CCVI
BEARING INDUSTRIES

cam followers


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KR 32 PP A

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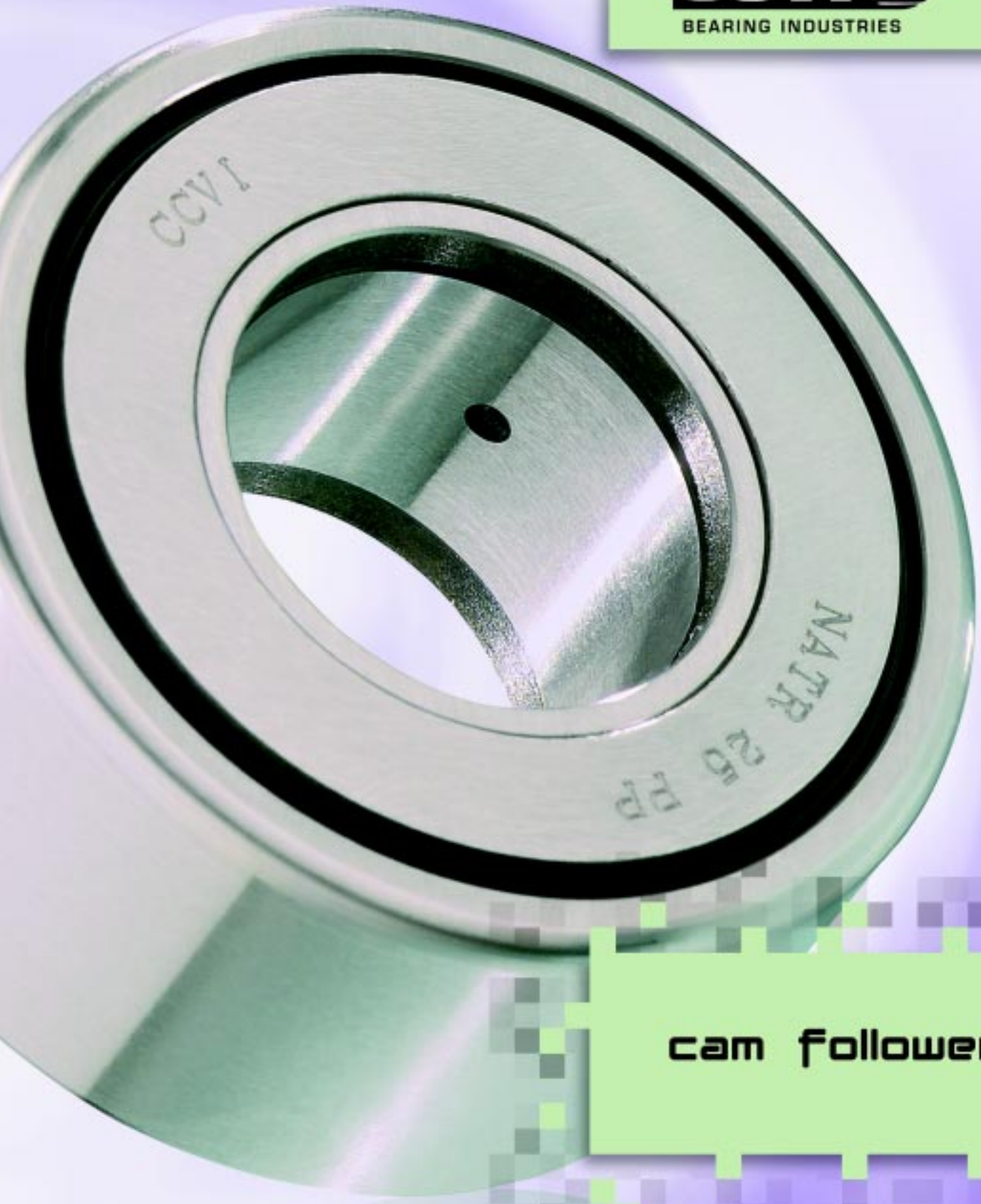

cam followers

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contents

symbols and units in the catalogue

a_1		reliability factor
a_2		material factor
a_3		operation condition factor
B	mm	nominal inner ring (shaft washer) width
b_m		rating factor
B_1	mm	total length
B_2	mm	screw length
B_3		the position of the oil hole
B_4	mm	eccentric coller width
C	mm	nominal outer ring (housing washer) width
C_{0r}	kN	basic static load rating
C_r	kN	basic dynamic radial load rating
C_1		the space between outer ring and retainer ring
D	mm	bearing housing bore diameter or outer ring external diameter
D_w	mm	ball diameter
d	mm	nominal inner diameter
d_1	mm	stud diameter
d_2	mm	retainer ring outer diameter
d_3	mm	eccentric coller outer diameter
e	mm	offsetting distance
F_r	kN	radial load
F_a	kN	axial load
f_c		factor related to bearing part geometry
f_m		torque load factor
f_1		load factor
f_2		load distribution factor
f_n		speed factor
f_h		life factor
f_d		impact load factor
G	mm	nominal diameter of stud
G_1		the lenght of thread
i		row number of ball bearings or roller bearings
L	r	bearing basic rating life
L_h	h	bearing basic rating life
L_{10}	10^6r	basic rating life
L_{10h}	h	basic rating life
L_{na}	10^6r	adjusted rating life
M	Nmm	bearing friction torque
M	mm	axial oil hole diameter
M_1	mm	radial oil hole diameter
N	r/min	allowable speed in actual bearing operation
N_0	r/min	bearing limit speed
N_A	Nmm	nut tightening torque
n	r/min	speed
P	kN	bearing equivalent load
P_m	kN	dynamic equivalent load considering torque load
P_d	kN	dynamic equivalent load considering impact load
p		life index, p=3 for ball bearings p=10/3 for roller bearings
s_r	μ m	radial internal clearance
X		radial load factor
Y		axial load factor
Z		ball number or roller number in single-row bearings
α	o	bearing nominal contact angle
r	mm	chamfer
S	mm	working clearance
S_0	mm	theoretical clearance
S_f		clearance decrease amount caused by fit
S_{fi}	mm	inner ring raceway diameter expansion amount
S_{f0}	mm	outer ring raceway diameter shrink amount
S_{t1}	mm	clearance decrease amount caused by inner and outer ring temperature difference
S_{t2}	mm	clearance decrease amount caused by rolling elements temperature rise
$\triangle_{deff}$	mm	inner ring effective interference
d	mm	bearing nominal inner diameter
d_0	mm	hollow shaft inner diameter
D_i	mm	inner ring raceway diameter
$\triangle_{Deff}$	mm	outer ring effective interference
D_h	mm	housing outside diameter
D_e	mm	outer ring raceway diameter
D	mm	bearing nominal outer diameter
α		liner expansion coefficient of bearing steel $(12.5 \times 10^{-6})/{}^0C$
D_r	mm	mean diameter of rolling elements
t_i	^0C	inner ring temperature rise
t_e	^0C	outer ring temperature rise
t_r	^0C	rolling element temperature rise

engineering data

rolling bearing structure and type

◇ Structure

Rolling bearings are normally composed of bearing rings (inner rings, outer rings), rolling elements, cages, seals and etc.
There are a number of rolling elements between inner rings and outer rings. Cages are used to keep rolling elements in a certain interval distance to avoid contacts and to achieve effective lubrication. Based on the row number of rolling elements, bearings are divided as one-row, double-row and multi-row (three-row, four-row, etc) bearing.

- **Inner ring, outer ring**

The rolling paths of the rolling elements on the rings are called raceways. The path surface is called raceway surface. The raceways of ball bearing rings are also called raceway grooves. Generally, inner rings and outer rings are fitted with shafts and housings separately. Inner rings and outer rings of thrust bearings are called shaft washer and housing washer separately.

- **Rolling element**

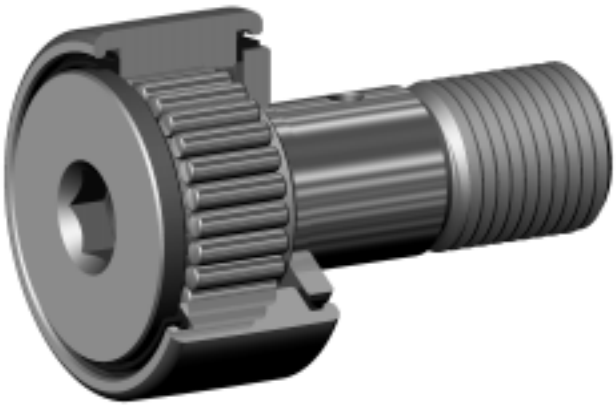
Rolling elements have two kinds of balls and rollers. Rollers have various types, e.g. short cylindrical rollers, needle rollers, taper rollers, spherical rollers and etc.

- **Cage**

Cages partly surround the rolling elements and keep them a certain distance in circumferential direction. Cages include pressed cages, machined cages, plastic cages and etc. Compared with full complement bearings, bearings with cages have lower friction torque and are suitable for high speed applications.

◇ Type

stud type cam followers



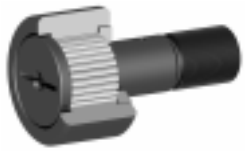
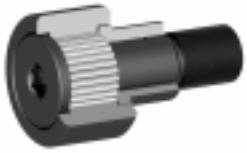
yoke type cam followers

basic designations of cam followers

category	subcategory	description	figure
yoke type cam followers	NATR series	single-row cam followers	
	NATV series	single-row cam followers, full complement	
	NUTR series	double-row cam followers, full complement	
stud type cam followers	KR series	single-row stud type cam followers	
	KRE series	single-row stud type cam followers with eccentric locking collar	
	KRV series	single-row full complement stud type cam followers	

engineering data

basic designations of cam followers

category	subcategory	description	figure
stud type cam followers	NUKR series	double-row stud type cam followers	
	NUKRE series	double-row stud type cam followers with eccentric locking collar	
	CF series	single-row stud type cam followers, inch series	
	CFB series	single-row stud type cam followers with hex hole, inch series	
	CFE series	single-row stud type cam followers with eccentric locking collar , inch series	
	CFBE series	single-row stud type cam followers with hex hole, inch series, with eccentric locking collar	
	CFH series	single-row stud type cam followers, inch series, heavy load series	
	CFHB series	single-row stud type cam followers with hex hole, inch series, heavy load series	

category	subcategory	description	figure
stud type cam followers	CCF series	single-row stud type cam followers with crown radius, inch series	
	CCFB series	single-row stud type cam followers with crown radius, inch series , hex socket head	
	CCFE series	single-row stud type cam followers with crown radius, inch series , with eccentric locking collar	
	CCFBE series	single-row stud type cam followers, with crown radius, inch series, with eccentric locking collar, with head	
	CCFH series	single-row stud type cam followers with crown radius, inch series, heavy load series	
	CCFHB series	single-row stud type cam followers with crown radius, , inch series, hex socket head , heavy series,	
yoke type cam followers	CYR series	radial cam followers, inch series	
	CCYR series	radial cam followers, inch series, with crown radius	

cam followers load calculation

◇ Basic dynamic load rating

Bearing basic dynamic load rating is determined at assumed conditions. The loading condition is that radial bearings only have radial load, while thrust bearings only have axial load. Actually, in most applications, bearings sustain radial and axial load simultaneously. So in bearing life calculation, the actual load must be changed to dynamic equivalent load which is in accordance with dynamic load rating. Radial dynamic equivalent load is a constant radial load, expressed as C_r.

$$C_r = b_m \cdot f_c (i\cos\alpha L_{we})^{7/9} Z^{3/4} D_{we}^{27/29}$$

C_r basic dynamic radial load rating, N
b_m rating factor, b_m=1 for cam followers
f_c factor related to bearing part geometry, manufacturing accuracy and material
i row number of rollers
α bearing nominal contact angle
Z ball number or roller number in single-row bearings
D_{we} ball diameter, mm

◇ Bynamic equivalent radial load

Dynamic equivalent radial load P for cam followers under constant radial and axial load:

$$P = XF_r + YF_a$$

P dynamic equivalent load, N
F_r radial load, N
F_a axial load, N
X radial load factor
Y axial load factor

◇ basic rating life

The relations of basic dynamic load rating, equivalent dynamic load and basic rating life is as the following equation

$$L_{10} = (C/P)^p$$
$$L_{10h} = 10^6/60_n (C/P)^p$$

L_{10} basic rating life, 10^6 r
L_{10h} basic rating life, h
P equivalent dynamic load, N
C basic dynamic load rating, N
n rotating speed, rpm
p life factor, p=10/3 for roller bearings

In addition, as bearing steel is improving, bearing fatigue life is extended accordingly. According to EHD lubrication theory, the oil film thickness at the contact position between raceway and rolling elements will affect bearing fatigue life. Taking the above into consideration, bearing basic rating life has to be adjusted and referred to as adjusted rating life, which is expressed as the following equation.

$$L_{na} = a_1 a_2 a_3 L_{10}$$

L_{na} adjusted rating life, 10^6r
a_1 reliability factor, see table 1
a_2 material factor
a_3 operation condition factor

• Reliability factor

Generally, bearing fatigue life is evaluated by 90% reliability, in which a_1=1. For applications where above 90% reliability is required, a_1 is chosen according to table 1.

Table 1 adjusted reliability factor

Reliability %	90	95	96	97	98	99
a1	1	0.62	0.53	0.44	0.33	0.21

• Material factor

If steels with extremely small inclusion content or have been specially treated, take a_2>1. If special heat treatment leads to lower material hardness and shorter bearing life, take the corresponding smaller a_2 value. If bearings in bad lubricating condition, above 1 values can not be taken.

• Operation condition factor

If in ideal lubrication conditions, which is enough to form elastic hydrodynamic oil films on the bearing rolling surfaces to greatly reduce the fatigue damage probability caused by surface failures, take a_3>1.
If in bad lubricating condition, the dynamic viscosity of the lubricant under working temperature is 13mm^2/s for ball bearings, 20mm^2/s for roller bearings, and take a_3<1 for extremely low speed conditions ($n \times D_w$<10000).

◇ Basic static load rating and static equivalent load

◇ Basic static load rating

If rolling bearings under larger static load or under impact load at low speed, permanent deformation will occur on the contact surface between rolling elements and raceways. The deformation gets more serious as the load increases. Normal rotation will be affected once it exceeds a limit.
Basic static load rating is the static load, under which 4000MPa calculated contact stress is produced at the contact surface center between the most loaded rolling element and the raceway.
Under this contact stress, the permanent deformation amount of rolling elements and raceways is about 0.0001 time of the rolling element diameter.
Basic static load ratings of cam followers are expressed as C_{or}.

$$C_{or} = 44\ (1- D_{we}\cos\alpha / D_{pw}\ )\ i \cdot Z \cdot L_{we} \cdot \cos\alpha$$

in which: C_{or} static basic radial load rating, N
D_{pw} oller set pitch diameter, mm
D_{we} roller diameter, mm
α bearing nominal contact angle
i row number of bearing rollers
Z roller number of single-row bearings, roller number of each row for multi-row roller bearings in which every roller number is the same.
L_{we} effective roller length, mm

◇ Static equivalent load

Static equivalent radial load of cam followers is a radial static load, under which equivalent contact stress of actual load conditions is produced at the contact surface center between the most loaded rolling element and the raceway.
Static equivalent radial load of track rollers is calculated as:

$$P_{or} = F_r$$

engineering data

cam followers internal clearance

Bearing internal clearance refers to the movement amount of the inner (outer) ring when the other outer (inner) ring is fixed. Radial movement amount is called radial internal clearance, while axial movement amount is called axial internal clearance.

◇ How to select bearing internal clearance

mounting clearance, the theoretical clearance minus bearing ring expansion amount or shrink amount caused by the interference fit when mounted on the shaft or in the housing.

effective clearance, mounting clearance minus (plus) bearing dimension variation caused by internal temperature difference.

Working clearance, bearing internal clearance when it running on the machine under certain load after mounting, i.e. effective clearance plus the elastic deformation caused by bearing load.

$$S = S_0 - (S_f + S_{t1} + S_{t2})$$

Clearance decrease amount Sf caused by fit:

for hollow shaft, $S_{fi} = \triangle_{deff} d/D_i \cdot (1-d_o^2/1-d^2)(1-d_o^2/D_i^2)$

$S_{fo} = \triangle_{Deff} D_e/D \cdot (1-D^2/1-D_h^2)(1-D_e^2/D_h^2)$

for solid shaft, $S_{fi} = \triangle_{deff} d/D_i$, $S_{fo} = \triangle_{Deff} D_e/D$

clearance decrease amount S_{t1} caused by inner and outer ring temperature difference: S_{t1}: $S_{t1} = \alpha (D_i \cdot t_i - D_e \cdot t_e)$

clearance decrease amount S_{t2} caused by rolling elements temperature rise: S_{t2}: $S_{t2} = 2\alpha \cdot D_r \cdot t_r$

in which:

S	working clearance, mm
S_0	theoretical clearance, mm
S_f	clearance decrease amount caused by fit
S_{fi}	inner ring raceway diameter expansion amount, mm
S_{f0}	outer ring raceway diameter shrink amount, mm
S_{t1}	clearance decrease amount caused by inner and outer ring temperature difference, mm
S_{t2}	clearance decrease amount caused by rolling elements temperature rise, mm
$\triangle_{deff}$	inner ring effective interference, mm
d	bearing nominal inner diameter, mm
d_0	hollow shaft inner diameter, mm
D_i	inner ring raceway diameter, mm
$\triangle_{Deff}$	outer ring effective interference, mm
D_h	housing outside diameter, mm
D_e	outer ring raceway diameter, mm
D	bearing nominal outer diameter, mm
α	linear expansion coefficient of bearing steel, $(12.5 \times 10^{-6}) / ^oC$
D_r	mean diameter of rolling elements, mm
t_i	inner ring temperature rise, ^oC
t_e	outer ring temperature rise, ^oC
t_r	rolling element temperature rise, ^oC

Table 2 radial internal clearance of needle roller / roller bearings

bearing nominal ID		radial clearance							
		C2		CN		C3		C4	
over	to	min	max	min	max	min	max	min	max
-	24	0	25	20	45	35	60	50	75
24	30	0	25	20	45	35	60	50	75
30	40	5	30	25	50	45	70	60	85
40	50	5	35	30	60	50	80	70	100
50	65	10	40	40	70	60	90	80	110
65	80	10	45	40	75	65	100	90	125
80	100	15	50	50	85	75	110	105	140
100	120	15	55	50	90	85	125	125	165
120	140	15	60	60	105	100	145	145	190
140	160	20	70	70	120	115	165	165	215
160	180	25	75	75	125	120	170	170	220
180	200	35	90	90	145	140	195	195	250
200	225	45	105	105	165	160	220	220	280
225	250	45	110	110	175	170	250	250	300
250	280	55	125	125	195	190	280	280	330
280	315	55	130	130	205	200	300	300	350
315	355	65	145	145	225	225	330	330	385
355	400	100	190	190	280	280	350	350	460

lubrication of cam followers

◇ Lubrication purpose

The purpose of rolling bearing lubrication is to reduce bearing internal friction and wear, prevent burning. Lubrication functions include:

- **Reduce friction and wear**

Prevent metal contacts and reduce frictional wear at the inter-contact positions between bearing rings, rolling elements and cage.

- **Extend fatigue life**

Good lubrication on the contact surfaces will extend bearing fatigue life; otherwise, lower oil viscosity and uneven-distributed lubricating oil film will shorten bearing life.

- **Take away frictional heat , cooling**

Circulating lubrication takes away the heat produced by friction or from outside to prevent bearing over-heat and avoid oil deterioration.

- **Prevent external substance entering bearing and prevent rust or corrosion.**

◇ Grease lubrication

◇ Filling amount of lubricating grease

Generally speaking, the grease fill amount is about 1/3-1/2 of the effective space of bearings. If too much grease is used, the grease is easy to deteriorate or soften because of stirring heat.

◇ Lubricating grease replenishment and replacement

Lubricating grease has a limited service life. Its lubricating function becomes weaker during operation and more wear debris produced. Therefore the grease has to be replenished or replaced at certain interval periods in most supporting systems applications. The replenishment period is related to bearing structure, size, rotation speed, and temperature and environmental conditions.

engineering data

◇ Lubricating grease mixture

Different brand lubricating grease can’ t be mixed together. Mixture of greases with different thickness is harmful to the structure and viscosity of the grease. Mixture of greases with different base oils will cause two-element-liquids and affect continuous lubrication. Therefore, it is generally advised to avoid mixing various greases together. If a different brand grease must be used, it is highly recommended to refill the new grease after thorough removal of the original grease.

◇ Oil lubrication
◇ Lubricating oil type

- **Oil bath lubrication**

Oil bath lubrication is used for low and medium speed bearings. Part of the bearing is immerged in the oil tank. The lubrication oil is brought up by the rotating bearing and then back to the oil tank. When bearing in static condition, keep the oil surface at the center of the lowest rolling element.

- **Oil drop lubrication**

Oil drop lubrication is used for higher speed small bearings. The bearing is lubricated by oil drops through a visible oil cup. Normally, several drops per minute.

- **Splash lubrication**

Bearings are lubricated with splashed oil produced by rotating gears or simple blades mounted on the shaft. It is widely used in automobiles, differential gear devices and gear boxes in machine tools.

- **Spray lubrication**

An oil pump is used to spray high-pressure oil onto the bearing surface through a nozzle. The oil passes through the bearing inside and run into an oil tank. For high-speed bearings, when the bearing is running, the rolling elements and cage are also rotated in a rather high speed. The surrounding air forms an air flow in this circumstance, which will lead to larger resistance, it is difficult to input lubricating oil into the bearing by usual lubrication methods and spray lubrication is the best choice at this time. The nozzle position should point to the gap between the inner ring and cage.

- **Oil mist lubrication**

Oil mist is made by mixing filtered dry and clean pressured air and lubricating oil and is sprayed into the bearing. The air flow inside bearing housing will cool the bearing. It is suitable for high speed and high temperature bearing lubrication.

◇ Viscosity is an important index of lubricating oil and the most important factor in lubricating oil selection.

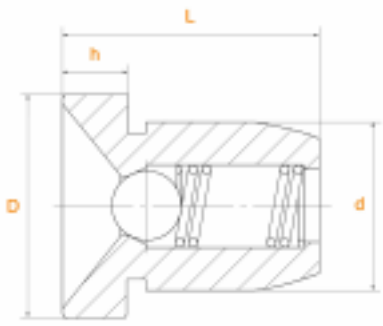
Oil viscosity is closely related to temperature and decreases when temperature rises. To ensure efficient lubricating oil film on the contact surface between rolling elements and the raceway, oil viscosity must be kept at a certain level during operation. Lower viscosity will form inefficient oil film and lead to abnormal bearing wear and reduce bearing life in the end. While higher viscosity will lead to over heating and serious energy loss because of the viscous resistance.

In general, low viscosity oil is for high speed applications. High viscosity oil is for heavy load applications. The replenishment interval mainly depends on running conditions and oil amount. As to oil bath lubrication, replace the oil once a year if the running temperature is lower than 50℃ and in good environment with little dust. Higher temperature requires more frequent oil replacement.

◇ Oil cups for CCVI cam followers

pressed oil cup

D	d	L	h
6	4	6	1.5
4.7	4	4.5	1
7.5	6	7.5	2
10	8	9.5	3



rolling bearing fit

To prevent skidding between bearing inner ring and shaft, bearing outer ring and housing bore, it is very important to choose and keep correct bearing fit. In order to choose a proper fit, all factors like bearing load and load type, bearing type and other design or performance requirements must be considered simultaneously.

◇ How to choose rolling bearing fit

When choosing bearing fit, the following factors must be taken into account

· Bearing load type

Fixed load, it is a combined radial load acted on bearing rings, which is sustained at local raceway areas and is transferred to the corresponding local areas of the shaft and housing. Bearing rings under fixed load usually have loose fit.

Rotary load, it is a combined radial load acted on bearing rings, which rotates in raceway circular direction and sustained at any raceway positions. Bearing rings under rotary load should have transition or interference fit with the shaft or housing bore. If clearance fit is adopted, temperature will rise sharply and the bearing will be destroyed in a short time. The interference amount depends on running conditions and basic principle is that there is no "creep" on the fit surface of bearing rings with the shaft or housing bore.

Oscillatory load, it is a combined radial load acted on bearing rings, which makes relative oscillatory movement in certain raceway areas and sustained at certain raceway positions. It may have an impact load with variable directions and values. For bearings under oscillatory load, especially under heavy load, the inner and outer rings must have interference fit. If inner ring rotates, normally has the fit as under rotary load. But sometimes the outer ring must move freely in bearing housing, anther case is a looser fit than under rotary load when the bearing outer ring is under a lighter load.

· Load

Under the radial load component, bearing rings are pressed and have a loose fit surface as a result. Especially when under heavy rotary load, skidding is easy to occur. Therefore, for heavy load applications, normally choose closer fit than under light load and normal load applications. Heavier load needs larger interference fit amount.
Equivalent dynamic radial load is divided as "light" "normal" and "heavy" load, see table 3

Table 3 bearing load type

Pr	cam followers
light load	$Pr \leqslant 0.08Cr$
normal load	$0.08Cr < Pr \leqslant 0.18Cr$
heavy load	$0.18Cr < Pr$

in which, Cr is the basic dynamic radial load rating

· Bearing size

Larger bearing size needs larger interference amount in interference fit and larger clearance in clearance fit.

· Bearing clearance

Interference fit will result in smaller bearing clearance. Bearing clearance must be checked after mounting to see if it meets the operational requirement and correctly choose bearing fit and bearing clearance.

· Working temperature

When bearings are running, bearing ring temperature is usually higher than its adjacent parts. The inner ring may have loose contact with the shaft because of heat expansion. The outer ring may affect axial movement of the bearing because of the heat expansion. Temperature difference and heat transfer direction must be taken into account when choosing bearing fit.

· Bearing rotation accuracy

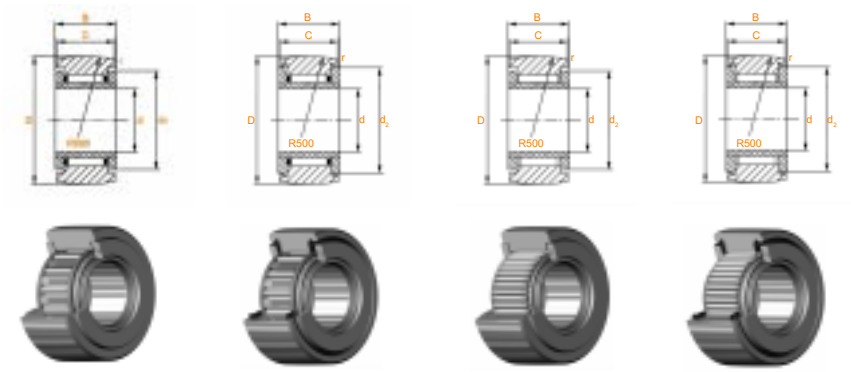
When higher rotation accuracy and operational stability is required, in order to eliminate the effect of elastic deformation and vibration, clearance fit must be avoided.

· Easy mounting and dismounting

In many applications, clearance fits are adopted for easy mounting and dismounting. According to running condition, if interference fit must be applied, usually have separable bearings or taper bore bearings for the purpose of easy mounting and dismounting.

yoke type cam followers

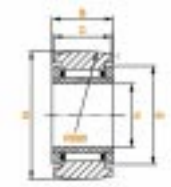
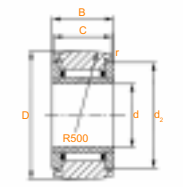
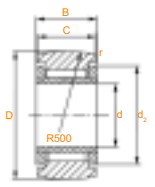
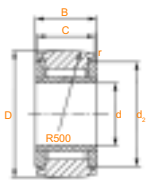
NATR / NATR..PP
NATV / NATV..PP Series



	NATR[3]	NATR..PP[3]	NATV[3]	NATV..PP[3]

Outside diameter	Designation	Weight ≈ g	Designation	Weight ≈ g	Dimensions d	D	C	B	d_2	r	Basic radial load(kN) dyn.	stat.	Speed limit(n) grease
					mm					min	Cr	Cor	r/min
16	NATR 5	14	NATR 5 PP	14	5	16	11	12	12.5	0.15	3.3	3.45	14000
	NATV 5	15	NATV 5 PP	15	5	16	11	12	12.5	0.15	5.1	6.8	3800
19	NATR 6	20	NATR 6 PP	19	6	19	11	12	15	0.15	3.68	4.1	11000
	NATV 6	21	NATV 6 PP	21	6	19	11	12	15	0.15	5.78	8.3	3100
24	NATR 8	41	NATR 8 PP	38	8	24	14	15	19	0.3	5.78	6.72	7500
	NATV 8	42	NATV 8 PP	41	8	24	14	15	19	0.3	8.2	12.0	2500
30	NATR 10	64	NATR 10 PP	61	10	30	14	15	23	0.6	7.14	8.8	5500
	NATV 10	65	NATV 10 PP	64	10	30	14	15	23	0.6	9.98	15.3	2100
32	NATR 12	71	NATR 12 PP	66	12	32	14	15	25	0.6	7.3	9.24	4500
	NATV 12	100	NATV 12 PP	69	12	32	14	15	25	0.6	10.2	16.2	1800
35	NATR 15	104	NATR 15 PP	95	15	35	18	19	27.6	0.6	10.18	14.8	3600
	NATV 15	109	NATV 15 PP	101	15	35	18	19	27.6	0.6	13.4	24.15	1600
40	NATR 17	144	NATR 17 PP	139	17	40	20	21	31.5	1	11.45	16.28	2900
	NATV 17	152	NATV 17 PP	147	17	40	20	21	31.5	1	15.5	27.8	1400

PP=seal, allowance working temperature: +100ºC (continuous working)
1) When rotating related to flat raceway or cam, choose the effective load rating C_r and C_{0r} for the outer ring elastic deformation.
2) Continuous working speed under grease lubrication
3) Outer diameter surface of the outer rings is expressed by adding suffix "X": after the cylindrical face type, e.g. 25 X or NATR 25 PPX.



	NATR[3]	NATR..PP[3]	NATV[3]	NATV..PP[3]

Outside diameter	Designation	Weight ≈ g	Designation	Weight ≈ g	Dimensions d mm	D	C	B	d_2	r min	Basic radial load(kN) dyn. Cr	stat. Cor	Speed limit(n) grease r/min
47	NATR 20	246	NATR 20 PP	236	20	47	24	25	36.5	1	16.2	26.8	2400
	NATV 20	254	NATV 20 PP	245	20	47	24	25	36.5	1	21.6	44	1300
52	NATR 25	275	NATR 25 PP	271	25	52	24	25	41.5	1	16.2	27.8	1800
	NATV 25	285	NATV 25 PP	281	25	52	24	25	41.5	1	21.5	46.2	1000
62	NATR 30	470	NATR 30 PP	444	30	62	28	29	51	1	24.78	40.4	1300
	NATV 30	481	NATV 30 PP	468	30	62	28	29	51	1	32	65	850
72	-	-	NATR 35 PP	547	35	72	28	29	58	1.1	26.78	46.7	1000
	-	-	NATV 35 PP	630	35	72	28	29	58	1.1	34.65	76.65	750
80	-	-	NATR 40 PP	795	40	80	30	32	66	1.1	34.65	62	850
	-	-	NATV 40 PP	832	40	80	30	32	66	1.1	43	94.5	650
90	-	-	NATR 50 PP	867	50	90	30	32	76	1.1	33.6	61.95	650
	-	-	NATV 50 PP	969	50	90	30	32	76	1.1	42.5	97.65	650

PP=seal, allowance working temperature: +100°C (continuous working)

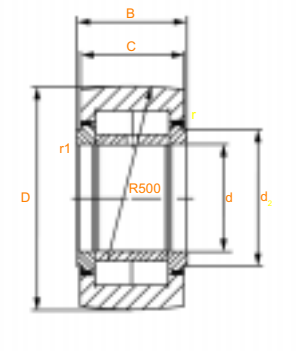
1) When rotating related to flat raceway or cam, choose the effective load rating C_r and C_{0r} for the outer ring elastic deformation.

2) Continuous working speed under grease lubrication

3) Outer diameter surface of the outer rings is expressed by adding suffix "X": after the cylindrical face type, e.g. 25 X or NATR 25 PPX.

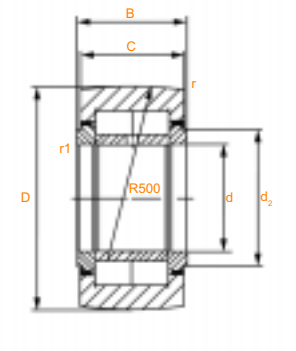
yoke type cam followers

NUTR Series



Outside diameter	Designation	Weight ≈ g	Dimensions d mm	D	B	C	d_2	r min	r_1 min	Basic radial load(kN) dyn. Cr	stat. Cor	Speed limit(n) grease r/min
35	NUTR 15	99	15	35	19	18	20	0.6	0.3	15.75	17.64	6500
40	NUTR 17	147	17	40	21	20	22	1	0.5	19.32	23.7	5500
42	NUTR 15 42	158	15	42	19	18	20	0.6	0.3	19	23	6500
47	NUTR 17 47	220	17	47	21	20	22	1	0.5	22.36	29.4	5500
	NUTR 20	245	20	47	25	24	27	1	0.5	29.4	36.75	4200
52	NUTR 20 52	321	20	52	25	24	27	1	0.5	33	43.05	4200
	NUTR 25	281	25	52	25	24	31	1	0.5	30.45	39.38	4200
62	NUTR 25 62	450	25	62	25	24	31	1	0.5	37.27	52.5	4200
	NUTR 30	465	30	62	29	28	38	1	0.5	42	52.5	2600

1) When rotating related to flat raceway or cam, choose the effective load rating C_r and C_{0r} for the outer ring elastic deformation.
2) Continuous working speed under grease lubrication
3) Outer diameter surface of the outer rings is expressed by adding suffix "X": after the cylindrical face type, e.g. 25 X or NATR 25 PPX.



Outside diameter	Designation	Weight ≈ g	Dimensions d mm	D	B	C	d_2	r min	r_1 min	Basic radial load(kN) dyn. Cr	stat. Cor	Speed limit(n) grease r/min
72	NUTR 30 72	697	30	72	29	28	38	1	0.5	49.8	67.2	2600
	NUTR 35	630	35	72	29	28	44	1.1	0.6	46.7	63	2100
80	NUTR 35 80	836	35	80	29	28	44	1.1	0.6	53.55	75.6	2100
	NUTR 40	816	40	80	32	30	50.5	1.1	0.6	57.75	78.75	1600
85	NUTR 45	883	45	85	32	30	55.2	1.1	0.6	58.8	81.9	1400
90	NUTR 40 90	1129	40	90	32	30	50.5	1.1	0.6	69.3	96.9	1600
	NUTR 50	950	50	90	32	30	59.8	1.1	0.6	59.8	83.43	1300
100	NUTR 45 100	1396	45	100	32	30	55.2	1.1	0.6	74.55	111.25	1400
110	NUTR 50 110	1690	50	110	32	30	59.8	1.1	0.6	79	126	1300

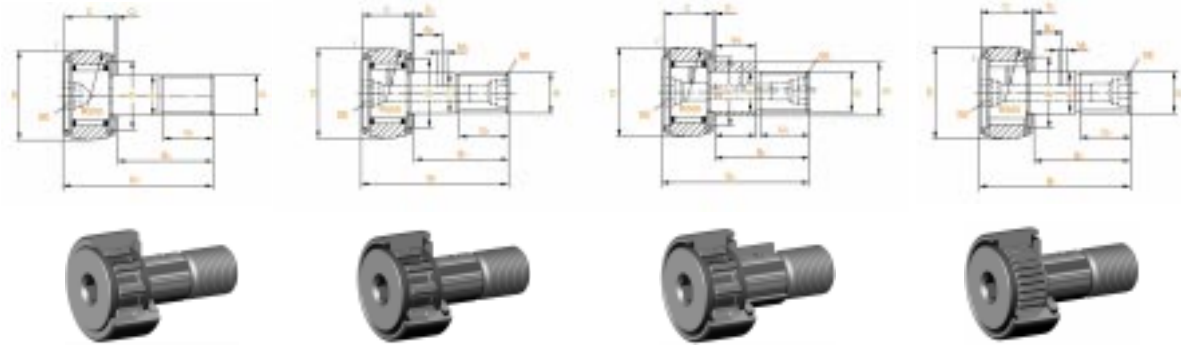
stud type cam followers

KR / KR..PP
KRE..PP / KRV..PP Series

KR [4] | KR..PP [4] | KR..PP SK [4]

Outside diameter	Designation	Weight ≈ g	Designation With eccentric collar	Weight ≈ g	Dimensions D mm	d_1 h7	C	r min.	B_1	B_2	B_3	G	G_1	M_1	C_1
16	KR 16	19	-	-	16	6	11	0.15	28	16	-	M6x1	8	-	0.6
	KR 16 PP	18	KRE 16 PP	20	16	6	11	0.15	28	16	-	M6x1	8	-	0.6
	KRV 16 PP	19	-	-	16	6	11	0.15	28	16	-	M6x1	8	-	0.6
	KRV 16 PP SK	19	-	-	16	6	11	0.15	28	16	-	M6x1	8	-	0.6
19	KR 19	29	-	-	19	8	11	0.15	32	20	-	M8x1.25	10	-	0.6
	KR 19 PP	29	KRE 19 PP	32	19	8	11	0.15	32	20	-	M8x1.25	10	-	0.6
	KRV 19 PP	31	-	-	19	8	11	0.15	32	20	-	M8x1.25	10	-	0.6
	KRV 19 PP SK	29	-	-	19	8	11	0.15	32	20	-	M8x1.25	10	-	0.6
	KR 22	45	-	-	22	10	12	0.3	36	23	-	M10x1	12	-	0.6
22	KR 22 PP	43	KRE 22 PP	47	22	10	12	0.3	36	23	-	M10x1	12	-	0.6
	KRV 22 PP	45	-	-	22	10	12	0.3	36	23	-	M10x1	12	-	0.6
	KR 26	59	-	-	26	10	12	0.3	36	23	-	M10x1	12	-	0.6
26	KR 26 PP	57	KRE 26 PP	62	26	10	12	0.3	36	23	-	M10x1	12	-	0.6
	KRV 26 PP	59	-	-	26	10	12	0.3	36	23	-	M10x1	12	-	0.6
	KR 30	92	-	-	30	12	14	0.6	40	25	6	M12x1.5	13	3	0.6
30	KR 30 PP	88	KRE 30 PP	93	30	12	14	0.6	40	25	6	M12x1.5	13	3	0.6
	KRV 30 PP	91	-	-	30	12	14	0.6	40	25	6	M12x1.5	13	3	0.6
	KR 32	103	-	-	32	12	14	0.6	40	25	6	M12x1.5	13	3	0.6
32	KR 32 PP	98	KRE 32 PP	104	32	12	14	0.6	40	25	6	M12x1.5	13	3	0.6
	KRV 32 PP	101	-	-	32	12	14	0.6	40	25	6	M12x1.5	13	3	0.6
	KR 35	173	-	-	35	16	18	0.6	52	32.5	8	M16x1.5	17	3	0.8
35	KR 35 PP	164	KRE 35 PP	177	35	16	18	0.6	52	32.5	8	M16x1.5	17	3	0.8
	KRV 35 PP	166	-	-	35	16	18	0.6	52	32.5	8	M16x1.5	17	3	0.8
	KR 40	247	-	-	40	18	20	1	58	36.5	8	M18x1.5	19	3	0.8
40	KR 40 PP	239	KRE 40 PP	255	40	18	20	1	58	36.5	8	M18x1.5	19	3	0.8
	KRV 40 PP	247	-	-	40	18	20	1	58	36.5	8	M18x1.5	19	3	0.8
47	KR 47	381	-	-	47	20	24	1	66	40.5	8	M20x1.5	21	4	0.8
	KR 47 PP	390	KRE 47 PP	400	47	20	24	1	66	40.5	8	M20x1.5	21	4	0.8
52	KR 52	454	-	-	52	20	24	1	66	40.5	8	M20x1.5	21	4	0.8
	KR 52 PP	463	KRE 52 PP	473	52	20	24	1	66	40.5	8	M20x1.5	21	4	0.8

PP=seal, allowance working temperature: +100ºC (continuous working)
1) When rotating related to flat raceway or cam, choose the effective load rating C_r and C_{0r} for the outer ring elastic deformation.
2) Continuous working speed under grease lubrication
3) Re-lubrication is processed only through the stud end face.
4) Outer diameter surface of the outer rings is expressed by adding suffix "X": after the cylindrical face type, e.g. 25 X or NATR 25 PPX.



KR [4]	KR..PP [4]	KRE..PP [4]	KRV..PP [4]

eccentric collar				SE	Drive-fit lubrication nipple[1]	Central lubrication adapter	Nut tightening torque	Basic radial load(kN)		Speed limit(n)	Outside diameter
d_2	d_3 h9	B_4	e				N_A Nm	dyn. Cr	stat. Cor	n r/min	
12.5	-	-	-		NIP 1.5x4 CN		3	3.2	3.4	14000	**16**
12.5	9	7	0.5		NIP 1.5x4 CN		3	3.2	3.4	14000	
12.5	-	-	-		NIP 1.5x4 CN		3	5.0	6.7	3800	
12.5	-	-	-		NIP 1.5x4 CN		3	3.2	3.4	14000	
15	-	-	-		NIP 1.5x4 CN		8	3.64	4.1	11000	**19**
15	11	9	0.5		NIP 1.5x4 CN		8	3.64	4.1	11000	
15	-	-	-		NIP 1.5x4 CN		8	5.6	8.2	3100	
15	-	-	-		NIP 1.5x4 CN		8	3.64	4.1	11000	
17.5	-	-	-		NIP 1x4 CN		15	4.55	5.46	8000	
17.5	13	10	0.5		NIP 1x4 CN		15	4.55	5.46	8000	**22**
17.5	-	-	-		NIP 1x4 CN		15	6.45	9.55	2600	
17.5	-	-	-		NIP 1x4 CN		15	5.35	6.5	8000	
17.5	13	10	0.5		NIP 1x4 CN		15	5.35	6.5	8000	**26**
17.5	-	-	-		NIP 1x4 CN		15	7.65	11.65	2600	
23	-	-	-		NIP 1x4 CN		22	7.14	8.8	5500	
23	15	11	0.5		NIP 1x4 CN		22	7.14	8.8	5500	**30**
23	-	-	-		NIP 1x4 CN		22	9.88	15.3	2100	
23	-	-	-		NIP 1x4 CN		22	7.45	9.45	5500	
23	15	11	0.5		NIP 1x4 CN		22	7.45	9.45	5500	**32**
23	-	-	-		NIP 1x4 CN		22	10.5	16.5	2100	
27.6	-	-	-	8	NIP 2x6 CN	AP 8	58	10.1	14.8	3600	
27.6	20	14	1	8	NIP 2x6 CN	AP 8	58	10.1	14.8	3600	**35**
27.6	-	-	-	8	NIP 2x6 CN	AP 8	58	13.44	24.15	1600	
31.5	-	-	-	8	NIP 2x6 CN	AP 8	87	11.23	16.12	2900	
31.5	22	16	1	8	NIP 2x6 CN	AP 8	87	11.23	16.12	2900	**40**
31.5	-	-	-	8	NIP 2x6 CN	AP 8	87	15.54	27.56	1400	
36.5	-	-	-	10	NIP 2x6 CN	AP 10	120	16.12	27.56	2400	**47**
36.5	24	18	1	10	NIP 2x6 CN	AP 10	120	16.12	26.5	1300	
36.5	-	-	-	10	NIP 2x6 CN	AP 10	120	17.6	30.45	2400	**52**
36.5	24	18	1	10	NIP 2x6 CN	AP 10	120	17.6	30.45	1300	

PP=seal, allowance working temperature: +100°C (continuous working)

1) When rotating related to flat raceway or cam, choose the effective load rating C_r and C_{0r} for the outer ring elastic deformation.

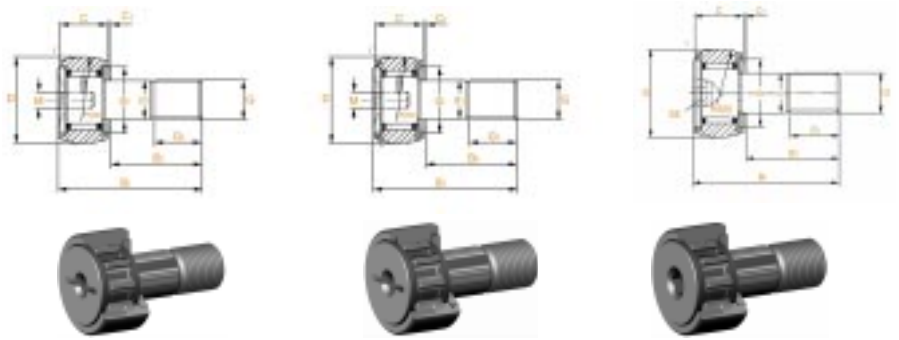
2) Continuous working speed under grease lubrication

3) Re-lubrication is processed only through the stud end face.

4) Outer diameter surface of the outer rings is expressed by adding suffix "X": after the cylindrical face type, e.g. 25 X or NATR 25 PPX.

stud type cam followers

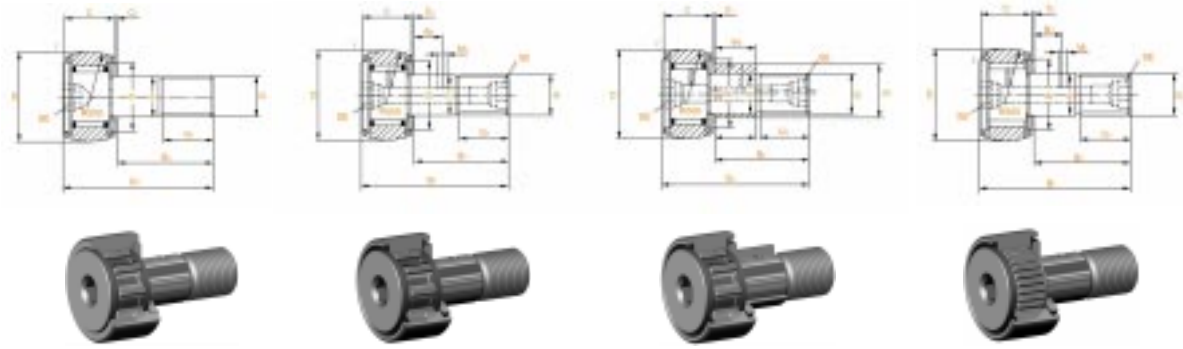
KR / KR..PP
KRE..PP / KRV..PP Series



KR [4]	KR ..PP [4]	KR ..PP SK [4]

Outside diameter	Designation	Weight ≈ g	Designation With eccentric collar	Weight ≈ g	Dimensions D mm	d_1 h7	C	r min.	B_1	B_2	B_3	G	G_1	M_1	C_1
62	KR 62 PP	770	KRE 62 PP	798	62	24	29	1	80	49.5	11	M24x1.5	25	4	0.8
	KRV 62 PP	787	-	-	62	24	29	1	80	49.5	11	M24x1.5	25	4	0.8
72	KR 72 PP	1010	KRE 72 PP	1038	72	24	29	1.1	80	49.5	11	M24x1.5	25	4	0.8
	KRV 72 PP	1027	-	-	72	24	29	1.1	80	49.5	11	M24x1.5	25	4	0.8
80	KR 80 PP	1608	KRE 80 PP	1665	80	30	35	1.1	100	63	15	M30x1.5	32	4	1
	KRV 80 PP	1636	-	-	80	30	35	1.1	100	63	15	M30x1.5	32	4	1
90	KR 90 PP	1975	KRE 90 PP	2032	90	30	35	1.1	100	63	15	M30x1.5	32	4	1
	KRV 90 PP	2003	-	-	90	30	35	1.1	100	63	15	M30x1.5	32	4	1

PP=seal, allowance working temperature: +100°C (continuous working)
1) When rotating related to flat raceway or cam, choose the effective load rating C_r and C_{0r} for the outer ring elastic deformation.
2) Continuous working speed under grease lubrication
3) Re-lubrication is processed only through the stud end face.
4) Outer diameter surface of the outer rings is expressed by adding suffix "X": after the cylindrical face type, e.g. 25 X or NATR 25 PPX.

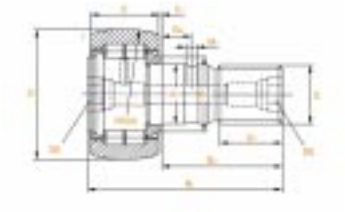


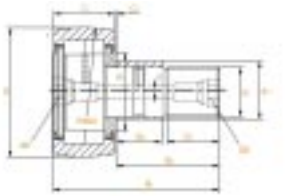
KR [4]	KR..PP [4]	KRE..PP [4]	KRV..PP [4]

eccentric collar				SE	Drive-fit lubrication nipple[1]	Central lubrication adapter	Nut tightening torque	Basic radial load(kN)		Speed limit(n)	Outside diameter
d_2	d_3 h9	B_4	e				N_A Nm	dyn. Cr	stat. Cor	n r/min	
44	28	22	1	14	NIP 3x8 CN	AP 14	220	27.56	50.4	1900	**62**
44	-	-	-	14	NIP 3x8 CN	AP 14	220	35.7	79.8	1100	
44	28	22	1	14	NIP 3x8 CN	AP 14	220	29.4	55.6	1900	**72**
44	-	-	-	14	NIP 3x8 CN	AP 14	220	38.85	88.4	1100	
53	35	29	1.5	14	NIP 3x8 CN	AP 14	450	41	80.8	1300	**80**
53	-	-	-	14	NIP 3x8 CN	AP 14	450	51.5	126	850	
53	35	29	1.5	14	NIP 3x8 CN	AP 14	450	43.16	87.15	1300	**90**
53	-	-	-	14	NIP 3x8 CN	AP 14	450	55.65	136.5	850	

stud type cam followers

NUKR / NUKRE Series

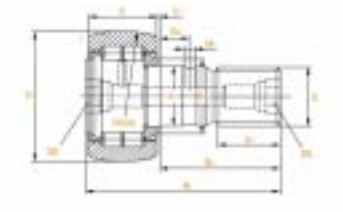




	NUKR [4]	NUKRE [4]

Outside diameter	Designation	Weight ≈ g	Designation With eccentric collar	Weight ≈ g	Dimensions D mm	d_1 h7	C	r min.	B_1	B_2	B_3	G	G_1	M_1	C_1
35	NUKR 35	164	-	-	35	16	18	0.6	52	32.5	7.8	M16x1.5	17	3	0.8
	-	-	NUKRE 35	177	35	16	18	0.6	52	29.5	-	M16x1.5	17	-	3.8
40	NUKR 40	242	-	-	40	18	20	1	58	36.5	8	M18x1.5	19	3	0.8
		-	NUKRE 40	258	40	18	20	1	58	33.5	-	M18x1.5	19	-	3.8
47	NUKR 47	380	NUKRE 47	400	47	20	24	1	66	40.5	9	M20x1.5	21	4	0.8
52	NUKR 52	450	NUKRE 52	470	52	20	24	1	66	40.5	9	M20x1.5	21	4	0.8
62	NUKR 62	795	NUKRE 62	824	62	24	28	1	80	49.5	11	M24x1.5	25	4	1.3
72	NUKR 72	1020	NUKRE 72	1050	72	24	28	1.1	80	49.5	11	M24x1.5	25	4	1.3
80	NUKR 80	1600	NUKRE 80	1670	80	30	35	1.1	100	63	15	M30x1.5	32	4	1
90	NUKR 90	1960	NUKRE 90	2020	90	30	35	1.1	100	63	15	M30x1.5	32	4	1

1) When rotating related to flat raceway or cam, choose the effective load rating C_r and C_{0r} for the outer ring elastic deformation.
2) Continuous working speed under grease lubrication
3) Re-lubrication is processed only through the stud end face.
4) Outer diameter surface of the outer rings is expressed by adding suffix "X": after the cylindrical face type, e.g. 25 X or NATR 25 PPX.



	NUKR [4]	NUKRE [4]

eccentric collar				SE	Drive-fit lubrication nipple[1]	Central lubrication adapter	Nut tightening torque	Basic radial load(kN)		Speed limit(n)	Outside diameter
d_2	d_3 h9	B_4	e				N_A Nm	dyn. Cr	stat. Cor	n r/min	
20	-	-	-	8	NIP 1.5X4 CN	AP 8	58	15.6	17.64	6500	35
27.6	20	12	1	8	NIP 1.5X4 CN	AP 8	58	15.6	17.64	6500	
22	-	-	-	8	NIP 1.5X4 CN	AP 8	87	19.32	23.73	5500	40
30	22	14	1	8	NIP 1.5X4 CN	AP 8	87	19.32	23.73	5500	
27	24	18	1	10	NIP 1.5X4 CN	AP 10	120	29.4	36.75	4200	47
31	24	18	1	10	NIP 1.5X4 CN	AP 10	120	30.45	39	4200	52
38	28	22	1	14	NIP 3X8 CN	AP 14	220	42	52	2600	62
44	28	22	1	14	NIP 3X8 CN	AP 14	220	46.25	63	2600	72
47	35	29	1.5	14	NIP 3X8 CN	AP 14	450	72.45	102.9	1800	80
47	35	29	1.5	14	NIP 3X8 CN	AP 14	450	82.95	122.85	1800	90

interchangeability chart

Yoke Type Cam followers-with needle rollers

INA		IKO		CCVI	
Unsealed	Sealed	Unsealed	Sealed	Unsealed	Sealed
NATR 5	NATR 5 PP	NART 5 R	NART 5 UUR	NATR 5	NATR 5 PP
NATV 5	NATV 5 PP	NART 5 VR	NART 5 VUUR	NATV 5	NATV 5 PP
NATR 6	NATR 6 PP	NART 6 R	NART 6 UUR	NATR 6	NATR 6 PP
NATV 6	NATV 6 PP	NART 6 VR	NART 6 VUUR	NATV 6	NATV 6 PP
NATR 8	NATR 8 PP	NART 8 R	NART 8 UUR	NATR 8	NATR 8 PP
NATV 8	NATV 8 PP	NART 8 VR	NART 8 VUUR	NATV 8	NATV 8 PP
NATR 10	NATR 10 PP	NART 10 R	NART 10 UUR	NATR 10	NATR 10 PP
NATV 10	NATV 10 PP	NART 10 VR	NART 10 VUUR	NATV 10	NATV 10 PP
NATR 12	NATR 12 PP	NART 12 R	NART 12 UUR	NATR 12	NATR 12 PP
NATV 12	NATV 12 PP	NART 12 VR	NART 12 VUUR	NATV 12	NATV 12 PP
NATR 15	NATR 15 PP	NART 15 VR	NART 15 UUR	NATR 15	NATR 15 PP
NATV 15	NATV 15 PP	NART 15 VR	NART 15 VUUR	NATV 15	NATV 15 PP
NATR 17	NATR 17 PP	NART 17 VR	NART 17 UUR	NATR 17	NATR 17 PP
NATV 17	NATV 17 PP	NART 17 VR	NART 17 VUUR	NATV 17	NATV 17 PP
NATR 20	NATR 20 PP	NART 20 VR	NART 20 UUR	NATR 20	NATR 20 PP
NATV 20	NATV 20 PP	NART 20 VR	NART 20 VUUR	NATV 20	NATV 20 PP
NATR 25	NATR 25 PP	NART 25 VR	NART 25 UUR	NATR 25	NATR 25 PP
NATV 25	NATV 25 PP	NART 25 VR	NART 25 VUUR	NATV 25	NATV 25 PP
NATR 30	NATR 30 PP	NART 30 VR	NART 30 UUR	NATR 30	NATR 30 PP
NATV 30	NATV 30 PP	NART 30 VR	NART 30 VUUR	NATV 30	NATV 30 PP
NA	NATR 35 PP	NART 35 VR	NART 35 UUR	NA	NATR 35 PP
NA	NATV 35 PP	NART 35 VR	NART 35 VUUR	NA	NATV 35 PP
NA	NATR 40 PP	NART 40 VR	NART 40 UUR	NA	NATR 40 PP
NA	NATV 40 PP	NART 40 VR	NART 40 VUUR	NA	NATV 40 PP
NA	NATR 50 PP	NART 50 VR	NART 50 UUR	NA	NATR 50 PP
NA	NATV 50 PP	NART 50 VR	NART 50 VUUR	NA	NATV 50 PP

Yoke Type Cam followers-with cylindrical rollers

INA	IKO	CCVI
NUTR 15	NURT 15 R	NUTR 15
NUTR 17	NURT 17 R	NUTR 17
NUTR 15 42	NURT 15-1 R	NUTR 15 42
NUTR 17 47	NURT 17-1 R	NUTR 17 47
NUTR 20	NURT 20 R	NUTR 20
NUTR 20 52	NURT 20-1 R	NUTR 20 52
NUTR 25	NURT 25 R	NUTR 25
NUTR 25 62	NURT 25-1 R	NUTR 25 62
NUTR 30	NURT 30 R	NUTR 30
NUTR 30 72	NURT 30-1 R	NUTR 30 72
NUTR 35	NURT 35 R	NUTR 35
NUTR 35 80	NURT 35-1 R	NUTR 35 80
NUTR 40	NURT 40 R	NUTR 40
NUTR 45	NURT 45 R	NUTR 45
NUTR 40 90	NURT 40-1 R	NUTR 40 90
NUTR 50	NURT 50 R	NUTR 50
NUTR 45 100	NURT 45-1 R	NUTR 45 100
NUTR 50 110	NURT 50-1 R	NUTR 50 110

Stud Type Cam followers-with needle rollers

INA		IKO		CCVI	
Unsealed	Sealed	Unsealed	Sealed	Unsealed	Sealed
KR 16	KR 16 PP	CF 6 R	CF 6 UUR	KR 16	KR 16 PP
KR 19	KR 19 PP	CF 8 R	CF 8 UUR	KR 19	KR 19 PP
KR 22	KR 22 PP	CF 10 R	CF 10 UUR	KR 22	KR 22 PP
KR 26	KR 26 PP	CF 10-1 R	CF 10-1 UUR	KR 26	KR 26 PP
KR 30	KR 30 PP	CF 12 R	CF 12 UUR	KR 30	KR 30 PP
KR 32	KR 32 PP	CF 12-1 R	CF 12-1 UUR	KR 32	KR 32 PP
KR 35	KR 35 PP	CF 16 R	CF 16 UUR	KR 35	KR 35 PP
KR 40	KR 40 PP	CF 18 R	CF 18 UUR	KR 40	KR 40 PP
KR 47	KR 47 PP	CF 20-1 R	CF 20-1 UUR	KR 47	KR 47 PP
KR 52	KR 52 PP	CF 20 R	CF 20 UUR	KR 52	KR 52 PP
KR 62	KR 62 PP	CF 24 R	CF 24 UUR	KR 62	KR 62 PP
KR 72	KR 72 PP	CF 24-1 R	CF 24-1 UUR	KR 72	KR 72 PP
KR 80	KR 80 PP	CF 30 R	CF 30 UUR	KR 80	KR 80 PP
KR 85	KR 85 PP	CF 30-1 R	CF 30-1 UUR	KR 85	KR 85 PP
KR 90	KR 90 PP	CF 30-2 R	CF 30-2 UUR	KR 90	KR 90 PP

Yoke Type Cam followers-with cylindrical rollers

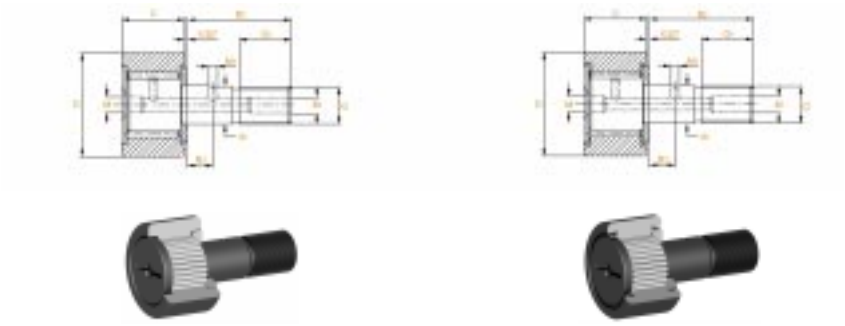
INA	IKO	CCVI
NUKR 35	NUCF 16 R	NUKR 35
NUKR 40	NUCF 18 R	NUKR 40
NUKR 47	NUCF 20-1 R	NUKR 47
NUKR 52	NUCF 20 R	NUKR 52
NUKR 62	NUCF 24 R	NUKR 62
NUKR 72	NUCF 24-1 R	NUKR 72
NUKR 80	NUCF 30 R	NUKR 80
NUKR 90	NUCF 30-2 R	NUKR 90

Coding for optional cam follower features

Opyional Feature	INA	IKO	CCVI
Eccentric Stud	"E"	"E"	"E"
Rounded O.D	No Symbol	"R"	No Symbol
Seal	"PP"	"UU"	"PP"
Cylindrical O.D	"X"	No Symbol	"X"

stud type cam followers

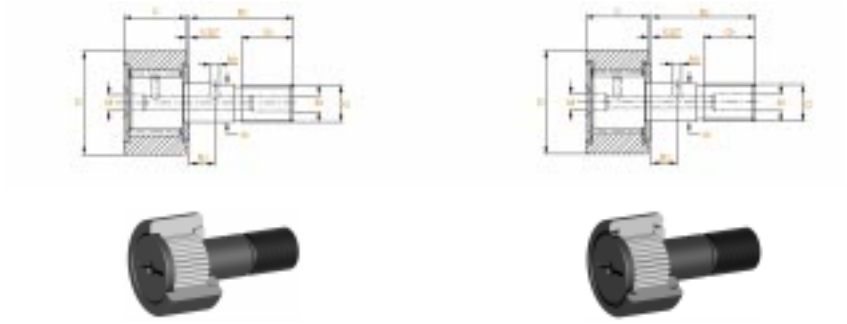
CF / CF..PP Series



	CF	CF..PP

Unsealed BRG. NO.	Sealed BRG. NO.	D	d_1	C	B_2	B_3	G	G_1	M_1	M*	Housing Bore	Recom Clamping Torque (Lbs) ***	Basic radial load(LBS) stat. Cor	dyn. Cr
CF 1/2	CF 1/2 PP	0.500	0.190	0.375	5/8	-	10-32	1/4	-	1/8*	0.1903	15	800	690
CF 9/16	CF 9/16 PP	0.5625	0.190	0.375	5/8	-	10-32	1/4	-	1/8*	0.1903	15	800	690
CF 5/8	CF 5/8 PP	0.625	0.250	0.4375	3/4	-	1/4-28	5/16	-	1/8*	0.2503	35	1230	970
CF 11/16	CF 11/16 PP	0.6875	0.250	0.4375	3/4	-	1/4-28	5/16	-	1/8*	0.2503	35	1230	970
CF 3/4	CF 3/4 PP	0.750	0.375	0.500	7/8	1/4	3/8-24	3/8	3/32	3/16	0.3753	95	2085	1680
CF 7/8	CF 7/8 PP	0.875	0.375	0.500	7/8	1/4	3/8-24	3/8	3/32	3/16	0.3753	95	2085	1680
CF 1	CF 1 PP	1.000	0.4375	0.625	1	1/4	7/16-20	1/2	3/32	3/16	0.4378	250	3090	2290
CF 1 1/8	CF 1 1/8 PP	1.125	0.4375	0.625	1	1/4	7/16-20	1/2	3/32	3/16	0.4378	250	3090	2290
CF 1 1/4	CF 1 1/4 PP	1.250	0.5000	0.750	1 1/4	5/16	1/2-20	5/8	3/32	3/16	0.5003	350	4330	3970
CF 1 3/8	CF 1 3/8 PP	1.375	0.5000	0.750	1 1/4	5/16	1/2-20	5/8	3/32	3/16	0.5003	350	4330	3970
CF 1 1/2	CF 1 1/2 PP	1.500	0.625	0.875	1 1/2	3/8	5/8-18	3/4	3/32	3/16	0.6253	650	5750	4890
CF 1 5/8	CF 1 5/8 PP	1.625	0.625	0.875	1 1/2	3/8	5/8-18	3/4	3/32	3/16	0.6253	650	5750	4890
CF 1 3/4	CF 1 3/4 PP	1.750	0.750	1.000	1 3/4	7/16	3/4-16	7/8	3/32	3/16	0.7503	1250	8000	6500
CF 1 7/8	CF 1 7/8 PP	1.875	0.750	1.000	1 3/4	7/16	3/4-16	7/8	3/32	3/16	0.7503	1250	8000	6500

◆ Standard tolerance is unsuitable here
* oil hole (M) is from the rib face of the stud shaft to the radial oil hole
** Rib face is 3/4 higher above the outer ring face; rib face is 1/8 higher above the outer ring face
*** Twisting torque is based on the thread. If the thread is lubricated, twisting torque is half of the listed value.
● Unified coarse thread



	CF	CFB..PP

Unsealed BRG. NO.	Sealed BRG. NO.	D	d_1	C	B_2	B_3	G	G_1	M_1	M*	Housing Bore	Recom Clamping Torque (Lbs) ***	Basic radial load(LBS) stat. Cor	dyn. Cr
CF 2	CFB 2 PP	2.000	0.875	1.250	2	1/2	7/8-14	1	1/8	3/16	0.8753	1500	10780	8170
CF 2 1/4	CFB 2 1/4 PP	2.250	0.875	1.250	2	1/2	7/8-14	1	1/8	3/16	0.8753	1500	10780	8170
CF 2 1/2	CFB 2 1/2 PP	2.500	1.000	1.500	2 1/4	9/16	1-14	1 1/8	1/8	3/16	1.003	2250	16620	11840
CF 2 3/4	CFB 2 3/4 PP	2.750	1.000	1.500	2 1/4	9/16	1-14	1 1/8	1/8	3/16	1.003	2250	16620	11840
CF 3	CFB 3 PP	3.000	1.250	1.750	2 1/2	5/8	1 1/4-12	1 1/4	1/8	1/4	1.2503	3450	25400	16000
CF 3 1/4	CFB 3 1/4 PP	3.250	1.250	1.750	2 1/2	5/8	1 1/4-12	1 1/4	1/8	1/4	1.2503	3450	25400	16000
CF 3 1/2	CFB 3 1/2 PP	3.500	1.375	2.000	2 3/4	11/16	1 3/8-12	1 3/8	1/8	1/4	1.3753	4200	31950	23200
CF 4	CFB 4 PP	4.000	1.500	2.250	3 1/2	3/4	1 1/2-12	1 1/2	1/8	1/41	1.5003	5000	43220	30580
	CFB 5 PP	5.000	2.000	2.750	5 1/16	7/8	2-12	2 9/16	3/16	1/4N.P.T.	2.0003	5000	69300	47500
	CFB 6 PP	6.000	2.500	3.250	6	1	2 1/2-12	3	3/16	1/4N.P.T.	2.5003	5000	82000	61200
	CFB 7 PP	7.000	3.000	3.750	7 11/16	1 1/4	3-12	4 1/8	3/16	1/4N.P.T.	3.0003	5000	108000	76800
	CFB 8 PP◆	8.000	3.250	4.250**	8 1/2	-	3 1/4-4●	4 1/4	-	1/4N.P.T.*	3.2503	5000	145500	93100
	CFB 9 PP◆	9.000	3.750	4.750**	9 1/2	-	3 1/2-4●	4 3/4	-	1/4N.P.T.*	3.7503	5000	185300	114400
	CFB 10 PP◆	10.000	4.250	5.250**	10	-	3 1/2-4●	4 3/4	-	1/4N.P.T.*	4.2503	5000	219800	134000

◆ Standard tolerance is unsuitable here

* oil hole (M) is from the rib face of the stud shaft to the radial oil hole

** Rib face is 3/4 higher above the outer ring face; rib face is 1/8 higher above the outer ring face

*** Twisting torque is based on the thread. If the thread is lubricated, twisting torque is half of the listed value.

● Unified coarse thread

stud type cam followers

CFB / CFB..PP Series

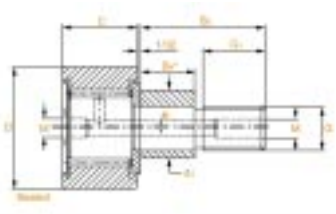
CFB

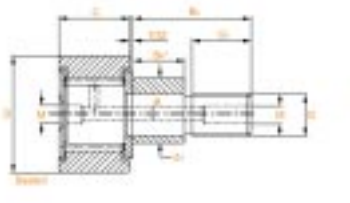
CFB.. PP

Unsealed BRG. NO.	Sealed BRG. NO.	D	d_1	C	B_2	B_3	G	G_1	M_1	M*	Housing Bore	Recom Clamping Torque (Lbs) ***	Basic radial load(LBS) stat. Cor	Basic radial load(LBS) dyn. Cr
CFB 1/2	CFB 1/2 PP	0.500	0.190	0.375	5/8	-	10-32	1/4	-	-	0.1903	15	800	690
CFB 9/16	CFB 9/16 PP	0.5625	0.190	0.375	5/8	-	10-32	1/4	-	-	0.1903	15	800	690
CFB 5/8	CFB 5/8 PP	0.625	0.250	0.4375	3/4	-	1/4-28	5/16	-	-	0.2503	35	1230	970
CFB 11/16	CFB 11/16 PP	0.6875	0.250	0.4375	3/4	-	1/4-28	5/16	-	1/8*	0.2503	35	1230	970
CFB 3/4	CFB 3/4 PP	0.750	0.375	0.500	7/8	1/4	3/8-24	3/8	3/32	3/16	0.3753	95	2085	1680
CFB 7/8	CFB 7/8 PP	0.875	0.375	0.500	7/8	1/4	3/8-24	3/8	3/32	3/16	0.3753	95	2085	1680
CFB 1	CFB 1 PP	1.000	0.4375	0.625	1	1/4	7/16-20	1/2	3/32	3/16	0.4378	250	3090	2290
CFB 1 1/8	CFB 1 1/8 PP	1.125	0.4375	0.625	1	1/4	7/16-20	1/2	3/32	3/16	0.4378	250	3090	2290
CFB 1 1/4	CFB 1 1/4 PP	1.250	0.5000	0.750	1 1/4	5/16	1/2-20	5/8	3/32	3/16	0.5003	350	4330	3970
CFB 1 3/8	CFB 1 3/8 PP	1.375	0.5000	0.750	1 1/4	5/16	1/2-20	5/8	3/32	3/16	0.5003	350	4330	3970
CFB 1 1/2	CFB 1 1/2 PP	1.500	0.625	0.875	1 1/2	3/8	5/8-18	3/4	3/32	3/16	0.6253	650	5750	4890
CFB 1 5/8	CFB 1 5/8 PP	1.625	0.625	0.875	1 1/2	3/8	5/8-18	3/4	3/32	3/16	0.6253	650	5750	4890
CFB 1 3/4	CFB 1 3/4 PP	1.750	0.750	1.000	1 3/4	7/16	3/4-16	7/8	3/32	3/16	0.7503	1250	8000	6500
CFB 1 7/8	CFB 1 7/8 PP	1.875	0.750	1.000	1 3/4	7/16	3/4-16	7/8	3/32	3/16	0.7503	1250	8000	6500
CFB 2	CFB 2 PP	2.000	0.875	1.250	2	1/2	7/8-14	1	1/8	3/16	0.8753	1500	10780	8170
CFB 2 1/4	CFB 2 1/4 PP	2.250	0.875	1.250	2	1/2	7/8-14	1	1/8	3/16	0.8753	1500	10780	8170
CFB 2 1/2	CFB 2 1/2 PP	2.500	1.000	1.500	2 1/4	9/16	1-14	1 1/8	1/8	3/16	1.003	2250	16620	11840
CFB 2 3/4	CFB 2 3/4 PP	2.750	1.000	1.500	2 1/4	9/16	1-14	1 1/8	1/8	3/16	1.003	2250	16620	11840
CFB 3	CFB 3 PP	3.000	1.250	1.750	2 1/2	5/8	1 1/4-12	1 1/4	1/8	1/4	1.2503	3450	25400	16000
CFB 3 1/4	CFB 3 1/4 PP	3.250	1.250	1.750	2 1/2	5/8	1 1/4-12	1 1/4	1/8	1/4	1.2503	3450	25400	16000
CFB 3 1/2	CFB 3 1/2 PP	3.500	1.375	2.000	2 3/4	11/16	1 3/8-12	1 3/8	1/8	1/4	1.3753	4200	31950	23200
CFB 4	CFB 4 PP	4.000	1.500	2.250	3 1/2	3/4	1 1/2-12	1 1/2	1/8	1/4	1.5003	5000	45200	30580

* For locking fit, a seat of B4 size + 100 thickness has to be used. In order to fastener the pin and screw permanently, eccentric locking collar need no quenching and equal-fit is adopted between the stud shafts.

*** Twisting torque is based on the thread. If the thread is lubricated, twisting torque is half of the listed value.





CFE	CFE.. PP

Unsealed BRG. NO.	Sealed BRG. NO.	D	d_1	C	B_2	B_3	G	G_1	M_1	M**	Recom Clamping Torque (Lbs) ***	Basic radial load(LBS) stat. Cor	dyn. Cr
CFE 1/2	CFE 1/2 PP	0.500	0.375	0.375	0.250	10-32	1/4	5/8	0.010	1/8**	15	800	690
CFE 9/16	CFE 9/16 PP	0.5625	0.375	0.375	0.250	10-32	1/4	5/8	0.010	1/8**	15	800	690
CFE 5/8	CFB 5/8 PP	0.625	0.437	0.4375	0.375	1/4-28	5/16	3/4	0.015	1/8**	35	1230	970
CFE 11/16	CFE 11/16 PP	0.6875	0.437	0.4375	0.375	1/4-28	5/16	3/4	0.015	1/8**	35	1230	970
CFE 3/4	CFE 3/4 PP	0.750	0.500	0.500	0.500	3/8-24	3/8	7/8	0.015	3/16	95	2085	1680
CFE 7/8	CFE 7/8 PP	0.875	0.500	0.500	0.500	3/8-24	3/8	7/8	0.015	3/16	95	2085	1680
CFE 1	CFE 1 PP	1.000	0.500	0.625	0.625	7/16-20	1/2	1	0.030	3/16	250	3090	2290
CFE 1 1/8	CFE 1 1/8 PP	1.125	0.500	0.625	0.625	7/16-20	1/2	1	0.030	3/16	250	3090	2290
CFE 1 1/4	CFE 1 1/4 PP	1.250	0.625	0.750	0.687	1/2-20	5/8	1 1/4	0.030	3/16	350	4330	3970
CFE 1 3/8	CFE 1 3/8 PP	1.375	0.625	0.750	0.687	1/2-20	5/8	1 1/4	0.030	3/16	350	4330	3970
CFE 1 1/2	CFE 1 1/2 PP	1.500	0.750	0.875	0.875	5/8-18	3/4	1 1/2	0.030	3/16	650	5750	4890
CFE 1 5/8	CFE 1 5/8 PP	1.625	0.750	0.875	0.875	5/8-18	3/4	1 1/2	0.030	3/16	650	5750	4890
CFE 1 3/4	CFE 1 3/4 PP	1.750	0.875	1.000	1.000	3/4-16	7/8	1 3/4	0.030	3/16	1250	8000	6500
CFE 1 7/8	CFE 1 7/8 PP	1.875	0.875	1.000	1.000	3/4-16	7/8	1 3/4	0.030	3/16	1250	8000	6500
CFE 2	CFE 2 PP	2.000	1.000	1.250	1.187	7/8-14	1	2	0.030	3/16	1500	10780	8170
CFE 2 1/4	CFE 2 1/4 PP	2.250	1.000	1.250	1.187	7/8-14	1	2	0.030	3/16	1500	10780	8170
CFE 2 1/2	CFE 2 1/2 PP	2.500	1.125	1.500	1.375	1-14	1 1/8	2 1/4	0.030	3/16	2250	16620	11840
CFE 2 3/4	CFE 2 3/4 PP	2.750	1.125	1.500	1.375	1-14	1 1/8	2 1/4	0.030	3/16	2250	16620	11840
CFE 3	CFE 3 PP	3.000	1.250	1.750	1.750	1 1/4-12	1 1/4	2 1/2	0.060	1/4	3450	25400	16000
CFE 3 1/4	CFE 3 1/4 PP	3.250	1.250	1.750	1.750	1 1/4-12	1 1/4	2 1/2	0.060	1/4	3450	25400	16000
CFE 3 1/2	CFE 3 1/2 PP	3.500	1.375	2.000	1.812	1 3/8-12	1 3/8	2 3/4	0.060	1/4	4200	31950	23200
CFE 4	CFE 4 PP	4.000	2.000	2.250	2.000	1 1/2-12	1 1/2	3 1/2	0.060	1/4	5000	45200	30580

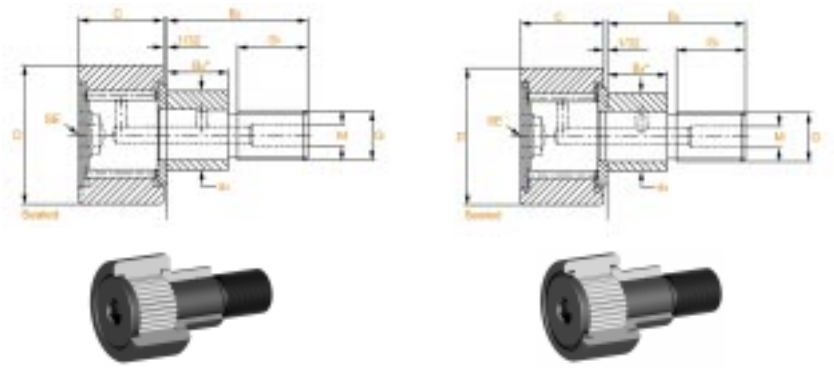
* For locking fit, a seat of B4 size + 100 thickness has to be used. In order to fastener the pin and screw permanently, eccentric locking collar need no quenching and equal-fit is adopted between the stud shafts.

** oil hole (M) is from the rib face of the stud shaft to the radial oil hole

*** Twisting torque is based on the thread. If the thread is lubricated, twisting torque is half of the listed value.

stud type cam followers

CFBE / CFBE..PP Series



CFBE	CFBE.. PP

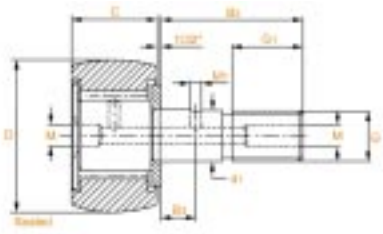
Unsealed BRG. NO.	Sealed BRG. NO.	D	d_3	C	B_2	B_4*	G_1	G	e.	M**	Recom Clamping Torque (Lbs) ***	Basic radial load(LBS) stat. Cor	dyn. Cr
CFBE 1/2	CFE 1/2 PP	0.500	0.250	0.375	5/8	0.375	1/4	10-32	0.010	-	15	800	690
CFBE 9/16	CFE 9/16 PP	0.5625	0.250	0.375	5/8	0.375	1/4	10-32	0.010	-	15	800	690
CFBE 5/8	CFB 5/8 PP	0.625	0.375	0.4375	3/4	0.437	5/16	1/4-28	0.015	-	35	1230	970
CFBE 11/16	CFE 11/16 PP	0.6875	0.375	0.4375	3/4	0.437	5/16	1/4-28	0.015	-	35	1230	970
CFBE 3/4	CFE 3/4 PP	0.750	0.500	0.500	7/8	0.500	3/8	3/8-24	0.015	3/16	95	2085	1680
CFBE 7/8	CFE 7/8 PP	0.875	0.500	0.500	7/8	0.500	3/8	3/8-24	0.015	3/16	95	2085	1680
CFBE 1	CFE 1 PP	1.000	0.625	0.625	1	0.500	1/2	7/16-20	0.030	3/16	250	3090	2290
CBFE 1 1/8	CFE 1 1/8 PP	1.125	0.625	0.625	1	0.500	1/2	7/16-20	0.030	3/16	250	3090	2290
CFBE 1 1/4	CFE 1 1/4 PP	1.250	0.687	0.750	1 1/4	0.625	5/8	1/2-20	0.030	3/16	350	4330	3970
CFBE 1 3/8	CFE 1 3/8 PP	1.375	0.687	0.750	1 1/4	0.625	5/8	1/2-20	0.030	3/16	350	4330	3970
CFBE 1 1/2	CFE 1 1/2 PP	1.500	0.875	0.875	1 1/2	0.750	3/4	5/8-18	0.030	3/16	650	5750	4890
CFBE 1 5/8	CFE 1 5/8 PP	1.625	0.875	0.875	1 1/2	0.750	3/4	5/8-18	0.030	3/16	650	5750	4890
CFBE 1 3/4	CFE 1 3/4 PP	1.750	1.000	1.000	1 3/4	0.875	7/8	3/4-16	0.030	3/16	1250	8000	6500
CFBE 1 7/8	CFE 1 7/8 PP	1.875	1.000	1.000	1 3/4	0.875	7/8	3/4-16	0.030	3/16	1250	8000	6500
CFBE 2	CFE 2 PP	2.000	1.187	1.250	2	1.000	1	7/8-14	0.030	3/16	1500	10780	8170
CFBE 2 1/4	CFE 2 1/4 PP	2.250	1.187	1.250	2	1.000	1	7/8-14	0.030	3/16	1500	10780	8170
CFBE 2 1/2	CFE 2 1/2 PP	2.500	1.375	1.500	2 1/4	1.125	1 1/8	1-14	0.030	3/16	2250	16620	11840
CFBE 2 3/4	CFE 2 3/4 PP	2.750	1.375	1.500	2 1/4	1.125	1 1/8	1-14	0.030	3/16	2250	16620	11840
CFBE 3	CFE 3 PP	3.000	1.750	1.750	2 1/2	1.250	1 1/4	1 1/4-12	0.060	1/4	3450	25400	16000
CFBE 3 1/4	CFE 3 1/4 PP	3.250	1.750	1.750	2 1/2	1.250	1 1/4	1 1/4-12	0.060	1/4	3450	25400	16000
CFBE 3 1/2	CFE 3 1/2 PP	3.500	1.812	2.000	2 3/4	1.375	1 3/8	1 3/8-12	0.060	1/4	4200	31950	23200
CFBE 4	CFE 4 PP	4.000	2.000	2.250	3 1/2	2.000	1 1/2	1 1/2-12	0.060	1/4	5000	45200	30580

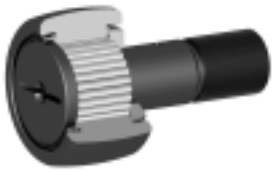
* For locking fit, a seat of B4 size + 100 thickness has to be used. In order to fastener the pin and screw permanently, eccentric locking collar need no quenching and equal-fit is adopted between the stud shafts.

** oil hole (M) is from the rib face of the stud shaft to the radial oil hole

*** Twisting torque is based on the thread. If the thread is lubricated, twisting torque is half of the listed value.

CCF..PP Series





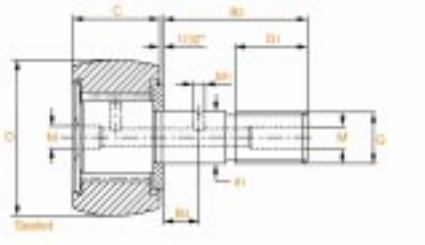
Unsealed BRG. NO.	D	d_1	C	B_2	G_1	G	B_3	M_1	M*	Housing Bore	Recom Clamping Torque (Lbs) ***	Basic radial load(LBS) stat. Cor	dyn. Cr
CCF 1/2 PP	0.500	0.190	0.375	5/8	1/4	10-32	-	-	1/8*	0.1903	15	800	690
CCF 9/16 PP	0.5625	0.190	0.375	5/8	1/4	10-32	-	-	1/8*	0.1903	15	800	690
CCF 5/8 PP	0.625	0.250	0.4375	3/4	5/16	1/4-28	-	-	1/8*	0.2503	35	1230	970
CCF 11/16 PP	0.6875	0.250	0.4375	3/4	5/16	1/4-28	-	-	1/8*	0.2503	35	1230	970
CCF 3/4 PP	0.750	0.375	0.500	7/8	3/8	3/8-24	1/4	3/32	3/16	0.3753	95	2085	1680
CCF 7/8 PP	0.875	0.375	0.500	7/8	3/8	3/8-24	1/4	3/32	3/16	0.3753	95	2085	1680
CCF 1 PP	1.000	0.4375	0.625	1	1/2	7/16-20	1/4	3/32	3/16	0.4378	250	3090	2290
CCF 1 1/8 PP	1.125	0.4375	0.625	1	1/2	7/16-20	1/4	3/32	3/16	0.4378	250	3090	2290
CCF 1 1/4 PP	1.250	0.5000	0.750	1 1/4	5/8	1/2-20	5/16	3/32	3/16	0.5003	350	4330	3970
CCF 1 3/8 PP	1.375	0.5000	0.750	1 1/4	5/8	1/2-20	5/16	3/32	3/16	0.5003	350	4330	3970
CCF 1 1/2 PP	1.500	0.625	0.875	1 1/2	3/4	5/8-18	3/8	3/32	3/16	0.6253	650	5750	4890
CCF 1 5/8 PP	1.625	0.625	0.875	1 1/2	3/4	5/8-18	3/8	3/32	3/16	0.6253	650	5750	4890
CCF 1 3/4 PP	1.750	0.750	1.000	1 3/4	7/8	3/4-16	7/16	3/32	3/16	0.7503	1250	8000	6500
CCF 1 7/8 PP	1.875	0.750	1.000	1 3/4	7/8	3/4-16	7/16	3/32	3/16	0.7503	1250	8000	6500

* For locking fit, a seat of B4 size + 100 thickness has to be used. In order to fastener the pin and screw permanently, eccentric locking collar need no quenching and equal-fit is adopted between the stud shafts.

*** Twisting torque is based on the thread. If the thread is lubricated, twisting torque is half of the listed value.

stud type cam followers

CCF..PP Series



Unsealed BRG. NO.	D	d_1	C	B_2	B_3	G	G_1	M_1	M*	Housing Bore	Recom Clamping Torque (Lbs) ***	Basic radial load(LBS) stat. Cor	dyn. Cr
CCF 2 PP	2.000	0.875	1.250	2	1/2	7/8-14	1	1/8	3/16	0.8753	1500	10780	8170
CCF 2 1/4 PP	2.250	0.875	1.250	2	1/2	7/8-14	1	1/8	3/16	0.8753	1500	10780	8170
CCF 2 1/2 PP	2.500	1.000	1.500	2 1/4	9/16	1-14	1 1/8	1/8	3/16	1.003	2250	16620	11840
CCF 2 3/4 PP	2.750	1.000	1.500	2 1/4	9/16	1-14	1 1/8	1/8	3/16	1.003	2250	16620	11840
CCF 3	3.000	1.250	1.750	2 1/2	5/8	1 1/4-12	1 1/4	1/8	1/4	1.2503	3450	25400	16000
CCF 3 1/4 PP	3.250	1.250	1.750	2 1/2	5/8	1 1/4-12	1 1/4	1/8	1/4	1.2503	3450	25400	16000
CCF 3 1/2 PP	3.500	1.375	2.000	2 3/4	11/16	1 3/8-12	1 3/8	1/8	1/4	1.3753	4200	31950	23200
CCF 4 PP	4.000	1.500	2.250	3 1/2	3/4	1 1/2-12	1 1/2	1/8	1/41	1.5003	5000	45220	30580
CCF 5 PP	5.000	2.000	2.750	5 1/16	7/8	2-12	2 9/16	3/16	1/4N.P.T.	2.0003	5000	69300	47500
CCF 6 PP	6.000	2.500	3.250	6	1	2 1/2-12	3	3/16	1/4N.P.T.	2.5003	5000	82000	61200
CCF 7 PP	7.000	3.000	3.750	7 11/16	1 1/4	3-12	4 1/8	3/16	1/4N.P.T.	3.0003	5000	108000	76800
CCF 8 PP	8.000	3.250	4.250**	8 1/2	-	3 1/4-4●	4 1/4	-	1/4N.P.T.*	3.2503	5000	145500	93100
CCF 9 PP	9.000	3.750	4.750**	9 1/2	-	3 1/2-4●	4 3/4	-	1/4N.P.T.*	3.7503	5000	185300	114400
CCF 10 PP	10.000	4.250	5.250**	10	-	3 1/2-4●	4 3/4	-	1/4N.P.T.*	4.2503	5000	219800	134000

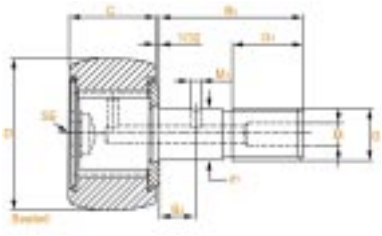
◆ Standard tolerance is unsuitable here

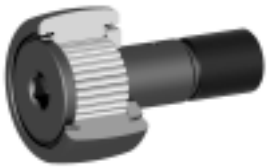
* oil hole (M) is from the rib face of the stud shaft to the radial oil hole

*** Twisting torque is based on the thread. If the thread is lubricated, twisting torque is half of the listed value.

● Unified coarse thread

CCVI BEARING INDUSTRIES





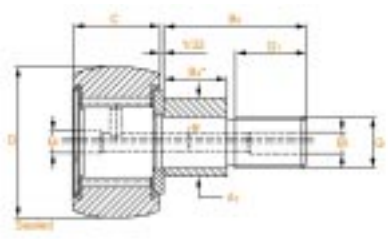
Unsealed BRG. NO.	D	d_1	C	B_2	B_3	G	G_1	M_1	M*	Housing Bore	Recom Clamping Torque (Lbs) ***	Basic radial load(LBS) stat. Cor	dyn. Cr
CCFB 1/2 PP	0.500	0.190	0.375	5/8	-	10-32	1/4	-	1/8*	0.1903	15	800	690
CCFB 9/16 PP	0.5625	0.190	0.375	5/8	-	10-32	1/4	-	1/8*	0.1903	15	800	690
CCFB 5/8 PP	0.625	0.250	0.4375	3/4	-	1/4-28	5/16	-	1/8*	0.2503	35	1230	970
CCFB 11/16 PP	0.6875	0.250	0.4375	3/4	-	1/4-28	5/16	-	1/8*	0.2503	35	1230	970
CCFB 3/4 PP	0.750	0.375	0.500	7/8	1/4	3/8-24	3/8	3/32	3/16	0.3753	95	2085	1680
CCFB 7/8 PP	0.875	0.375	0.500	7/8	1/4	3/8-24	3/8	3/32	3/16	0.3753	95	2085	1680
CCFB 1 PP	1.000	0.4375	0.625	1	1/4	7/16-20	1/2	3/32	3/16	0.4378	250	3090	2290
CCFB 1 1/8 PP	1.125	0.4375	0.625	1	1/4	7/16-20	1/2	3/32	3/16	0.4378	250	3090	2290
CCFB 1 1/4 PP	1.250	0.5000	0.750	1 1/4	5/16	1/2-20	5/8	3/32	3/16	0.5003	350	4330	3970
CCFB 1 3/8 PP	1.375	0.5000	0.750	1 1/4	5/16	1/2-20	5/8	3/32	3/16	0.5003	350	4330	3970
CCFB 1 1/2 PP	1.500	0.625	0.875	1 1/2	3/8	5/8-18	3/4	3/32	3/16	0.6253	650	5750	4890
CCFB 1 5/8 PP	1.625	0.625	0.875	1 1/2	3/8	5/8-18	3/4	3/32	3/16	0.6253	650	5750	4890
CCFB 1 3/4 PP	1.750	0.750	1.000	1 3/4	7/16	3/4-16	7/8	3/32	3/16	0.7503	1250	8000	6500
CCFB 1 7/8 PP	1.875	0.750	1.000	1 3/4	7/16	3/4-16	7/8	3/32	3/16	0.7503	1250	8000	6500
CCFB 2 PP	2.000	0.875	1.250	2	1/2	7/8-14	1	1/8	3/16	0.8753	1500	10780	8170
CCFB 2 1/4 PP	2.250	0.875	1.250	2	1/2	7/8-14	1	1/8	3/16	0.8753	1500	10780	8170
CCFB 2 1/2 PP	2.500	1.000	1.500	2 1/4	9/16	1-14	1 1/8	1/8	3/16	1.003	2250	16620	11840
CCFB 2 3/4 PP	2.750	1.000	1.500	2 1/4	9/16	1-14	1 1/8	1/8	3/16	1.003	2250	16620	11840
CCFB 3	3.000	1.250	1.750	2 1/2	5/8	1 1/4-12	1 1/4	1/8	1/4	1.2503	3450	25400	16000
CCFB 3 1/4 PP	3.250	1.250	1.750	2 1/2	5/8	1 1/4-12	1 1/4	1/8	1/4	1.2503	3450	25400	16000
CCFB 3 1/2 PP	3.500	1.375	2.000	2 3/4	11/16	1 3/8-12	1 3/8	1/8	1/4	1.3753	4200	31950	23200
CCFB 4 PP	4.000	1.500	2.250	3 1/2	3/4	1 1/2-12	1 1/2	1/8	1/4	1.5003	5000	45200	30580

* oil hole (M) is from the rib face of the stud shaft to the radial oil hole

*** Twisting torque is based on the thread. If the thread is lubricated, twisting torque is half of the listed value.

stud type cam followers

CCFE..PP Series

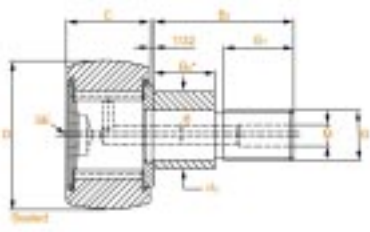


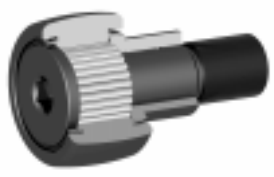
Unsealed BRG. NO.	D	d_3	C	B_2	B_4*	G_1	G	e	M**	Recom Clamping Torque (Lbs) ***	Basic radial load(LBS) stat. Cor	dyn. Cr
CCFE 1/2 PP	0.500	0.250	0.375	5/8	0.375	1/4	10-32	0.010	1/8*	15	800	690
CCFE 9/16 PP	0.5625	0.250	0.375	5/8	0.375	1/4	10-32	0.010	1/8*	15	800	690
CCFE 5/8 PP	0.625	0.375	0.4375	3/4	0.437	5/16	1/4-28	0.015	1/8*	35	1230	970
CCFE 11/16 PP	0.6875	0.375	0.4375	3/4	0.437	5/16	1/4-28	0.015	1/8*	35	1230	970
CCFE 3/4 PP	0.750	0.500	0.500	7/8	0.500	3/8	3/8-24	0.015	3/16	95	2085	1680
CCFE 7/8 PP	0.875	0.500	0.500	7/8	0.500	3/8	3/8-24	0.015	3/16	95	2085	1680
CCFE 1 PP	1.000	0.625	0.625	1	0.500	1/2	7/16-20	0.030	3/16	250	3090	2290
CCFE 1 1/8 PP	1.125	0.625	0.625	1	0.500	1/2	7/16-20	0.030	3/16	250	3090	2290
CCFE 1 1/4 PP	1.250	0.687	0.750	1 1/4	0.625	5/8	1/2-20	0.030	3/16	350	4330	3970
CCFE 1 3/8 PP	1.375	0.687	0.750	1 1/4	0.625	5/8	1/2-20	0.030	3/16	350	4330	3970
CCFE 1 1/2 PP	1.500	0.875	0.875	1 1/2	0.750	3/4	5/8-18	0.030	3/16	650	5750	4890
CCFE 1 5/8 PP	1.625	0.875	0.875	1 1/2	0.750	3/4	5/8-18	0.030	3/16	650	5750	4890
CCFE 1 3/4 PP	1.750	1.000	1.000	1 3/4	0.875	7/8	3/4-16	0.030	3/16	1250	8000	6500
CCFE 1 7/8 PP	1.875	1.000	1.000	1 3/4	0.875	7/8	3/4-16	0.030	3/16	1250	8000	6500
CCFE 2 PP	2.000	1.187	1.250	2	1.000	1	7/8-14	0.030	3/16	1500	10780	8170
CCFE 2 1/4 PP	2.250	1.187	1.250	2	1.000	1	7/8-14	0.030	3/16	1500	10780	8170
CCFE 2 1/2 PP	2.500	1.375	1.500	2 1/4	1.125	1 1/8	1-14	0.030	3/16	2250	16620	11840
CCFE 2 3/4 PP	2.750	1.375	1.500	2 1/4	1.125	1 1/8	1-14	0.030	3/16	2250	16620	11840
CCFE 3	3.000	1.750	1.750	2 1/2	1.250	1 1/4	1 1/4-12	0.060	1/4	3450	25400	16000
CCFE 3 1/4 PP	3.250	1.750	1.750	2 1/2	1.250	1 1/4	1 1/4-12	0.060	1/4	3450	25400	16000
CCFE 3 1/2 PP	3.500	1.812	2.000	2 3/4	1.750	1 3/8	1 3/8-12	0.060	1/4	4200	31950	23200
CCFE 4 PP	4.000	2.000	2.250	3 1/2	2.000	1 1/2	1 1/2-12	0.060	1/4	5000	45200	30580

* For locking fit, a seat of B4 size + 100 thickness has to be used. In order to fastener the pin and screw permanently, eccentric locking collar need no quenching and equal-fit is adopted between the stud shafts.

** oil hole (M) is from the rib face of the stud shaft to the radial oil hole

*** Twisting torque is based on the thread. If the thread is lubricated, twisting torque is half of the listed value.





Unsealed BRG. NO.	D	d_3	C	B_2	B_4*	G_1	G	e	M**	Recom Clamping Torque (Lbs) ***	Basic radial load(LBS) stat. Cor	dyn. Cr
CCFBE 1/2 PP	0.500	0.250	0.375	5/8	0.375	1/4	10-32	0.010	1/8*	15	800	690
CCFBE 9/16 PP	0.5625	0.250	0.375	5/8	0.375	1/4	10-32	0.010	1/8*	15	800	690
CCFBE 5/8 PP	0.625	0.375	0.4375	3/4	0.437	5/16	1/4-28	0.015	1/8*	35	1230	970
CCFBE 11/16 PP	0.6875	0.375	0.4375	3/4	0.437	5/16	1/4-28	0.015	1/8*	35	1230	970
CCFBE 3/4 PP	0.750	0.500	0.500	7/8	0.500	3/8	3/8-24	0.015	3/16	95	2085	1680
CCFBE 7/8 PP	0.875	0.500	0.500	7/8	0.500	3/8	3/8-24	0.015	3/16	95	2085	1680
CCFBE 1 PP	1.000	0.625	0.625	1	0.500	1/2	7/16-20	0.030	3/16	250	3090	2290
CCFBE 1 1/8 PP	1.125	0.625	0.625	1	0.500	1/2	7/16-20	0.030	3/16	250	3090	2290
CCFBE 1 1/4 PP	1.250	0.687	0.750	1 1/4	0.625	5/8	1/2-20	0.030	3/16	350	4330	3970
CCFBE 1 3/8 PP	1.375	0.687	0.750	1 1/4	0.625	5/8	1/2-20	0.030	3/16	350	4330	3970
CCFBE 1 1/2 PP	1.500	0.875	0.875	1 1/2	0.750	3/4	5/8-18	0.030	3/16	650	5750	4890
CCFBE 1 5/8 PP	1.625	0.875	0.875	1 1/2	0.750	3/4	5/8-18	0.030	3/16	650	5750	4890
CCFBE 1 3/4 PP	1.750	1.000	1.000	1 3/4	0.875	7/8	3/4-16	0.030	3/16	1250	8000	6500
CCFBE 1 7/8 PP	1.875	1.000	1.000	1 3/4	0.875	7/8	3/4-16	0.030	3/16	1250	8000	6500
CCFBE 2 PP	2.000	1.187	1.250	2	1.000	1	7/8-14	0.030	3/16	1500	10780	8170
CCFBE 2 1/4 PP	2.250	1.187	1.250	2	1.000	1	7/8-14	0.030	3/16	1500	10780	8170
CCFBE 2 1/2 PP	2.500	1.375	1.500	2 1/4	1.125	1 1/8	1-14	0.030	3/16	2250	16620	11840
CCFBE 2 3/4 PP	2.750	1.375	1.500	2 1/4	1.125	1 1/8	1-14	0.030	3/16	2250	16620	11840
CCFBE 3	3.000	1.750	1.750	2 1/2	1.250	1 1/4	1 1/4-12	0.060	1/4	3450	25400	16000
CCFBE 3 1/4 PP	3.250	1.750	1.750	2 1/2	1.250	1 1/4	1 1/4-12	0.060	1/4	3450	25400	16000
CCFBE 3 1/2 PP	3.500	1.812	2.000	2 3/4	1.375	1 3/8	1 3/8-12	0.060	1/4	4200	31950	23200
CCFBE 4 PP	4.000	2.000	2.250	3 1/2	2.000	1 1/2	1 1/2-12	0.060	1/41	5000	45200	30580

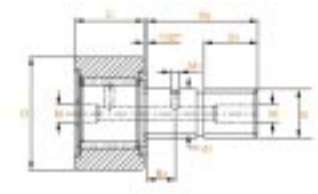
* For locking fit, a seat of B4 size + 100 thickness has to be used. In order to fastener the pin and screw permanently, eccentric locking collar need no quenching and equal-fit is adopted between the stud shafts.

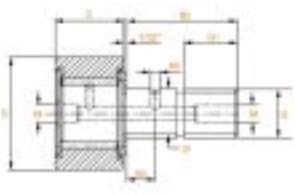
** oil hole (M) is from the rib face of the stud shaft to the radial oil hole

*** Twisting torque is based on the thread. If the thread is lubricated, twisting torque is half of the listed value.

stud type cam followers

CFH / CFH..PP Series





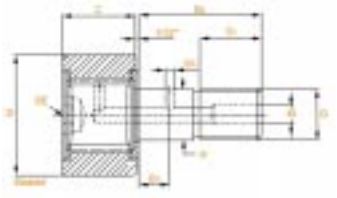
	CFH	CFH..PP

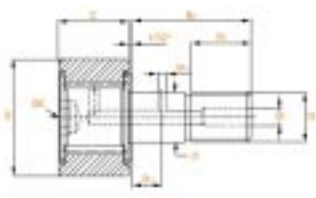
Unsealed BRG. NO.	Sealed BRG. NO.	D	d_1	C	B_2	B_3	G	G_1	M_1	M*	Housing Bore	Recom Clamping Torque (Lbs) ***	Basic radial load(LBS) stat. Cor	dyn. Cr
CFH 1/2	CFH 1/2 PP	0.500	0.250	0.375	5/8	-	1/4-28	1/4	-	1/8*	35	35	1600	690
CFH 9/16	CFH 9/16 PP	0.5625	0.250	0.375	5/8	-	1/4-28	1/4	-	1/8*	35	35	1600	690
CFH 5/8	CFH 5/8 PP	0.625	0.3125	0.4375	3/4	-	5/16-24	5/16	-	1/8*	90	90	2520	970
CFH 11/16	CFH 11/16 PP	0.6875	0.3125	0.4375	3/4	-	5/16-24	5/16	-	1/8*	90	90	2520	970
CFH 3/4	CFH 3/4 PP	0.750	0.4375	0.500	7/8	1/4	7/16-20	3/8	3/32	3/16	250	250	4210	1680
CFH 7/8	CFH 7/8 PP	0.875	0.4375	0.500	7/8	1/4	7/16-20	3/8	3/32	3/16	250	250	4210	1680
CFH 1	CFH 1 PP	1.000	0.625	0.625	1	1/4	5/8-18	1/2	3/32	3/16	650	650	6240	2290
CFH 1 1/8	CFH 1 1/8 PP	1.125	0.625	0.625	1	1/4	5/8-18	1/2	3/32	3/16	650	650	6240	2290
CFH 1 1/4	CFH 1 1/4 PP	1.250	0.750	0.750	1 1/4	5/16	3/4-16	5/8	3/32	3/16	1250	1250	8670	3970
CFH 1 3/8	CFH 1 3/8 PP	1.375	0.750	0.750	1 1/4	5/16	3/4-16	5/8	3/32	3/16	1250	1250	8670	3970
CFH 1 1/2	CFH 1 1/2 PP	1.500	0.875	0.875	1 1/2	3/8	7/8-14	3/4	3/32	3/16	1500	1500	11390	4890
CFH 1 5/8	CFH 1 5/8 PP	1.625	0.875	0.875	1 1/2	3/8	7/8-14	3/4	3/32	3/16	1500	1500	11390	4890
CFH 1 3/4	CFH 1 3/4 PP	1.750	1.000	1.000	1 3/4	7/16	1-14	7/8	3/32	3/16	2250	2250	16100	6500
CFH 1 7/8	CFH 1 7/8 PP	1.875	1.000	1.000	1 3/4	7/16	1-14	7/8	3/32	3/16	2250	2250	16100	6500
CFH 2	CFH 2 PP	2.000	1.125	1.250	2	1/2	1 1/8-12	1	1/8	3/16	2800	2800	21500	8170
CFH 2 1/4	CFH 2 1/4 PP	2.250	1.125	1.250	2	1/2	1 1/8-12	1	1/8	3/16	2800	2800	21500	8170
CFH 2 1/2	CFH 2 1/2 PP	2.500	1.250	1.500	2 1/4	9/16	1 1/4-12	1 1/8	1/8	3/16	3400	3400	33550	11840
CFH 2 3/4	CFH 2 3/4 PP	2.750	1.250	1.500	2 1/4	9/16	1 1/4-12	1 1/8	1/8	3/16	3400	3400	33550	11840
CFH 3	CFH 3 PP	3.000	1.500	1.750	2 1/2	5/8	1 1/2-12	1 1/4	1/8	1/4	5000	5000	50230	16000
CFH 3 1/4	CFH 3 1/4 PP	3.250	1.500	1.750	2 1/2	5/8	1 1/2-12	1 1/4	1/8	1/4	5000	5000	50230	16000
CFH 3 1/2	CFH 3 1/2 PP	3.500	1.750	2.000	2 3/4	11/16	1 3/4-12	1 3/8	1/8	1/4	5000	5000	64500	23200
CFH 4	CFH 4 PP	4.000	2.000	2.250	3 1/2	3/4	2-12	1 1/2	1/8	1/4	5000	5000	91300	30580
CFH 5	CFH 5 PP	5.000	2.500	2.750	5 1/16	7/8	2 1/2-12	2 9/16	3/16	1/4N.P.T.	5000	5000	91300	47500
CFH 6	CFH 6 PP	6.000	3.000	3.250	6	1	3-12	3	3/16	1/4N.P.T.	5000	5000	164000	61200
CFH 7	CFH 7 PP	7.000	3.500	3.750	7 11/6	1 1/4	3 1/2-4●	4 1/8	3/16	1/4N.P.T.	5000	5000	216000	76800

* oil hole (M) is from the rib face of the stud shaft to the radial oil hole

** Twisting torque is based on the thread. If the thread is lubricated, twisting torque is half of the listed value.

● Unified coarse thread





CFHB	CFHB..PP

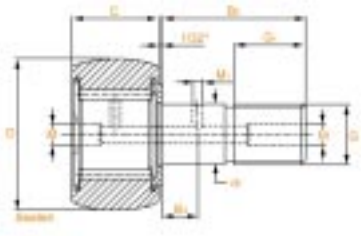
Unsealed BRG. NO.	Sealed BRG. NO.	D	C	d_1	B_2	G_1	G	B_3	M_1	M*	Housing Bore	Recom Clamping Torque (Lbs) ***	Basic radial load(LBS) stat. Cor	dyn. Cr
CFHB 1/2	CFHB 1/2 PP	0.500	0.375	0.250	5/8	1/4	1/4-28	-	-	1/8*	0.2503	35	1600	690
CFHB 9/16	CFHB 9/16 PP	0.5625	0.375	0.250	5/8	1/4	1/4-28	-	-	1/8*	0.2503	35	1600	690
CFHB 5/8	CFHB 5/8 PP	0.625	0.4375	0.3125	3/4	5/16	5/16-24	-	-	1/8*	0.3128	70	2520	970
CFHB 11/16	CFHB 11/16 PP	0.6875	0.4375	0.3125	3/4	5/16	5/16-24	-	-	1/8*	0.3128	90	2520	970
CFHB 3/4	CFHB 3/4 PP	0.750	0.500	0.4375	7/8	3/8	7/16-20	1/4	3/32	3/16	0.4378	250	4210	1680
CFHB 7/8	CFHB 7/8 PP	0.875	0.500	0.4375	7/8	3/8	7/16-20	1/4	3/32	3/16	0.4378	250	4210	1680
CFHB 1	CFHB 1 PP	1.000	0.625	0.625	1	1/2	5/8-18	1/4	3/32	3/16	0.6253	650	6240	2290
CFHB 1-1/8	CFHB 1-1/8 PP	1.125	0.625	0.625	1	1/2	5/8-18	1/4	3/32	3/16	0.6253	650	6240	2290
CFHB 1-1/4	CFHB 1-1/4 PP	1.250	0.750	0.750	1-1/4	5/8	3/4-16	5/16	3/32	3/16	0.7503	1250	8670	3970
CFHB 1-3/8	CFHB 1-3/8 PP	1.375	0.750	0.750	1-1/4	5/8	3/4-16	5/16	3/32	3/16	0.7503	1250	8670	3970
CFHB 1-1/2	CFHB 1-1/2 PP	1.500	0.875	0.875	1-1/2	3/4	7/8-14	3/8	3/32	3/16	0.8753	1500	11390	4890
CFH 1 5/8	CFHB 1-5/8 PP	1.625	0.875	0.875	1-1/2	3/4	7/8-14	3/8	3/32	3/16	0.8753	1500	11390	4890
CFHB 1-3/4	CFHB 1-3/4 PP	1.750	1.000	1.000	1-3/4	7/8	1-14	7/16	3/32	3/16	1.0003	2250	16100	6500
CFHB 1-7/8	CFHB 1-7/8 PP	1.875	1.000	1.000	1-3/4	7/8	1-14	7/16	3/32	3/16	1.0003	2250	16100	6500
CFHB 2	CFHB 2 PP	2.000	1.250	1.125	2	1	1 1/8-12	1/2	1/8	3/16	1.1253	2800	21500	8170
CFHB 2-1/4	CFH B2-1/4 PP	2.250	1.250	1.125	2	1	1 1/8-12	1/2	1/8	3/16	1.1253	2800	21500	8170
CFHB 2-1/2	CFHB 2-1/2 PP	2.500	1.500	1.250	2-1/4	1-1/8	1 1/4-12	9/16	1/8	3/16	1.2503	3400	33550	11840
CFHB 2-3/4	CFHB 2-3/4 PP	2.750	1.500	1.250	2-1/4	1-1/8	1 1/4-12	9/16	1/8	3/16	1.2503	3400	33550	11840
CFHB 3	CFHB 3 PP	3.000	1.750	1.500	2-1/2	1-1/4	1 1/2-12	5/8	1/8	1/4	1.5003	5000	50230	16000
CFHB 3-1/4	CFHB 3-1/4 PP	3.250	1.750	1.500	2-1/2	1-1/4	1 1/2-12	5/8	1/8	1/4	1.5003	5000	50230	16000
CFHB 3-1/2	CFHB 3-1/2 PP	3.500	2.000	1.750	2-3/4	1-3/8	1 3/4-12	11/16	1/8	1/4	1.7503	5000	64500	23200
CFHB 4	CFHB 4 PP	4.000	2.250	2.000	3-1/2	1-1/2	2-12	3/4	1/8	1/4	2.0003	5000	91300	30580

* oil hole (M) is from the rib face of the stud shaft to the radial oil hole

** Twisting torque is based on the thread. If the thread is lubricated, twisting torque is half of the listed value.

stud type cam followers

CCFH..PP Series



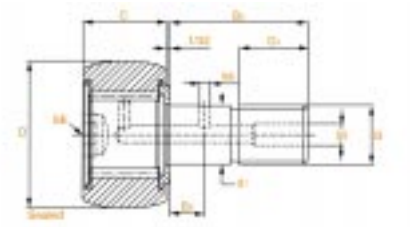
Unsealed BRG. NO.	D	d_1	C	B_2	B_3	G	G_1	M_1	M*	Housing Bore	Recom Clamping Torque (Lbs) **	Basic radial load(LBS) stat. Cor	dyn. Cr
CCFH 1/2 PP	0.500	0.250	0.375	5/8	-	1/4-28	1/4	-	1/8*	0.2503	35	1600	690
CCFH 9/16 PP	0.5625	0.250	0.375	5/8	-	1/4-28	1/4	-	1/8*	0.2503	35	1600	690
CCFH 5/8 PP	0.625	0.3125	0.4375	3/4	-	5/16-24	5/16	-	1/8*	0.3128	90	2520	970
CCFH 11/16 PP	0.6875	0.3125	0.4375	3/4	-	5/16-24	5/16	-	1/8*	0.3128	90	2520	970
CCFH 3/4 PP	0.750	0.4375	0.500	7/8	1/4	7/16-20	3/8	3/32	3/16	0.4378	250	4210	1680
CCFH 7/8 PP	0.875	0.4375	0.500	7/8	1/4	7/16-20	3/8	3/32	3/16	0.4378	250	4210	1680
CCFH 1 PP	1.000	0.625	0.625	1	1/4	5/8-18	1/2	3/32	3/16	0.6253	650	6240	2290
CCFH 1 1/8 PP	1.125	0.625	0.625	1	1/4	5/8-18	1/2	3/32	3/16	0.6253	650	6240	2290
CCFH 1 1/4 PP	1.250	0.750	0.750	1 1/4	5/16	3/4-16	5/8	3/32	3/16	0.7503	1250	8670	3970
CCFH 1 3/8 PP	1.375	0.750	0.750	1 1/4	5/16	3/4-16	5/8	3/32	3/16	0.7503	1250	8670	3970
CCFH 1 1/2 PP	1.500	0.875	0.875	1 1/2	3/8	7/8-14	3/4	3/32	3/16	0.8753	1500	11390	4890
CCFH 1 5/8 PP	1.625	0.875	0.875	1 1/2	3/8	7/8-14	3/4	3/32	3/16	0.8753	1500	11390	4890
CCFH 1 3/4 PP	1.750	1.000	1.000	1 3/4	7/16	1-14	7/8	3/32	3/16	1.0003	2250	16100	6500
CCFH 1 7/8 PP	1.875	1.000	1.000	1 3/4	7/16	1-14	7/8	3/32	3/16	1.0003	2250	16100	6500
CCFH 2 PP	2.000	1.125	1.250	2	1/2	1 1/8-12	1	1/8	3/16	1.1253	2800	21500	8170
CCFH 2 1/4 PP	2.250	1.125	1.250	2	1/2	1 1/8-12	1	1/8	3/16	1.1253	2800	21500	8170
CCFH 2 1/2 PP	2.500	1.250	1.500	2 1/4	9/16	1 1/4-12	1 1/8	1/8	3/16	1.2503	3450	33550	11840
CCFH 2 3/4 PP	2.750	1.250	1.500	2 1/4	9/16	1 1/4-12	1 1/8	1/8	3/16	1.2503	3450	33550	11840
CCFH 3 PP	3.000	1.500	1.750	2 1/2	5/8	1 1/2-12	1 1/4	1/8	1/4	1.5003	5000	50230	16000
CCFH 3 1/4 PP	3.250	1.500	1.750	2 1/2	5/8	1 1/2-12	1 1/4	1/8	1/4	1.5003	5000	50230	16000
CCFH 3 1/2 PP	3.500	1.750	2.000	2 3/4	11/16	1 3/4-12	1 3/8	1/8	1/4	1.7503	5000	64500	23200
CCFH 4 PP	4.000	2.000	2.250	3 1/2	3/4	2-12	1 1/2	1/8	1/4	2.0003	5000	91300	30580
CCFH 5 PP	5.000	2.500	2.750	5 1/16	7/8	2 1/2-12	2 9/16	3/16	1/4N.P.T.	2.5003	5000	91300	47500
CCFH 6 PP	6.000	3.000	3.250	6	1	3-12	3	3/16	1/4N.P.T.	3.0003	5000	164000	61200
CCFH 7 PP	7.000	3.500	3.750	7 11/6	1 1/4	3 1/2-4●	4 1/8	3/16	1/4N.P.T.	3.5003	5000	216000	76800

* oil hole (M) is from the rib face of the stud shaft to the radial oil hole

** Twisting torque is based on the thread. If the thread is lubricated, twisting torque is half of the listed value.

● Unified coarse thread

CCVI BEARING INDUSTRIES



Unsealed BRG. NO.	D	d_1	C	B_2	B_3	G	G_1	M_1	M*	Housing Bore	Recom Clamping Torque (Lbs) **	Basic radial load(LBS) stat. Cor	dyn. Cr
CCFHB 1/2 PP	0.500	0.250	0.375	5/8	-	1/4-28	1/4	-	-	0.2503	35	800	690
CCFHB 9/16 PP	0.5625	0.250	0.375	5/8	-	1/4-28	1/4	-	-	0.2503	35	800	690
CCFHB 5/8 PP	0.625	0.3125	0.4375	3/4	-	5/16-24	5/16	-	-	0.3128	90	1230	970
CCFHB 11/16 PP	0.6875	0.3125	0.4375	3/4	-	5/16-24	5/16	-	-	0.3128	90	1230	970
CCFHB 3/4 PP	0.750	0.4375	0.500	7/8	1/4	7/16-20	3/8	3/32	3/16	0.4378	250	2085	1680
CCFHB 7/8 PP	0.875	0.4375	0.500	7/8	1/4	7/16-20	3/8	3/32	3/16	0.4378	250	2085	1680
CCFHB 1 PP	1.000	0.625	0.625	1	1/4	5/8-18	1/2	3/32	3/16	0.6253	650	3090	2290
CCFHB 1-1/8 PP	1.125	0.625	0.625	1	1/4	5/8-18	1/2	3/32	3/16	0.6253	650	3090	2290
CCFHB 1-1/4 PP	1.250	0.750	0.750	1-1/4	5/16	3/4-16	5/8	3/32	3/16	0.7503	1250	4330	3970
CCFHB 1-3/8 PP	1.375	0.750	0.750	1-1/4	5/16	3/4-16	5/8	3/32	3/16	0.7503	1250	4330	3970
CCFHB 1-1/2 PP	1.500	0.875	0.875	1-1/2	3/8	7/8-14	3/4	3/32	3/16	0.8753	1500	5750	4890
CCFHB 1-5/8 PP	1.625	0.875	0.875	1-1/2	3/8	7/8-14	3/4	3/32	3/16	0.8753	1500	5750	4890
CCFHB 1-3/4 PP	1.750	1.000	1.000	1-3/4	7/16	1-14	7/8	3/32	3/16	1.0003	2250	8000	6500
CCFHB 1-7/8 PP	1.875	1.000	1.000	1-3/4	7/16	1-14	7/8	3/32	3/16	1.0003	2250	8000	6500
CCFHB 2 PP	2.000	1.125	1.250	2	1/2	1 1/8-12	1	1/8	3/16	1.1253	2800	10780	8170
CCFHB 2-1/4 PP	2.250	1.125	1.250	2	1/2	1 1/8-12	1	1/8	3/16	1.1253	2800	10780	8170
CCFHB 2-1/2 PP	2.500	1.250	1.500	2-1/4	9/16	1 1/4-12	1-1/8	1/8	3/16	1.2503	3400	16620	11840
CCFHB 2-3/4 PP	2.750	1.250	1.500	2-1/4	9/16	1 1/4-12	1-1/8	1/8	3/16	1.2503	3400	16620	11840
CCFHB 3	3.000	1.500	1.750	2-1/2	5/8	1 1/2-12	1-1/4	1/8	1/4	1.5003	5000	25400	16000
CCFHB 3-1/4 PP	3.250	1.500	1.750	2-1/2	5/8	1 1/2-12	1-1/4	1/8	1/4	1.5003	5000	25400	16000
CCFHB 3-1/2 PP	3.500	1.750	2.000	2-3/4	11/16	1 3/4-12	1-3/8	1/8	1/4	1.7503	5000	31950	23200
CCFHB 4 PP	4.000	2.000	2.250	3 1/2	3/4	2-12	1-1/2	1/8	1/4	2.0003	5000	45200	30580

* Twisting torque is based on the thread. If the thread is lubricated, twisting torque is half of the listed value.

yoke type cam followers

CYR / CYR ..PP / CCYR ..PP Series

CYR	CYR ..PP	CCYR ..PP

Unsealed BRG. NO.	Sealed BRG. NO.	Sealed BRG. NO.	D	C	d NOM.	d TOL.	B	d_2	M_1	Basic radial load(LBS) stat. Cor	Basic radial load(LBS) dyn. Cr
CYR 3/4	CYR 3/4 PP	CCYR 3/4 PP	0.750	0.500	0.2500		0.5625	39/64		4270	1680
CYR 7/8	CYR 7/8 PP	CCYR 7/8 PP	0.875	0.500	0.2500		0.5625	39/64		4270	1680
CYR 1	CYR 1 PP	CCYR 1 PP	1.000	0.625	0.3125		0.6875	25/32		6240	2290
CYR 1 1/8	CYR 1 1/8 PP	CCYR 1 1/8 PP	1.125	0.625	0.3125		0.6875	25/32		6240	2290
CYR 1 1/4	CYR 1 1/4 PP	CCYR 1 1/4 PP	1.250	0.750	0.3750		0.8125	63/64		8670	3970
CYR 1 3/8	CYR 1 3/8 PP	CCYR 1 3/8 PP	1.375	0.750	0.3750		0.8125	63/64		8670	3970
CYR 1 1/2	CYR 1 1/2 PP	CCYR 1 1/2 PP	1.50	0.875	0.4375	+0.0002	0.9375	1 3/32		11390	4890
CYR 1 5/8	CYR 1 5/8 PP	CCYR 1 5/8 PP	1.625	0.875	0.4375	-0.0004	0.9375	1 3/32		11390	4890
CYR 1 3/4	CYR 1 3/4 PP	CCYR 1 3/4 PP	1.750	1.000	0.5000		1.0625	1 1/4		16100	6500
CYR 1 7/8	CYR 1 7/8 PP	CCYR 1 7/8 PP	1.875	1.000	0.5000		1.0625	1 1/4		16100	6500
CYR 2	CYR 2 PP	CCYR 2 PP	2.000	1.250	0.6250		1.3125	1 13/32		21500	8170
CYR 2 1/4	CYR 2 1/4 PP	CCYR 2 1/4 PP	2.250	1.250	0.6250		1.3125	1 13/32		21500	8170
CYR 2 1/2	CYR 2 1/2 PP	CCYR 2 1/2 PP	2.500	1.500	0.7500		1.5625	1 11/16		33550	11840
CYR 2 3/4	CYR 2 3/4 PP	CCYR 2 3/4 PP	2.750	1.500	0.7500		1.5625	1 11/16		33550	11840
CYR 3	CYR 3 PP	CCYR 3 PP	3.000	1.750	1.000		1.8125	2 1/8		50320	16000
CYR 3 1/4	CYR 3 1/4 PP	CCYR 3 1/4 PP	3.250	1.750	1.000		1.8125	2 1/8		50320	16000
CYR 3 1/2	CYR 3 1/2 PP	CCYR 3 1/2 PP	3.500	2.000	1.1250		2.0625	2 7/16		64500	23200
CYR 4	CYR 4 PP	CCYR 4 PP	4.000	2.250	1.1250		2.3125	2 51/64		91300	30580
	CYR 5 PP	CCYR 5 PP	5.000	2.750	1.7500		2.875	3 9/16		137200	47500
	CYR 6 PP	CCYR 6 PP	6.000	3.250	2.2500		3.375	4 15/32		164000	61200
	CYR 7 PP	CCYR 7 PP	7.000	3.750	2.7500		3.875	5 3/16		216000	76800
	CYR 8 PP	CCYR 8 PP	8.000	4.250	3.2500		4.500	4 3/8		291000	94000
	CYR 9 PP	CCYR 9 PP	9.000	4.750	3.7550		5.000	5 1/16		374000	115500
	CYR 10 PP	CCYR 10 PP	10.000	5.250	4.2550		5.500	5 15/32		439700	134000

interchangeability chart

Unsealed stud type cam followers

TORRINGTON		RBC		McGILL		CCVI	
STD.STUD SEALED	HEAVY STUD SEALED	STD.STUD SEALED	HEAVY STUD SEALED	STD.STUD SEALED	HEAVY STUD SEALED	STD.STUD SEALED	HEAVY STUD SEALED
CR-8-1	CRH-8-1	S-16	H-16	CF-1/2	CFH-1/2	CF-1/2	CFH-1/2
		S-18	H-18	CF-9/16	CFH-9/16	CF-9/16	CFH-9/16
CR-10-1	CRH-10-1	S-20	H-20	CF-5/8	CFH-5/8	CF-5/8	CFH-5/8
		S-22	H-22	CF-11/16	CFH-11/16	CF-11/16	CFH-11/16
CR-12	CRH-12	S-24	H-24	CF-3/4	CFH-3/4	CF-3/4	CFH-3/4
CR-14	CRH-14	S-28	H-28	CF-7/8	CFH-7/8	CF-7/8	CFH-7/8
CR-16	CRH-16	S-32	H-32	CF-1	CFH-1	CF-1	CFH-1
CR-18	CRH-18	S-36	H-36	CF-1 1/8	CFH-1 1/8	CF-1 1/8	CFH-1 1/8
CR-20	CRH-20	S-40	H-40	CF-1 1/4	CFH-1 1/4	CF-1 1/4	CFH-1 1/4
CR-22	CRH-22	S-44	H-44	CF-1 3/8	CFH-1 3/8	CF-1 3/8	CFH-1 3/8
CR-24	CRH-24	S-48	H-48	CF-1 1/2	CFH-1 1/2	CF-1 1/2	CFH-1 1/2
CR-26	CRH-26	S-52	H-52	CF-1 5/8	CFH-1 5/8	CF-1 5/8	CFH-1 5/8
CR-28	CRH-28	S-56	H-56	CF-1 3/4	CFH-1 3/4	CF-1 3/4	CFH-1 3/4
CR-30	CRH-30	S-60	H-60	CF-1 7/8	CFH-1 7/8	CF-1 7/8	CFH-1 7/8
CR-32	CRH-32	S-64	H-64	CF-2	CFH-2	CF-2	CFH-2
CR-36	CRH-36	S-72	H-72	CF-2 1/4	CFH-2 1/4	CF-2 1/4	CFH-2 1/4
CR-40	CRH-40	S-80	H-80	CF-2 1/2	CFH-2 1/2	CF-2 1/2	CFH-2 1/2
CR-44	CRH-44	S-88	H-88	CF-2 3/4	CFH-2 3/4	CF-2 3/4	CFH-2 3/4
CR-48	CRH-48	S-96	H-96	CF-3	CFH-3	CF-3	CFH-3
CR-52	CRH-52	S-104	H-104	CF-3 1/4	CFH-3 1/4	CF-3 1/4	CFH-3 1/4
CR-56	CRH-56	S-112	H-112	CF-3 1/2	CFH-3 1/2	CF-3 1/2	CFH-3 1/2
CR-64	CRH-64	S-128	H-128	CF-4	CFH-4	CF-4	CFH-4

Sealed stud type cam followers

TORRINGTON		RBC		McGILL		CCVI	
STD.STUD SEALED	HEAVY STUD SEALED	STD.STUD SEALED	HEAVY STUD SEALED	STD.STUD SEALED	HEAVY STUD SEALED	STD.STUD SEALED	HEAVY STUD SEALED
CRS-8-1	CRHS-8-1	S-16-L	H-16-L	CF-1/2-S	CFH-1/2-S	CF-1/2 PP	CFH-1/2 PP
		S-18-L	H-18-L	CF-9/16-S	CFH-9/16	CF-9/16 PP	CFH-9/16 PP
CRS-10-1	CRHS-10-1	S-20-L	H-20-L	CF-5/8-S	CFH-5/8-S	CF-5/8 PP	CFH-5/8 PP
		S-22-L	H-22-L	CF-11/16-S	CFH-11/16-S	CF-11/16 PP	CFH-11/16 PP
CRS-12	CRHS-12	S-24-L	H-24-L	CF-3/4-S	CFH-3/4-S	CF-3/4 PP	CFH-3/4 PP
CRS-14	CRHS-14	S-28-L	H-28-L	CF-7/8-S	CFH-7/8-S	CF-7/8 PP	CFH-7/8 PP
CRS-16	CRHS-16	S-32-L	H-32-L	CF-1-S	CFH-1-S	CF-1 PP	CFH-1 PP
CRS-18	CRHS-18	S-36-L	H-36-L	CF-1 1/8-S	CFH-1 1/8-S	CF-1 1/8 PP	CFH-1 1/8 PP
CRS-20	CRHS-20	S-40-L	H-40-L	CF-1 1/4-S	CFH-1 1/4-S	CF-1 1/4 PP	CFH-1 1/4V
CRS-22	CRHS-22	S-44-L	H-44-L	CF-1 3/8-S	CFH-1 3/8-S	CF-1 3/8 PP	CFH-1 3/8 PP
CRS-24	CRHS-24	S-48-L	H-48-L	CF-1 1/2-S	CFH-1 1/2-S	CF-1 1/2 PP	CFH-1 1/2 PP
CRS-26	CRHS-26	S-52-L	H-52-L	CF-1 5/8-S	CFH-1 5/8-S	CF-1 5/8 PP	CFH-1 5/8 PP
CRS-28	CRHS-28	S-56-L	H-56-L	CF-1 3/4-S	CFH-1 3/4-S	CF-1 3/4 PP	CFH-1 3/4 PP
CRS-30	CRHS-30	S-60-L	H-60-L	CF-1 7/8-S	CFH-1 7/8-S	CF-1 7/8 PP	CFH-1 7/8 PP
CRS-32	CRHS-32	S-64-L	H-64-L	CF-2-S	CFH-2-S	CF-2 PP	CFH-2 PP
CRS-36	CRHS-36	S-72-L	H-72-L	CF-2 1/4-S	CFH-2 1/4-S	CF-2 1/4 PP	CFH-2 1/4 PP
CRS-40	CRHS-40	S-80-L	H-80-L	CF-2 1/2-S	CFH-2 1/2-S	CF-2 1/2 PP	CFH-2 1/2 PP
CRS-44	CRHS-44	S-88-L	H-88-L	CF-2 3/4-S	CFH-2 3/4-S	CF-2 3/4 PP	CFH-2 3/4 PP
CRS-48	CRHS-48	S-96-L	H-96-L	CF-3-S	CFH-3-S	CF-3 PP	CFH-3 PP
CRS-52	CRHS-52	S-104-L	H-104-L	CF-3 1/4-S	CFH-3 1/4-S	CF-3 1/4 PP	CFH-3 1/4 PP
CRS-56	CRHS-56	S-112-L	H-112-L	CF-3 1/2-S	CFH-3 1/2-S	CF-3 1/2 PP	CFH-3 1/2 PP
CRS-64	CRHS-64	S-128-L	H-128-L	CF-4-S	CFH-4-S	CF-4 PP	CFH-4 PP

interchangeability chart

Unsealed and Sealed yoke type cam followers

TORRINGTON		RBC		McGILL		CCVI	
Unsealed	sealed	Unsealed	sealed	Unsealed	sealed	Unsealed	sealed
YCR-12	YCRS-12	Y-24	Y-24-L	CYR-3/4	CYR-3/4-S	CYR-3/4	CYR-3/4 PP
YCR-14	YCRS-14	Y-28	Y-28-L	CYR-7/8	CYR-7/8-S	CYR-7/8	CYR-7/8 PP
YCR-16	YCRS-16	Y32	Y32-L	CYR-1	CYR-1-S	CYR-1-S	CYR-1 PP
YCR-18	YCRS-18	Y36	Y36-L	CYR-1 1/8	CYR-1 1/8-S	CYR-1 1/8	CYR-1 1/8 PP
YCR-20	YCRS-20	Y40	Y40-L	CYR-1 1/4	CYR-1 1/4-S	CYR-1 1/4	CYR-1 1/4 PP
YCR-22	YCRS-22	Y44	Y44-L	CYR-1 3/8	CYR-1 3/8-S	CYR-1 3/8	CYR-1 3/8 PP
YCR-24	YCRS-24	Y-48	Y-48-L	CYR-1 1/2	CYR-1 1/2-S	CYR-1 1/2	CYR-1 1/2 PP
YCR-26	YCRS-26	Y-52	Y-52-L	CYR-1 5/8	CYR-1 5/8-S	CYR-1 5/8	CYR-1 5/8 PP
YCR-28	YCRS-28	Y-56	Y-56-L	CYR-1 3/4	CYR-1 3/4-S	CYR-1 3/4	CYR-1 3/4 PP
YCR-30	YCRS-30	Y60	Y60-L	CYR-1 7/8	CYR-1 7/8-S	CYR-1 7/8	CYR-1 7/8 PP
YCR-32	YCRS-32	Y-64	Y-64-L	CYR-2	CYR-2-S	CYR-2-S	CYR-2 PP
YCR-36	YCRS-36	Y-72	Y-72-L	CYR-2 1/4	CYR-2 1/4-S	CYR-2 1/4	CYR-2 1/4 PP
YCR-40	YCRS-40	Y-80	Y-80-L	CYR-2 1/2	CYR-2 1/2-S	CYR-2 1/2	CYR-2 1/2 PP
YCR-44	YCRS-44	Y-88	Y-88-L	CYR-2 3/4	CYR-2 3/4-S	CYR-2 3/4	CYR-2 3/4 PP
YCR-48	YCRS-48	Y-96	Y-96-L	CYR-3	CYR-3-S	CYR-3	CYR-3 PP
YCR-52	YCRS-52	Y-104	Y-104-L	CYR-3 1/4	CYR-3 1/4-S	CYR-3 1/4	CYR-3 1/4 PP
YCR-56	YCRS-56	Y-112	Y-112-L	CYR-3 1/2	CYR-3 1/2-S	CYR-3 1/2	CYR-3 1/2 PP
YCR-64	YCRS-64	Y-128	Y-128-L	CYR-4	CYR-4-S	CYR-4	CYR-4 PP
		Y-160	Y-160-L		CYR-5-S		CYR-5 PP
		Y-192	Y-192-L		CYR-6-S		CYR-6 PP
		Y-224	Y-224-L		CYR-7-S		CYR-7 PP
					CYR-8-S		CYR-8 PP
					CYR-9-S		CYR-9 PP

Coding for optional cam follower features

Opyional Feature	CCVI	McGILL	TORRINGTON	RBC
Hex Hole	"B"	"B"	"B"	"W"
Eccentric Stud	"E"	"E"	"E"	"X"
Rounded O.D	"C"	"C"	"C"	"C"
Seal	"PP"	"S"	"S"	"L"

spherical plain bearings

rod ends

cam followers

mast bearings

bushing

ball bearings

needle bearings

inner rings

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