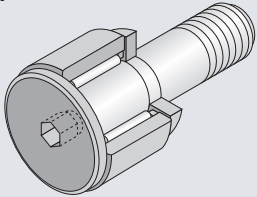
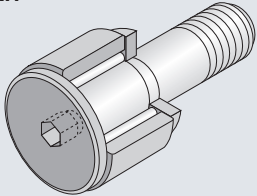
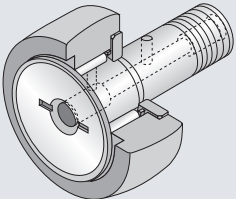
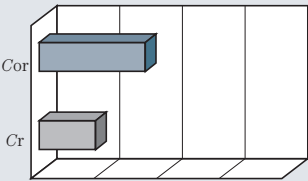
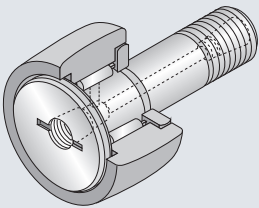
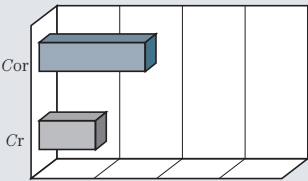
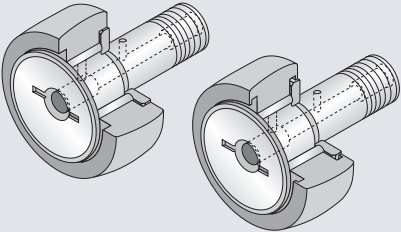
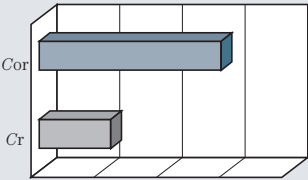
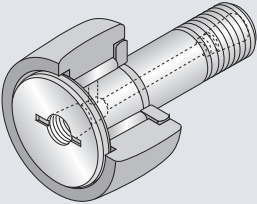
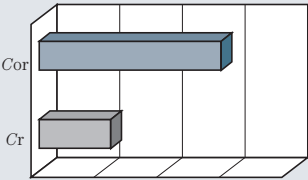


## Cam Followers (Stud Type Track Roller)

This is a track roller complete with stud instead of inner ring, which is designed to operate with its outer ring rolling on the track. These NTN stud type track rollers are applied to eccentric roller, guide roller, rocker arm roller, etc. similarly to the roller followers. One end of the stud is threaded and the hexagonal nut is used to be mounted

easily.

The cam follower types marked with a suffix including "F" are product per new standard specification. They are identically to the conventional products in terms of fitting method and lubrication method, but boast improved functionality through crowned rollers and special heat

Followers type	Applicable shaft diameter (mm)	Load capacity	Composition of bearing number
<b>KRM··XH</b> 	$\phi 1.5 - \phi 6$		<b>KRM 4 XT2H / 3AS</b> Suffix X: Cylinder outer diameter T2: Resin cage H: Hexagonal socket 3AS: Grease Dimension code Type code
<b>KRMV··XH</b> 	$\phi 1.5 - \phi 6$		<b>KRMV 4 XH / 3AS</b> Suffix X: Cylinder outer diameter H: Hexagonal socket 3AS: Grease Dimension code Type code
<b>KR CR</b> 	<b>KR :</b> $\phi 3 - \phi 30$ <b>CR :</b> $\phi 4.826 - \phi 22.225$	 <b>KR90</b>	<b>KR 16 FD02H / L588</b> Suffix F: New standard specification D0: w/o oil hole T2: Resin cage H: Hexagonal socket L588: Grease Dimension code Type code
<b>KRT</b> 	$\phi 6 - \phi 30$	 <b>KR90</b>	<b>KRT 32 X</b> Suffix X: Cylinder outer diameter Dimension code Type code
<b>KRV CRV</b> 	<b>KRV :</b> $\phi 3 - \phi 30$ <b>CRV :</b> $\phi 4.826 - \phi 63.5$	 <b>KRV90</b>	<b>KRV 22 FXLLH / 3AS</b> Suffix F: New standard specification X: Cylinder outer diameter LL: Seal H: Hexagonal socket 3AS: Grease Dimension code Type code
<b>KRVT</b> 	$\phi 6 - \phi 30$	 <b>KRV90</b>	<b>KRVT 52 XLL / 3AS</b> Suffix X: Cylinder outer diameter LL: Seal 3AS: Grease Dimension code Type code

※Each listed load capacity is subject to the reference bearing diameter of  $\phi 30$ .

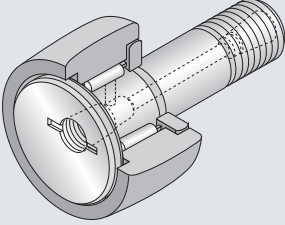
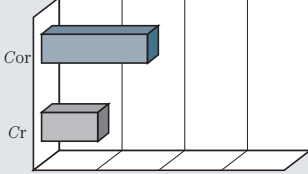
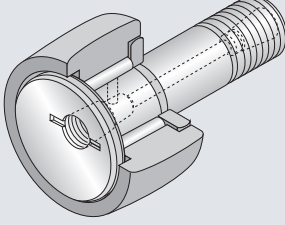
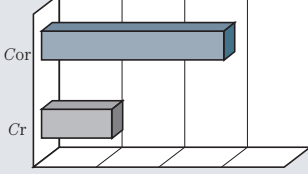
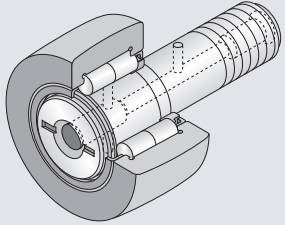
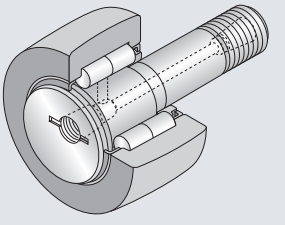
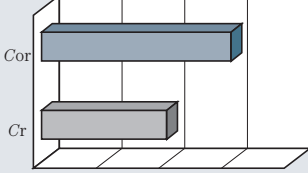
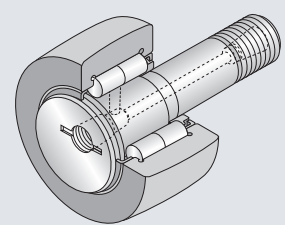
treatment. Note that the cam follower types having a suffix including “F” but lacking an oil hole are prefilled with urea-based high-functionality grease and are identified with a suffix including “DO”.

The outer ring is guided in the axial direction with a flange at the end of stud and the side plate press-fitted to

the stud.

The outer ring has a thick wall and both of spherical outer profile and cylindrical outer surface (tail code: **X**) are available for it similarly to the outer ring of the roller follower.

Follower components	Features
Outer ring outer diameter: $\phi 4$ With metric series cage Outer profile: Cylindrical Stud head: Hexagonal socket Cage: Resin cage Grease: Prefilled	<ul style="list-style-type: none"> <li>● Polyamide resin cage (T2 suffix) can operate at temperatures up to 120°C (100°C for continuous operation).</li> <li>● Prelubricated (no relubrication hole)</li> </ul>
Outer ring outer diameter: $\phi 4$ Metric series full complement roller type Outer profile: Cylindrical Stud head: Hexagonal socket Grease: Prefilled	<ul style="list-style-type: none"> <li>● Better for heavy loads than KRM··XH type.</li> <li>● Prelubricated (no relubrication hole)</li> </ul>
Outer ring outer diameter: $\phi 16$ With metric series cage New standard specification Without oil hole Without seal Outer profile: Spherical Stud head: Hexagonal socket Cage: resin cage Grease: Prefilled	<ul style="list-style-type: none"> <li>● Standard cage is pressed steel.</li> <li>● Polyamide resin cage (T2 suffix) is also available. Allowable temperature: 120°C max. Continuous operating temperature: 100°C max</li> <li>● Suited to high speed.</li> </ul>
Outer ring outer diameter: $\phi 32$ With metric series cage Stud head: with recessed slot for screw-driver use and tapped hole Outer surface profile: Cylindrical Seal: w/o seal Grease: Not prefilled	<ul style="list-style-type: none"> <li>● Due to a high initial grease fill, this type can be used for a long period of time without additional greasing.</li> <li>● The standard Type KRT follower has no hexagonal hole (H suffix), but a hexagonal socket is standard with a threaded plug.</li> <li>● If there is no grease code, the follower is not prelubricated.</li> </ul>
Outer ring outer diameter: $\phi 22$ Metric series full complement roller type New standard specification Stud head: Hexagonal socket Outer surface profile: Cylindrical Seal: w/ seal Grease: Prefilled	<ul style="list-style-type: none"> <li>● Suited to high load.</li> <li>● Lower allowable running speed than caged types.</li> <li>● Grease replenishing interval must be shortened due to the small internal volume available for grease.</li> </ul>
Outer ring outer diameter: $\phi 52$ Metric series full complement roller type Stud head: with recessed slot for screw-driver use and tapped hole Outer surface profile: Cylindrical Seal: w/ seal Grease: Prefilled	<ul style="list-style-type: none"> <li>● The standard Type KRVT follower has no hexagonal hole (H suffix), but a hexagonal socket is standard with a threaded plug.</li> </ul>

Follower type	Applicable shaft diameter (mm)	Load capacity	Composition of bearing number
<p><b>KRU</b></p> 	<p><math>\phi 6 - \phi 30</math></p>	 <p><b>KRU90</b></p>	<p><b>KRU 32 LL / 3AS</b></p> <ul style="list-style-type: none"> <li>Suffix</li> <li>LL: seal</li> <li>3AS: Grease</li> </ul> <p>Dimension code</p> <p>Type code</p>
<p><b>KRVU</b></p> 	<p><math>\phi 6 - \phi 30</math></p>	 <p><b>KRVU90</b></p>	<p><b>KRVU 62 X LL / 3AS</b></p> <ul style="list-style-type: none"> <li>Suffix</li> <li>LL: seal</li> <li>3AS: Grease</li> </ul> <p>Suffix</p> <p>X: Cylinder outer diameter</p> <p>Dimension code</p> <p>Type code</p>
<p><b>NUKR</b></p> 	<p><math>\phi 12 - \phi 64</math></p>		<p><b>NUKR 80 H / 3AS</b></p> <ul style="list-style-type: none"> <li>Suffix</li> <li>H: with hexagon socket</li> <li>3AS: Grease</li> </ul> <p>Dimension code</p> <p>Type code</p>
<p><b>NUKRT</b></p> 	<p><math>\phi 12 - \phi 64</math></p>	 <p><b>NUKR90</b></p>	<p><b>NUKRT 90 / 3AS</b></p> <ul style="list-style-type: none"> <li>Suffix</li> <li>3AS: Grease</li> </ul> <p>Dimension code</p> <p>Type code</p>
<p><b>NUKRU</b></p> 	<p><math>\phi 12 - \phi 64</math></p>		<p><b>NUKRU 140 X / 3AS</b></p> <ul style="list-style-type: none"> <li>Suffix</li> <li>X: Cylinder outer diameter</li> <li>3AS: Grease</li> </ul> <p>Dimension code</p> <p>Dimension code</p>

※Each listed load capacity is subject to the reference bearing diameter of  $\phi 30$ .

Follower components	Features
<p>Outer ring outer diameter: <math>\phi 32</math>                      Eccentric stud w/ metric series cage                      Stud head: with recessed slot for screw-driver use and tapped hole                      Outer profile: Spherical                      Seal: w/ seal                      Grease: Prefilled</p>	<ul style="list-style-type: none"> <li>• Unlike Type KRT and KRVT, Type KRU and KRVU have the eccentric stud (eccentricity : 0.25 to 1.0mm) so as to enable to adjust positional variation of the stud mounting hole.</li> <li>• Certain Type KRU cam followers, which lack a seal and whose suffix does not include grease code, are supplied without prefilled grease.</li> </ul>
<p>Outer ring outer diameter: <math>\phi 62</math>                      Eccentric stud, metric series full complement roller type                      Stud head: with recessed slot for screw-driver use and tapped hole                      Outer profile: Cylindrical                      Seal: w/ seal                      Grease: Prefilled</p>	
<p>Outer ring outer diameter: <math>\phi 80</math>                      Metric series double-row cylindrical roller type                      Shielded full-complement roller type                      Stud head: Hexagonal socket                      Outer profile: Spherical                      Grease: Prefilled</p>	<ul style="list-style-type: none"> <li>• Highest rated load, best-suited to applications subjected to high load and shock load.</li> <li>• The outer ring is guided in axial direction by the outer ring ribs and the end faces of cylindrical roller.</li> <li>• Grease replenishing interval must be shortened due to the small spacing volume.</li> <li>• Type NUKRU has the eccentric stud (eccentricity: 0.4 to 2.5mm) so as to enable to adjust positional variation of the stud mounting hole.</li> </ul>
<p>Outer ring outer diameter <math>\phi 90</math>                      Metric series double-row cylindrical roller type                      Shielded full-complement roller type                      Stud head: with recessed slot for screw-driver use and tapped hole                      Outer profile: Spherical                      Grease: Prefilled</p>	
<p>Outer ring outer diameter: <math>\phi 140</math>                      Metric series double-row cylindrical roller type                      Shielded full-complement roller type stud, eccentric type                      Stud head: with recessed slot for screw-driver use and tapped hole                      Outer profile: Cylindrical                      Grease: Prefilled</p>	

## Bearing accuracy

The dimensional accuracy and profile accuracy of cylindrical roller outer diameter ( $D$ ) and outer ring width ( $C$ ), and the running accuracy of bearing assy are as shown in **Tables 4.3** and 4.4 of Section 4 "Bearing Tolerances" (page A-26) and the accuracy class of each conforms to JIS Class-0. The dimensional accuracy of spherical outer diameter ( $D$ ) and stud diameter ( $d_1$ ) are as shown in applicable Dimensions Table.

## Bearing fit and radial internal clearance

**Table 1** shows the recommended fitting tolerance for the stud mounting hole.

And **Table 2** shows the radial internal clearance.

**Table 1 Recommended tolerance**

Classification	Tolerance range class for mounting hole
Metric series	H7
Inch series	F7

**Note) When shock load acts on, make the stud - hole clearance as less as possible in assembling.**

**Table 2 Radial internal clearance**

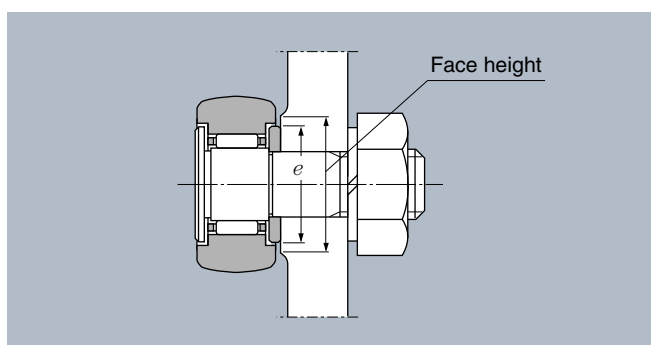
Unit :  $\mu\text{m}$

Nominal roller inscribed circle diameter $F_w$ (mm)		Clearance							
		C2		CN (ordinary)		C3		C4	
over	incl.	min	max	min	max	min	max	min	max
—	6	0	10	3	17	15	30	20	40
6	10	0	12	5	20	15	30	25	45
10	18	0	15	5	25	15	35	30	55
18	30	0	20	10	30	20	40	40	65
30	50	0	25	10	40	25	55	50	80
50	80	0	30	15	50	30	65	60	100
80	100	0	35	20	55	35	75	70	115

## Fitting relations

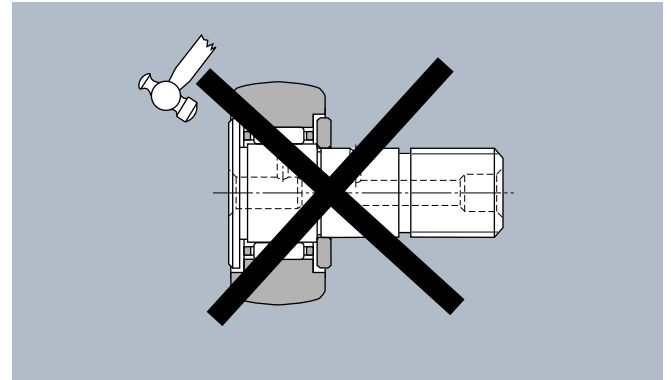
(1) Make the face height at the cam follower mount greater than "e" dimension given in applicable Dimension Table. (**Fig.1**)

Furthermore, chamfer the stud mounting hole at  $R$  as small as possible (around  $0.5 \times 45^\circ$ ) and bring the side faces of side face in precise contact.



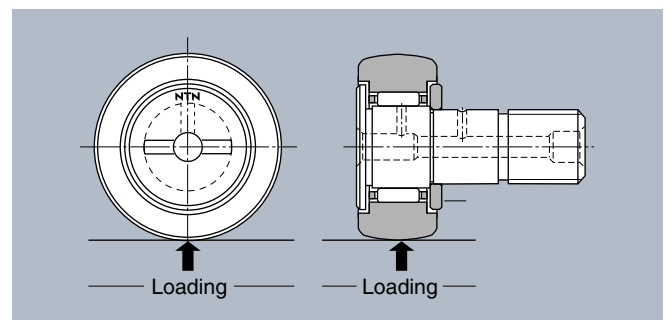
**Fig. 1**

(2) Don't hammer directly the cam follower rib. Doing so would cause breakdown and rotation failure of the rib.



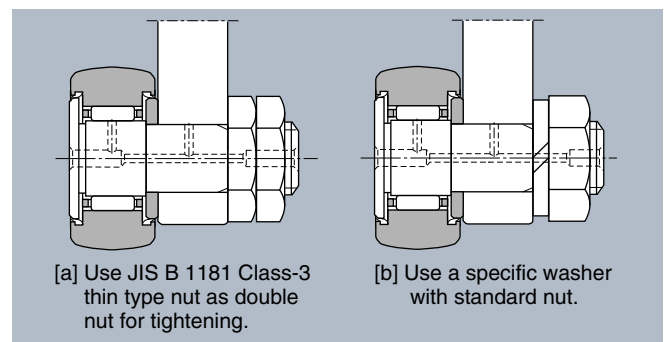
**Fig. 2**

(3) The oil hole position on the stud raceway surface is shown with NTN mark stamped on the stud rib surface. Mount the stud so the oil hole locates within the non-load area (non-load side). (**Fig. 3**) If the oil hole locates within the load area, it would cause shorter life of the follower. (4) Particularly where loose



**Fig. 3**

of the mounting screw is forecast due to wide amplitude vibration during running, the mounting methods as illustrated in **Fig. 4** are available.



**Fig. 4**

- (5) The stud is subjected to bending stress and tensile force arising from bearing load. Tighten the stud screws with tightening torque which does not exceed the torque value specified in applicable Dimension Table.  
**Too tight tightening torque could result in rupture of the threaded portion.**
- (6) A hole is provided on the stud center at right angle to the shaft axial center, as illustrated in **Fig. 5**. Use this hole for locking or grease replenishment.

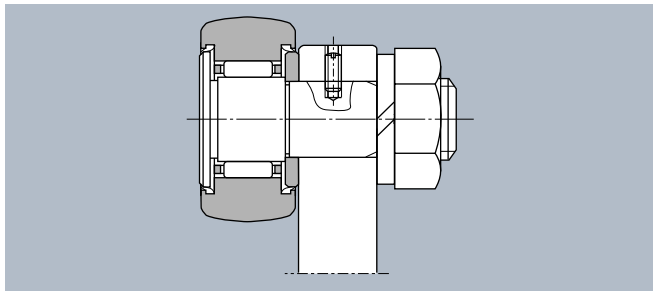


Fig. 5

- (7) For mounting and adjusting the eccentric stud type cam follower, follow the sequence given hereunder.
1. Insert the stud into the mounting hole such that the NTN mark (oil hole position) is located relative to the load acting direction as shown in **Fig. 3**. Then, lightly tighten the nut. Be sure that the stud remains capable of turning.
  2. Fit the tip of flat blade screwdriver into the slot on the stud head or insert an Allen key into the socket of the hexagonal socket head plug (included with the cam follower) fastened into the stud; then turn the stud to adjust the gap between the cam follower to the mating contact surface.
  3. After completion of gap adjustment, tighten the nut to the tightening torque listed in the relevant dimension table in order to jam the stud.

Usually, NTN cam followers are each mounted in cantilever configuration: consequently, when used for a prolonged period, fit of a cam follower to a corresponding bearing can get loose, and a non-uniform load (biased load) can eventually act on the bearing. To keep the machinery having NTN cam followers, it is necessary to prevent excessive loosening of the cam followers.

## Lubrication and how to feed and replenish grease into the follower

### Lubrication

The types having a synthetic rubber seal (suffix LL) and the full complement roller types are prefilled with lithium soap grease (grease code: 3AS), while the new standard specification bearing (w/o oil hole) is prefilled with urea-based high-functionality grease (grease code: L588),

thereby these bearing types may be used in a temperature range of -20 to +120°C or can be continuously used at a temperature of 100°C or lower. When a bearing is always used a temperature of 0°C or lower, use of a bearing prefilled with cold temperature grease. For more information, contact NTN Engineering.

Bearings having a cage, but lacking a seal, do not have prefilled grease. (This description does not apply to bearings whose stud lacks an oil hole.)

If a prefilled grease is needed, feel free to contact NTN.

Note that NTN offers its unique bearing products prefilled with solid grease: these bearings feature minimized outward leakage of lubricant.

For bearing applications that need to minimize possible release oil mist into the atmosphere, NTN will offer bearings prefilled with low dusting grease. For more information, contact NTN Engineering.

**The outer ring outer surface of bearing and the track surface must both be lubricated. Lack of lubrication for these surfaces can lead to premature bearing failure.**

## How to feed and replenish grease

Use a tool such as a grease gun to inject grease into a grease nipple installed to the end face of flange or end face of threaded side of the stud. In this case, plug the grease-feed hole or the tapped hole at non-greasing side (with a special-purposed plug or a threaded plug with hexagon socket.)

These grease nipple and plug are enclosed in each cam follower package. Screw-in them in specific position before mounting the cam follower.

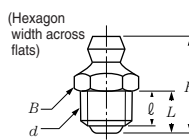
Special grease nipple and that specified in JIS Standard as applicable are available for use. The dimensions thereof and the applicable bearing types are as specified in **Tables 3** and **4** respectively.

Furthermore, special press-fit type plug and threaded plug with hexagon socket are available for use. The dimensions thereof and the applicable bearing types are as specified in **Tables 5-1, -2** and **Table 6** respectively.

When using the special-purposed press-fit plug, press-fit it in the grease feed hole using a mandrel of applicable dimension shown in **Table 7**.

Table 3 Grease nipple dimension

Nominal nipple number	Dimension mm			
	<i>d</i>	<i>D</i>	<i>L</i>	<i>L</i> <sub>1</sub>
NIP-B3	3	7.5	9	5.5
NIP-B4	4	7.5	10	5.5
NIP-B6	6	8	13	6
NIP-B8	8	10	16	7

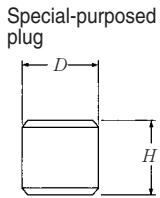


Nominal nipple number	Dimension mm				
	<i>d</i>	<i>H</i>	<i>ℓ</i>	<i>L</i>	<i>B</i>
NIP-X30	M4×0.7	13.9	4	5	7
JIS A-M6F	M6×0.75	13.5	4	5.4	7
JIS A-PT1/8	PT1/8	20	8	9.5	10

**Table 4 Grease nipple applied bearing types and grease nipple dimension codes**

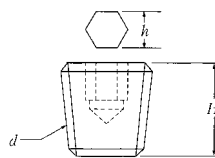
Nominal nipple number	Nipple applied bearing types										
	KR, KRV	KR·H, KRV·H	CR, CRV	CR·H, CRV·H	NUKR	NUKR·H	KRT, KRVT	NUKRT	KRU, KRVU	NUKRU	
NIP-B3	—	—	Refer to the accessories field in the relevant dimension table.		—	—	—	—	—	—	
NIP-B4	16~26	22~26			—	—	—	—	—	—	—
NIP-B6	30~40	30~40			30~40	30~40	—	—	—	—	—
NIP-B8	47~90	47~90			47~90	47~90	—	—	—	—	—
NIP-X30	—	—			—	—	16~26	—	—	16~26	—
JIS Type 1 (A-M6F)	—	—	—	—	30~32	30	30~35	30~35	30~35		
JIS Type 2 (A-PT1/8)	—	—	—	—	100~180 (Threaded side)	100~180 (Threaded side)	35~90	35~180	40~90	40~180	

**Table 5-1 Plug dimension**  
unit : mm



Nominal number	D	H
SEN 3	3	3
SEN 4	4	4
SEN 6	6	6
SEN 8	8	8

Threaded plug with hexagon socket

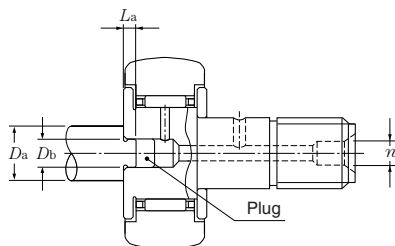


**Table 5-2 Plug dimension**  
unit : mm

Nominal number	d	H	Width across flats h
M4X0.7X4 ℓ	M4X0.7	4	2
M6X0.75X6 ℓ	M6X0.75	6	3
PT1/8X7 ℓ	PT1/8	7	5

**Table 6 Plug applied bearing types and plug dimension codes**

Plug	Plug applied bearing types									
	KR, KRV	KR·H, KRV·H	CR, CRV	CR·H, CRV·H	NUKR	NUKR·H	KRT, KRVT	NUKRT	KRU, KRVU	NUKRU
SEN3	30~40	30~40	Refer to the accessories field in the relevant dimension table.		30~40	30~40	—	—	—	—
SEN4	16~26 47~90	22~26 47~90			47~90	47~90	—	—	—	—
SEN6	30~40	30~40			30~40	30~40	—	—	—	—
SEN8	47~90	47~90			47~180	47~90	—	—	—	—
M4X0.7X4 ℓ	—	—			—	—	16~26	—	—	16~26
M6X0.75X6 ℓ	—	—	—	—	30~32	30	30~35	30~35	30~35	
PT1/8X7 ℓ	—	—	—	—	100~180	35~90	35~180	40~90	40~180	



**Table 7 Mandrels used for plug press-fitting**  
unit : mm

Grease feed hole dia. n	Mandrel dimension		
	Da	Db <sub>-0.1</sub>	La <sub>-0.1</sub>
3	8	2.8	1.5
4	10	3.8	1.5
6	12	5.8	1.5
8	15	7.8	2.5



### Track load capacity of cam follower and roller follower

The reference hardness (reference tensile stress) was set up from the relationship between the follower hardness and net tensile stress of the material and the track load capacity was determined

from the relationship of the setup reference stress to hertz stress.

How to set up the reference hardness (tensile stress) differs a little bit depending on each bearing manufacturer. Herein, the relevant Table appended to "JIS Handbook for Irons and Steels" was used as the hardness - tensile stress relationship.

(Approximate values per Hardness Conversion Table SAE J 417)

For HRC40,  $\sigma = 1.245\text{MPa}$  (127kgf/mm<sup>2</sup>) was adopted as the reference hardness (tensile stress).

### <Track load capacity adjustment factor>

The tensile stress of a material for cam follower is greater with increase in material hardness, and, at the same time, the load capacity of the track will be greater. The resultant track load capacity can be determined by multiplying a track load capacity found in the relevant dimension table by an appropriate track load adjustment factor found in **Table 8** "Track load adjustment factor". **If the calculated track load capacity exceeds the basic static load rating  $C_{or}$  of the cam follower in question, then take  $C_{or}$  as the track load capacity of that cam follower.**

Note) The track load capacity determined herein is based on net tensile stress as the reference, not allowable hertz stress. Generally stress (specific stress) resulting in creep of follower material is greater than the tensile stress. Particularly in the case of static load, this track load capacity comes to a safety side value.

[Ex.] Determination of load capacity  $T_c'$  of track with certain hardness by use of track load capacity adjustment factor.

Assuming track load capacity described in Dimensions Table as  $T_c$  and track load capacity adjustment factor at applicable hardness as  $G$  respectively, the track load capacity  $T_c'$  can be determined as follows.

$$T_c' = G \cdot T_c$$

For hardness HRC50 at KR35XH,

$$T_c = 11\,900\text{N} \text{ (1\,220kgf)}, \quad G = 1.987$$

$$\begin{aligned} \therefore T_c' &= 1.987 \times 11\,900\text{N} \text{ (1\,220kgf)} \\ &= 23\,645\text{N} \text{ (2\,424kgf)} \end{aligned}$$

Since the basic static load rating  $C_{or}$  of the KR35XH is 17,900 N (1,830 kgf), and, accordingly,  $T_c' > C_{or}$ , track load capacity is assumed to be the value of  $C_{or}$ , that is, 17,900 N (1,830 kgf).

### Reference (Track load capacity calculation process)

- For a cylindrical outer ring

$$\begin{aligned} \sigma_{\max} &= 190.7 \sqrt{\frac{T_c \Sigma \rho}{B_{\text{eff}}}} \quad \text{N} \\ &= 60.9 \sqrt{\frac{T_c \Sigma \rho}{B_{\text{eff}}}} \quad \text{kgf} \end{aligned}$$

- For spherical R outer

$$\begin{aligned} \sigma_{\max} &= \frac{856.8}{\mu \nu} \sqrt[3]{(\Sigma \rho)^2 T_c} \quad \text{N} \\ &= \frac{187}{\mu \nu} \sqrt[3]{(\Sigma \rho)^2 T_c} \quad \text{kgf} \end{aligned}$$

$$\sigma_{\max} = 1\,245\text{MPa} \text{ (127kgf/mm}^2\text{)}$$

$T_c$  : Track load capacity N (kgf)

$\Sigma \rho$  : Sum of curvature

$B_{\text{eff}}$  : Effective contact length mm

Herein (Outer ring width - chamfer)

$\mu \nu$  : Factor being determined by curvature

**Table 8 Track load capacity adjustment factor**

Hardness HRC	Tensile strength MPa {kgf/mm <sup>2</sup> }	Adjustment factor $G$	
		for cylindrical outer ring	for spherical outer ring
20	755 {77}	0.368	0.223
21	774 {79}	0.387	0.241
22	784 {80}	0.397	0.250
23	804 {82}	0.417	0.269
24	823 {84}	0.437	0.289
25	843 {86}	0.459	0.311
26	862 {88}	0.480	0.333
27	882 {90}	0.502	0.356
28	911 {93}	0.536	0.393
29	931 {95}	0.560	0.419
30	951 {97}	0.583	0.446
31	980 {100}	0.620	0.488
32	1 000 {102}	0.645	0.518
33	1 029 {105}	0.684	0.565
34	1 058 {108}	0.723	0.615
35	1 078 {110}	0.750	0.650
36	1 117 {114}	0.806	0.723
37	1 156 {118}	0.863	0.802
38	1 176 {120}	0.893	0.844
39	1 215 {124}	0.953	0.931
40	1 245 {127}	1.0	1.0
41	1 294 {132}	1.080	1.123
42	1 333 {136}	1.147	1.228
43	1 382 {141}	1.233	1.369
44	1 431 {146}	1.322	1.519
45	1 480 {151}	1.414	1.681
46	1 529 {156}	1.509	1.853
47	1 578 {161}	1.607	2.037
48	1 637 {167}	1.729	2.274
49	1 686 {172}	1.834	2.484
50	1 754 {179}	1.987	2.800
51	1 823 {186}	2.145	3.141
52	1 882 {192}	2.286	3.455
53	1 950 {199}	2.455	3.847
54	2 009 {205}	2.606	4.206
55	2 078 {212}	2.787	4.652

## Outer ring strength

Generally any outer ring never breaks down as long as the load acting it is a usual operating load. This paragraph describes hereunder the strength calculation method to be used when the outer ring strength under shock load and heavy load is reviewed.

The outer ring strength can be determined using the formula given hereunder, assuming the respective outer ring profiles as illustrated in **Fig. 6**. In this case, the outer ring rupture strength means the bridged rupture strength of roller.

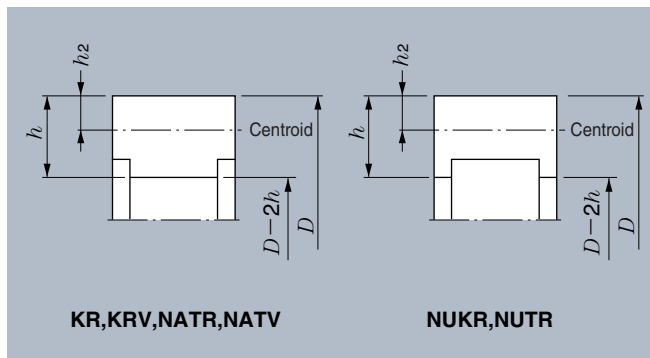


Fig. 6

Regarding how to set up breaking stress, in general 1760MPa [180kg/mm<sup>2</sup>] can be set up as the breaking stress for bearing steel, but it is desirable to set up the breaking strength with safety-side value (1170MPa [120kgf/mm<sup>2</sup>]), where stress concentration is taken into account. Generally any outer ring never break down as long as the load acting on it is usual operating load, but it necessary to check the rupture structure of outer ring, where shock load and heavy load act on it.

Incidentally, the stress acting on the outer ring in the bearing in ordinary use should be 196 MPa [20kgf/mm<sup>2</sup>] or smaller.

$$P = \frac{4\pi}{1+f(\alpha)} \times \frac{D-2h}{h(D-2h)^2} \times I \times \sigma$$

Where,

$$f(\alpha) = \frac{(\pi - \alpha) \sin \alpha - (1 + \cos \alpha)}{2 \cos \alpha}$$

$$\alpha = \frac{\pi}{Z} \text{ (rad.)}$$

- P : Breaking load (N)
- I : Secondary moment of outer ring section (mm<sup>4</sup>)
- Z : Number of rollers
- σ = Breaking stress (MPa)
- D, h, h<sub>2</sub> : per **Fig. 6** (mm)

## Stud strength

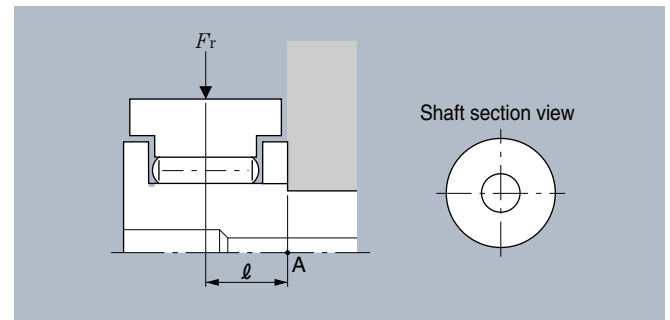


Fig. 7

When load Fr acts on the center point of outer ring as illustrated in **Fig.7**, bending moment Fr · l generates and consequently bending stress σ<sub>1</sub> (deemed as tensile stress) acts on the stud surface. In addition to this bending stress, tensile stress σ<sub>2</sub> generates from screw tightening because the stud itself is clamped to machine body with nuts. The stud strength can be reviewed from comparison of the sum (σ<sub>1</sub> + σ<sub>2</sub>) of these two tensile stresses with allowable stress σ for the stud material.

$$\sigma_1 + \sigma_2 < \sigma$$

$$\sigma_1 = \frac{F_r \cdot l}{Z} \quad \begin{array}{l} F_r : \text{Maximum radial load} \\ Z : \text{Coefficient of shaft section through Point-A} \end{array}$$

$$\sigma_2 \doteq 98 \text{MPa (10kgf/mm}^2\text{)}$$

Tensile stress generating from maximum tightening torque described in "Dimensions Table"

σ : Allowable stress for material

The following values are adopted from the repeated bending test result of the stud material.

Where the stud material is subjected to static bending stress;

$$\sigma = 1372 \text{MPa (140kgf/mm}^2\text{)}$$

Where the stud material is subjected to repeated bending stress (single direction)

$$\sigma = 784 \text{MPa (80kgf/mm}^2\text{)}$$

Where the stud material is subjected to repeated bending stress (double directions)

$$\sigma = 392 \text{MPa (40kgf/mm}^2\text{)}$$

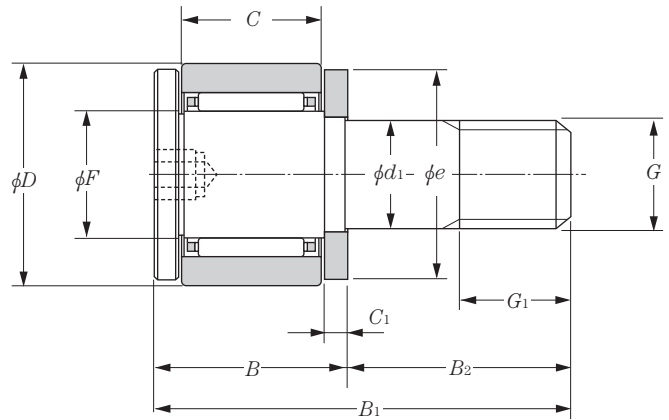
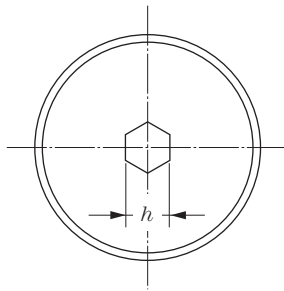
Accordingly,

$$F_r < \frac{Z}{l} (\sigma - \sigma_2)$$



Metric series		Inch series	
With cage		Full-complement roller	
Hexagonal socket	Tapped hole	Slot for screwdriver	
Without seal		With seal	

**KRM··XH type  
(with cage)**  
**KRMV··XH type  
(Full-complement roller type)**

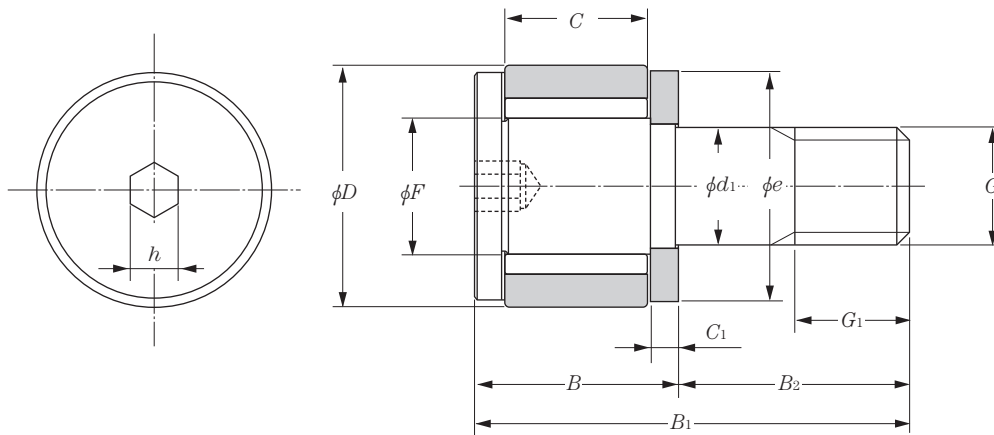


**KRM··XH type  
(with cage)**

**D** 4~12mm

OD <sup>1)</sup> mm	Boundary dimensions mm											Basic load ratings				
	<i>D</i>	<i>d</i> <sub>1</sub>	<i>C</i>	<i>F</i>	<i>B</i>	<i>B</i> <sub>1</sub>	<i>B</i> <sub>2</sub>	<i>G</i>	<i>G</i> <sub>1</sub>	<i>C</i> <sub>1</sub>	<i>e</i>	<i>h</i>	dynamic N	static N	dynamic kgf	static kgf
													<i>C</i> <sub>r</sub>	<i>C</i> <sub>or</sub>	<i>C</i> <sub>r</sub>	<i>C</i> <sub>or</sub>
<b>4</b>	1.5 <sub>0</sub>	1.5 <sup>-0.006</sup>	2	1.8	3.5	6.5	3	M1.4×0.3	1.5	0.7	3.8	0.9	222	138	23	14
	1.5		2	1.8	3.5	6.5	3	M1.4×0.3	1.5	0.7	3.8	0.9	505	480	51	49
<b>4.5</b>	2 <sub>0</sub>	2 <sup>-0.006</sup>	2.5	2.25	4	8	4	M2 ×0.4	2	0.7	4.3	0.9	305	216	31	22
	2		2.5	2.25	4	8	4	M2 ×0.4	2	0.7	4.3	0.9	695	765	71	78
<b>5</b>	2.5 <sub>0</sub>	2.5 <sup>-0.006</sup>	3	2.7	4.5	9.5	5	M2.5×0.45	2.5	0.7	4.8	0.9	445	370	45	37
	2.5		3	2.7	4.5	9.5	5	M2.5×0.45	2.5	0.7	4.8	0.9	905	1 110	92	114
<b>6</b>	3 <sub>0</sub>	3 <sup>-0.006</sup>	4	3.4	5.5	11.5	6	M3 ×0.5	3	0.7	5.8	1.3	645	630	66	64
	3		4	3.4	5.5	11.5	6	M3 ×0.5	3	0.7	5.8	1.3	1 280	1 840	130	187
<b>8</b>	4 <sub>0</sub>	4 <sup>-0.008</sup>	5	4.5	7	15	8	M4 ×0.7	4	1	7.7	1.5	1 120	1 120	114	114
	4		5	4.5	7	15	8	M4 ×0.7	4	1	7.7	1.5	2 120	3 050	216	310
<b>10</b>	5 <sub>0</sub>	5 <sup>-0.008</sup>	6	5.9	8	18	10	M5 ×0.8	5	1	9.6	2	1 570	1 860	160	189
	5		6	5.9	8	18	10	M5 ×0.8	5	1	9.6	2	2 820	4 800	288	490
<b>12</b>	6 <sub>0</sub>	6 <sup>-0.008</sup>	7	6.7	9.5	21.5	12	M6 ×1	6	1.2	11.6	2.5	2 160	2 300	220	237
	6		7	6.7	9.5	21.5	12	M6 ×1	6	1.2	11.6	2.5	4 150	6 450	425	655

Note: 1. JIS Class 0 is the dimensional tolerance.



**KRMV··XH type**  
(Full-complement roller type)

**Accessories**

Applicable bearing number	Applicable hexagonal nut
4	1M1.4×0.3
4.5	1M2×0.4
5	1M2.5×0.45
6	1M3×0.5
8	1M4×0.7
10	1M5×0.8
12	1M6×1

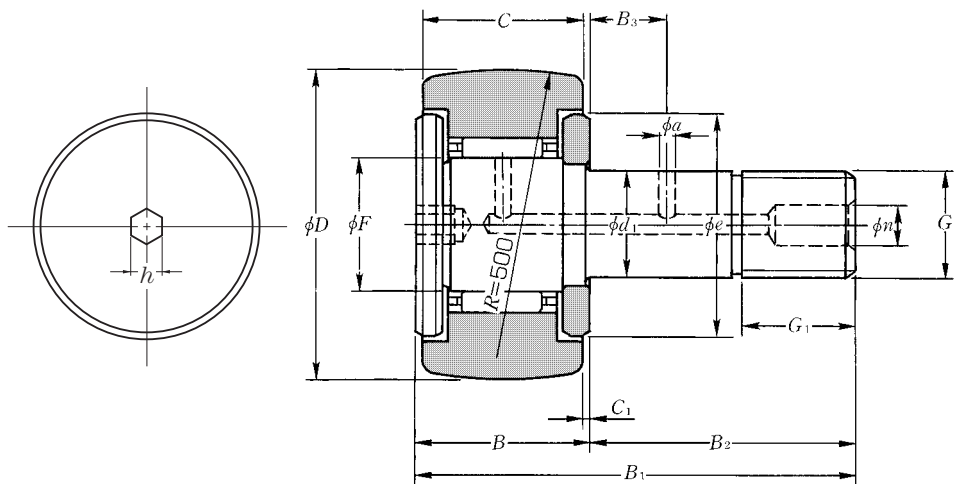


1M6×1

Track load capacity		Maximum tightening torque		Bearing numbers		Mass	Stud dia.
N	kgf	N·m	kgf·m	with cage	Full-complement roller type	kg (approx.)	mm
							$d_1$
147	15	0.1	0.01	KRM4XT2H/3AS —	— KRMV4XH/3AS	0.0003 0.0004	1.5
216	22	0.1	0.01	KRM4.5XT2H/3AS —	— KRMV4.5XH/3AS	0.0005 0.0006	2
294	30	0.3	0.03	KRM5XT2H/3AS —	— KRMV5XH/3AS	0.0007 0.0009	2.5
480	49	0.5	0.05	KRM6XT2H/3AS —	— KRMV6XH/3AS	0.0013 0.0014	3
785	80	1	0.1	KRM8XT2H/3AS —	— KRMV8XH/3AS	0.0029 0.0030	4
1 190	121	2	0.2	KRM10XT2H/3AS —	— KRMV10XH/3AS	0.0055 0.0059	5
1 640	167	3	0.3	KRM12XT2H/3AS —	— KRMV12XH/3AS	0.0093 0.0080	6

Metric series	Inch series	
With cage	Full-complement roller	
Hexagonal socket	Tapped hole	Slot for screwdriver
Without seal	With seal	

**KR··H type**  
**KR··XH type**  
**KR··LLH type**  
**KR··XLLH type**

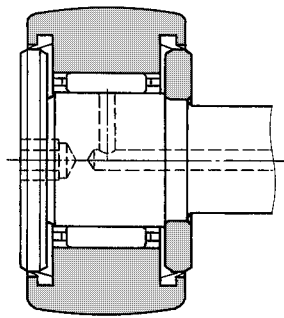


**KR··H type  
(with cage)**

**D** 10~90mm

OD <sup>1)</sup> mm D 0 -0.05	Boundary dimensions mm														Basic load ratings	
	d <sub>1</sub>	C	F	B	B <sub>1</sub>	B <sub>2</sub>	G	G <sub>1</sub>	B <sub>3</sub>	C <sub>1</sub>	n	a	e	h	dynamic N kgf C <sub>r</sub>	static C <sub>or</sub>
10	3 <sup>0</sup> <sub>-0.010</sub>	7	4	8	17	9	M3×0.5	5	—	0.5	—	—	7	2.5	1 640 168	1 270 130
12	4 <sup>0</sup> <sub>-0.012</sub>	8	4.8	9	20	11	M4×0.7	6	—	0.5	—	—	8.5	2.5	2 170 221	1 690 172
13	5 <sup>0</sup> <sub>-0.012</sub>	9	5.75	10	23	13	M5×0.8	7.5	—	0.5	—	—	9.5	3	2 650 270	2 260 231
16	6 <sup>0</sup> <sub>-0.012</sub>	11	8	12	28	16	M6×1	8	—	0.6	—	—	12	3	4 050 415	4 200 430
19	8 <sup>0</sup> <sub>-0.015</sub>	11	10	12	32	20	M8×1.25	10	—	0.6	—	—	14	4	4 750 480	5 400 555
22	10 <sup>0</sup> <sub>-0.015</sub>	12	12	13	36	23	M10×1.25	12	—	0.6	4	—	17	4	5 300 540	6 650 680
26	10 <sup>0</sup> <sub>-0.015</sub>	12	12	13	36	23	M10×1.25	12	—	0.6	4	—	17	4	5 300 540	6 650 680
30	12 <sup>0</sup> <sub>-0.018</sub>	14	15	15	40	25	M12×1.5	13	6	0.6	6	3	23	6	7 850 800	9 650 985
32	12 <sup>0</sup> <sub>-0.018</sub>	14	15	15	40	25	M12×1.5	13	6	0.6	6	3	23	6	7 850 800	9 650 985
35	16 <sup>0</sup> <sub>-0.018</sub>	18	18	19.5	52	32.5	M16×1.5	17	8	0.8	6	3	27	6	12 200 1 240	17 900 1 830
40	18 <sup>0</sup> <sub>-0.018</sub>	20	22	21.5	58	36.5	M18×1.5	19	8	0.8	6	3	32	6	14 000 1 430	22 800 2 330
47	20 <sup>0</sup> <sub>-0.021</sub>	24	25	25.5	66	40.5	M20×1.5	21	9	0.8	8	4	37	8	20 700 2 110	33 500 3 450
52	20 <sup>0</sup> <sub>-0.021</sub>	24	25	25.5	66	40.5	M20×1.5	21	9	0.8	8	4	37	8	20 700 2 110	33 500 3 450
62	24 <sup>0</sup> <sub>-0.021</sub>	29	30	30.5	80	49.5	M24×1.5	25	11	0.8	8	4	44	8	28 900 2 950	55 000 5 600
72	24 <sup>0</sup> <sub>-0.021</sub>	29	30	30.5	80	49.5	M24×1.5	25	11	0.8	8	4	44	8	28 900 2 950	55 000 5 600
80	30 <sup>0</sup> <sub>-0.021</sub>	35	38	37	100	63	M30×1.5	32	15	1	8	4	53	8	45 000 4 600	88 500 9 050
85	30 <sup>0</sup> <sub>-0.021</sub>	35	38	37	100	63	M30×1.5	32	15	1	8	4	53	8	45 000 4 600	88 500 9 050
90	30 <sup>0</sup> <sub>-0.021</sub>	35	38	37	100	63	M30×1.5	32	15	1	8	4	53	8	45 000 4 600	88 500 9 050

Note 1) JIS Class 0 is the dimensional tolerance of the outside diameter *D* of the outer rings of the KR··XH and KR··XLLH types whose outside surface form is cylindrical.

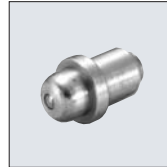


**KR·LLH type  
(with cage, sealed)**

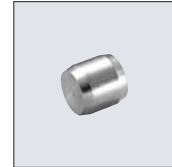
### Accessories

Applicable bearing number	Grease nipple number	Plug number	Applicable hexagonal nut
10~19	—	—	1M3×0.5~1M8×1.25
22~26	NIP-B4	SEN4	1M10×1.25
30~40	NIP-B6	SEN3, SEN6	1M12×1.5~1M18×1.5
47~90	NIP-B8	SEN4, SEN8	1M20×1.5~1M30×1.5

Note: The boundary dimensions of grease nipples and plugs are listed in **Table 3** on page 179 and **Table 5** on page 180.



NIP-B6



SEN6



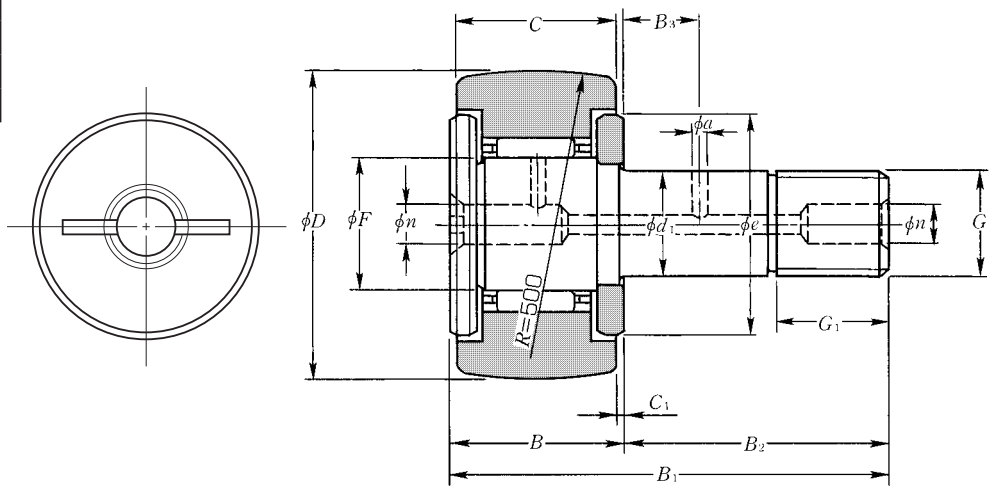
1M12

Track load capacity		Limiting speed		Maximum tightening torque	Cam Follower number				Mass	Stud dia.
N kgf	Spherical outer ring Cylindrical outer ring	min <sup>-1</sup>	Grease lubrication Oil lubrication		Without seal		With seal			
				Spherical outer rings	Cylindrical outer rings	Spherical outer rings	Cylindrical outer rings			
560 57	1 360 139	*27 000	*40 000	0.5 0.05	KR10T2H/3AS	KR10XT2H/3AS	KR10T2LLH/3AS	KR10XT2LLH/3AS	0.005	3
725 74	1 790 183	*25 000	*36 000	1 0.1	KR12T2H/3AS	KR12XT2H/3AS	KR12T2LLH/3AS	KR12XT2LLH/3AS	0.008	4
805 82	2 220 226	*23 000	*33 000	2 0.2	KR13T2H/3AS	KR13XT2H/3AS	KR13T2LLH/3AS	KR13XT2LLH/3AS	0.010	5
1 080 110	3 400 350	*19 000	*25 000	3 0.3	KR16FDOH/L588	KR16FXDOH/L588	KR16FLDOH/L588	KR16FXLLDOH/L588	0.019	6
1 380 141	4 050 415	*15 000	*20 000	8 0.8	KR19FDOH/L588	KR19FXDOH/L588	KR19FLDOH/L588	KR19FXLLDOH/L588	0.031	8
1 690 172	5 150 525	*12 000	*16 000	14 1.4	KR22FH	KR22FXH	KR22FLLH/3AS	KR22FXLLH/3AS	0.046	10
2 120 216	6 100 620	*12 000	*16 000	14 1.4	KR26FH	KR26FXH	KR26FLLH/3AS	KR26FXLLH/3AS	0.059	10
2 620 267	7 700 785	10 000	*13 000	20 2	KR30H	KR30XH	KR30LLH/3AS	KR30XLLH/3AS	0.087	12
2 860 291	8 200 835	10 000	*13 000	20 2	KR32H	KR32XH	KR32LLH/3AS	KR32XLLH/3AS	0.097	12
3 200 325	11 900 1 220	8 000	*11 000	52 5.3	KR35H	KR35XH	KR35LLH/3AS	KR35XLLH/3AS	0.169	16
3 850 390	14 500 1 480	7 000	9 000	76 7.8	KR40H	KR40XH	KR40LLH/3AS	KR40XLLH/3AS	0.248	18
4 700 480	21 000 2 150	6 000	8 000	98 10	KR47H	KR47XH	KR47LLH/3AS	KR47XLLH/3AS	0.386	20
5 550 565	23 300 2 370	6 000	8 000	98 10	KR52H	KR52XH	KR52LLH/3AS	KR52XLLH/3AS	0.461	20
6 950 710	34 500 3 500	5 000	6 500	178 18	KR62H	KR62XH	KR62LLH/3AS	KR62XLLH/3AS	0.790	24
8 050 820	38 500 3 900	5 000	6 500	178 18	KR72H	KR72XH	KR72LLH/3AS	KR72XLLH/3AS	1.04	24
9 800 1 000	53 000 5 400	4 000	5 500	360 37	KR80H	KR80XH	KR80LLH/3AS	KR80XLLH/3AS	1.55	30
10 400 1 060	56 000 5 750	4 000	5 500	360 37	KR85H	KR85XH	KR85LLH/3AS	KR85XLLH/3AS	1.74	30
11 400 1 160	59 000 6 100	4 000	5 500	360 37	KR90H	KR90XH	KR90LLH/3AS	KR90XLLH/3AS	1.95	30

Remarks: 1. The limiting speed of KR·LLH and KR·XLLH types incorporating a seal (those marked with an asterisk) is approximately 10,000 min<sup>-1</sup>.  
2. A bearing number with a T2 suffix indicates a bearing with a resin cage. Its maximum allowable temperature is 120°C and continuous operation temperature is 100°C.

Metric series		Inch series
With cage		Full-complement roller
Hexagonal socket	Tapped hole	Slot for screwdriver
Without seal		With seal

**KR type**  
**KR··X type**  
**KR··LL type**  
**KR··XLL type**



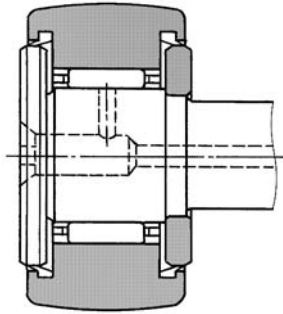
**KR type  
(with cage)**

**D** 16~90mm

OD <sup>1)</sup> mm D 0 -0.05	Boundary dimensions mm													Basic load ratings	
	<i>d</i> <sub>1</sub>	<i>C</i>	<i>F</i>	<i>B</i>	<i>B</i> <sub>1</sub>	<i>B</i> <sub>2</sub>	<i>G</i>	<i>G</i> <sub>1</sub>	<i>B</i> <sub>3</sub>	<i>C</i> <sub>1</sub>	<i>n</i>	<i>a</i>	<i>e</i>	dynamic <i>C</i> <sub>r</sub>	static <i>C</i> <sub>or</sub>
16	6 <sup>0</sup> <sub>-0.012</sub>	11	8	12	28	16	M6×1	8	—	0.6	4 <sup>2)</sup>	—	12	4 050 415	4 200 430
19	8 <sup>0</sup> <sub>-0.015</sub>	11	10	12	32	20	M8×1.25	10	—	0.6	4 <sup>2)</sup>	—	14	4 750 480	5 400 555
22	10 <sup>0</sup> <sub>-0.015</sub>	12	12	13	36	23	M10×1.25	12	—	0.6	4	—	17	5 300 540	6 650 680
26	10 <sup>0</sup> <sub>-0.015</sub>	12	12	13	36	23	M10×1.25	12	—	0.6	4	—	17	5 300 540	6 650 680
30	12 <sup>0</sup> <sub>-0.018</sub>	14	15	15	40	25	M12×1.5	13	6	0.6	6	3	23	7 850 800	9 650 985
32	12 <sup>0</sup> <sub>-0.018</sub>	14	15	15	40	25	M12×1.5	13	6	0.6	6	3	23	7 850 800	9 650 985
35	16 <sup>0</sup> <sub>-0.018</sub>	18	18	19.5	52	32.5	M16×1.5	17	8	0.8	6	3	27	12 200 1 240	17 900 1 830
40	18 <sup>0</sup> <sub>-0.018</sub>	20	22	21.5	58	36.5	M18×1.5	19	8	0.8	6	3	32	14 000 1 430	22 800 2 330
47	20 <sup>0</sup> <sub>-0.021</sub>	24	25	25.5	66	40.5	M20×1.5	21	9	0.8	8	4	37	20 700 2 110	33 500 3 450
52	20 <sup>0</sup> <sub>-0.021</sub>	24	25	25.5	66	40.5	M20×1.5	21	9	0.8	8	4	37	20 700 2 110	33 500 3 450
62	24 <sup>0</sup> <sub>-0.021</sub>	29	30	30.5	80	49.5	M24×1.5	25	11	0.8	8	4	44	28 900 2 950	55 000 5 600
72	24 <sup>0</sup> <sub>-0.021</sub>	29	30	30.5	80	49.5	M24×1.5	25	11	0.8	8	4	44	28 900 2 950	55 000 5 600
80	30 <sup>0</sup> <sub>-0.021</sub>	35	38	37	100	63	M30×1.5	32	15	1	8	4	53	45 000 4 600	88 500 9 050
85	30 <sup>0</sup> <sub>-0.021</sub>	35	38	37	100	63	M30×1.5	32	15	1	8	4	53	45 000 4 600	88 500 9 050
90	30 <sup>0</sup> <sub>-0.021</sub>	35	38	37	100	63	M30×1.5	32	15	1	8	4	53	45 000 4 600	88 500 9 050

Note 1) JIS Class 0 is the dimensional tolerance of the outside diameter *D* of the outer rings of the KR··X and KR··XLL types whose outside surface form is cylindrical.  
 2) The grease replenishment port is situated only in the front (in the left side face in the diagram above).





**KR·LL type  
(with cage, sealed)**

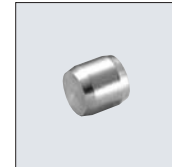
### Accessories

Applicable bearing number	Grease nipple number	Plug number	Applicable hexagonal nut
16~26	NIP-B4	SEN4	1M 6×1 ~1M10×1.25
30~40	NIP-B6	SEN3, SEN6	1M12×1.5~1M18×1.5
47~90	NIP-B8	SEN4, SEN8	1M20×1.5~1M30×1.5

Note: The boundary dimensions of grease nipples and plugs are listed in **Table 3** on page 179 and **Table 5** on page 180.



NIP-B6



SEN6



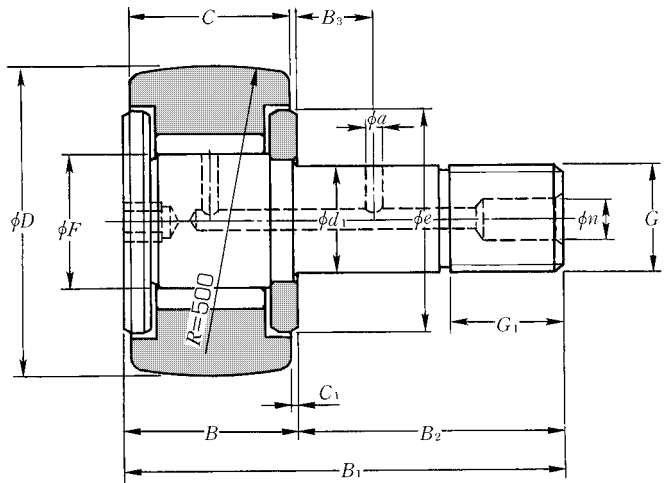
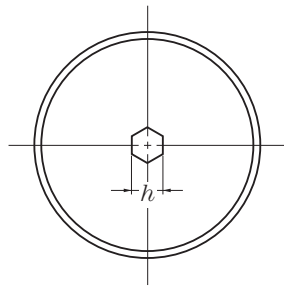
1M12

Track load capacity		Limiting speed		Maximum tightening torque	Cam Follower number				Mass	Stud dia.
N kgf		min <sup>-1</sup>			Without seal		With seal			
Spherical outer ring	Cylindrical outer ring	Grease lubrication	Oil lubrication		Spherical outer rings	Cylindrical outer rings	Spherical outer rings	Cylindrical outer rings		
1 080 110	3 400 350	*19 000	*25 000	3 0.3	KR16F	KR16FX	KR16FLL/3AS	KR16FXLL/3AS	0.019	6
1 380 141	4 050 415	*15 000	*20 000	8 0.8	KR19F	KR19FX	KR19FLL/3AS	KR19FXLL/3AS	0.031	8
1 690 172	5 150 525	*12 000	*16 000	14 1.4	KR22F	KR22FX	KR22FLL/3AS	KR22FXLL/3AS	0.046	10
2 120 216	6 100 620	*12 000	*16 000	14 1.4	KR26F	KR26FX	KR26FLL/3AS	KR26FXLL/3AS	0.059	10
2 620 267	7 700 785	10 000	*13 000	20 2	KR30	KR30X	KR30LL/3AS	KR30FXLL/3AS	0.087	12
2 860 291	8 200 835	10 000	*13 000	20 2	KR32	KR32X	KR32LL/3AS	KR32XLL/3AS	0.097	12
3 200 325	11 900 1 220	8 000	*11 000	52 5.3	KR35	KR35X	KR35LL/3AS	KR35XLL/3AS	0.169	16
3 850 390	14 500 1 480	7 000	9 000	76 7.8	KR40	KR40X	KR40LL/3AS	KR40XLL/3AS	0.248	18
4 700 480	21 000 2 150	6 000	8 000	98 10	KR47	KR47X	KR47LL/3AS	KR47XLL/3AS	0.386	20
5 550 565	23 300 2 370	6 000	8 000	98 10	KR52	KR52X	KR52LL/3AS	KR52XLL/3AS	0.461	20
6 950 710	34 500 3 500	5 000	6 500	178 18	KR62	KR62X	KR62LL/3AS	KR62XLL/3AS	0.790	24
8 050 820	38 500 3 900	5 000	6 500	178 18	KR72	KR72X	KR72LL/3AS	KR72XLL/3AS	1.04	24
9 800 1 000	53 000 5 400	4 000	5 500	360 37	KR80	KR80X	KR80LL/3AS	KR80XLL/3AS	1.55	30
10 400 1 060	56 000 5 750	4 000	5 500	360 37	KR85	KR85X	KR85LL/3AS	KR85XLL/3AS	1.74	30
11 400 1 160	59 000 6 100	4 000	5 500	360 37	KR90	KR90X	KR90LL/3AS	KR90XLL/3AS	1.95	30

Remarks: 1. The limiting speed of KR·LL and KR·XLL types incorporating a seal (those marked with an asterisk) is approximately 10,000 min<sup>-1</sup>.

Metric series		Inch series	
With cage		Full-complement roller	
Hexagonal socket	Tapped hole	Slot for screwdriver	
Without seal		With seal	

**KRV··H type**  
**KRV··XH type**  
**KRV··LLH type**  
**KRV··XLLH type**

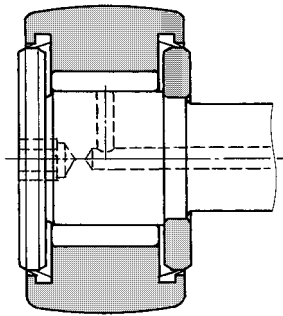


**KRV··H type**  
(Full-complement roller type)

**D** 10~90mm

OD <sup>1)</sup> mm D 0 -0.05	Boundary dimensions mm														Basic load ratings	
	d <sub>1</sub>	C	F	B	B <sub>1</sub>	B <sub>2</sub>	G	G <sub>1</sub>	B <sub>3</sub>	C <sub>1</sub>	n	a	e	h	dynamic N kgf C <sub>r</sub>	static N kgf C <sub>or</sub>
10	3 <sub>-0.010</sub> <sup>0</sup>	7	4	8	17	9	M3×0.5	5	—	0.5	—	—	7	2.5	2 500 255	2 610 267
12	4 <sub>-0.012</sub> <sup>0</sup>	8	4.8	9	20	11	M4×0.7	6	—	0.5	—	—	8.5	2.5	3 500 360	3 800 385
13	5 <sub>-0.012</sub> <sup>0</sup>	9	5.75	10	23	13	M5×0.8	7.5	—	0.5	—	—	9.5	3	4 650 475	5 550 570
16	6 <sub>-0.012</sub> <sup>0</sup>	11	8	12	28	16	M6×1	8	—	0.6	—	—	12	3	6 500 665	9 350 955
19	8 <sub>-0.015</sub> <sup>0</sup>	11	10	12	32	20	M8×1.25	10	—	0.6	—	—	14	4	7 450 760	11 700 1 190
22	10 <sub>-0.015</sub> <sup>0</sup>	12	12	13	36	23	M10×1.25	12	—	0.6	4	—	17	4	8 200 840	14 000 1 420
26	10 <sub>-0.015</sub> <sup>0</sup>	12	12	13	36	23	M10×1.25	12	—	0.6	4	—	17	4	8 200 840	14 000 1 420
30	12 <sub>-0.018</sub> <sup>0</sup>	14	15	15	40	25	M12×1.5	13	6	0.6	6	3	23	6	12 000 1 230	20 300 2 070
32	12 <sub>-0.018</sub> <sup>0</sup>	14	15	15	40	25	M12×1.5	13	6	0.6	6	3	23	6	12 000 1 230	20 300 2 070
35	16 <sub>-0.018</sub> <sup>0</sup>	18	18	19.5	52	32.5	M16×1.5	17	8	0.8	6	3	27	6	17 600 1 790	34 000 3 500
40	18 <sub>-0.018</sub> <sup>0</sup>	20	22	21.5	58	36.5	M18×1.5	19	8	0.8	6	3	32	6	19 400 1 980	42 000 4 250
47	20 <sub>-0.021</sub> <sup>0</sup>	24	25	25.5	66	40.5	M20×1.5	21	9	0.8	8	4	37	8	28 800 2 940	61 000 6 250
52	20 <sub>-0.021</sub> <sup>0</sup>	24	25	25.5	66	40.5	M20×1.5	21	9	0.8	8	4	37	8	28 800 2 940	61 000 6 250
62	24 <sub>-0.021</sub> <sup>0</sup>	29	30	30.5	80	49.5	M24×1.5	25	11	0.8	8	4	44	8	39 500 4 000	98 500 10 000
72	24 <sub>-0.021</sub> <sup>0</sup>	29	30	30.5	80	49.5	M24×1.5	25	11	0.8	8	4	44	8	39 500 4 000	98 500 10 000
80	30 <sub>-0.021</sub> <sup>0</sup>	35	38	37	100	63	M30×1.5	32	15	1	8	4	53	8	58 000 5 900	147 000 15 000
90	30 <sub>-0.021</sub> <sup>0</sup>	35	38	37	100	63	M30×1.5	32	15	1	8	4	53	8	58 000 5 900	147 000 15 000

Note 1) JIS Class 0 is the dimensional tolerance of the outside diameter *D* of the outer rings of the KRV··XH and KRV··XLLH types whose outside surface form is cylindrical.



**KRV·LLH type**  
(Full-complement roller type, with seal)

### Accessories

Applicable bearing number	Grease nipple number	Plug number	Applicable hexagonal nut
10~19	—	—	1M3×0.5~1M8×1.25
22~26	NIP-B4	SEN4	1M10×1.25
30~40	NIP-B6	SEN3, SEN6	1M12×1.5~1M18×1.5
47~90	NIP-B8	SEN4, SEN8	1M20×1.5~1M30×1.5

Note: The boundary dimensions of grease nipples and plugs are listed in **Table 3** on page 179 and **Table 5** on page 180.



NIP-B6



SEN6



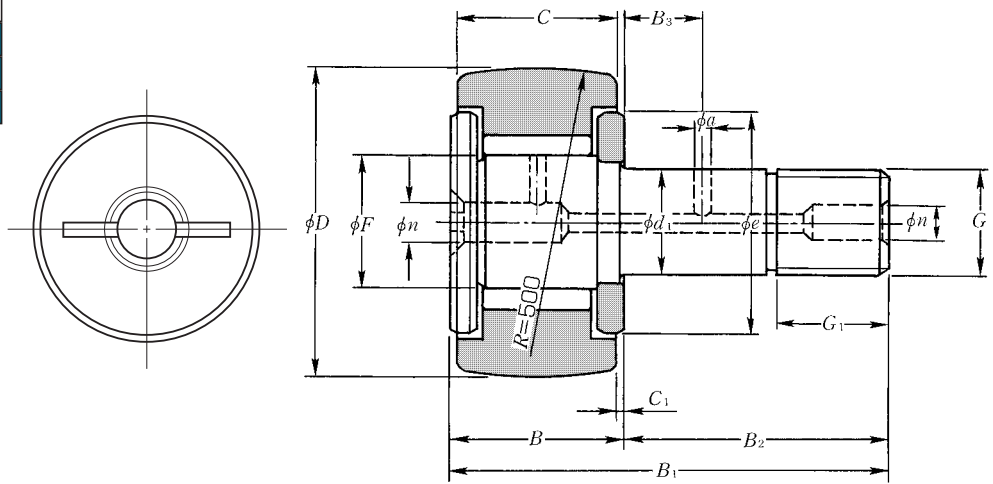
1M12

Track load capacity		Limiting speed		Maximum tightening torque	Cam Follower number				Mass	Stud dia.
N	kgf	min <sup>-1</sup>			Without seal		With seal			
Spherical outer ring	Cylindrical outer ring	Grease lubrication	Oil lubrication	N·m	Spherical outer rings	Cylindrical outer rings	Spherical outer rings	Cylindrical outer rings	(approx.)	
560 57	1 360 139	*25 000	*32 000	0.5 0.05	KRV10H/3AS	KRV10XH/3AS	KRV10LLH/3AS	KRV10XLLH/3AS	0.005	3
725 74	1 790 183	*20 000	*27 000	1 0.1	KRV12H/3AS	KRV12XH/3AS	KRV12LLH/3AS	KRV12XLLH/3AS	0.008	4
805 82	2 220 226	*17 000	*22 000	2 0.2	KRV13H/3AS	KRV13XH/3AS	KRV13LLH/3AS	KRV13XLLH/3AS	0.011	5
1 080 110	3 400 350	*13 000	*16 000	3 0.3	KRV16FDOH/L588	KRV16FXDOH/L588	KRV16FLDOH/L588	KRV16FXLLDOH/L588	0.020	6
1 380 141	4 050 415	10 000	*13 000	8 0.8	KRV19FDOH/L588	KRV19FXDOH/L588	KRV19FLDOH/L588	KRV19FXLLDOH/L588	0.032	8
1 690 172	5 150 525	8 500	*11 000	14 1.4	KRV22FH/3AS	KRV22FXH/3AS	KRV22FLLH/3AS	KRV22FXLLH/3AS	0.047	10
2 120 216	6 100 620	8 500	*11 000	14 1.4	KRV26FH/3AS	KRV26FXH/3AS	KRV26FLLH/3AS	KRV26FXLLH/3AS	0.061	10
2 620 267	7 700 785	6 500	8 500	20 2	KRV30H/3AS	KRV30XH/3AS	KRV30LLH/3AS	KRV30XLLH/3AS	0.089	12
2 860 291	8 200 835	6 500	8 500	20 2	KRV32H/3AS	KRV32XH/3AS	KRV32LLH/3AS	KRV32XLLH/3AS	0.100	12
3 200 325	11 900 1 220	5 500	7 000	52 5.3	KRV35H/3AS	KRV35XH/3AS	KRV35LLH/3AS	KRV35XLLH/3AS	0.172	16
3 850 390	14 500 1 480	4 500	6 000	76 7.8	KRV40H/3AS	KRV40XH/3AS	KRV40LLH/3AS	KRV40XLLH/3AS	0.252	18
4 700 480	21 000 2 150	4 000	5 000	98 10	KRV47H/3AS	KRV47XH/3AS	KRV47LLH/3AS	KRV47XLLH/3AS	0.392	20
5 550 565	23 300 2 370	4 000	5 000	98 10	KRV52H/3AS	KRV52XH/3AS	KRV52LLH/3AS	KRV52XLLH/3AS	0.465	20
6 950 710	34 500 3 500	3 300	4 500	178 18	KRV62H/3AS	KRV62XH/3AS	KRV62LLH/3AS	KRV62XLLH/3AS	0.800	24
8 050 820	38 500 3 900	3 300	4 500	178 18	KRV72H/3AS	KRV72XH/3AS	KRV72LLH/3AS	KRV72XLLH/3AS	1.05	24
9 800 1 000	53 000 5 400	2 600	3 500	360 37	KRV80H/3AS	KRV80XH/3AS	KRV80LLH/3AS	KRV80XLLH/3AS	1.56	30
11 400 1 160	59 000 6 100	2 600	3 500	360 37	KRV90H/3AS	KRV90XH/3AS	KRV90LLH/3AS	KRV90XLLH/3AS	1.97	30

Remarks: 1. The limiting speed of KRV·LLH and KRV·XLLH types incorporating a seal (those marked with an asterisk) is approximately 10,000 min<sup>-1</sup>.

Metric series		Inch series	
With cage		Full-complement roller	
Hexagonal socket	Tapped hole	Slot for screwdriver	
Without seal		With seal	

**KRV type**  
**KRV··X type**  
**KRV··LL type**  
**KRV··XLL type**

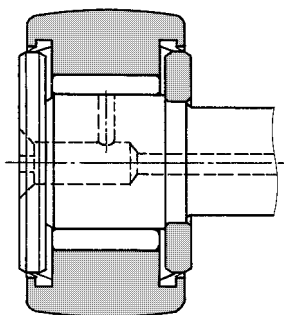


**KRV type**  
**(Full-complement roller type)**

**D** 16~90mm

OD <sup>1)</sup> mm D 0 -0.05	Boundary dimensions mm													Basic load ratings	
	<i>d</i> <sub>1</sub>	<i>C</i>	<i>F</i>	<i>B</i>	<i>B</i> <sub>1</sub>	<i>B</i> <sub>2</sub>	<i>G</i>	<i>G</i> <sub>1</sub>	<i>B</i> <sub>3</sub>	<i>C</i> <sub>1</sub>	<i>n</i>	<i>a</i>	<i>e</i>	dynamic <i>C</i> <sub>r</sub>	static <i>C</i> <sub>or</sub>
16	6 <sup>0</sup> <sub>-0.012</sub>	11	8	12	28	16	M6×1	8	—	0.6	4 <sup>2)</sup>	—	12	6 500 665	9 350 955
19	8 <sup>0</sup> <sub>-0.015</sub>	11	10	12	32	20	M8×1.25	10	—	0.6	4 <sup>2)</sup>	—	14	7 450 760	11 700 1 190
22	10 <sup>0</sup> <sub>-0.015</sub>	12	12	13	36	23	M10×1.25	12	—	0.6	4	—	17	8 200 840	14 000 1 420
26	10 <sup>0</sup> <sub>-0.015</sub>	12	12	13	36	23	M10×1.25	12	—	0.6	4	—	17	8 200 840	14 000 1 420
30	12 <sup>0</sup> <sub>-0.018</sub>	14	15	15	40	25	M12×1.5	13	6	0.6	6	3	23	12 000 1 230	20 300 2 070
32	12 <sup>0</sup> <sub>-0.018</sub>	14	15	15	40	25	M12×1.5	13	6	0.6	6	3	23	12 000 1 230	20 300 2 070
35	16 <sup>0</sup> <sub>-0.018</sub>	18	18	19.5	52	32.5	M16×1.5	17	8	0.8	6	3	27	17 600 1 790	34 000 3 500
40	18 <sup>0</sup> <sub>-0.018</sub>	20	22	21.5	58	36.5	M18×1.5	19	8	0.8	6	3	32	19 400 1 980	42 000 4 250
47	20 <sup>0</sup> <sub>-0.021</sub>	24	25	25.5	66	40.5	M20×1.5	21	9	0.8	8	4	37	28 800 2 940	61 000 6 250
52	20 <sup>0</sup> <sub>-0.021</sub>	24	25	25.5	66	40.5	M20×1.5	21	9	0.8	8	4	37	28 800 2 940	61 000 6 250
62	24 <sup>0</sup> <sub>-0.021</sub>	29	30	30.5	80	49.5	M24×1.5	25	11	0.8	8	4	44	39 500 4 000	98 500 10 000
72	24 <sup>0</sup> <sub>-0.021</sub>	29	30	30.5	80	49.5	M24×1.5	25	11	0.8	8	4	44	39 500 4 000	98 500 10 000
80	30 <sup>0</sup> <sub>-0.021</sub>	35	38	37	100	63	M30×1.5	32	15	1	8	4	53	58 000 5 900	147 000 15 000
90	30 <sup>0</sup> <sub>-0.021</sub>	35	38	37	100	63	M30×1.5	32	15	1	8	4	53	58 000 5 900	147 000 15 000

Note 1) JIS Class 0 is the dimensional tolerance of the outside diameter *D* of the outer rings of the KRV··X and KRV··XLL types whose outside surface form is cylindrical.  
 2) The grease replenishment port is situated only in the front (in the left side face in the diagram above).



**KRV·LL type**  
(Full-complement roller type, with seal)

### Accessories

Applicable bearing number	Grease nipple number	Plug number	Applicable hexagonal nut
16~26	NIP-B4	SEN4	1M 6×1 ~1M10×1.25
30~40	NIP-B6	SEN3, SEN6	1M12×1.5~1M18×1.5
47~90	NIP-B8	SEN4, SEN8	1M20×1.5~1M30×1.5

Note: The boundary dimensions of grease nipples and plugs are listed in **Table 3** on page 179 and **Table 5** on page 180.



NIP-B6



SEN6



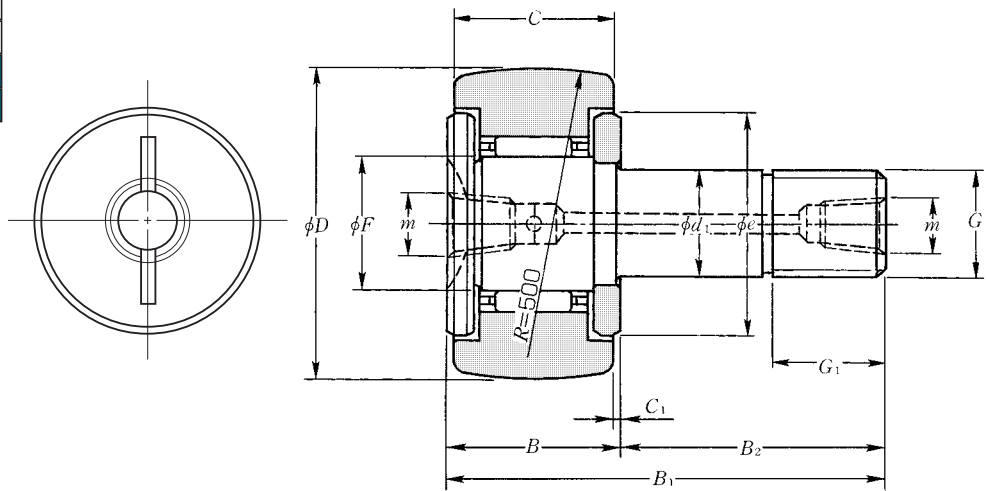
1M12

Track load capacity		Limiting speed		Maximum tightening torque	Cam Follower number				Mass	Stud dia.
N kgf		min <sup>-1</sup>			Without seal		With seal			
Spherical outer ring	Cylindrical outer ring	Grease lubrication	Oil lubrication	N·m kgf·m	Spherical outer rings	Cylindrical outer rings	Spherical outer rings	Cylindrical outer rings	kg (approx.)	mm
1 080 110	3 400 350	*13 000	*16 000	3 0.3	KRV16F/3AS	KRV16FX/3AS	KRV16FLL/3AS	KRV16FXLL/3AS	0.020	6
1 380 141	4 050 415	10 000	*13 000	8 0.8	KRV19F/3AS	KRV19FX/3AS	KRV19FLL/3AS	KRV19FXLL/3AS	0.032	8
1 690 172	5 150 525	8 500	*11 000	14 1.4	KRV22F/3AS	KRV22FX/3AS	KRV22FLL/3AS	KRV22FXLL/3AS	0.047	10
2 120 216	6 100 620	8 500	*11 000	14 1.4	KRV26F/3AS	KRV26FX/3AS	KRV26FLL/3AS	KRV26FXLL/3AS	0.061	10
2 620 267	7 700 785	6 500	8 500	20 2	KRV30/3AS	KRV30X/3AS	KRV30LL/3AS	KRV30XLL/3AS	0.089	12
2 860 291	8 200 835	6 500	8 500	20 2	KRV32/3AS	KRV32X/3AS	KRV32LL/3AS	KRV32XLL/3AS	0.100	12
3 200 325	11 900 1 220	5 500	7 000	52 5.3	KRV35/3AS	KRV35X/3AS	KRV35LL/3AS	KRV35XLL/3AS	0.172	16
3 850 390	14 500 1 480	4 500	6 000	76 7.8	KRV40/3AS	KRV40X/3AS	KRV40LL/3AS	KRV40XLL/3AS	0.252	18
4 700 480	21 000 2 150	4 000	5 000	98 10	KRV47/3AS	KRV47X/3AS	KRV47LL/3AS	KRV47XLL/3AS	0.390	20
5 550 565	23 300 2 370	4 000	5 000	98 10	KRV52/3AS	KRV52X/3AS	KRV52LL/3AS	KRV52XLL/3AS	0.465	20
6 950 710	34 500 3 500	3 300	4 500	178 18	KRV62/3AS	KRV62X/3AS	KRV62LL/3AS	KRV62XLL/3AS	0.800	24
8 050 820	38 500 3 900	3 300	4 500	178 18	KRV72/3AS	KRV72X/3AS	KRV72LL/3AS	KRV72XLL/3AS	1.05	24
9 800 1 000	53 000 5 400	2 600	3 500	360 37	KRV80/3AS	KRV80X/3AS	KRV80LL/3AS	KRV80XLL/3AS	1.56	30
11 400 1 160	59 000 6 100	2 600	3 500	360 37	KRV90/3AS	KRV90X/3AS	KRV90LL/3AS	KRV90XLL/3AS	1.97	30

Remarks: 1. The limiting speed of KRV·LL and KRV·XLL types incorporating a seal (those marked with an asterisk) is approximately 10,000 min<sup>-1</sup>.

Metric series		Inch series
With cage		Full-complement roller
Hexagonal socket	Tapped hole	Slot for screwdriver
Without seal		With seal

**KRT type**  
**KRT··X type**  
**KRT··LL type**  
**KRT··XLL type**

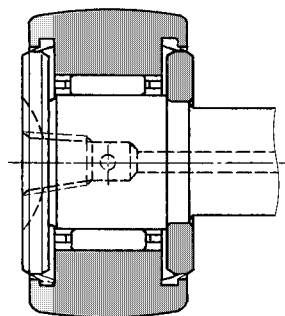


**KRT type  
(with cage)**

**D** 16~90mm

OD <sup>1)</sup> mm <i>D</i> 0 -0.05	Boundary dimensions mm											Basic load ratings	
	<i>d</i> <sub>1</sub>	<i>C</i>	<i>F</i>	<i>B</i>	<i>B</i> <sub>1</sub>	<i>B</i> <sub>2</sub>	<i>G</i>	<i>G</i> <sub>1</sub>	<i>C</i> <sub>1</sub>	<i>m</i>	<i>e</i>	dynamic N kgf <i>C</i> <sub>r</sub>	static <i>C</i> <sub>or</sub>
16	6 <sup>0</sup> -0.012	11	8	12	28	16	M6×1	8	0.6	M4×0.7 <sup>2)</sup>	12	4 050 415	4 200 430
19	8 <sup>0</sup> -0.015	11	10	12	32	20	M8×1.25	10	0.6	M4×0.7 <sup>2)</sup>	14	4 750 480	5 400 555
22	10 <sup>0</sup> -0.015	12	12	13	36	23	M10×1.25	12	0.6	M4×0.7	17	5 300 540	6 650 680
26	10 <sup>0</sup> -0.015	12	12	13	36	23	M10×1.25	12	0.6	M4×0.7	17	5 300 540	6 650 680
30	12 <sup>0</sup> -0.018	14	15	15	40	25	M12×1.5	13	0.6	M6×0.75	23	7 850 800	9 650 985
32	12 <sup>0</sup> -0.018	14	15	15	40	25	M12×1.5	13	0.6	M6×0.75	23	7 850 800	9 650 985
35	16 <sup>0</sup> -0.018	18	18	19.5	52	32.5	M16×1.5	17	0.8	PT <sup>1</sup> / <sub>8</sub>	27	12 200 1 240	17 900 1 830
40	18 <sup>0</sup> -0.018	20	22	21.5	58	36.5	M18×1.5	19	0.8	PT <sup>1</sup> / <sub>8</sub>	32	14 000 1 430	22 800 2 330
47	20 <sup>0</sup> -0.021	24	25	25.5	66	40.5	M20×1.5	21	0.8	PT <sup>1</sup> / <sub>8</sub>	37	20 700 2 110	33 500 3 450
52	20 <sup>0</sup> -0.021	24	25	25.5	66	40.5	M20×1.5	21	0.8	PT <sup>1</sup> / <sub>8</sub>	37	20 700 2 110	33 500 3 450
62	24 <sup>0</sup> -0.021	29	30	30.5	80	49.5	M24×1.5	25	0.8	PT <sup>1</sup> / <sub>8</sub>	44	28 900 2 950	55 000 5 600
72	24 <sup>0</sup> -0.021	29	30	30.5	80	49.5	M24×1.5	25	0.8	PT <sup>1</sup> / <sub>8</sub>	44	28 900 2 950	55 000 5 600
80	30 <sup>0</sup> -0.021	35	38	37	100	63	M30×1.5	32	1	PT <sup>1</sup> / <sub>8</sub>	53	45 000 4 600	88 500 9 050
85	30 <sup>0</sup> -0.021	35	38	37	100	63	M30×1.5	32	1	PT <sup>1</sup> / <sub>8</sub>	53	45 000 4 600	88 500 9 050
90	30 <sup>0</sup> -0.021	35	38	37	100	63	M30×1.5	32	1	PT <sup>1</sup> / <sub>8</sub>	53	45 000 4 600	88 500 9 050

Note 1) JIS Class 0 is the dimensional tolerance of the outside diameter *D* of the outer rings of the KRT··X and KRT··XLL types whose outside surface form is cylindrical.  
 2) The grease replenishment port is situated only in the front (in the left side face in the diagram above).



**KRT··LL type  
(with cage, sealed)**

### Accessories

Applicable bearing number	Grease nipple number	Plug with hexagonal socket number	Applicable hexagonal nut
16~26	NIP-X30	M4×0.7 ×4 ℓ	1M 6×1 ~1M10×1.25
30~32	JIS 1 (A-M6F)	M6×0.75×6 ℓ	1M12×1.5
35~90	JIS 2 (A-PT $\frac{1}{8}$ )	PT $\frac{1}{8}$ ×7 ℓ	1M16×1.5~1M30×1.5

Note: The boundary dimensions of grease nipples and plugs are listed in **Table 3** on page 179 and **Table 5** on page 180.



JIS 2 (A-PT $\frac{1}{8}$ )



PT $\frac{1}{8}$



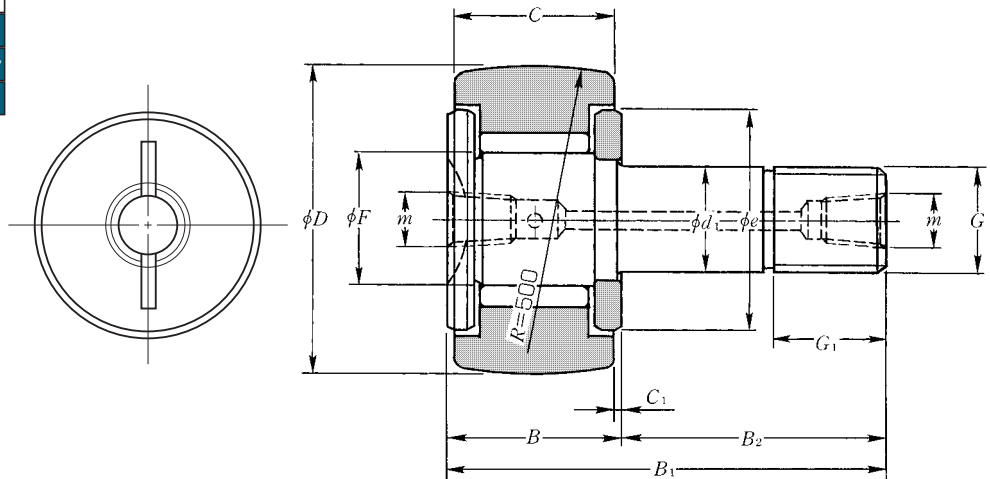
1M12

Track load capacity		Limiting speed		Maximum tightening torque	Cam Follower number				Mass	Stud dia.
N kgf		min <sup>-1</sup>			Without seal		With seal			
Spherical outer ring	Cylindrical outer ring	Grease lubrication	Oil lubrication		Spherical outer rings	Cylindrical outer rings	Spherical outer rings	Cylindrical outer rings		
1 080 110	3 400 350	*19 000	*25 000	3 0.3	KRT16	KRT16X	KRT16LL/3AS	KRT16XLL/3AS	0.019	6
1 380 141	4 050 415	*15 000	*20 000	8 0.8	KRT19	KRT19X	KRT19LL/3AS	KRT19XLL/3AS	0.031	8
1 690 172	5 150 525	*12 000	*16 000	14 1.4	KRT22	KRT22X	KRT22LL/3AS	KRT22XLL/3AS	0.046	10
2 120 216	6 100 620	*12 000	*16 000	14 1.4	KRT26	KRT26X	KRT26LL/3AS	KRT26XLL/3AS	0.059	10
2 620 267	7 700 785	10 000	*13 000	20 2	KRT30	KRT30X	KRT30LL/3AS	KRT30XLL/3AS	0.087	12
2 860 291	8 200 835	10 000	*13 000	20 2	KRT32	KRT32X	KRT32LL/3AS	KRT32XLL/3AS	0.097	12
3 200 325	11 900 1 220	8 000	*11 000	52 5.3	KRT35	KRT35X	KRT35LL/3AS	KRT35XLL/3AS	0.169	16
3 850 390	14 500 1 480	7 000	9 000	76 7.8	KRT40	KRT40X	KRT40LL/3AS	KRT40XLL/3AS	0.248	18
4 700 480	21 000 2 150	6 000	8 000	98 10	KRT47	KRT47X	KRT47LL/3AS	KRT47XLL/3AS	0.386	20
5 550 565	23 300 2 370	6 000	8 000	98 10	KRT52	KRT52X	KRT52LL/3AS	KRT52XLL/3AS	0.461	20
6 950 710	34 500 3 500	5 000	6 500	178 18	KRT62	KRT62X	KRT62LL/3AS	KRT62XLL/3AS	0.790	24
8 050 820	38 500 3 900	5 000	6 500	178 18	KRT72	KRT72X	KRT72LL/3AS	KRT72XLL/3AS	1.04	24
9 800 1 000	53 000 5 400	4 000	5 500	360 37	KRT80	KRT80X	KRT80LL/3AS	KRT80XLL/3AS	1.55	30
10 400 1 060	56 000 5 750	4 000	5 500	360 37	KRT85	KRT85X	KRT85LL/3AS	KRT85XLL/3AS	1.74	30
11 400 1 160	59 000 6 100	4 000	5 500	360 37	KRT90	KRT90X	KRT90LL/3AS	KRT90XLL/3AS	1.95	30

Remarks: 1. The limiting speed of KRT··LL and KRT··XLL types incorporating a seal (those marked with an asterisk) is approximately 10,000 min<sup>-1</sup>.

Metric series		Inch series	
With cage		Full-complement roller	
Hexagonal socket	Tapped hole	Slot for screwdriver	
Without seal		With seal	

KRVT type  
 KRVT··X type  
 KRVT··LL type  
 KRVT··XLL type



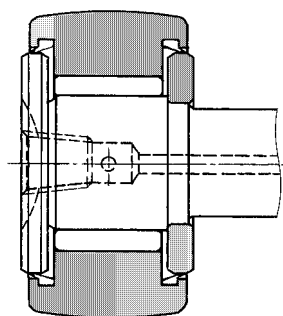
**KRVT type**  
 (Full-complement roller type)

D 16~90mm

OD <sup>1)</sup> mm D 0 -0.05	Boundary dimensions mm											Basic load ratings	
	d <sub>1</sub>	C	F	B	B <sub>1</sub>	B <sub>2</sub>	G	G <sub>1</sub>	C <sub>1</sub>	m	e	dynamic N kgf C <sub>r</sub>	static N kgf C <sub>0r</sub>
16	6 <sup>0</sup> <sub>-0.012</sub>	11	8	12	28	16	M6×1	8	0.6	M4×0.7 <sup>2)</sup>	12	6 500 665	9 350 955
19	8 <sup>0</sup> <sub>-0.015</sub>	11	10	12	32	20	M8×1.25	10	0.6	M4×0.7 <sup>2)</sup>	14	7 450 760	11 700 1 190
22	10 <sup>0</sup> <sub>-0.015</sub>	12	12	13	36	23	M10×1.25	12	0.6	M4×0.7	17	8 200 840	14 000 1 420
26	10 <sup>0</sup> <sub>-0.015</sub>	12	12	13	36	23	M10×1.25	12	0.6	M4×0.7	17	8 200 840	14 000 1 420
30	12 <sup>0</sup> <sub>-0.018</sub>	14	15	15	40	25	M12×1.5	13	0.6	M6×0.75	23	12 000 1 230	20 300 2 070
32	12 <sup>0</sup> <sub>-0.018</sub>	14	15	15	40	25	M12×1.5	13	0.6	M6×0.75	23	12 000 1 230	20 300 2 070
35	16 <sup>0</sup> <sub>-0.018</sub>	18	18	19.5	52	32.5	M16×1.5	17	0.8	PT <sup>1</sup> / <sub>8</sub>	27	17 600 1 790	34 000 3 500
40	18 <sup>0</sup> <sub>-0.018</sub>	20	22	21.5	58	36.5	M18×1.5	19	0.8	PT <sup>1</sup> / <sub>8</sub>	32	19 400 1 980	42 000 4 250
47	20 <sup>0</sup> <sub>-0.021</sub>	24	25	25.5	66	40.5	M20×1.5	21	0.8	PT <sup>1</sup> / <sub>8</sub>	37	28 800 2 940	61 000 6 250
52	20 <sup>0</sup> <sub>-0.021</sub>	24	25	25.5	66	40.5	M20×1.5	21	0.8	PT <sup>1</sup> / <sub>8</sub>	37	28 800 2 940	61 000 6 250
62	24 <sup>0</sup> <sub>-0.021</sub>	29	30	30.5	80	49.5	M24×1.5	25	0.8	PT <sup>1</sup> / <sub>8</sub>	44	39 500 4 000	98 500 10 000
72	24 <sup>0</sup> <sub>-0.021</sub>	29	30	30.5	80	49.5	M24×1.5	25	0.8	PT <sup>1</sup> / <sub>8</sub>	44	39 500 4 000	98 500 10 000
80	30 <sup>0</sup> <sub>-0.021</sub>	35	38	37	100	63	M30×1.5	32	1	PT <sup>1</sup> / <sub>8</sub>	53	58 000 5 900	147 000 15 000
90	30 <sup>0</sup> <sub>-0.021</sub>	35	38	37	100	63	M30×1.5	32	1	PT <sup>1</sup> / <sub>8</sub>	53	58 000 5 900	147 000 15 000

Note 1) JIS Class 0 is the dimensional tolerance of the outside diameter *D* of the outer rings of the KRVT··X and KRVT··XLL types whose outside surface form is cylindrical.  
 2) The grease replenishment port is situated only in the front (in the left side face in the diagram above).





### Accessories

Applicable bearing number	Grease nipple number	Plug with hexagonal socket number	Applicable hexagonal nut
16~26	NIP-X30	M4×0.7 ×4 ℓ	1M 6×1 ~1M10×1.25
30~32	JIS 1 (A-M6F)	M6×0.75×6 ℓ	1M12×1.5
35~90	JIS 2 (A-PT $\frac{1}{8}$ )	PT $\frac{1}{8}$ ×7 ℓ	1M16×1.5~1M30×1.5

Note: The boundary dimensions of grease nipples and plugs are listed in **Table 3** on page 179 and **Table 5** on page 180.



JIS 2 (A-PT $\frac{1}{8}$ )



PT $\frac{1}{8}$



1M12

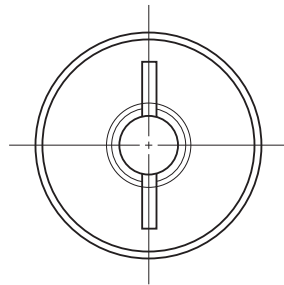
### KRVT·LL type (Full-complement roller type, with seal)

Track load capacity		Limiting speed		Maximum tightening torque	Cam Follower number				Mass	Stud dia.
N kgf		min <sup>-1</sup>			Without seal		With seal			
Spherical outer ring	Cylindrical outer ring	Grease lubrication	Oil lubrication	N·m kgf·m	Spherical outer rings	Cylindrical outer rings	Spherical outer rings	Cylindrical outer rings	kg (approx.)	mm
1 080 110	3 400 350	*13 000	*16 000	3 0.3	KRVT16/3AS	KRVT16X/3AS	KRVT16LL/3AS	KRVT16XLL/3AS	0.020	6
1 380 141	4 050 415	10 000	*13 000	8 0.8	KRVT19/3AS	KRVT19X/3AS	KRVT19LL/3AS	KRVT19XLL/3AS	0.032	8
1 690 172	5 150 525	8 500	*11 000	14 1.4	KRVT22/3AS	KRVT22X/3AS	KRVT22LL/3AS	KRVT22XLL/3AS	0.047	10
2 120 216	6 100 620	8 500	*11 000	14 1.4	KRVT26/3AS	KRVT26X/3AS	KRVT26LL/3AS	KRVT26XLL/3AS	0.061	10
2 620 267	7 700 785	6 500	8 500	20 2	KRVT30/3AS	KRVT30X/3AS	KRVT30LL/3AS	KRVT30XLL/3AS	0.089	12
2 860 291	8 200 835	6 500	8 500	20 2	KRVT32/3AS	KRVT32X/3AS	KRVT32LL/3AS	KRVT32XLL/3AS	0.100	12
3 200 325	11 900 1 220	5 500	7 000	52 5.3	KRVT35/3AS	KRVT35X/3AS	KRVT35LL/3AS	KRVT35XLL/3AS	0.172	16
3 850 390	14 500 1 480	4 500	6 000	76 7.8	KRVT40/3AS	KRVT40X/3AS	KRVT40LL/3AS	KRVT40XLL/3AS	0.252	18
4 700 480	21 000 2 150	4 000	5 000	98 10	KRVT47/3AS	KRVT47X/3AS	KRVT47LL/3AS	KRVT47XLL/3AS	0.390	20
5 550 565	23 300 2 370	4 000	5 000	98 10	KRVT52/3AS	KRVT52X/3AS	KRVT52LL/3AS	KRVT52XLL/3AS	0.465	20
6 950 710	34 500 3 500	3 300	4 500	178 18	KRVT62/3AS	KRVT62X/3AS	KRVT62LL/3AS	KRVT62XLL/3AS	0.800	24
8 050 820	38 500 3 900	3 300	4 500	178 18	KRVT72/3AS	KRVT72X/3AS	KRVT72LL/3AS	KRVT72XLL/3AS	1.05	24
9 800 1 000	53 000 5 400	2 600	3 500	360 37	KRVT80/3AS	KRVT80X/3AS	KRVT80LL/3AS	KRVT80XLL/3AS	1.56	30
11 400 1 160	59 000 6 100	2 600	3 500	360 37	KRVT90/3AS	KRVT90X/3AS	KRVT90LL/3AS	KRVT90XLL/3AS	1.97	30

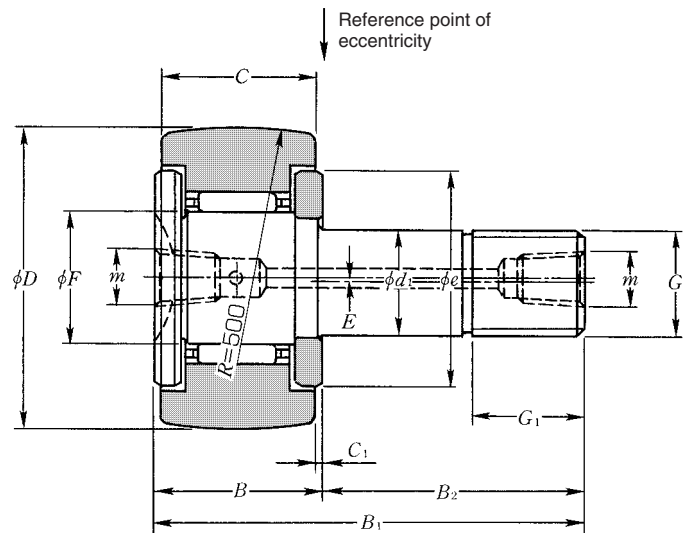
Remarks: 1. The limiting speed of KRVT·LL and KRVT·XLL types incorporating a seal (those marked with an asterisk) is approximately 10,000 min<sup>-1</sup>.

Metric series		Inch series
With cage		Full-complement roller
Hexagonal socket	Tapped hole	Slot for screwdriver
Without seal		With seal
Eccentric stud		

**KRU type**  
**KRU··X type**  
**KRU··LL type**  
**KRU··XLL type**



**KRU type  
(with cage)**

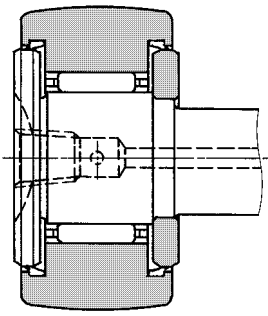


**D** 16~90mm

OD <sup>1)</sup> mm D 0 -0.05	Boundary dimensions mm												Basic load ratings	
	$d_1$	C	F	B	B <sub>1</sub>	B <sub>2</sub>	G	G <sub>1</sub>	Eccentricity E	C <sub>1</sub>	m	e	dynamic N kgf C <sub>r</sub>	static C <sub>or</sub>
16	6 <sup>0</sup> <sub>-0.012</sub>	11	8	12	28	16	M6×1	8	0.25	0.6	M4×0.7 <sup>2)</sup>	12	4 050 415	4 200 430
19	8 <sup>0</sup> <sub>-0.015</sub>	11	10	12	32	20	M8×1.25	10	0.25	0.6	M4×0.7 <sup>2)</sup>	14	4 750 480	5 400 555
22	10 <sup>0</sup> <sub>-0.015</sub>	12	12	13	36	23	M10×1.25	12	0.3	0.6	M4×0.7	17	5 300 540	6 650 680
26	10 <sup>0</sup> <sub>-0.015</sub>	12	12	13	36	23	M10×1.25	12	0.3	0.6	M4×0.7	17	5 300 540	6 650 680
30	12 <sup>0</sup> <sub>-0.018</sub>	14	15	15	40	25	M12×1.5	13	0.4	0.6	M6×0.75	23	7 850 800	9 650 985
32	12 <sup>0</sup> <sub>-0.018</sub>	14	15	15	40	25	M12×1.5	13	0.4	0.6	M6×0.75	23	7 850 800	9 650 985
35	16 <sup>0</sup> <sub>-0.018</sub>	18	19	19.5	52	32.5	M16×1.5	17	0.5	0.8	M6×0.75	27	12 500 1 280	18 900 1 930
40	18 <sup>0</sup> <sub>-0.018</sub>	20	22	21.5	58	36.5	M18×1.5	19	0.6	0.8	PT <sup>1</sup> / <sub>8</sub>	32	14 000 1 430	22 800 2 330
47	20 <sup>0</sup> <sub>-0.021</sub>	24	25	25.5	66	40.5	M20×1.5	21	0.7	0.8	PT <sup>1</sup> / <sub>8</sub>	37	20 700 2 110	33 500 3 450
52	20 <sup>0</sup> <sub>-0.021</sub>	24	25	25.5	66	40.5	M20×1.5	21	0.7	0.8	PT <sup>1</sup> / <sub>8</sub>	37	20 700 2 110	33 500 3 450
62	24 <sup>0</sup> <sub>-0.021</sub>	29	30	30.5	80	49.5	M24×1.5	25	0.8	0.8	PT <sup>1</sup> / <sub>8</sub>	44	28 900 2 950	55 000 5 600
72	24 <sup>0</sup> <sub>-0.021</sub>	29	30	30.5	80	49.5	M24×1.5	25	0.8	0.8	PT <sup>1</sup> / <sub>8</sub>	44	28 900 2 950	55 000 5 600
80	30 <sup>0</sup> <sub>-0.021</sub>	35	38	37	100	63	M30×1.5	32	1.0	1	PT <sup>1</sup> / <sub>8</sub>	53	45 000 4 600	88 500 9 050
85	30 <sup>0</sup> <sub>-0.021</sub>	35	38	37	100	63	M30×1.5	32	1.0	1	PT <sup>1</sup> / <sub>8</sub>	53	45 000 4 600	88 500 9 050
90	30 <sup>0</sup> <sub>-0.021</sub>	35	38	37	100	63	M30×1.5	32	1.0	1	PT <sup>1</sup> / <sub>8</sub>	53	45 000 4 600	88 500 9 050

Note 1) JIS Class 0 is the dimensional tolerance of the outside diameter *D* of the outer rings of the KRU··X and KRU··XLL types whose outside surface form is cylindrical.  
 2) The grease replenishment port is situated only in the front (in the left side face in the diagram above).

Reference point of eccentricity



**KRU·LL type (with cage)**

### Accessories

Applicable bearing number	Grease nipple number	Plug with hexagonal socket number	Applicable hexagonal nut
16~26	NIP-X30	M4×0.7 ×4 ℓ	1M 6×1 ~1M10×1.25
30~35	JIS 1 (A-M6F)	M6×0.75×6 ℓ	1M12×1.5~1M16×1.5
40~90	JIS 2 (A-PT $\frac{1}{8}$ )	PT $\frac{1}{8}$ ×7 ℓ	1M18×1.5~1M30×1.5

Note: The boundary dimensions of grease nipples and plugs are listed in **Table 3** on page 179 and **Table 5** on page 180.



JIS 2 (A-PT $\frac{1}{8}$ )



PT $\frac{1}{8}$



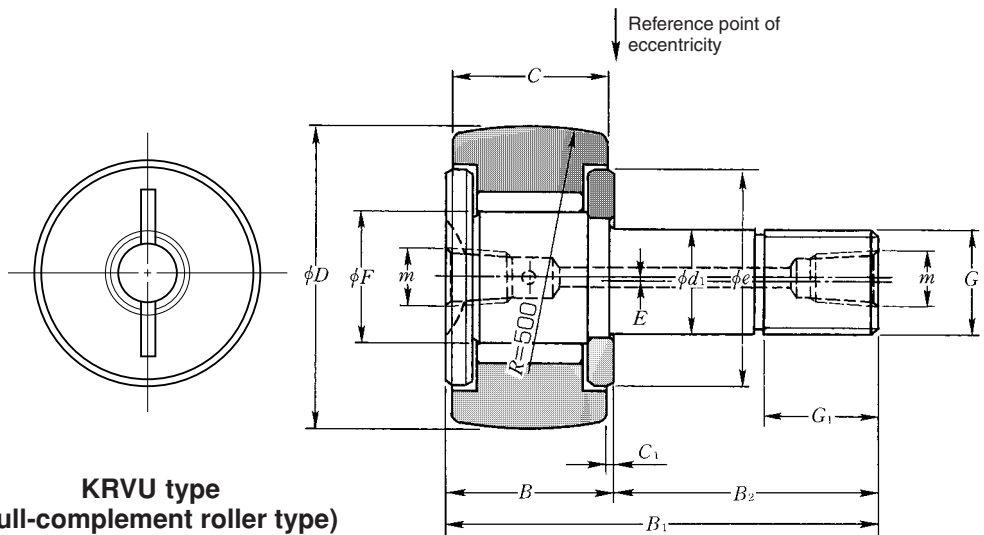
1M12

Track load capacity		Limiting speed		Maximum tightening torque	Cam Follower number				Mass	Stud dia.
N kgf		min <sup>-1</sup>			Without seal		With seal			
Spherical outer ring	Cylindrical outer ring	Grease lubrication	Oil lubrication		Spherical outer rings	Cylindrical outer rings	Spherical outer rings	Cylindrical outer rings		
1 080 110	3 400 350	*19 000	*25 000	3 0.3	KRU16	KRU16X	KRU16LL/3AS	KRU16XLL/3AS	0.019	6
1 380 141	4 050 415	*15 000	*20 000	8 0.8	KRU19	KRU19X	KRU19LL/3AS	KRU19XLL/3AS	0.031	8
1 690 172	5 150 525	*12 000	*16 000	14 1.4	KRU22	KRU22X	KRU22LL/3AS	KRU22XLL/3AS	0.046	10
2 120 216	6 100 620	*12 000	*16 000	14 1.4	KRU26	KRU26X	KRU26LL/3AS	KRU26XLL/3AS	0.059	10
2 620 267	7 700 785	10 000	*13 000	20 2	KRU30	KRU30X	KRU30LL/3AS	KRU30XLL/3AS	0.087	12
2 860 291	8 200 835	10 000	*13 000	20 2	KRU32	KRU32X	KRU32LL/3AS	KRU32XLL/3AS	0.097	12
3 200 325	11 900 1 220	8 000	*11 000	52 5.3	KRU35	KRU35X	KRU35LL/3AS	KRU35XLL/3AS	0.169	16
3 850 390	14 500 1 480	7 000	9 000	76 7.8	KRU40	KRU40X	KRU40LL/3AS	KRU40XLL/3AS	0.248	18
4 700 480	21 000 2 150	6 000	8 000	98 10	KRU47	KRU47X	KRU47LL/3AS	KRU47XLL/3AS	0.386	20
5 550 565	23 300 2 370	6 000	8 000	98 10	KRU52	KRU52X	KRU52LL/3AS	KRU52XLL/3AS	0.461	20
6 950 710	34 500 3 500	5 000	6 500	178 18	KRU62	KRU62X	KRU62LL/3AS	KRU62XLL/3AS	0.790	24
8 050 820	38 500 3 900	5 000	6 500	178 18	KRU72	KRU72X	KRU72LL/3AS	KRU72XLL/3AS	1.04	24
9 800 1 000	53 000 5 400	4 000	5 500	360 37	KRU80	KRU80X	KRU80LL/3AS	KRU80XLL/3AS	1.55	30
10 400 1 060	56 000 5 750	4 000	5 500	360 37	KRU85	KRU85X	KRU85LL/3AS	KRU85XLL/3AS	1.74	30
11 400 1 160	59 000 6 100	4 000	5 500	360 37	KRU90	KRU90X	KRU90LL/3AS	KRU90XLL/3AS	1.95	30

Remarks: 1. The limiting speed of KRU·LL and KRU·XLL types incorporating a seal (those marked with an asterisk) is approximately 10,000 min<sup>-1</sup>.

Metric series		Inch series
With cage		Full-complement roller
Hexagonal socket	Tapped hole	Slot for screwdriver
Without seal		With seal
Eccentric stud		

KRVU type  
 KRVU··X type  
 KRVU··LL type  
 KRVU··XLL type

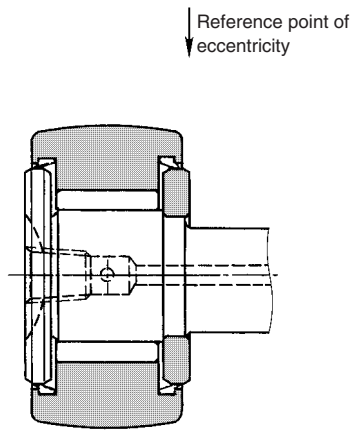


**KRVU type**  
 (Full-complement roller type)

**D** 16~90mm

OD <sup>1)</sup> mm D 0 -0.05	Boundary dimensions mm												Basic load ratings	
	$d_1$	C	F	B	B <sub>1</sub>	B <sub>2</sub>	G	G <sub>1</sub>	Eccentricity E	C <sub>1</sub>	m	e	dynamic C <sub>r</sub>	static C <sub>0r</sub>
16	6 <sup>0</sup> <sub>-0.012</sub>	11	8	12	28	16	M6×1	8	0.25	0.6	M4×0.7 <sup>2)</sup>	12	6 500 665	9 350 955
19	8 <sup>0</sup> <sub>-0.015</sub>	11	10	12	32	20	M8×1.25	10	0.25	0.6	M4×0.7 <sup>2)</sup>	14	7 450 760	11 700 1 190
22	10 <sup>0</sup> <sub>-0.015</sub>	12	12	13	36	23	M10×1.25	12	0.3	0.6	M4×0.7	17	8 200 840	14 000 1 420
26	10 <sup>0</sup> <sub>-0.015</sub>	12	12	13	36	23	M10×1.25	12	0.3	0.6	M4×0.7	17	8 200 840	14 000 1 420
30	12 <sup>0</sup> <sub>-0.018</sub>	14	15	15	40	25	M12×1.5	13	0.4	0.6	M6×0.75	23	12 000 1 230	20 300 2 070
32	12 <sup>0</sup> <sub>-0.018</sub>	14	15	15	40	25	M12×1.5	13	0.4	0.6	M6×0.75	23	12 000 1 230	20 300 2 070
35	16 <sup>0</sup> <sub>-0.018</sub>	18	19	19.5	52	32.5	M16×1.5	17	0.5	0.8	M6×0.75	27	18 000 1 840	36 500 3 700
40	18 <sup>0</sup> <sub>-0.018</sub>	20	22	21.5	58	36.5	M18×1.5	19	0.6	0.8	PT <sup>1</sup> / <sub>8</sub>	32	19 400 1 980	42 000 4 250
47	20 <sup>0</sup> <sub>-0.021</sub>	24	25	25.5	66	40.5	M20×1.5	21	0.7	0.8	PT <sup>1</sup> / <sub>8</sub>	37	28 800 2 940	61 000 6 250
52	20 <sup>0</sup> <sub>-0.021</sub>	24	25	25.5	66	40.5	M20×1.5	21	0.7	0.8	PT <sup>1</sup> / <sub>8</sub>	37	28 800 2 940	61 000 6 250
62	24 <sup>0</sup> <sub>-0.021</sub>	29	30	30.5	80	49.5	M24×1.5	25	0.8	0.8	PT <sup>1</sup> / <sub>8</sub>	44	39 500 4 000	98 500 10 000
72	24 <sup>0</sup> <sub>-0.021</sub>	29	30	30.5	80	49.5	M24×1.5	25	0.8	0.8	PT <sup>1</sup> / <sub>8</sub>	44	39 500 4 000	98 500 10 000
80	30 <sup>0</sup> <sub>-0.021</sub>	35	38	37	100	63	M30×1.5	32	1.0	1	PT <sup>1</sup> / <sub>8</sub>	53	58 000 5 900	147 000 15 000
90	30 <sup>0</sup> <sub>-0.021</sub>	35	38	37	100	63	M30×1.5	32	1.0	1	PT <sup>1</sup> / <sub>8</sub>	53	58 000 5 900	147 000 15 000

Note 1) JIS Class 0 is the dimensional tolerance of the outside diameter *D* of the outer rings of the KRVU··X and KRVU··XLL types whose outside surface form is cylindrical.  
 2) The grease replenishment port is situated only in the front (in the left side face in the diagram above).



**KRVU··LL type**  
(Full-complement roller type, with seal)

### Accessories

Applicable bearing number	Grease nipple number	Plug with hexagonal socket number	Applicable hexagonal nut
16~26	NIP-X30	M4×0.7 ×4 ℓ	1M 6×1 ~1M10×1.25
30~35	JIS 1 (A-M6F)	M6×0.75×6 ℓ	1M12×1.5~1M16×1.5
40~90	JIS 2 (A-PT $\frac{1}{8}$ )	PT $\frac{1}{8}$ ×7 ℓ	1M18×1.5~1M30×1.5

Note: The boundary dimensions of grease nipples and plugs are listed in **Table 3** on page 179 and **Table 5** on page 180.



JIS 2 (A-PT $\frac{1}{8}$ )



PT $\frac{1}{8}$



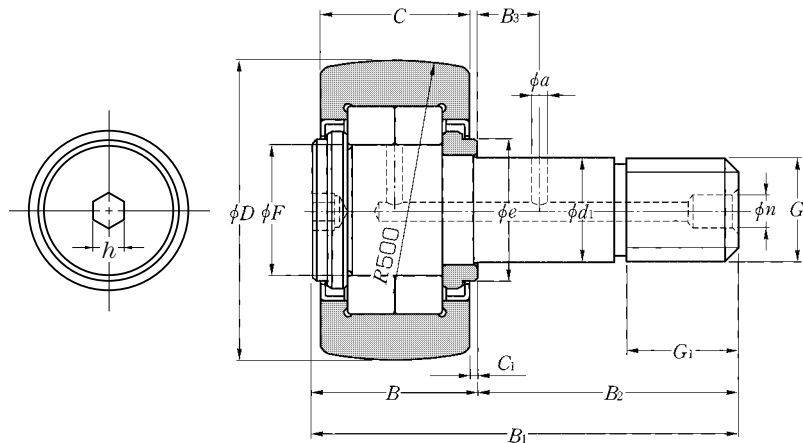
1M12

Track load capacity		Limiting speed		Maximum tightening torque	Cam Follower number				Mass	Stud dia.	
N kgf		min <sup>-1</sup>			Without seal		With seal				kg (approx.)
Spherical outer ring	Cylindrical outer ring	Grease lubrication	Oil lubrication		Spherical outer rings	Cylindrical outer rings	Spherical outer rings	Cylindrical outer rings			
1 080 110	3 400 350	*13 000	*16 000	3 0.3	KRVU16/3AS	KRVU16X/3AS	KRVU16LL/3AS	KRVU16XLL/3AS	0.020	6	
1 380 141	4 050 415	10 000	*13 000	8 0.8	KRVU19/3AS	KRVU19X/3AS	KRVU19LL/3AS	KRVU19XLL/3AS	0.032	8	
1 690 172	5 150 525	8 500	*11 000	14 1.4	KRVU22/3AS	KRVU22X/3AS	KRVU22LL/3AS	KRVU22XLL/3AS	0.047	10	
2 120 216	6 100 620	8 500	*11 000	14 1.4	KRVU26/3AS	KRVU26X/3AS	KRVU26LL/3AS	KRVU26XLL/3AS	0.061	10	
2 620 267	7 700 785	6 500	8 500	20 2	KRVU30/3AS	KRVU30X/3AS	KRVU30LL/3AS	KRVU30XLL/3AS	0.089	12	
2 860 291	8 200 835	6 500	8 500	20 2	KRVU32/3AS	KRVU32X/3AS	KRVU32LL/3AS	KRVU32XLL/3AS	0.100	12	
3 200 325	11 900 1 220	5 500	7 000	52 5.3	KRVU35/3AS	KRVU35X/3AS	KRVU35LL/3AS	KRVU35XLL/3AS	0.172	16	
3 850 390	14 500 1 480	4 500	6 000	76 7.8	KRVU40/3AS	KRVU40X/3AS	KRVU40LL/3AS	KRVU40XLL/3AS	0.252	18	
4 700 480	21 000 2 150	4 000	5 000	98 10	KRVU47/3AS	KRVU47X/3AS	KRVU47LL/3AS	KRVU47XLL/3AS	0.390	20	
5 550 565	23 300 2 370	4 000	5 000	98 10	KRVU52/3AS	KRVU52X/3AS	KRVU52LL/3AS	KRVU52XLL/3AS	0.465	20	
6 950 710	34 500 3 500	3 300	4 500	178 18	KRVU62/3AS	KRVU62X/3AS	KRVU62LL/3AS	KRVU62XLL/3AS	0.800	24	
8 050 820	38 500 3 900	3 300	4 500	178 18	KRVU72/3AS	KRVU72X/3AS	KRVU72LL/3AS	KRVU72XLL/3AS	1.05	24	
9 800 1 000	53 000 5 400	2 600	3 500	360 37	KRVU80/3AS	KRVU80X/3AS	KRVU80LL/3AS	KRVU80XLL/3AS	1.56	30	
11 400 1 160	59 000 6 100	2 600	3 500	360 37	KRVU90/3AS	KRVU90X/3AS	KRVU90LL/3AS	KRVU90XLL/3AS	1.97	30	

Remarks: 1. The limiting speed of KRVU··LL and KRVU··XLL types incorporating a seal (those marked with an asterisk) is approximately 10,000 min<sup>-1</sup>.

Metric series	Inch series
With cage	Full-complement roller
Hexagonal socket	Tapped hole
Without shield	Slot for screwdriver
	With shield

## NUKR··H type NUKR··XH type

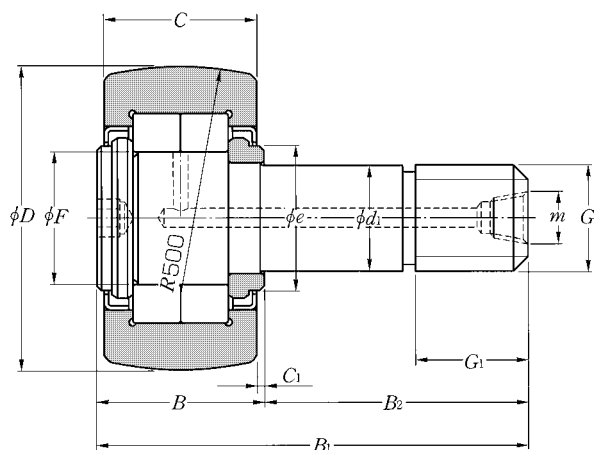


**NUKR··H type ( $D < 100\text{mm}$ )**  
(Shielded full-complement double-row cylindrical roller type)

**D** 30~180mm

OD <sup>1)</sup> mm D 0 -0.05	Boundary dimensions mm														
	$d_1$	C	F	B	$B_1$	$B_2$	G	$G_1$	$B_3$	$C_1$	n	m	a	e	h
30	12 <sup>0</sup> <sub>-0.018</sub>	14	14.5	15	40	25	M12×1.5	13	6	0.6	6	—	3	15	6
35	16 <sup>0</sup> <sub>-0.018</sub>	18	19	19.5	52	32.5	M16×1.5	17	8	0.8	6	—	3	21	6
40	18 <sup>0</sup> <sub>-0.018</sub>	20	21.5	21.5	58	36.5	M18×1.5	19	8	0.8	6	—	3	23	6
47	20 <sup>0</sup> <sub>-0.021</sub>	24	25.5	25.5	66	40.5	M20×1.5	21	9	0.8	8	—	4	27	8
52	20 <sup>0</sup> <sub>-0.021</sub>	24	30	25.5	66	40.5	M20×1.5	21	9	0.8	8	—	4	31	8
62	24 <sup>0</sup> <sub>-0.021</sub>	29	35	30.5	80	49.5	M24×1.5	25	11	0.8	8	—	4	38	8
72	24 <sup>0</sup> <sub>-0.021</sub>	29	41.5	30.5	80	49.5	M24×1.5	25	11	0.8	8	—	4	44	8
80	30 <sup>0</sup> <sub>-0.021</sub>	35	47.5	37	100	63	M30×1.5	32	15	1	8	—	4	51	8
90	30 <sup>0</sup> <sub>-0.021</sub>	35	47.5	37	100	63	M30×1.5	32	15	1	8	—	4	51	8
100	36 <sup>0</sup> <sub>-0.025</sub>	43	48.5	46	120	74	M36×1.5	38	—	1.5	—	PT $\frac{1}{8}$	—	53	14
120	42 <sup>0</sup> <sub>-0.025</sub>	50	60.5	53	140	87	M42×1.5	44	—	1.5	—	PT $\frac{1}{8}$	—	66	14
140	48 <sup>0</sup> <sub>-0.025</sub>	57	65	60	160	100	M48×1.5	52	—	1.5	—	PT $\frac{1}{8}$	—	72.5	14
150	52 <sup>0</sup> <sub>-0.030</sub>	60	75.5	63	170	107	M52×1.5	52	—	1.5	—	PT $\frac{1}{8}$	—	85.5	17
160	56 <sup>0</sup> <sub>-0.030</sub>	63	80.5	67	180	113	M56×3	58	—	2	—	PT $\frac{1}{8}$	—	89.5	17
170	60 <sup>0</sup> <sub>-0.030</sub>	66	86	70	190	120	M60×3	58	—	2	—	PT $\frac{1}{8}$	—	96.5	17
180	64 <sup>0</sup> <sub>-0.030</sub>	72	91.5	76	200	124	M64×3	65	—	2	—	PT $\frac{1}{8}$	—	103.5	17

Note 1) JIS Class 0 is the dimensional tolerance of the outside diameter  $D$  of the outer rings of the KUKR··XH types whose outside surface form is cylindrical.



NUKR·H type ( $D \geq 100\text{mm}$ )

### Accessories

Applicable bearing number	Grease nipple number	Plug number	Applicable hexagonal nut
30~40	NIP-B6	SEN3, SEN6	1M12×1.5~1M18×1.5
47~90	NIP-B8	SEN4, SEN8	1M20×1.5~1M30×1.5
100~180	JIS 2 (A-PT $\frac{1}{8}$ )	—	M36×1.5~ M64×3

Note: The boundary dimensions of grease nipples and plugs are listed in **Table 3** on page 179 and **Table 5** on page 180.



NIP-B6



JIS 2 (A-PT $\frac{1}{8}$ )



SEN6

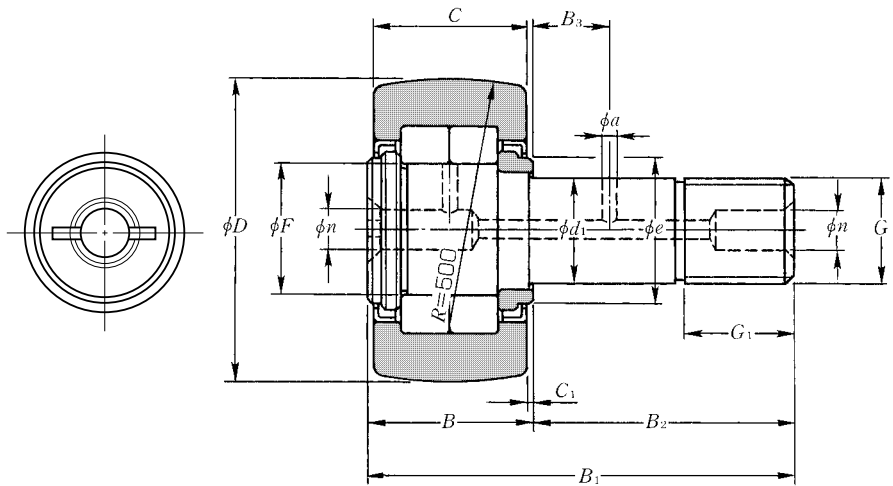


1M12

Basic load ratings		Track load capacity		Limiting speed min <sup>-1</sup>	Maximum tightening torque	Cam Follower number		Mass kg (approx.)	Stud dia. mm
dynamic N kgf	static N kgf	Spherical outer rings N kgf	Cylindrical outer rings N kgf			Spherical outer rings	Cylindrical outer rings		
$C_r$	$C_{or}$			Grease lubrication	N·m kgf·m				
13 300 1 360	13 500 1 380	2 620 267	7 700 785	6 900	20 2	NUKR30H/3AS	NUKR30XH/3AS	0.088	12
22 300 2 280	25 700 2 620	3 200 325	11 900 1 220	5 500	52 5.3	NUKR35H/3AS	NUKR35XH/3AS	0.165	16
24 100 2 450	29 100 2 970	3 850 390	14 500 1 480	4 700	76 7.8	NUKR40H/3AS	NUKR40XH/3AS	0.242	18
38 500 3 950	48 000 4 900	4 700 480	21 000 2 150	4 000	98 10	NUKR47H/3AS	NUKR47XH/3AS	0.380	20
42 500 4 350	57 500 5 850	5 550 565	23 300 2 370	3 300	98 10	NUKR52H/3AS	NUKR52XH/3AS	0.450	20
56 500 5 750	72 500 7 400	6 950 710	34 500 3 500	2 900	178 18	NUKR62H/3AS	NUKR62XH/3AS	0.795	24
62 000 6 350	85 500 8 700	8 050 820	38 500 3 900	2 400	178 18	NUKR72H/3AS	NUKR72XH/3AS	1.01	24
101 000 10 300	151 000 15 400	9 800 1 000	53 000 5 400	2 100	360 37	NUKR80H/3AS	NUKR80XH/3AS	1.54	30
101 000 10 300	151 000 15 400	11 400 1 160	59 000 6 100	2 100	360 37	NUKR90H/3AS	NUKR90XH/3AS	1.96	30
119 000 12 100	167 000 17 000	13 000 1 300	79 000 8 050	2 000	630 65	NUKR100H/3AS	NUKR100XH/3AS	3.08	36
172 000 17 600	266 000 27 100	16 400 1 670	113 000 11 500	1 700	1 020 105	NUKR120H/3AS	NUKR120XH/3AS	5.17	42
201 000 20 500	294 000 30 000	20 000 2 040	152 000 15 500	1 500	1 540 160	NUKR140H/3AS	NUKR140XH/3AS	7.98	48
258 000 26 300	380 000 39 000	22 000 2 250	173 000 17 600	1 300	1 950 200	NUKR150H/3AS	NUKR150XH/3AS	9.70	52
274 000 27 900	400 000 41 000	24 000 2 450	194 000 19 800	1 200	2 480 250	NUKR160H/3AS	NUKR160XH/3AS	11.7	56
320 000 32 500	475 000 48 500	26 000 2 650	218 000 22 200	1 100	3 030 310	NUKR170H/3AS	NUKR170XH/3AS	13.9	60
365 000 37 500	555 000 56 500	27 900 2 840	253 000 25 800	1 000	3 670 375	NUKR180H/3AS	NUKR180XH/3AS	17.0	64

Metric series		Inch series	
With cage		Full-complement roller	
Hexagonal socket	Tapped hole	Slot for screwdriver	
Without shield		With shield	

**NUKR type**  
**NUKR··X type**



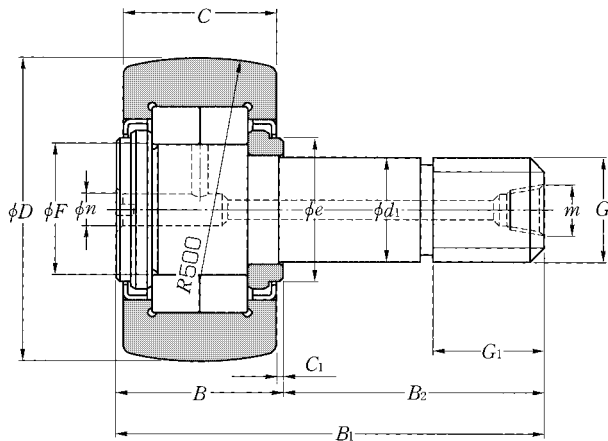
**NUKR type ( $D < 100\text{mm}$ )**  
**(Shielded full-complement double-row cylindrical roller type)**

**D** 30~180mm

OD <sup>1)</sup> mm <i>D</i> 0 -0.05	Boundary dimensions mm													
	<i>d</i> <sub>1</sub>	<i>C</i>	<i>F</i>	<i>B</i>	<i>B</i> <sub>1</sub>	<i>B</i> <sub>2</sub>	<i>G</i>	<i>G</i> <sub>1</sub>	<i>B</i> <sub>3</sub>	<i>C</i> <sub>1</sub>	<i>n</i>	<i>m</i>	<i>a</i>	<i>e</i>
<b>30</b>	12 <sup>0</sup> <sub>-0.018</sub>	14	14.5	15	40	25	M12×1.5	13	6	0.6	6	—	3	15
<b>35</b>	16 <sup>0</sup> <sub>-0.018</sub>	18	19	19.5	52	32.5	M16×1.5	17	8	0.8	6	—	3	21
<b>40</b>	18 <sup>0</sup> <sub>-0.018</sub>	20	21.5	21.5	58	36.5	M18×1.5	19	8	0.8	6	—	3	23
<b>47</b>	20 <sup>0</sup> <sub>-0.021</sub>	24	25.5	25.5	66	40.5	M20×1.5	21	9	0.8	8	—	4	27
<b>52</b>	20 <sup>0</sup> <sub>-0.021</sub>	24	30	25.5	66	40.5	M20×1.5	21	9	0.8	8	—	4	31
<b>62</b>	24 <sup>0</sup> <sub>-0.021</sub>	29	35	30.5	80	49.5	M24×1.5	25	11	0.8	8	—	4	38
<b>72</b>	24 <sup>0</sup> <sub>-0.021</sub>	29	41.5	30.5	80	49.5	M24×1.5	25	11	0.8	8	—	4	44
<b>80</b>	30 <sup>0</sup> <sub>-0.021</sub>	35	47.5	37	100	63	M30×1.5	32	15	1	8	—	4	51
<b>90</b>	30 <sup>0</sup> <sub>-0.021</sub>	35	47.5	37	100	63	M30×1.5	32	15	1	8	—	4	51
<b>100</b>	36 <sup>0</sup> <sub>-0.025</sub>	43	48.5	46	120	74	M36×1.5	38	—	1.5	8	PT <sup>1</sup> / <sub>8</sub>	—	53
<b>120</b>	42 <sup>0</sup> <sub>-0.025</sub>	50	60.5	53	140	87	M42×1.5	44	—	1.5	8	PT <sup>1</sup> / <sub>8</sub>	—	66
<b>140</b>	48 <sup>0</sup> <sub>-0.025</sub>	57	65	60	160	100	M48×1.5	52	—	1.5	8	PT <sup>1</sup> / <sub>8</sub>	—	72.5
<b>150</b>	52 <sup>0</sup> <sub>-0.030</sub>	60	75.5	63	170	107	M52×1.5	52	—	1.5	8	PT <sup>1</sup> / <sub>8</sub>	—	85.5
<b>160</b>	56 <sup>0</sup> <sub>-0.030</sub>	63	80.5	67	180	113	M56×3	58	—	2	8	PT <sup>1</sup> / <sub>8</sub>	—	89.5
<b>170</b>	60 <sup>0</sup> <sub>-0.030</sub>	66	86	70	190	120	M60×3	58	—	2	8	PT <sup>1</sup> / <sub>8</sub>	—	96.5
<b>180</b>	64 <sup>0</sup> <sub>-0.030</sub>	72	91.5	76	200	124	M64×3	65	—	2	8	PT <sup>1</sup> / <sub>8</sub>	—	103.5

Note 1) JIS Class 0 is the dimensional tolerance of the outside diameter *D* of the outer rings of the KUKR··X types whose outside surface form is cylindrical.





NUKR type ( $D \geq 100\text{mm}$ )

### Accessories

Applicable bearing number	Grease nipple number	Plug number	Applicable hexagonal nut
30~40	NIP-B6	SEN3, SEN6	1M12×1.5~1M18×1.5
47~90	NIP-B8	SEN4, SEN8	1M20×1.5~1M30×1.5
100~180	JIS 2 (A-PT $\frac{1}{8}$ )	SEN8	M36×1.5~ M64×3

Note: The boundary dimensions of grease nipples and plugs are listed in **Table 3** on page 179 and **Table 5** on page 180.



NIP-B6



JIS 2 (A-PT $\frac{1}{8}$ )



SEN6

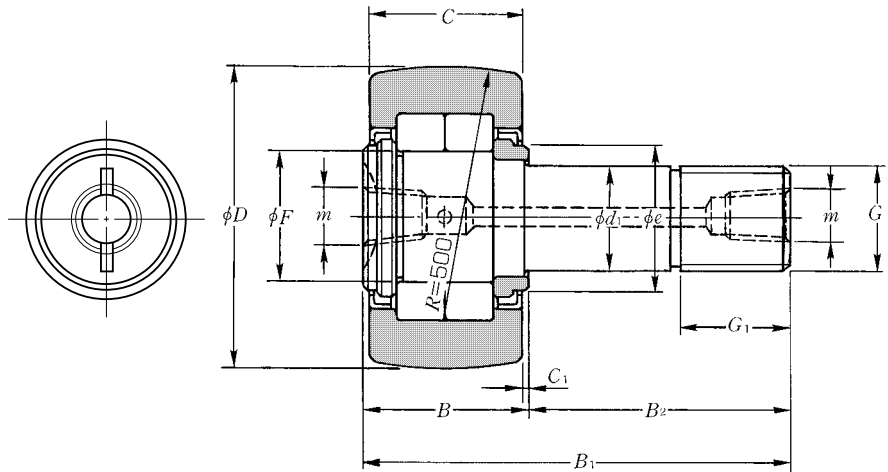


1M12

Basic load ratings		Track load capacity		Limiting speed $\text{min}^{-1}$	Maximum tightening torque $\text{N} \cdot \text{m}$ $\text{kgf} \cdot \text{m}$	Cam Follower number		Mass  kg (approx.)	Stud dia. mm
dynamic $C_r$	static $C_{or}$	Spherical outer rings	Cylindrical outer rings			Spherical outer rings	Cylindrical outer rings		
13 300 1 360	13 500 1 380	2 620 267	7 700 785	6 900	20 2	NUKR 30/3AS	NUKR 30X/3AS	0.088	12
22 300 2 280	25 700 2 620	3 200 325	11 900 1 220	5 500	52 5.3	NUKR 35/3AS	NUKR 35X/3AS	0.165	16
24 100 2 450	29 100 2 970	3 850 390	14 500 1 480	4 700	76 7.8	NUKR 40/3AS	NUKR 40X/3AS	0.242	18
38 500 3 950	48 000 4 900	4 700 480	21 000 2 150	4 000	98 10	NUKR 47/3AS	NUKR 47X/3AS	0.380	20
42 500 4 350	57 500 5 850	5 550 565	23 300 2 370	3 300	98 10	NUKR 52/3AS	NUKR 52X/3AS	0.450	20
56 500 5 750	72 500 7 400	6 950 710	34 500 3 500	2 900	178 18	NUKR 62/3AS	NUKR 62X/3AS	0.795	24
62 000 6 350	85 500 8 700	8 050 820	38 500 3 900	2 400	178 18	NUKR 72/3AS	NUKR 72X/3AS	1.01	24
101 000 10 300	151 000 15 400	9 800 1 000	53 000 5 400	2 100	360 37	NUKR 80/3AS	NUKR 80X/3AS	1.54	30
101 000 10 300	151 000 15 400	11 400 1 160	59 000 6 100	2 100	360 37	NUKR 90/3AS	NUKR 90X/3AS	1.96	30
119 000 12 100	167 000 17 000	13 000 1 300	79 000 8 050	2 000	630 65	NUKR 100/3AS	NUKR 100X/3AS	3.08	36
172 000 17 600	266 000 27 100	16 400 1 670	113 000 11 500	1 700	1 020 105	NUKR 120/3AS	NUKR 120X/3AS	5.17	42
201 000 20 500	294 000 30 000	20 000 2 040	152 000 15 500	1 500	1 540 160	NUKR 140/3AS	NUKR 140X/3AS	7.98	48
258 000 26 300	380 000 39 000	22 000 2 250	173 000 17 600	1 300	1 950 200	NUKR 150/3AS	NUKR 150X/3AS	9.70	52
274 000 27 900	400 000 41 000	24 000 2 450	194 000 19 800	1 200	2 480 250	NUKR 160/3AS	NUKR 160X/3AS	11.7	56
320 000 32 500	475 000 48 500	26 000 2 650	218 000 22 200	1 100	3 030 310	NUKR 170/3AS	NUKR 170X/3AS	13.9	60
365 000 37 500	555 000 56 500	27 900 2 840	253 000 25 800	1 000	3 670 375	NUKR 180/3AS	NUKR 180X/3AS	17.0	64

Metric series		Inch series	
With cage		Full-complement roller	
Hexagonal socket	Tapped hole	Slot for screwdriver	
Without shield		With shield	

**NUKRT type**  
**NUKRT··X type**



**NUKRT type**  
**(Shielded full-complement double-row cylindrical roller type)**

**D** 30~180mm

OD <sup>1)</sup> mm D 0 -0.05	Boundary dimensions mm											Basic load ratings	
	$d_1$	C	F	B	B <sub>1</sub>	B <sub>2</sub>	G	G <sub>1</sub>	C <sub>1</sub>	m	e	dynamic C <sub>r</sub>	static C <sub>0r</sub>
30	12 <sup>0</sup> <sub>-0.018</sub>	14	14.5	15	40	25	M12×1.5	13	0.6	M6×0.75	15	13 300 1 360	13 500 1 380
35	16 <sup>0</sup> <sub>-0.018</sub>	18	19	19.5	52	32.5	M16×1.5	17	0.8	PT <sup>1</sup> / <sub>8</sub>	21	22 300 2 280	25 700 2 620
40	18 <sup>0</sup> <sub>-0.018</sub>	20	21.5	21.5	58	36.5	M18×1.5	19	0.8	PT <sup>1</sup> / <sub>8</sub>	23	24 100 2 450	29 100 2 970
47	20 <sup>0</sup> <sub>-0.021</sub>	24	25.5	25.5	66	40.5	M20×1.5	21	0.8	PT <sup>1</sup> / <sub>8</sub>	27	38 500 3 950	48 000 4 900
52	20 <sup>0</sup> <sub>-0.021</sub>	24	30	25.5	66	40.5	M20×1.5	21	0.8	PT <sup>1</sup> / <sub>8</sub>	31	42 500 4 350	57 500 5 850
62	24 <sup>0</sup> <sub>-0.021</sub>	29	35	30.5	80	49.5	M24×1.5	25	0.8	PT <sup>1</sup> / <sub>8</sub>	38	56 500 5 750	72 500 7 400
72	24 <sup>0</sup> <sub>-0.021</sub>	29	41.5	30.5	80	49.5	M24×1.5	25	0.8	PT <sup>1</sup> / <sub>8</sub>	44	62 000 6 350	85 500 8 700
80	30 <sup>0</sup> <sub>-0.021</sub>	35	47.5	37	100	63	M30×1.5	32	1	PT <sup>1</sup> / <sub>8</sub>	51	101 000 10 300	151 000 15 400
90	30 <sup>0</sup> <sub>-0.021</sub>	35	47.5	37	100	63	M30×1.5	32	1	PT <sup>1</sup> / <sub>8</sub>	51	101 000 10 300	151 000 15 400
100	36 <sup>0</sup> <sub>-0.025</sub>	43	48.5	46	120	74	M36×1.5	38	1.5	PT <sup>1</sup> / <sub>8</sub>	53	119 000 12 100	167 000 17 000
120	42 <sup>0</sup> <sub>-0.025</sub>	50	60.5	53	140	87	M42×1.5	44	1.5	PT <sup>1</sup> / <sub>8</sub>	66	172 000 17 600	266 000 27 100
140	48 <sup>0</sup> <sub>-0.025</sub>	57	65	60	160	100	M48×1.5	52	1.5	PT <sup>1</sup> / <sub>8</sub>	72.5	201 000 20 500	294 000 30 000
150	52 <sup>0</sup> <sub>-0.030</sub>	60	75.5	63	170	107	M52×1.5	52	1.5	PT <sup>1</sup> / <sub>8</sub>	85.5	258 000 26 300	380 000 39 000
160	56 <sup>0</sup> <sub>-0.030</sub>	63	80.5	67	180	113	M56×3	58	2	PT <sup>1</sup> / <sub>8</sub>	89.5	274 000 27 900	400 000 41 000
170	60 <sup>0</sup> <sub>-0.030</sub>	66	86	70	190	120	M60×3	58	2	PT <sup>1</sup> / <sub>8</sub>	96.5	320 000 32 500	475 000 48 500
180	64 <sup>0</sup> <sub>-0.030</sub>	72	91.5	76	200	124	M64×3	65	2	PT <sup>1</sup> / <sub>8</sub>	103.5	365 000 37 500	555 000 56 500

Note 1) JIS Class 0 is the dimensional tolerance of the outside diameter D of the outer rings of the KUKRT··X types whose outside surface form is cylindrical.

### Accessories

Applicable bearing number	Grease nipple number	Plug with hexagonal socket number	Applicable hexagonal nut
30	JIS 1 (A-M6F)	M6×0.75×6 ℓ	1M12×1.5
35~180	JIS 2 (A-PT $\frac{1}{8}$ )	PT $\frac{1}{8}$ ×7 ℓ	1M16×1.5~1M64×3

Note: The boundary dimensions of grease nipples and plugs are listed in **Table 3** on page 179 and **Table 5** on page 180.



JIS 2 (A-PT $\frac{1}{8}$ )



PT $\frac{1}{8}$

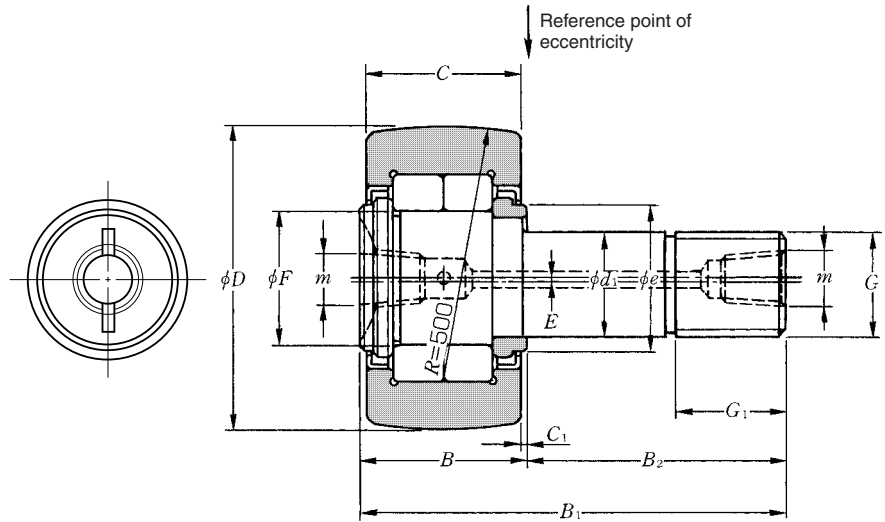


1M12

Track load capacity		Limiting speed min <sup>-1</sup>	Maximum tightening torque N·m kgf·m	Cam Follower number		Mass kg (approx.)	Stud dia. mm
Spherical outer rings	N kgf Cylindrical outer rings			Spherical outer rings	Cylindrical outer rings		
2 620 267	7 700 785	6 900	20 2	NUKRT 30/3AS	NUKRT 30X/3AS	0.088	12
3 200 325	11 900 1 220	5 500	52 5.3	NUKRT 35/3AS	NUKRT 35X/3AS	0.165	16
3 850 390	14 500 1 480	4 700	76 7.8	NUKRT 40/3AS	NUKRT 40X/3AS	0.242	18
4 700 480	21 000 2 150	4 000	98 10	NUKRT 47/3AS	NUKRT 47X/3AS	0.380	20
5 550 565	23 300 2 370	3 300	98 10	NUKRT 52/3AS	NUKRT 52X/3AS	0.450	20
6 950 710	34 500 3 500	2 900	178 18	NUKRT 62/3AS	NUKRT 62X/3AS	0.795	24
8 050 820	38 500 3 900	2 400	178 18	NUKRT 72/3AS	NUKRT 72X/3AS	1.01	24
9 800 1 000	53 000 5 400	2 100	360 37	NUKRT 80/3AS	NUKRT 80X/3AS	1.54	30
11 400 1 160	59 000 6 100	2 100	360 37	NUKRT 90/3AS	NUKRT 90X/3AS	1.96	30
13 000 1 300	79 000 8 050	2 000	630 65	NUKRT 100/3AS	NUKRT 100X/3AS	3.08	36
16 400 1 670	113 000 11 500	1 700	1 020 105	NUKRT 120/3AS	NUKRT 120X/3AS	5.17	42
20 000 2 040	152 000 15 500	1 500	1 540 160	NUKRT 140/3AS	NUKRT 140X/3AS	7.98	48
22 000 2 250	173 000 17 600	1 300	1 950 200	NUKRT 150/3AS	NUKRT 150X/3AS	9.70	52
24 000 2 450	194 000 19 800	1 200	2 480 250	NUKRT 160/3AS	NUKRT 160X/3AS	11.7	56
26 000 2 650	218 000 22 200	1 100	3 030 310	NUKRT 170/3AS	NUKRT 170X/3AS	13.9	60
27 900 2 840	253 000 25 800	1 000	3 670 375	NUKRT 180/3AS	NUKRT 180X/3AS	17.0	64

Metric series	Inch series
With cage	Full-complement roller
Hexagonal socket	Tapped hole
Slot for screwdriver	
Without shield	With shield
Eccentric stud	

## NUKRU type NUKRU·X type

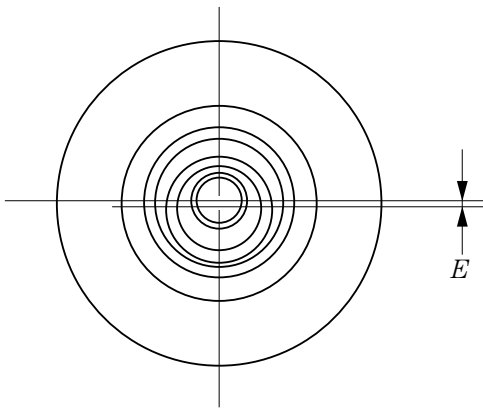


D 30~180mm

### NUKRU type (Shielded full-complement double-row cylindrical roller type)

OD <sup>1)</sup> mm D 0 -0.05	Boundary dimensions mm													Basic load ratings	
	$d_1$	C	F	B	$B_1$	$B_2$	G	$G_1$	$C_1$	m	e	Eccentricity E	$C_r$	static $C_{or}$	
30	12 <sub>-0.018</sub> <sup>0</sup>	14	14.5	15	40	25	M12×1.5	13	0.6	M6×0.75	15	0.4	13 300 1 360	13 500 1 380	
35	16 <sub>-0.018</sub> <sup>0</sup>	18	19	19.5	52	32.5	M16×1.5	17	0.8	M6×0.75	21	0.5	22 300 2 280	25 700 2 620	
40	18 <sub>-0.018</sub> <sup>0</sup>	20	21.5	21.5	58	36.5	M18×1.5	19	0.8	PT $\frac{1}{8}$	23	0.6	24 100 2 450	29 100 2 970	
47	20 <sub>-0.021</sub> <sup>0</sup>	24	25.5	25.5	66	40.5	M20×1.5	21	0.8	PT $\frac{1}{8}$	27	0.7	38 500 3 950	48 000 4 900	
52	20 <sub>-0.021</sub> <sup>0</sup>	24	30	25.5	66	40.5	M20×1.5	21	0.8	PT $\frac{1}{8}$	31	0.7	42 500 4 350	57 500 5 850	
62	24 <sub>-0.021</sub> <sup>0</sup>	29	35	30.5	80	49.5	M24×1.5	25	0.8	PT $\frac{1}{8}$	38	0.8	56 500 5 750	72 500 7 400	
72	24 <sub>-0.021</sub> <sup>0</sup>	29	41.5	30.5	80	49.5	M24×1.5	25	0.8	PT $\frac{1}{8}$	44	1.0	62 000 6 350	85 500 8 700	
80	30 <sub>-0.021</sub> <sup>0</sup>	35	47.5	37	100	63	M30×1.5	32	1	PT $\frac{1}{8}$	51	1.0	101 000 10 300	151 000 15 400	
90	30 <sub>-0.021</sub> <sup>0</sup>	35	47.5	37	100	63	M30×1.5	32	1	PT $\frac{1}{8}$	51	1.0	101 000 10 300	151 000 15 400	
100	36 <sub>-0.025</sub> <sup>0</sup>	43	48.5	46	120	74	M36×1.5	38	1.5	PT $\frac{1}{8}$	53	1.5	119 000 12 100	167 000 17 000	
120	42 <sub>-0.025</sub> <sup>0</sup>	50	60.5	53	140	87	M42×1.5	44	1.5	PT $\frac{1}{8}$	66	1.5	172 000 17 600	266 000 27 100	
140	48 <sub>-0.025</sub> <sup>0</sup>	57	65	60	160	100	M48×1.5	52	1.5	PT $\frac{1}{8}$	72.5	2	201 000 20 500	294 000 30 000	
150	52 <sub>-0.030</sub> <sup>0</sup>	60	75.5	63	170	107	M52×1.5	52	1.5	PT $\frac{1}{8}$	85.5	2	258 000 26 300	380 000 39 000	
160	56 <sub>-0.030</sub> <sup>0</sup>	63	80.5	67	180	113	M56×3	58	2	PT $\frac{1}{8}$	89.5	2	274 000 27 900	400 000 41 000	
170	60 <sub>-0.030</sub> <sup>0</sup>	66	86	70	190	120	M60×3	58	2	PT $\frac{1}{8}$	96.5	2.5	320 000 32 500	475 000 48 500	
180	64 <sub>-0.030</sub> <sup>0</sup>	72	91.5	76	200	124	M64×3	65	2	PT $\frac{1}{8}$	103.5	2.5	365 000 37 500	555 000 56 500	

Note 1) JIS Class 0 is the dimensional tolerance of the outside diameter D of the outer rings of the KUKRU·X types whose outside surface form is cylindrical.



### Accessories

Applicable bearing number	Grease nipple number	Plug with hexagonal socket number	Applicable hexagonal nut
30~35	JIS 1 (A-M6F)	M6×0.75×6 ℓ	1M12×1.5~1M16×1.5
40~180	JIS 2 (A-PT $\frac{1}{8}$ )	PT $\frac{1}{8}$ ×7 ℓ	1M18×1.5~1M64×3

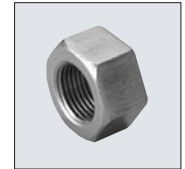
Note: The boundary dimensions of grease nipples and plugs are listed in **Table 3** on page 179 and **Table 5** on page 180.



JIS 2 (A-PT $\frac{1}{8}$ )



PT $\frac{1}{8}$

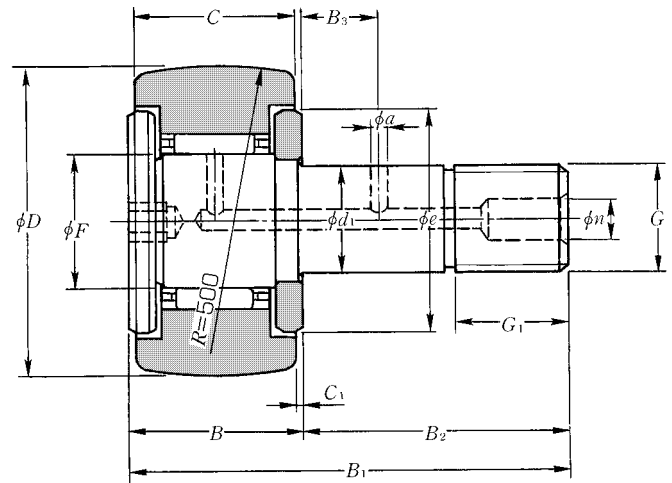
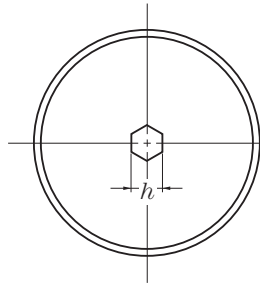


1M12

Track load capacity		Limiting speed min <sup>-1</sup>	Maximum tightening torque N·m kgf·m	Cam Follower number		Mass kg (approx.)	Stud dia. mm
Spherical outer rings	N kgf Cylindrical outer rings			Spherical outer rings	Cylindrical outer rings		
2 620 267	7 700 785	6 900	20 2	NUKRU 30/3AS	NUKRU 30X/3AS	0.088	12
3 200 325	11 900 1 220	5 500	52 5.3	NUKRU 35/3AS	NUKRU 35X/3AS	0.165	16
3 850 390	14 500 1 480	4 700	76 7.8	NUKRU 40/3AS	NUKRU 40X/3AS	0.242	18
4 700 480	21 000 2 150	4 000	98 10	NUKRU 47/3AS	NUKRU 47X/3AS	0.380	20
5 550 565	23 300 2 370	3 300	98 10	NUKRU 52/3AS	NUKRU 52X/3AS	0.450	20
6 950 710	34 500 3 500	2 900	178 18	NUKRU 62/3AS	NUKRU 62X/3AS	0.795	24
8 050 820	38 500 3 900	2 400	178 18	NUKRU 72/3AS	NUKRU 72X/3AS	1.01	24
9 800 1 000	53 000 5 400	2 100	360 37	NUKRU 80/3AS	NUKRU 80X/3AS	1.54	30
11 400 1 160	59 000 6 100	2 100	360 37	NUKRU 90/3AS	NUKRU 90X/3AS	1.96	30
13 000 1 300	79 000 8 050	2 000	630 65	NUKRU 100/3AS	NUKRU 100X/3AS	3.08	36
16 400 1 670	113 000 11 500	1 700	1 020 105	NUKRU 120/3AS	NUKRU 120X/3AS	5.17	42
20 000 2 040	152 000 15 500	1 500	1 540 160	NUKRU 140/3AS	NUKRU 140X/3AS	7.98	48
22 000 2 250	173 000 17 600	1 300	1 950 200	NUKRU 150/3AS	NUKRU 150X/3AS	9.70	52
24 000 2 450	194 000 19 800	1 200	2 480 250	NUKRU 160/3AS	NUKRU 160X/3AS	11.7	56
26 000 2 650	218 000 22 200	1 100	3 030 310	NUKRU 170/3AS	NUKRU 170X/3AS	13.9	60
27 900 2 840	253 000 25 800	1 000	3 670 375	NUKRU 180/3AS	NUKRU 180X/3AS	17.0	64

Metric series		Inch series	
With cage		Full-complement roller	
Hexagonal socket	Tapped hole	Slot for screwdriver	
Without seal		With seal	

CR··H type  
 CR··XH type  
 CR··LLH type  
 CR··XLLH type

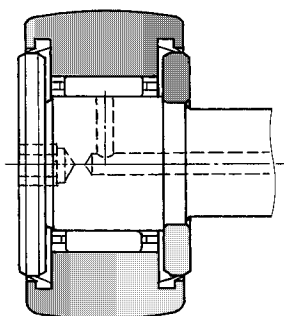


CR··H type (with cage)

D 12.700~57.150mm

OD <sup>1)</sup> mm D 0 -0.05	Boundary dimensions mm														Basic load ratings	
	$d_1^{+0.025}_0$	$C_{-0.130}^0$	F	B	B <sub>1</sub>	B <sub>2</sub>	G	G <sub>1</sub>	B <sub>3</sub>	C <sub>1</sub>	n	a	e	h	C <sub>r</sub>	C <sub>or</sub>
12.700 (1/2)	4.762 (3/8)	8.731 (1 1/32)	6	10.3	23	12.7	No.10-32UNF	6.4	—	0.8	—	—	10	1/8	2 820 287	2 450 250
12.700 (1/2)	4.762 (3/8)	9.525 (3/8)	6	11.1	27	15.9	No.10-32UNF	6.4	—	0.8	—	—	10	1/8	2 820 287	2 450 250
15.875 (5/8)	6.350 (1/4)	10.319 (13/32)	8	11.9	27.8	15.9	1/4-28UNF	7.9	—	0.8	—	—	12.5	1/8	4 050 415	4 200 430
15.875 (5/8)	6.350 (1/4)	11.112 (7/16)	8	12.7	31.8	19.1	1/4-28UNF	7.9	—	0.8	—	—	12.5	1/8	4 050 415	4 200 430
19.050 (3/4)	9.525 (3/8)	12.700 (1/2)	12	14.3	36.5	22.2	3/8-24UNF	9.5	6.35	0.8	4	3	16.5	3/16	5 300 540	6 650 680
22.225 (7/8)	9.525 (3/8)	12.700 (1/2)	12	14.3	36.5	22.2	3/8-24UNF	9.5	6.35	0.8	4	3	16.5	3/16	5 300 540	6 650 680
25.400 (1)	11.112 (7/16)	15.875 (5/8)	13	17.4	42.8	25.4	7/16-20UNF	12.7	6.35	0.8	4	3	21	1/4	7 250 740	8 350 850
28.575 (1 1/8)	11.112 (7/16)	15.875 (5/8)	13	17.4	42.8	25.4	7/16-20UNF	12.7	6.35	0.8	4	3	21	1/4	7 250 740	8 350 850
31.750 (1 1/4)	12.700 (1/2)	19.050 (3/4)	16	20.6	52.4	31.8	1/2-20UNF	15.9	7.94	0.8	6	3	25	1/4	11 400 1 160	15 900 1 620
34.925 (1 3/8)	12.700 (1/2)	19.050 (3/4)	16	20.6	52.4	31.8	1/2-20UNF	15.9	7.94	0.8	6	3	25	1/4	11 400 1 160	15 900 1 620
38.100 (1 1/2)	15.875 (5/8)	22.225 (7/8)	20	23.8	61.9	38.1	5/8-18UNF	19.1	9.53	0.8	6	4	30	5/16	13 300 1 360	20 800 2 120
41.275 (1 5/8)	15.875 (5/8)	22.225 (7/8)	20	23.8	61.9	38.1	5/8-18UNF	19.1	9.53	0.8	6	4	30	5/16	13 300 1 360	20 800 2 120
44.450 (1 3/4)	19.050 (3/4)	25.400 (1)	25	27	71.4	44.4	3/4-16UNF	22.2	11.11	0.8	6	4	36.5	5/16	20 700 2 110	33 500 3 450
47.625 (1 7/8)	19.050 (3/4)	25.400 (1)	25	27	71.4	44.4	3/4-16UNF	22.2	11.11	0.8	6	4	36.5	5/16	20 700 2 110	33 500 3 450
50.800 (2)	22.225 (7/8)	31.750 (1 1/4)	30	33.3	84.1	50.8	7/8-14UNF	25.4	12.7	0.8	6	5	42	7/16	28 900 2 950	55 000 5 600
57.150 (2 1/4)	22.225 (7/8)	31.750 (1 1/4)	30	33.3	84.1	50.8	7/8-14UNF	25.4	12.7	0.8	6	5	42	7/16	28 900 2 950	55 000 5 600

Note 1)  $^{0}_{-0.025}$  is the dimensional tolerance of the outside diameter *D* of the outer rings of the CR··XH and CR··XLLH types whose outside surface form is cylindrical.



**CR·LLH type (with cage, sealed)**

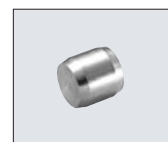
### Accessories

Applicable bearing number	Grease nipple number	Plug number	Applicable hexagonal nut
8,8-1	NIP-B3	SEN3	No. 10-32UNF
10,10-1	NIP-B4	SEN4	1/4-28UNF
12~18	NIP-B4	SEN3, SEN4	3/8-24UNF~7/16-20UNF
20~22	NIP-B6	SEN3, SEN6	1/2-20UNF
24~30	NIP-B6	SEN4, SEN6	5/8-18UNF~3/4-16UNF
32~36	NIP-B6	SEN5, SEN8	7/8-14UNF

Note: The boundary dimensions of grease nipples and plugs are listed in **Table 3** on page 179 and **Table 5** on page 180.



NIP-B6



SEN6



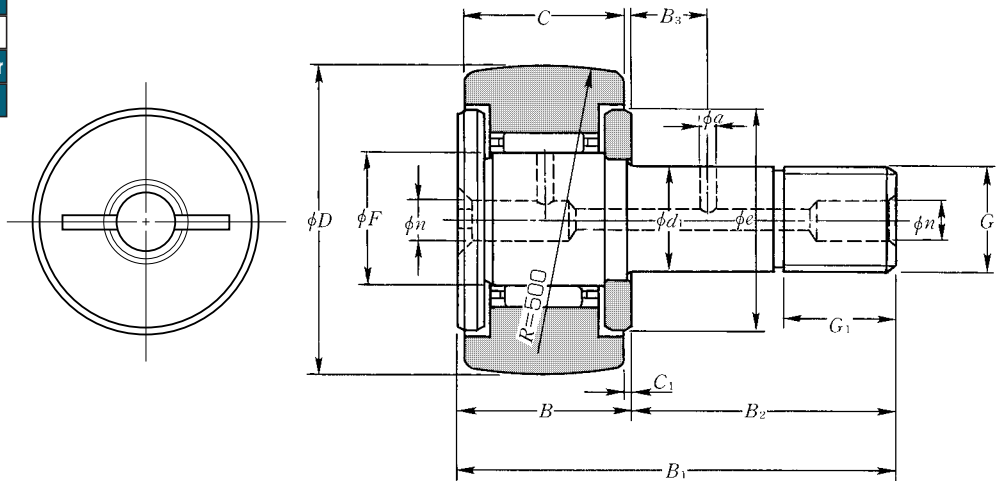
1/2-20UNF

Track load capacity N kgf		Limiting speed min <sup>-1</sup>		Maximum tightening torque N·m kgf·m	Cam Follower number				Mass kg (approx.)	Stud dia. mm
Spherical outer rings	Cylindrical outer rings	Grease lubrication	Oil lubrication		Without seal		With seal			
					Spherical outer rings	Cylindrical outer rings	Spherical outer rings	Cylindrical outer rings		
790 81	2 090 213	20 000	28 000	2 0.2	CR8T2H/3AS	CR8XT2H/3AS	—	—	0.009	4.762 (3/16)
790 81	2 310 235	20 000	28 000	2 0.2	CR8-1T2H/3AS	CR8-1XT2H/3AS	—	—	0.010	4.762 (3/16)
1 080 110	3 000 310	18 000	25 000	4 0.4	CR10H/3AS	CR10XH/3AS	—	—	0.020	6.350 (1/4)
1 080 110	3 300 335	*18 000	*25 000	4 0.4	CR10-1H/3AS	CR10-1XH/3AS	CR10-1LLH/3AS	CR10-1XLLH/3AS	0.022	6.350 (1/4)
1 380 140	4 600 470	13 000	*16 000	13 1.3	CR12H	CR12XH	CR12LLH/3AS	CR12XLLH/3AS	0.037	9.525 (3/8)
1 710 174	5 350 545	13 000	*16 000	13 1.3	CR14H	CR14XH	CR14LLH/3AS	CR14XLLH/3AS	0.048	9.525 (3/8)
2 060 210	7 400 755	12 000	15 000	18 1.9	CR16H	CR16XH	CRV16LLH/3AS	CR16XLLH/3AS	0.087	11.112 (7/16)
2 430 248	8 350 850	12 000	15 000	18 1.9	CR18H	CR18XH	CR18LLH/3AS	CR18XLLH/3AS	0.100	11.112 (7/16)
2 840 290	11 400 1 160	9 000	13 000	24 2.4	CR20H	CR20XH	CR20LLH/3AS	CR20XLLH/3AS	0.150	12.700 (1/2)
3 250 330	12 500 1 280	9 000	13 000	24 2.4	CR22H	CR22XH	CR22LLH/3AS	CR22XLLH/3AS	0.166	12.700 (1/2)
3 600 365	16 300 1 660	7 500	10 000	51 5.2	CR24H	CR24XH	CR24LLH/3AS	CR24XLLH/3AS	0.225	15.875 (5/8)
4 050 410	17 600 1 800	7 500	10 000	51 5.2	CR26H	CR26XH	CR26LLH/3AS	CR26XLLH/3AS	0.265	15.875 (5/8)
4 400 450	21 600 2 200	6 000	8 000	92 9.3	CR28H	CR28XH	CR28LLH/3AS	CR28XLLH/3AS	0.375	19.050 (3/4)
4 850 495	23 200 2 360	6 000	8 000	92 9.3	CR30H	CR30XH	CR30LLH/3AS	CR30XLLH/3AS	0.420	19.050 (3/4)
5 300 540	31 000 3 150	5 000	6 600	150 15	CR32H	CR32XH	CR32LLH/3AS	CR32XLLH/3AS	0.505	22.225 (7/8)
6 200 635	35 000 3 550	5 000	6 600	150 15	CR36H	CR36XH	CR36LLH/3AS	CR36XLLH/3AS	0.750	22.225 (7/8)

Note: The limiting speed of cam followers incorporating a seal (those marked with an asterisk) is approximately 10,000 min<sup>-1</sup>.

Metric series		Inch series	
With cage		Full-complement roller	
Hexagonal socket	Tapped hole	Slot for screwdriver	
Without seal		With seal	

CR type  
 CR·X type  
 CR·LL type  
 CR·XLL type



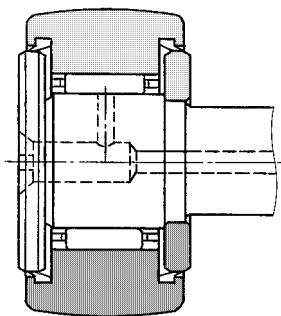
CR type (with cage)

D 12.700~57.150mm

OD <sup>1)</sup> mm D 0 -0.05	Boundary dimensions mm													Basic load ratings dynamic static N kgf			
	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>
12.700 (1/2)	4.762 (3/8)	8.731 (1 1/32)	6	10.3	23	12.7	No.10-32UNF	6.4	—	0.8	3 <sup>2)</sup>	—	10	2 820 287	2 450 250		
12.700 (1/2)	4.762 (3/8)	9.525 (3/8)	6	11.1	27	15.9	No.10-32UNF	6.4	—	0.8	3 <sup>2)</sup>	—	10	2 820 287	2 450 250		
15.875 (5/8)	6.350 (1/4)	10.319 (13/32)	8	11.9	27.8	15.9	1/4-28UNF	7.9	—	0.8	4 <sup>2)</sup>	—	12.5	4 050 415	4 200 430		
15.875 (5/8)	6.350 (1/4)	11.112 (7/16)	8	12.7	31.8	19.1	1/4-28UNF	7.9	—	0.8	4 <sup>2)</sup>	—	12.5	4 050 415	4 200 430		
19.050 (3/4)	9.525 (3/8)	12.700 (1/2)	12	14.3	36.5	22.2	3/8-24UNF	9.5	6.35	0.8	4	3	16.5	5 300 540	6 650 680		
22.225 (7/8)	9.525 (3/8)	12.700 (1/2)	12	14.3	36.5	22.2	3/8-24UNF	9.5	6.35	0.8	4	3	16.5	5 300 540	6 650 680		
25.400 (1)	11.112 (7/16)	15.875 (5/8)	13	17.4	42.8	25.4	7/16-20UNF	12.7	6.35	0.8	4	3	21	7 250 740	8 350 850		
28.575 (1 1/8)	11.112 (7/16)	15.875 (5/8)	13	17.4	42.8	25.4	7/16-20UNF	12.7	6.35	0.8	4	3	21	7 250 740	8 350 850		
31.750 (1 1/4)	12.700 (1/2)	19.050 (3/4)	16	20.6	52.4	31.8	1/2-20UNF	15.9	7.94	0.8	6	3	25	11 400 1 160	15 900 1 620		
34.925 (1 3/8)	12.700 (1/2)	19.050 (3/4)	16	20.6	52.4	31.8	1/2-20UNF	15.9	7.94	0.8	6	3	25	11 400 1 160	15 900 1 620		
38.100 (1 1/2)	15.875 (5/8)	22.225 (7/8)	20	23.8	61.9	38.1	5/8-18UNF	19.1	9.53	0.8	6	4	30	13 300 1 360	20 800 2 120		
41.275 (1 5/8)	15.875 (5/8)	22.225 (7/8)	20	23.8	61.9	38.1	5/8-18UNF	19.1	9.53	0.8	6	4	30	13 300 1 360	20 800 2 120		
44.450 (1 3/4)	19.050 (3/4)	25.400 (1)	25	27	71.4	44.4	3/4-16UNF	22.2	11.11	0.8	6	4	36.5	20 700 2 110	33 500 3 450		
47.625 (1 7/8)	19.050 (3/4)	25.400 (1)	25	27	71.4	44.4	3/4-16UNF	22.2	11.11	0.8	6	4	36.5	20 700 2 110	33 500 3 450		
50.800 (2)	22.225 (7/8)	31.750 (1 1/4)	30	33.3	84.1	50.8	7/8-14UNF	25.4	12.7	0.8	8	5	42	28 900 2 950	55 000 5 600		
57.150 (2 1/4)	22.225 (7/8)	31.750 (1 1/4)	30	33.3	84.1	50.8	7/8-14UNF	25.4	12.7	0.8	8	5	42	28 900 2 950	55 000 5 600		

Notes 1)  $0_{-0.025}$  is the dimensional tolerance of the outside diameter *D* of the outer rings of the CR·X and CR·XLL types whose outside surface form is cylindrical.  
 2) The grease port is situated only in the front (in the left side face in the diagram above).





**CR·LL type (with cage, sealed)**

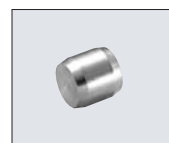
### Accessories

Applicable bearing number	Grease nipple number	Plug number	Applicable hexagonal nut
8,8-1	NIP-B3	SEN3	No. 10-32UNF
10,10-1	NIP-B4	SEN4	1/4-28UNF
12~18	NIP-B4	SEN3. SEN4	3/8-24UNF~7/16-20UNF
20~22	NIP-B6	SEN3. SEN6	1/2-20UNF
24~30	NIP-B6	SEN4. SEN6	5/8-18UNF~3/4-16UNF
32~36	NIP-B6	SEN5. SEN8	7/8-14UNF

Note: The boundary dimensions of grease nipples and plugs are listed in **Table 3** on page 179 and **Table 5** on page 180.



NIP-B6



SEN6



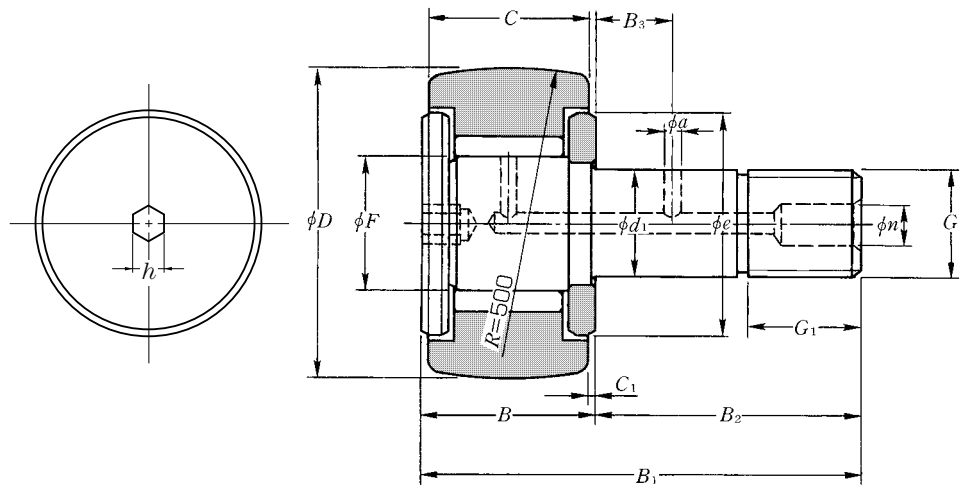
1/2-20UNF

Track load capacity N kgf		Limiting speed min <sup>-1</sup>		Maximum tightening torque N·m kgf·m	Cam Follower number				Mass kg (approx.)	Stud dia. mm
Spherical outer rings	Cylindrical outer rings	Grease lubrication	Oil lubrication		Without seal		With seal			
					Spherical outer rings	Cylindrical outer rings	Spherical outer rings	Cylindrical outer rings		
790 81	2 090 213	20 000	28 000	2 0.2	CR8T2	CR8XT2	—	—	0.009	4.762 (3/8)
790 81	2 310 235	20 000	28 000	2 0.2	CR8-1T2	CR8-1XT2	—	—	0.010	4.762 (3/8)
1 080 110	3 000 310	18 000	25 000	4 0.4	CR10	CR10X	—	—	0.020	6.350 (1/4)
1 080 110	3 300 335	*18 000	*25 000	4 0.4	CR10-1	CR10-1X	CR10-1LL/3AS	CR10-1XLL/3AS	0.022	6.350 (1/4)
1 380 140	4 600 470	13 000	*16 000	13 1.3	CR12	CR12X	CR12LL/3AS	CR12XLL/3AS	0.037	9.525 (3/8)
1 710 174	5 350 545	13 000	*16 000	13 1.3	CR14	CR14X	CR14LL/3AS	CR14XLL/3AS	0.048	9.525 (3/8)
2 060 210	7 400 755	12 000	15 000	18 1.9	CR16	CR16X	CRV16LL/3AS	CR16XLL/3AS	0.087	11.112 (7/16)
2 430 248	8 350 850	12 000	15 000	18 1.9	CR18	CR18X	CR18LL/3AS	CR18XLL/3AS	0.100	11.112 (7/16)
2 840 290	11 400 1 160	9 000	13 000	24 2.4	CR20	CR20X	CR20LL/3AS	CR20XLL/3AS	0.150	12.700 (1/2)
3 250 330	12 500 1 280	9 000	13 000	24 2.4	CR22	CR22X	CR22LL/3AS	CR22XLL/3AS	0.166	12.700 (1/2)
3 600 365	16 300 1 660	7 500	10 000	51 5.2	CR24	CR24X	CR24LL/3AS	CR24XLL/3AS	0.225	15.875 (5/8)
4 050 410	17 600 1 800	7 500	10 000	51 5.2	CR26	CR26X	CR26LL/3AS	CR26XLL/3AS	0.265	15.875 (5/8)
4 400 450	21 600 2 200	6 000	8 000	92 9.3	CR28	CR28X	CR28LL/3AS	CR28XLL/3AS	0.375	19.050 (3/4)
4 850 495	23 200 2 360	6 000	8 000	92 9.3	CR30	CR30X	CR30LL/3AS	CR30XLL/3AS	0.420	19.050 (3/4)
5 300 540	31 000 3 150	5 000	6 600	150 15	CR32	CR32X	CR32LL/3AS	CR32XLL/3AS	0.505	22.225 (7/8)
6 200 635	35 000 3 550	5 000	6 600	150 15	CR36	CR36X	CR36LL/3AS	CR36XLL/3AS	0.750	22.225 (7/8)

Note: The limiting speed of cam followers incorporating a seal (those marked with an asterisk) is approximately 10,000 min<sup>-1</sup>.

Metric series		Inch series	
With cage		Full-complement roller	
Hexagonal socket	Tapped hole	Slot for screwdriver	
Without seal		With seal	

**CRV··H type**  
**CRV··XH type**  
**CRV··LLH type**  
**CRV··XLLH type**

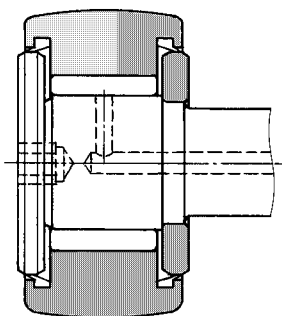


**D** 12.700~152.400mm

**CRV··H type (Full-complement roller type)**

OD <sup>1)</sup> mm D 0 -0.05	Boundary dimensions mm															Basic load ratings	
	$d_1^{+0.025}_0$	$C_{-0.130}^0$	F	B	B <sub>1</sub>	B <sub>2</sub>	G	G <sub>1</sub>	B <sub>3</sub>	C <sub>1</sub>	n	a	e	h	C <sub>r</sub>	C <sub>or</sub>	
12.700 (1/2)	4.826 (-)	8.731 (1 1/32)	5.75	10.3	23	12.7	No.10-32UNF	6.4	—	0.8	—	—	10	1/8	3 400 350	3 750 385	
12.700 (1/2)	4.826 (-)	9.525 (3/8)	5.75	11.1	27	15.9	No.10-32UNF	6.4	—	0.8	—	—	10	1/8	3 950 405	4 550 465	
15.875 (5/8)	6.350 (1/4)	10.319 (13/32)	8.11	11.9	27.8	15.9	1/4-28UNF	7.9	—	0.8	—	—	12.5	1/8	5 550 565	7 600 770	
15.875 (5/8)	6.350 (1/4)	11.112 (7/16)	8.11	12.7	31.8	19.1	1/4-28UNF	7.9	—	0.8	—	—	12.5	1/8	6 200 630	8 700 885	
19.050 (3/4)	9.525 (3/8)	12.700 (1/2)	11	14.3	36.5	22.2	3/8-24UNF	9.5	6.35	0.8	4	3	15.5	3/16	8 050 825	13 300 1 360	
22.225 (7/8)	9.525 (3/8)	12.700 (1/2)	11	14.3	36.5	22.2	3/8-24UNF	9.5	6.35	0.8	4	3	15.5	3/16	8 050 825	13 300 1 360	
25.400 (1)	11.112 (7/16)	15.875 (5/8)	14	17.6	43	25.4	7/16-20UNF	12.7	6.35	0.8	4	3	19.5	1/4	11 700 1 190	18 900 1 920	
28.575 (1 1/8)	11.112 (7/16)	15.875 (5/8)	14	17.6	43	25.4	7/16-20UNF	12.7	6.35	0.8	4	3	19.5	1/4	11 700 1 190	18 900 1 920	
31.750 (1 1/4)	12.700 (1/2)	19.050 (3/4)	18.47	20.6	52.4	31.8	1/2-20UNF	15.9	7.94	0.8	6	3	25	1/4	17 700 1 810	35 000 3 600	
34.925 (1 3/8)	12.700 (1/2)	19.050 (3/4)	18.47	20.6	52.4	31.8	1/2-20UNF	15.9	7.94	0.8	6	3	25	1/4	17 700 1 810	35 000 3 600	
38.100 (1 1/2)	15.875 (5/8)	22.225 (7/8)	21	23.8	61.9	38.1	5/8-18UNF	19.1	9.53	0.8	6	4	27	5/16	21 100 2 150	45 500 4 650	
41.275 (1 5/8)	15.875 (5/8)	22.225 (7/8)	21	23.8	61.9	38.1	5/8-18UNF	19.1	9.53	0.8	6	4	27	5/16	21 100 2 150	45 500 4 650	
44.450 (1 3/4)	19.050 (3/4)	25.400 (1)	24.65	26.9	71.4	44.5	3/4-16UNF	22.2	11.11	0.8	6	4	36.5	5/16	28 400 2 900	60 500 6 150	
47.625 (1 7/8)	19.050 (3/4)	25.400 (1)	24.65	26.9	71.4	44.5	3/4-16UNF	22.2	11.11	0.8	6	4	36.5	5/16	28 400 2 900	60 500 6 150	
50.800 (2)	22.225 (7/8)	31.750 (1 1/4)	26.71	33.3	84.1	50.8	7/8-14UNF	25.4	12.7	0.8	6	5	36.5	5/16	41 000 4 200	87 500 8 950	
57.150 (2 1/4)	22.225 (7/8)	31.750 (1 1/4)	26.71	33.3	84.1	50.8	7/8-14UNF	25.4	12.7	0.8	6	5	36.5	5/16	41 000 4 200	87 500 8 950	
63.500 (2 1/2)	25.400 (1)	38.100 (1 1/2)	31.15	39.6	96.8	57.2	1-14UNF	28.6	14.29	0.8	6	5	44	1/2	54 500 5 600	119 000 12 200	
69.850 (2 3/4)	25.400 (1)	38.100 (1 1/2)	31.15	39.6	96.8	57.2	1-14UNF	28.6	14.29	0.8	6	5	44	1/2	54 500 5 600	119 000 12 200	
76.200 (3)	31.750 (1 1/4)	44.450 (1 3/4)	36.85	46	109.5	63.5	1 1/4-12UNF	31.8	15.88	0.8	8	5	53	5/8	76 500 7 800	177 000 18 000	
82.550 (3 1/4)	31.750 (1 1/4)	44.450 (1 3/4)	36.85	46	109.5	63.5	1 1/4-12UNF	31.8	15.88	0.8	8	5	53	5/8	76 500 7 800	177 000 18 000	
88.900 (3 1/2)	34.925 (1 3/8)	50.800 (2)	44.5	52.3	122.2	69.9	1 3/8-12UNF	34.9	17.46	0.8	8	5	60	5/8	84 500 8 650	214 000 21 800	
101.600 (4)	38.100 (1 1/2)	57.150 (2 1/4)	44.5	58.7	147.6	88.9	1 1/2-12UNF	38.1	19.05	0.8	8	5	63	3/4	106 000 10 800	244 000 24 900	
127.000 (5)	50.800 (2)	69.850 (2 3/4)	68.7	71.4	200	128.6	2-12UNF	65.1	22.23	0.8	8	5	89	7/8	189 000 19 300	520 000 53 000	
152.400 (6)	63.500 (2 1/2)	82.550 (3 1/4)	81.35	84.2	236.6	152.4	2 1/2-12UNF	76.2	25.4	0.8	8	5	110	1	260 000 26 500	675 000 68 500	

Notes 1)  $0_{-0.025}$  is the dimensional tolerance of the outside diameter *D* of the outer rings of the CR··X and CR··XLL types whose outside surface form is cylindrical.



**CRV·LLH type**  
(Full-complement roller type, with seal)

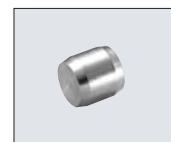
### Accessories

Applicable bearing number	Grease nipple number	Plug number	Applicable hexagonal nut
8~10-1	—	—	No. 10-32UNF~1/4-28UNF
12~18	NIP-B4	SEN3. SEN4	3/8-24UNF~7/16-20UNF
20~22	NIP-B6	SEN3. SEN6	1/2-20UNF
24~30	NIP-B6	SEN4. SEN6	5/8-18UNF~3/4-16UNF
32~44	NIP-B6	SEN5. SEN6	7/8-14UNF~1-14UNF
48~96	NIP-B8	SEN5. SEN8	1 1/4-12UNF~2 1/2-12UNF

Note: The boundary dimensions of grease nipples and plugs are listed in **Table 3** on page 179 and **Table 5** on page 180.



NIP-B6



SEN6



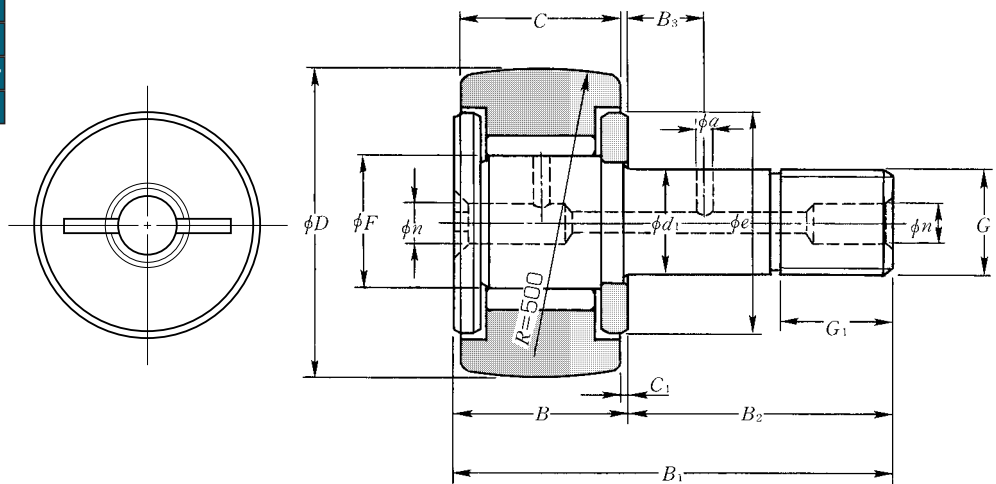
1/2-20UNF

Track load capacity N kgf		Limiting speed min <sup>-1</sup>		Maximum tightening torque N·m kgf·m	Cam Follower number				Mass kg (approx.)	Stud dia. mm
Spherical outer rings	Cylindrical outer rings	Grease lubrication	Oil lubrication		Without seal		With seal			
					Spherical outer rings	Cylindrical outer rings	Spherical outer rings	Cylindrical outer rings		
790 81	2 090 213	*17 000	*22 000	2 0.2	CRV8H/3AS	CRV8XH/3AS	CRV8LLH/3AS	CRV8XLLH/3AS	0.010	4.826 (—)
790 81	2 310 235	*17 000	*22 000	2 0.2	CRV8-1H/3AS	CRV8-1XH/3AS	CRV8-1LLH/3AS	CRV8-1XLLH/3AS	0.011	4.826 (—)
1 080 110	3 000 310	*12 000	*15 000	4 0.4	CRV10H/3AS	CRV10XH/3AS	CRV10LLH/3AS	CRV10XLLH/3AS	0.020	6.350 (1/4)
1 080 110	3 300 335	*12 000	*15 000	4 0.4	CRV10-1H/3AS	CRV10-1XH/3AS	CRV10-1LLH/3AS	CRV10-1XLLH/3AS	0.022	6.350 (1/4)
1 380 140	4 600 470	9 000	*11 000	13 1.3	CRV12H/3AS	CRV12XH/3AS	CRV12LLH/3AS	CRV12XLLH/3AS	0.038	9.525 (3/8)
1 710 174	5 350 545	9 000	*11 000	13 1.3	CRV14H/3AS	CRV14XH/3AS	CRV14LLH/3AS	CRV14XLLH/3AS	0.048	9.525 (3/8)
2 060 210	7 400 755	7 100	9 200	18 1.9	CRV16H/3AS	CRV16XH/3AS	CRV16LLH/3AS	CRV16XLLH/3AS	0.080	11.112 (7/16)
2 430 248	8 350 850	7 100	9 200	18 1.9	CRV18H/3AS	CRV18XH/3AS	CRV18LLH/3AS	CRV18XLLH/3AS	0.096	11.112 (7/16)
2 840 290	11 400 1 160	5 400	7 000	24 2.4	CRV20H/3AS	CRV20XH/3AS	CRV20LLH/3AS	CRV20XLLH/3AS	0.140	12.700 (1/2)
3 250 330	12 500 1 280	5 400	7 000	24 2.4	CRV22H/3AS	CRV22XH/3AS	CRV22LLH/3AS	CRV22XLLH/3AS	0.165	12.700 (1/2)
3 600 365	16 300 1 660	4 800	6 200	51 5.2	CRV24H/3AS	CRV24XH/3AS	CRV24LLH/3AS	CRV24XLLH/3AS	0.240	15.875 (5/8)
4 050 410	17 600 1 800	4 800	6 200	51 5.2	CRV26H/3AS	CRV26XH/3AS	CRV26LLH/3AS	CRV26XLLH/3AS	0.280	15.875 (5/8)
4 400 450	21 600 2 200	4 100	5 300	92 9.3	CRV28H/3AS	CRV28XH/3AS	CRV28LLH/3AS	CRV28XLLH/3AS	0.400	19.050 (3/4)
4 850 495	23 200 2 360	4 100	5 300	92 9.3	CRV30H/3AS	CRV30XH/3AS	CRV30LLH/3AS	CRV30XLLH/3AS	0.440	19.050 (3/4)
5 300 540	31 000 3 150	3 700	4 800	150 15	CRV32H/3AS	CRV32XH/3AS	CRV32LLH/3AS	CRV32XLLH/3AS	0.650	22.225 (7/8)
6 200 635	35 000 3 550	3 700	4 800	150 15	CRV36H/3AS	CRV36XH/3AS	CRV36LLH/3AS	CRV36XLLH/3AS	0.780	22.225 (7/8)
7 200 735	44 500 4 550	3 200	4 100	230 23	CRV40H/3AS	CRV40XH/3AS	CRV40LLH/3AS	CRV40XLLH/3AS	1.20	25.400 (1)
8 250 840	49 000 5 000	3 200	4 100	230 23	CRV44H/3AS	CRV44XH/3AS	CRV44LLH/3AS	CRV44XLLH/3AS	1.34	25.400 (1)
9 150 935	64 000 6 500	2 700	3 500	435 45	CRV48H/3AS	CRV48XH/3AS	CRV48LLH/3AS	CRV48XLLH/3AS	1.92	31.750 (1 1/4)
10 000 1 020	69 000 7 050	2 700	3 500	435 45	CRV52H/3AS	CRV52XH/3AS	CRV52LLH/3AS	CRV52XLLH/3AS	2.20	31.750 (1 1/4)
11 100 1 130	86 500 8 800	2 200	2 800	580 60	CRV56H/3AS	CRV56XH/3AS	CRV56LLH/3AS	CRV56XLLH/3AS	2.92	34.925 (1 3/8)
13 200 1 350	113 000 11 500	2 200	2 800	760 78	CRV64H/3AS	CRV64XH/3AS	CRV64LLH/3AS	CRV64XLLH/3AS	4.32	38.100 (1 1/2)
17 900 1 830	165 000 16 900	1 500	1 900	1 820 190	CRV80H/3AS	CRV80XH/3AS	CRV80LLH/3AS	CRV80XLLH/3AS	8.80	50.800 (2)
22 100 2 250	240 000 24 400	1 200	1 500	3 550 360	CRV96H/3AS	CRV96XH/3AS	CRV96LLH/3AS	CRV96XLLH/3AS	15.3	63.500 (2 1/2)

Note: The limiting speed of cam followers incorporating a seal (those marked with an asterisk) is approximately 10,000 min<sup>-1</sup>.

Metric series		Inch series
With cage		Full-complement roller
Hexagonal socket	Tapped hole	Slot for screwdriver
Without seal		With seal

CRV type  
 CRV··X type  
 CRV··LL type  
 CRV··XLL type

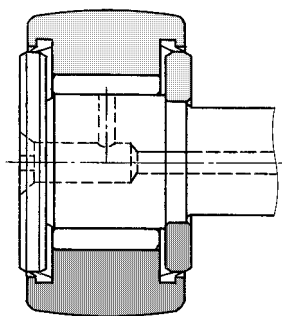


D 12.700~152.400mm

### CRV type (Full-complement roller type)

OD <sup>1)</sup> mm D 0 -0.05	Boundary dimensions mm													Basic load ratings	
	$d_1^{+0.025}_0$	$C_{-0.130}^0$	F	B	B <sub>1</sub>	B <sub>2</sub>	G	G <sub>1</sub>	B <sub>3</sub>	C <sub>1</sub>	n	a	e	C <sub>r</sub>	C <sub>or</sub>
12.700 (1/2)	4.826 (-)	8.731 (1 1/32)	5.75	10.3	23	12.7	No.10-32UNF	6.4	—	0.8	3 <sup>2)</sup>	—	10	3 400 350	3 750 385
12.700 (1/2)	4.826 (-)	9.525 (3/8)	5.75	11.1	27	15.9	No.10-32UNF	6.4	—	0.8	3 <sup>2)</sup>	—	10	3 950 405	4 550 465
15.875 (5/8)	6.350 (1/4)	10.319 (13/32)	8.11	11.9	27.8	15.9	1/4-28UNF	7.9	—	0.8	4 <sup>2)</sup>	—	12.5	5 550 565	7 600 770
15.875 (5/8)	6.350 (1/4)	11.112 (7/16)	8.11	12.7	31.8	19.1	1/4-28UNF	7.9	—	0.8	4 <sup>2)</sup>	—	12.5	6 200 630	8 700 885
19.050 (3/4)	9.525 (3/8)	12.700 (1/2)	11	14.3	36.5	22.2	3/8-24UNF	9.5	6.35	0.8	4	3	15.5	8 050 825	13 300 1 360
22.225 (7/8)	9.525 (3/8)	12.700 (1/2)	11	14.3	36.5	22.2	3/8-24UNF	9.5	6.35	0.8	4	3	15.5	8 050 825	13 300 1 360
25.400 (1)	11.112 (7/16)	15.875 (5/8)	14	17.6	43	25.4	7/16-20UNF	12.7	6.35	0.8	4	3	19.5	11 700 1 190	18 900 1 920
28.575 (1 1/8)	11.112 (7/16)	15.875 (5/8)	14	17.6	43	25.4	7/16-20UNF	12.7	6.35	0.8	4	3	19.5	11 700 1 190	18 900 1 920
31.750 (1 1/4)	12.700 (1/2)	19.050 (3/4)	18.47	20.6	52.4	31.8	1/2-20UNF	15.9	7.94	0.8	6	3	25	17 700 1 810	35 000 3 600
34.925 (1 3/8)	12.700 (1/2)	19.050 (3/4)	18.47	20.6	52.4	31.8	1/2-20UNF	15.9	7.94	0.8	6	3	25	17 700 1 810	35 000 3 600
38.100 (1 1/2)	15.875 (5/8)	22.225 (7/8)	21	23.8	61.9	38.1	5/8-18UNF	19.1	9.53	0.8	6	4	27	21 100 2 150	45 500 4 650
41.275 (1 5/8)	15.875 (5/8)	22.225 (7/8)	21	23.8	61.9	38.1	5/8-18UNF	19.1	9.53	0.8	6	4	27	21 100 2 150	45 500 4 650
44.450 (1 3/4)	19.050 (3/4)	25.400 (1)	24.65	26.9	71.4	44.5	3/4-16UNF	22.2	11.11	0.8	6	4	36.5	28 400 2 900	60 500 6 150
47.625 (1 7/8)	19.050 (3/4)	25.400 (1)	24.65	26.9	71.4	44.5	3/4-16UNF	22.2	11.11	0.8	6	4	36.5	28 400 2 900	60 500 6 150
50.800 (2)	22.225 (7/8)	31.750 (1 1/4)	26.71	33.3	84.1	50.8	7/8-14UNF	25.4	12.7	0.8	6	5	36.5	41 000 4 200	87 500 8 950
57.150 (2 1/4)	22.225 (7/8)	31.750 (1 1/4)	26.71	33.3	84.1	50.8	7/8-14UNF	25.4	12.7	0.8	6	5	36.5	41 000 4 200	87 500 8 950
63.500 (2 1/2)	25.400 (1)	38.100 (1 1/2)	31.15	39.6	96.8	57.2	1-14UNF	28.6	14.29	0.8	6	5	44	54 500 5 600	119 000 12 200
69.850 (2 3/4)	25.400 (1)	38.100 (1 1/2)	31.15	39.6	96.8	57.2	1-14UNF	28.6	14.29	0.8	6	5	44	54 500 5 600	119 000 12 200
76.200 (3)	31.750 (1 1/4)	44.450 (1 3/4)	36.85	46	109.5	63.5	1 1/4-12UNF	31.8	15.88	0.8	8	5	53	76 500 7 800	177 000 18 000
82.550 (3 1/4)	31.750 (1 1/4)	44.450 (1 3/4)	36.85	46	109.5	63.5	1 1/4-12UNF	31.8	15.88	0.8	8	5	53	76 500 7 800	177 000 18 000
88.900 (3 1/2)	34.925 (1 3/8)	50.800 (2)	44.5	52.3	122.2	69.9	1 3/8-12UNF	34.9	17.46	0.8	8	5	60	84 500 8 650	214 000 21 800
101.600 (4)	38.100 (1 1/2)	57.150 (2 1/4)	44.5	58.7	147.6	88.9	1 1/2-12UNF	38.1	19.05	0.8	8	5	63	106 000 10 800	244 000 24 900
127.000 (5)	50.800 (2)	69.850 (2 3/4)	68.7	71.4	200	128.6	2-12UNF	65.1	22.23	0.8	8	5	89	189 000 19 300	520 000 53 000
152.400 (6)	63.500 (2 1/2)	82.550 (3 1/4)	81.35	84.2	236.6	152.4	2 1/2-12UNF	76.2	25.4	0.8	8	5	110	260 000 26 500	675 000 68 500

Notes 1)  $0_{-0.025}^0$  is the dimensional tolerance of the outside diameter  $D$  of the outer rings of the CRV··X and CRV··XLL types whose outside surface form is cylindrical.  
 2) The grease port is situated only in the front (in the left side face in the diagram above).



**CRV·LL type**  
(Full-complement roller type, with seal)

### Accessories

Applicable bearing number	Grease nipple number	Plug number	Applicable hexagonal nut
8, 8-1	NIP-B3	SEN3	No. 10-32UNF
10, 10-1	NIP-B4	SEN4	1/4-28UNF
12~18	NIP-B4	SEN3, SEN4	3/8-24UNF~1/16-20UNF
20~22	NIP-B6	SEN3, SEN6	1/2-20UNF
24~30	NIP-B6	SEN4, SEN6	5/8-18UNF~3/4-16UNF
32~44	NIP-B6	SEN5, SEN6	7/8-14UNF~1-14UNF
48~96	NIP-B8	SEN5, SEN8	1 1/4-12UNF~2 1/2-12UNF

Note: The boundary dimensions of grease nipples and plugs are listed in **Table 3** on page 179 and **Table 5** on page 180.



NIP-B6



SEN6



1/2-20UNF

Track load capacity N kgf		Limiting speed min <sup>-1</sup>		Maximum tightening torque N·m kgf·m	Cam Follower number				Mass kg (approx.)	Stud dia. mm
Spherical outer rings	Cylindrical outer rings	Grease lubrication	Oil lubrication		Without seal		With seal			
					Spherical outer rings	Cylindrical outer rings	Spherical outer rings	Cylindrical outer rings		
790 81	2 090 213	*17 000	*22 000	2 0.2	CRV8/3AS	CRV8X/3AS	CRV8LL/3AS	CRV8XLL/3AS	0.010	4.826 (—)
790 81	2 310 235	*17 000	*22 000	2 0.2	CRV8-1/3AS	CRV8-1X/3AS	CRV8-1LL/3AS	CRV8-1XLL/3AS	0.011	4.826 (—)
1 080 110	3 000 310	*12 000	*15 000	4 0.4	CRV10/3AS	CRV10X/3AS	CRV10LL/3AS	CRV10XLL/3AS	0.020	6.350 (1/4)
1 080 110	3 300 335	*12 000	*15 000	4 0.4	CRV10-1/3AS	CRV10-1X/3AS	CRV10-1LL/3AS	CRV10-1XLL/3AS	0.022	6.350 (1/4)
1 380 140	4 600 470	9 000	*11 000	13 1.3	CRV12/3AS	CRV12X/3AS	CRV12LL/3AS	CRV12XLL/3AS	0.038	9.525 (3/8)
1 710 174	5 350 545	9 000	*11 000	13 1.3	CRV14/3AS	CRV14X/3AS	CRV14LL/3AS	CRV14XLL/3AS	0.048	9.525 (3/8)
2 060 210	7 400 755	7 100	9 200	18 1.9	CRV16/3AS	CRV16X/3AS	CRV16LL/3AS	CRV16XLL/3AS	0.080	11.112 (1/16)
2 430 248	8 350 850	7 100	9 200	18 1.9	CRV18/3AS	CRV18X/3AS	CRV18LL/3AS	CRV18XLL/3AS	0.096	11.112 (1/16)
2 840 290	11 400 1 160	5 400	7 000	24 2.4	CRV20/3AS	CRV20X/3AS	CRV20LL/3AS	CRV20XLL/3AS	0.140	12.700 (1/2)
3 250 330	12 500 1 280	5 400	7 000	24 2.4	CRV22/3AS	CRV22X/3AS	CRV22LL/3AS	CRV22XLL/3AS	0.165	12.700 (1/2)
3 600 365	16 300 1 660	4 800	6 200	51 5.2	CRV24/3AS	CRV24X/3AS	CRV24LL/3AS	CRV24XLL/3AS	0.240	15.875 (5/8)
4 050 410	17 600 1 800	4 800	6 200	51 5.2	CRV26/3AS	CRV26X/3AS	CRV26LL/3AS	CRV26XLL/3AS	0.280	15.875 (5/8)
4 400 450	21 600 2 200	4 100	5 300	92 9.3	CRV28/3AS	CRV28X/3AS	CRV28LL/3AS	CRV28XLL/3AS	0.400	19.050 (3/4)
4 850 495	23 200 2 360	4 100	5 300	92 9.3	CRV30/3AS	CRV30X/3AS	CRV30LL/3AS	CRV30XLL/3AS	0.440	19.050 (3/4)
5 300 540	31 000 3 150	3 700	4 800	150 15	CRV32/3AS	CRV32X/3AS	CRV32LL/3AS	CRV32XLL/3AS	0.650	22.225 (7/8)
6 200 635	35 000 3 550	3 700	4 800	150 15	CRV36/3AS	CRV36X/3AS	CRV36LL/3AS	CRV36XLL/3AS	0.780	22.225 (7/8)
7 200 735	44 500 4 550	3 200	4 100	230 23	CRV40/3AS	CRV40X/3AS	CRV40LL/3AS	CRV40XLL/3AS	1.20	25.400 (1)
8 250 840	49 000 5 000	3 200	4 100	230 23	CRV44/3AS	CRV44X/3AS	CRV44LL/3AS	CRV44XLL/3AS	1.34	25.400 (1)
9 150 935	64 000 6 500	2 700	3 500	435 45	CRV48/3AS	CRV48X/3AS	CRV48LL/3AS	CRV48XLL/3AS	1.92	31.750 (1 1/4)
10 000 1 020	69 000 7 050	2 700	3 500	435 45	CRV52/3AS	CRV52X/3AS	CRV52LL/3AS	CRV52XLL/3AS	2.20	31.750 (1 1/4)
11 100 1 130	86 500 8 800	2 200	2 800	580 60	CRV56/3AS	CRV56X/3AS	CRV56LL/3AS	CRV56XLL/3AS	2.92	34.925 (1 3/8)
13 200 1 350	113 000 11 500	2 200	2 800	760 78	CRV64/3AS	CRV64X/3AS	CRV64LL/3AS	CRV64XLL/3AS	4.32	38.100 (1 1/2)
17 900 1 830	165 000 16 900	1 500	1 900	1 820 190	CRV80/3AS	CRV80X/3AS	CRV80LL/3AS	CRV80XLL/3AS	8.80	50.800 (2)
22 100 2 250	240 000 24 400	1 200	1 500	3 550 360	CRV96/3AS	CRV96X/3AS	CRV96LL/3AS	CRV96XLL/3AS	15.3	63.500 (2 1/2)

Note: The limiting speed of cam followers incorporating a seal (those marked with an asterisk) is approximately 10,000 min<sup>-1</sup>.