

PATENT PENDING

**IKO**

**Cam Followers**

**CF...B**

**Easy Mounting  
&  
Easy Lubrication**

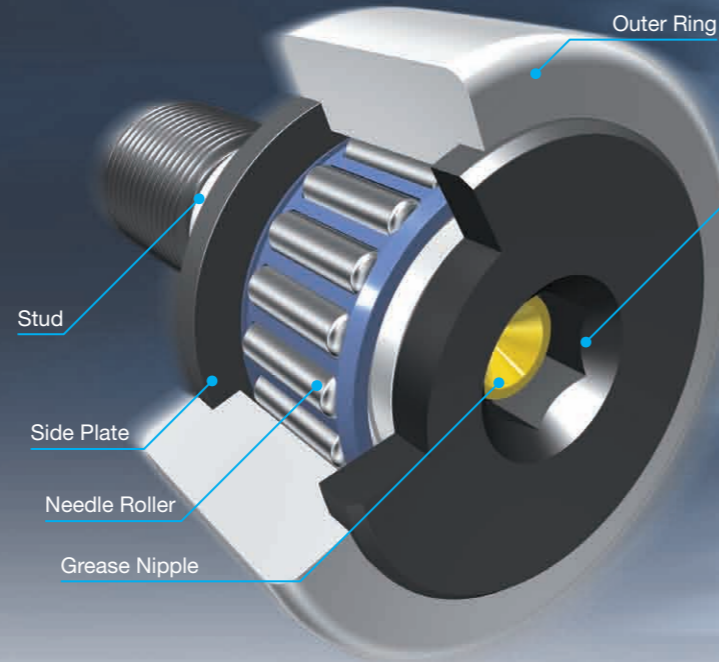
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# IKO Hex Head Cam Followers

Cam Followers are follower bearings for cam mechanisms and linear motions provided with high rigidity and high accuracy. They are, therefore, used widely for machine tools, industrial robots, electronics devices, and OA equipment.

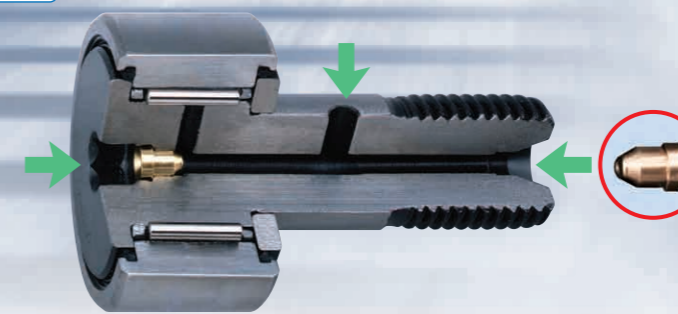
Hex Head Cam Followers can be fixed firmly by hexagonal wrench and re-lubrication root can be chosen from three positions. This series contributes easy assembling and easy maintenance in your applications.



## Lubrication from three ways



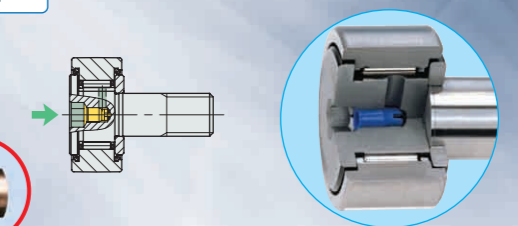
Stud dia. 12 to 30mm



## Lubrication from one way



Stud dia. 5 to 10mm



**Standard Type Cam Follower**  
**CF...(F)(V)B(UU R)**  
 Stud dia. mm **3~30**

Seal, Outer Ring, Retainer Side Plate, Stud, Needle Roller

5mm to 30mm of stud dia. are available for widely use.

**Solid Eccentric Stud Type Cam Follower**  
**CFES...B(UU R)**  
 Stud dia. mm **6~18**

Eccentric Stud, Eccentricity  $\epsilon$

The stud is designed eccentric to the center axis of the outer ring. This allows easy adjustment of outer ring position in the radial direction in relation to the mating track surface by turning the stud, which makes load distribution on multiple numbers of Cam Followers uniformed. Mounting dimensions are the same as those of standard Cam Followers with eccentricity of 0.25 to 0.6 mm.

**Standard Type Cam Follower**  
**CFE...(V)B(UU R)**  
 Stud dia. mm **6~30**

Eccentric Collar, Eccentricity  $\epsilon$

An eccentric collar is assembled over the Cam Follower stud, enabling the outer ring to be positioned easily in the radial direction against the mating track surface. Eccentricity is 0.4 to 1.5mm.

**C-Lube Cam Follower**  
**CF...WBUU R/SG**  
 Stud dia. mm **6~20**

IKO C-Lube Cam Followers are bearings with prepacked thermosetting solid lubricant (C-Lube) inside. As the bearing rotates, the lubricating oil is deposited onto the raceway in the correct volume maintaining the lubrication performance for greatly extended periods of time.

**Easy Mounting Type Cam Follower**  
**CF-SFU...B**  
 Stud dia. mm **6~20**

This Cam Follower has stepped tapered portion on the stud that makes easy fixing by tightening a set screw to the stepped portion. This Cam Follower is suite to pallet changer where a large number of Cam Followers are used.

**Heavy Duty Type Cam Follower**  
**NUCF...BR**  
 Stud dia. mm **10~30**

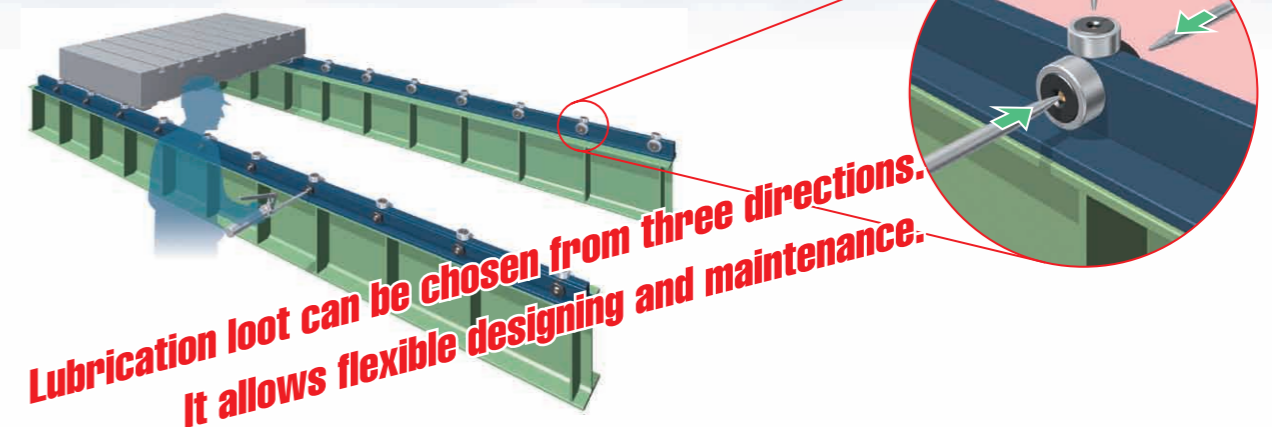
Cylindrical Roller

This is a full complement type Cam Follower incorporating double rows of cylindrical rollers to support large radial load and some axial load.

**Thrust Disk Type Cam Follower**  
**CF...(F)WB(UU R)**  
 Stud dia. mm **3~20**

Thrust Washer

Special resin thrust washers are placed to reduce friction and wear due to unexpected axial load caused by misalignment, etc.

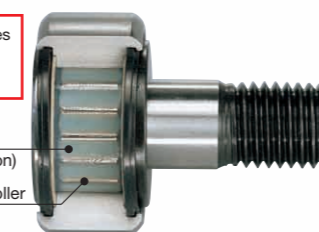


## IKO C-Lube Unit for Cam Followers

C-Lube Unit CL is the lubrication-supporting equipment for the track surface of Cam Follower's outer ring. Full maintenance free for both inside and the outside of Cam Follower is possible when CL unit is assembled to C-Lube Cam Follower CF.../SG.

Solid lubrication provides long time operation free from re-lubrication.

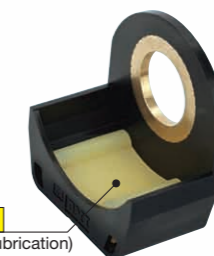
**C-Lube**  
 (Solid Lubrication)  
 Needle Roller



IKO C-Lube Cam Follower CF.../SG

+

**C-Lube**  
 (Solid Lubrication)



IKO C-Lube Unit for Cam Follower CL

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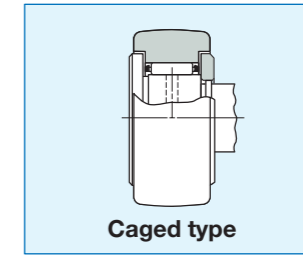
**Full Maintenance Free**

### New and Wide variations of IKO Hex Head Cam Followers

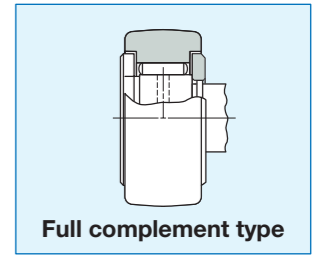
Type	Caged or Full complement	Material	Shape of stud head	Shape of outer ring	Seal structure	Model code	Stud diameter (mm)				
<b>Standard Type Cam Follower</b> CF...B	Caged	High carbon steel	Hex socket	Crowned outer ring	Shield type	CF...BR	3 – 30				
					Sealed type	CF...BUUR	3 – 30				
				Cylindrical outer ring	Shield type	CF...B	3 – 30				
		Sealed type			CF...BUU	3 – 30					
		Stainless steel		Crowned outer ring	Shield type	CF...FBR	3 – 20				
					Sealed type	CF...FBUUR	3 – 20				
	Cylindrical outer ring		Shield type	CF...FB	3 – 5						
		Sealed type	CF...FBUU	3 – 5							
	Full complement	High carbon steel	Hex socket	Crowned outer ring	Shield type	CF...VBR	6 – 30				
					Shield type	CF...VBUUR	6 – 30				
				Cylindrical outer ring	Shield type	CF...VB	6 – 30				
		Shield type			CF...VBUU	6 – 30					
<b>Solid Eccentric Stud Type Cam Follower</b> CFES...B		Cage		High carbon steel	Hex socket	Crowned outer ring	Shield type	CFES...BR	6 – 18		
							Sealed type	CFES...BUUR	6 – 18		
	Cylindrical outer ring		Shield type			CFES...B	6 – 18				
			Sealed type			CFES...BUU	6 – 18				
	<b>Eccentric Type Cam Follower</b> CFE...B		Caged			High carbon steel	Hex socket	Crowned outer ring	Shield type	CFE...BR	6 – 30
									Sealed type	CFE...BUUR	6 – 30
Cylindrical outer ring		Shield type		CFE...B	6 – 30						
		Sealed type		CFE...BUU	6 – 30						
Full complement		High carbon steel		Hex socket	Crowned outer ring			Shield type	CFE...VBR	6 – 30	
								Sealed type	CFE...VBUUR	6 – 30	
			Cylindrical outer ring		Shield type	CFE...VB	6 – 30				
Sealed type		CFE...VBUU			6 – 30						
<b>Thrust Disk Type Cam Follower</b> CF...WB		Caged	High carbon steel		Hex socket	Crowned outer ring	Shield type	CF...WBR	3 – 20		
							Sealed type	CF...WBUUR	3 – 20		
				Cylindrical outer ring		Shield type	CF...FWBR	3 – 5			
			Sealed type			CF...FWBUUR	3 – 5				
	Stainless steel		Crowned outer ring	Shield type		CF...FWBR	3 – 5				
				Sealed type		CF...FWBUUR	3 – 5				
<b>Easy Mounting Type Cam Follower</b> CF-SFU...B	Caged	High carbon steel	Hex socket	Cylindrical outer ring	Sealed type	CF-SFU...B	6 – 20				
<b>C-Lube Cam Follower</b> CF...WB.../SG	Caged	High carbon steel	Hex socket	Crowned outer ring	Sealed type	CF...WBUUR/SG	6 – 20				
<b>Heavy Duty Type Cam Follower</b> NUCF...BR	Caged	High carbon steel	Hex socket	Crowned outer ring	Sealed type	NUCF...BR	10 – 30				

### Roller guiding methods

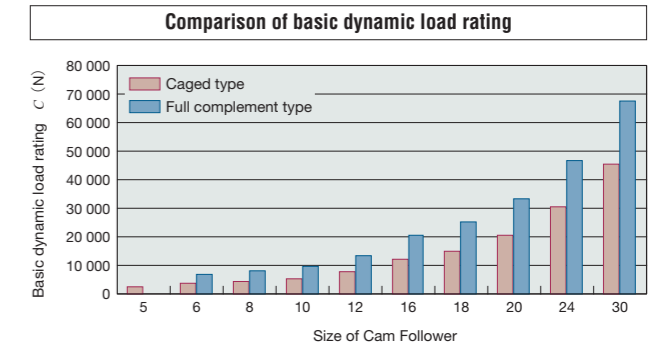
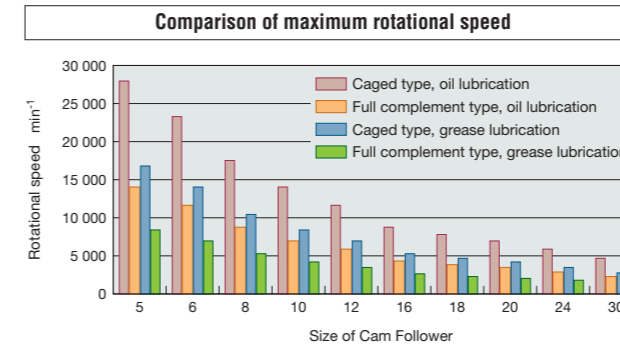
Hex Head Cam Followers include the caged type and the full complement type. Caged type has a small coefficient of friction and is suitable for high rotational speed, while full complement type is suitable for heavy loads at low rotational speed.



Caged type



Full complement type



### Available in High carbon steel and Stainless steel

Stainless steel series is superior in corrosion resistance and suitable for applications where oil cannot be used or water splashes exist and in clean rooms.



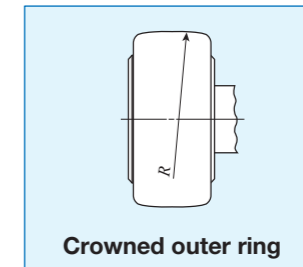
High carbon steel



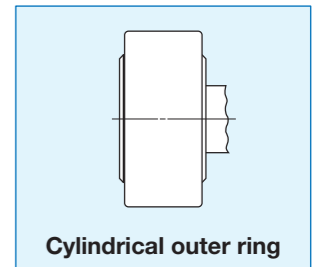
Stainless steel

### Shape of outer ring surface

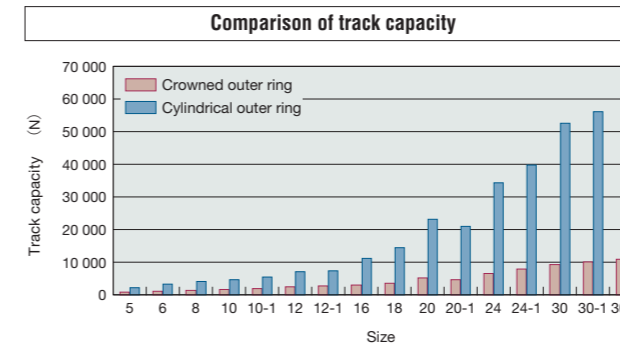
The outside shapes of the Hex head Cam Followers, which makes direct contact with the mating track surface, are either crowned or cylindrical. The crowned outer ring is effective in moderating the edge load due to mounting errors. The cylindrical outer ring has a large contact area with the mating track surface, and is suitable for applications in which the applied load is large or the track surface hardness is low.



Crowned outer ring

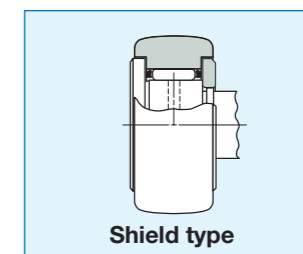


Cylindrical outer ring

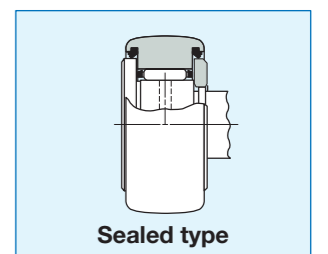


### Sealing structure

Hex Head Cam Followers come with shield type or sealed type. Shield type makes narrow clearances between outer ring and stud flange, also between outer ring and side plate forming labyrinths. Sealed type incorporates special seals internally to prevent the penetration of foreign particles.



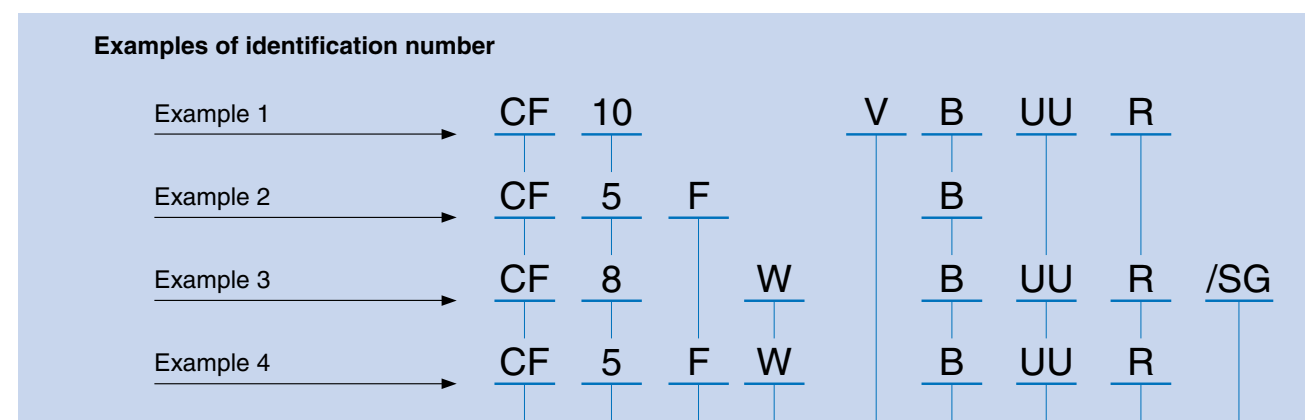
Shield type



Sealed type

# Identification Number

The identification number examples of IKO Hex Head Cam Followers are shown below.



Model code	
<b>CF...B</b>	Standard type Cam Follower
<b>CFES...B</b>	Solid Eccentric Stud type Cam Follower
<b>CFE...B</b>	Eccentric type Cam Follower
<b>CF...WB</b>	Thrust Disk type Cam Follower
<b>CF-SFU...B</b>	Easy Mounting type Cam Follower
<b>CF...WB.../SG</b>	C-Lube Cam Follower
<b>NUCF...B</b>	Heavy Duty type Cam Follower

Size	
Stud dia. (Unit: mm)	

Material code	
No symbol	Carbon steel
<b>F</b>	Stainless steel

Roller guiding method	
No symbol	Caged type
<b>V</b>	Full complement type

Seal structure	
No symbol	Shield type
<b>UU</b>	Sealed type

Shape of outer ring	
No symbol	Cylindrical outer ring
<b>R</b>	Crowned outer ring

# Accuracy

Tolerances of IKO Hex Head Cam Followers series are shown in table 1 and 2.

Cam Followers with special accuracy are also available. Please contact IKO.

**Table 1 Tolerances**

unit:  $\mu\text{m}$

Dimensions and symbols	Type	Crowned outer ring	Cylindrical outer ring
	Out side dia. of outer ring $D$		0 -50
Stud dia. $d_1$		h7	
Width of outer ring $C$		0 -120	

# Clearances

Internal clearances of Hex Head Cam Follower are shown in Table 3.

**Table 3 Radial internal clearance**

unit:  $\mu\text{m}$

Model code <sup>(1)</sup>	Radial internal clearance	
	Min.	Max.
CF 3B~CF 5B	3	17
CF 6B	5	20
CF 8B~CF12-1B	5	25
CF16B~CF20-1B	10	30
CF24B~CF30-2B	10	40
NUCF10 BR~NUCF24 BR	20	45
NUCF24-1BR~NUCF30-2BR	25	50

Note<sup>(1)</sup> Only representative types are shown in the table.

**Table 2 Accuracy of outer ring (for cylindrical outer ring)**

unit:  $\mu\text{m}$

$D$ Nominal outside dia. of outer ring mm		$\Delta D_{\text{mp}}$ Single plane mean outside dia. deviation		$V_{D_{\text{sp}}}$ Outside dia. variation in a single radial plane (Max.)	$V_{D_{\text{mp}}}$ Mean outside dia. Variation (Max.)	$K_{\text{ea}}$ Radial runout of assembled bearing outer ring (Max.)
over	incl	high	low			
6	18	0	- 8	10	6	15
18	30	0	- 9	12	7	15
30	50	0	- 11	14	8	20
50	80	0	- 13	16	10	25
80	120	0	- 15	19	11	35

# Fit

The recommended tolerance of mounting hole for the stud of IKO Hex Cam Follower is H7. Tolerances of mounting hole are shown in Table 4. Since the Cam Follower is supported in a cantilever position, the mounting hole diameter should be prepared without play between the stud and the hole especially when heavy shock loads may be applied.

**Table 4 Tolerances of mounting hole** unit:  $\mu\text{m}$

Nominal outside dia. of stud mm		H7	
over	incl	High	Low
—	3	+ 10	0
3	6	+ 12	0
6	10	+ 15	0
10	18	+ 18	0
18	30	+ 21	0

# Maximum Allowable Load

The applicable load on IKO Hex Cam Followers is, in some cases, limited by the bending strength and shear strength of the stud and the strength of the outer ring instead of the load rating of the needle roller bearing. Therefore, the maximum allowable static load is specified by the limitations of those strengths.

# Track Capacity

Track capacity is defined as a load which can be continuously applied on IKO Hex Cam Followers placed on a steel track surface without causing deformation or indentation on the track surface when the outer ring of the Cam Follower makes contact with the mating track surface (plane). The track capacities shown in Table 5 are applicable when the hardness of the mating track surface is 40HRC (Tensile strength 1250N/mm<sup>2</sup>). When the hardness of the mating track surface differs from 40HRC, the track capacity is obtained by multiplying the value by the track capacity factor shown in Table 6.

If lubrication between the outer ring and the mating track surface is insufficient, seizure and/or wear may occur depending on the application. Therefore, attention must be paid to the lubrication and the surface roughness of the mating track, especially for high-speed operation such as cam mechanisms.

**Table 5 Track capacity** unit: N

Model code Crowned outer ring <sup>(1)</sup>	Track capacity	Model code Cylindrical outer ring <sup>(1)</sup>	Track capacity
CF 3 BR	542	CF 3 B	1 360
CF 4 BR	712	CF 4 B	1 790
CF 5 BR	794	CF 5 B	2 210
CF 6 BR	1 040	CF 6 B	3 400
CF 8 BR	1 330	CF 8 B	4 040
CF10 BR	1 610	CF10 B	4 680
CF10-1BR	2 030	CF10-1B	5 530
CF12 BR	2 470	CF12 B	7 010
CF12-1BR	2 710	CF12-1B	7 480
CF16 BR	3 060	CF16 B	11 200
CF18 BR	3 660	CF18 B	14 500
CF20 BR	5 190	CF20 B	23 200
CF20-1BR	4 530	CF20-1B	21 000
CF24 BR	6 580	CF24 B	34 300
CF24-1BR	8 020	CF24-1B	39 800
CF30 BR	9 220	CF30 B	52 700
CF30-1BR	9 990	CF30-1B	56 000
CF30-2BR	10 800	CF30-2B	59 300

Note<sup>(1)</sup> Only representative types are shown in the table.

**Table 6 Track capacity factor**

Hardness HRC	Tensile strength N/mm <sup>2</sup>	Track capacity factor	
		Crowned outer ring	Cylindrical outer ring
20	760	0.22	0.37
25	840	0.31	0.46
30	950	0.45	0.58
35	1 080	0.65	0.75
38	1 180	0.85	0.89
40	1 250	1.00	1.00
42	1 340	1.23	1.15
44	1 435	1.52	1.32
46	1 530	1.85	1.51
48	1 635	2.27	1.73
50	1 760	2.80	1.99
52	1 880	3.46	2.29
54	2 015	4.21	2.61
56	2 150	5.13	2.97
58	2 290	6.26	3.39

# Allowable Rotational Speed

The allowable rotational speed of IKO Hex Head Cam Followers is affected by mounting and operating conditions. For reference,  $d_{1n}$  values when only pure radial loads are applied should be not exceeded the value shown in Table 7. Considering that axial loads also act under actual operating conditions, the recommended  $d_{1n}$  value is 1/10 of the value shown in the table.

For reference,  $d_{1n}$  values of Cam Followers when C-Lube Cam Follower and C-Lube Unit are mounted should be 10,000 or less.

**Table 7  $d_{1n}$  values of Hex Head Cam Followers**

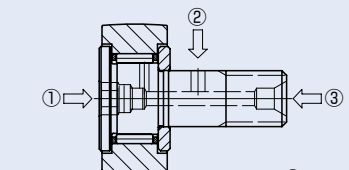
Type	Lubricant	Grease	Oil
Caged type		84 000	140 000
Full Complement type		42 000	70 000
Heavy Duty type		66 000	110 000

Note  $d_{1n}$  value =  $d_1 \times n$   
 where,  $d_1$  : Stud diameter mm  
 $n$  : Rotational speed rpm

# Lubrication Hole

The oil hole position of Hex. Head Cam Follower is shown in Table 8. Grease should be supplied gently with a straight type grease gun as specified JIS B 9808 :1991, which is applied carefully to the nipple head from the front.

**Table 8 Position of oil hole**



Size of stud dia. $d_1$ mm	Position of oil hole		
	① Stud-head	② Stud outside surface	③ Stud-end
Standard type Cam Follower	$d_1 \leq 4$	—	—
Solid Eccentric Stud type Cam Follower	$5 \leq d_1 \leq 10$	○ <sup>(2)</sup>	—
Eccentric type Cam Follower	$12 \leq d_1$	○ <sup>(3)</sup>	○
Thrust Disk type Cam Follower		○	○
Heavy Duty type Cam Follower		○	○
Easy Mounting type Cam Follower	$d_1 \leq 10$	○ <sup>(2)</sup>	—
	$12 \leq d_1$	○ <sup>(4)</sup>	—
C-Lube Cam Follower	$d_1 \leq 10$	—	—
	$12 \leq d_1$	—	○ <sup>(5)</sup>

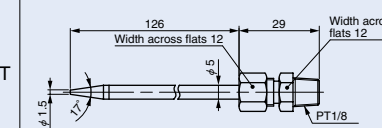
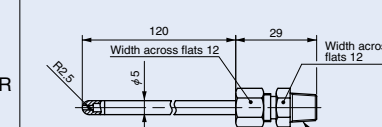
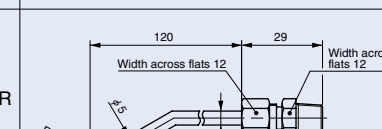

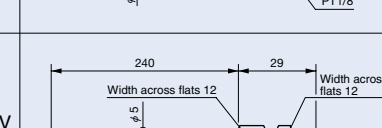
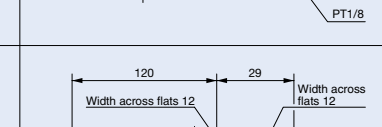
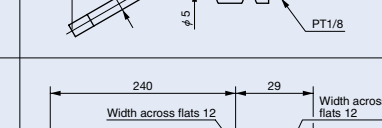
○ : Oil hole is prepared.

Note<sup>(1)</sup> In Eccentric type(CFE), select Cam Follower by dimension "G" on dimension table instead of " $d_1$ ". However, the oil hole on stud outside surface cannot be used.

- (2) Grease can be supplied through the lubrication plug in the hex head.
- (3) The grease nipple is provided in the hex head. Re-lubrication is possible from a grease nipple inside of hexagon hole in stud-head by inserting appended grease nipple into stud-end for plugging purpose.
- (4) Grease can be supplied through the grease nipple in the hex head.
- (5) Grease cannot be supplied to the bearing space since the space is filled with a solid thermosetting resin lubricant C-Lube.

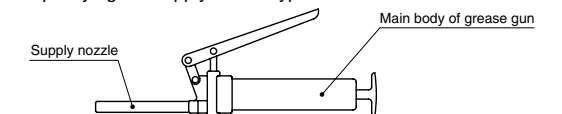
When NPT type grease nipple is attached, direct re-greasing without lubrication nozzle (Table 9) is possible. For CF 3, CF 4 and C-Lube Cam Followers, re-lubrication is not possible by structural reason.

**Table 9 Applicable supply nozzles**

Type	Shape and dimension	Applicable grease nipple or lubrication plug
A-5126T		NPF4-1 <sup>(1)</sup> NPF6-1 <sup>(1)</sup> Re-greasing fitting <sup>(1)</sup>
A-5120R		NPF4-1 <sup>(1)</sup> NPF6-1 <sup>(1)</sup>
B-5120R		NPF4-1 <sup>(1)</sup> NPF6-1 <sup>(1)</sup>
A-5120V		
A-5240V		NPT4-1 NPT6-1
B-5120V		
B-5240V		

Note<sup>(1)</sup> HSP-3 (by Yamada Corp.) is also available to lubricate.

Remark Supply nozzles shown in the table can be mounted on the main body of a common grease gun available on the market (shown below). If these supply nozzles are required, consult IKO by specifying the supply nozzle type.



1N=0.102kgf=0.2248lbs.  
 1mm=0.03937inch

## Lubrication

Grease pre-packed Cam Followers are shown in Table 10. The pre-packed grease is ALVANIA GREASE S2 (SHELL). For Cam Followers without pre-packed grease, grease should be packed through the oil hole in the stud. If they are operated without grease, wear of rolling contact surface may take place, leading to short bearing life.

**Table 10 Grease pre-packed Cam Followers**

○ : With pre-packed grease × : Without pre-packed grease

Size of stud dia. $d_1^{(1)}$ mm	Type	Caged type		Full complement type
		Shield type	Sealed type	
Standard type Cam Follower	$d_1 \leq 5$	○	○	—
Solid Eccentric Stud type Cam Follower	$6 \leq d_1 \leq 10$	○	○	○
Eccentric type Cam Follower	$12 \leq d_1$	×	○	○
Thrust Disk type Cam Follower				
Easy Mounting type Cam Follower	—	—	○	—
C-Lube Cam Follower <sup>(2)</sup>	—	—	×	—
Heavy Duty type Cam Follower	—	—	—	○

Note<sup>(1)</sup> In Eccentric type(CFE), select Cam Follower by dimension "G" on dimension table instead of " $d_1$ ".

<sup>(2)</sup> The bearing space is filled with a solid thermosetting resin lubricant C-Lube.

## Accessories

The accessories of IKO Hex Head Cam Followers are shown in Table 11. The dimension of appended grease nipple is shown in Table 12.

**Table 11 Accessories**

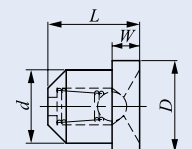
○ : Attached

Size of stud dia. $d_1^{(1)}$ mm	Type	Grease nipple	Nut	Spring washer
Solid Eccentric Stud type Cam Follower	$12 \leq d_1$	○	○	—
Thrust Disk type Cam Follower		○	○	—
Heavy Duty type Cam Follower		○	○	○
Eccentric type Cam Follower	$d_1 \leq 10$	—	○	○
	$12 \leq d_1$	○	○	○
C-Lube Cam Follower	—	—	○	—

Remark No accessory is appended to Easy Mounting Type Cam Follower.

Note<sup>(1)</sup> In Eccentric type(CFE), select Cam Follower by dimension "G" on dimension table instead of " $d_1$ ".

**Table 12 Dimension of grease nipple**



Model code	Dimensions of grease nipple mm				Size of stud dia. $d_1^{(1)}$ mm
	d	D	L	W	
NPF4-1	4	5	5	1.5	12~16
NPF6-1	6	7	8	2	18~30

Note<sup>(1)</sup> In Eccentric type, select Cam Follower by dimension "G" on dimension table instead of " $d_1$ ".

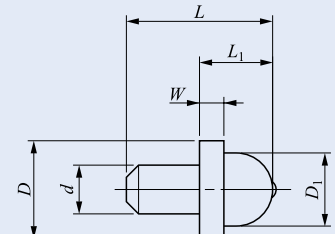
## Special Specification

Appended grease nipple in delivery can be changed to the grease nipple shown in Table 13. In these types, re-lubrication is directly possible by using straight type grease gun as specified JIS B 9808:1991. If required, indicate "/NP" at the end of supplemental code.

Code example

CF 12 BUUR / NP

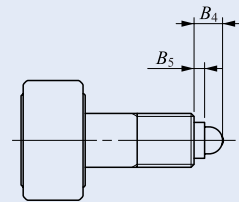
**Table 13 Shape and dimension of NPT type grease nipple**



Model code	Dimensions of grease nipple mm						Size of stud dia. $d_1^{(1)}$ mm
	d	D	D1	L	L1	W	
NPT4-1	4	8	6	12	6	2	12~16
NPT6-1	6	8	6	14	8	4	18~30

Note<sup>(1)</sup> In Eccentric type, select Cam Follower by dimension "G" on dimension table instead of " $d_1$ ".

**Table 14 Dimension of Cam Follower with NPT type grease nipple**



Model code	Dimension mm		Size of stud dia. $d_1^{(1)}$ mm
	$B_4$	$B_5$	
NPT4-1	6	2	12~16
NPT6-1	6	2	18~30

Note<sup>(1)</sup> In Eccentric type, select Cam Follower by dimension "G" on dimension table instead of " $d_1$ ".

## Operating Temperature Range

The operating temperature range for IKO Hex Head Cam Follower is  $-20^{\circ}\text{C}$  to  $+120^{\circ}\text{C}$ . However, the maximum allowable temperature range for the following types are different.

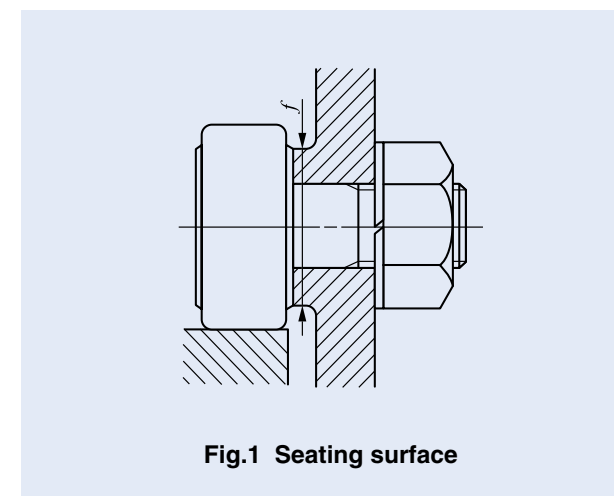
The maximum allowable temperature for Standard type Cam Follower and Thrust Disk type Cam Follower with carbon steel stud diameter  $d_1$  of 4mm or less and stainless steel stud diameter  $d_1$  of 5mm or less is  $+110^{\circ}\text{C}$  and  $+100^{\circ}\text{C}$  when they are continuously operated.

The maximum allowable temperature for the sealed type with a stud diameter  $d_1$  of 5mm or less is  $+80^{\circ}\text{C}$ .

Use C-Lube Cam Follower and C-Lube Units in the bearing temperature range of  $-15^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$ . For long continuous use, the recommended operating temperature is  $60^{\circ}\text{C}$  maximum.

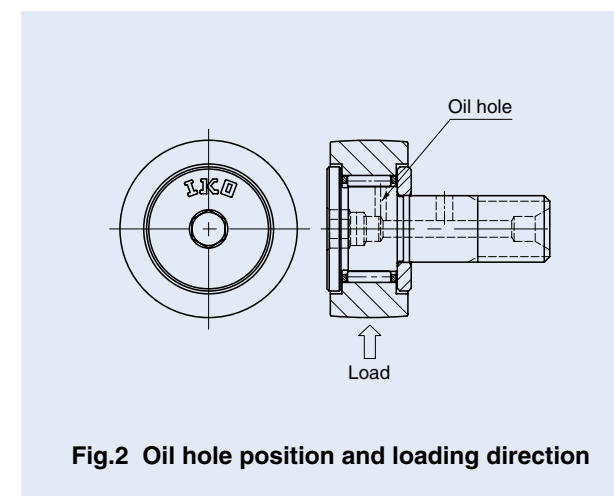
## Mounting

① Set the center axis of the mounting hole perpendicularly to the moving direction of IKO Hex Head Cam Follower and match the side shoulder accurately with the seating surface indicated by dimension "f" in the dimension tables. (See Fig.1) Then, fix the Cam Follower with the nut. Do not hit the flange head of IKO Hex Head Cam Follower directly with a hammer, etc. This may lead to a bearing failure such as irregular rotation or cracking.



② The IKO mark on the stud-head indicates the position of oil hole on the raceway. Avoid locating the oil hole within the loading zone. This may lead to short bearing life. (Refer to Fig.2)

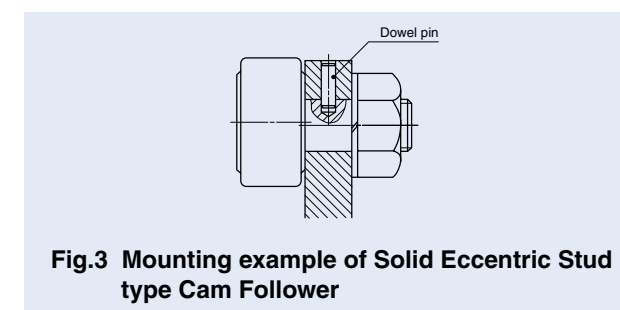
The hole located in the middle part of the stud is used for greasing or locking.



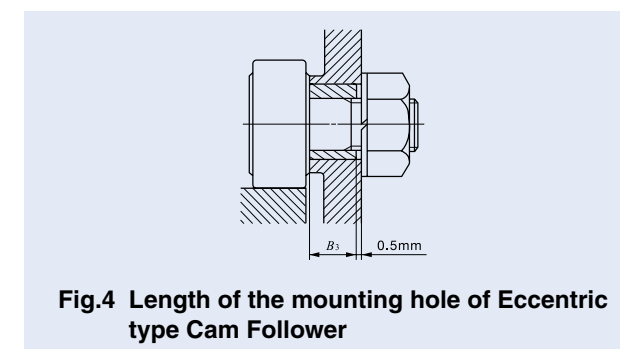
③ When tightening the nut, the tightening torque should not exceed the values shown in the dimension tables. If the tightening torque is too large, it is possible that the threaded portion of the stud can be broken. When there is a possibility of loosening, a special nut such as a lock nut, spring washer or self-locking nut should be used.

④ In case of Solid Eccentric Stud type Cam Followers and Eccentric Type Cam Followers, the outer ring position can be adjusted appropriately by turning the hexagon hole of the stud head. The stud is fixed with a nut and a spring washer, etc. The tightening torque should not exceed the values of maximum tightening torque shown in the table of dimensions.

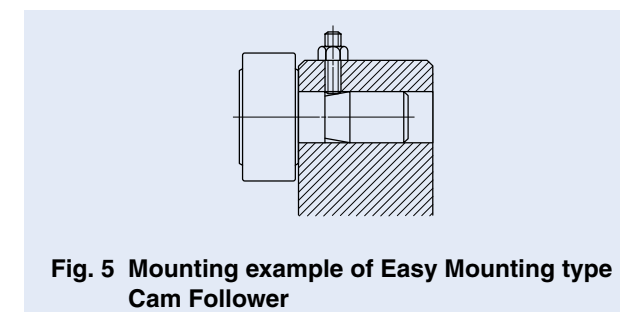
When shock loads are applied and the adjusted eccentricity has to be ensured, it is recommended to make holes in the housing, stud and eccentric collar, and fix the stud with a dowel pin as shown in Fig. 3. However, when the stud diameter is less than 8mm (Eccentric collar diameter 11mm), the stud is through-hardened.



⑤ In case of Eccentric type Cam Followers(CFE), the length of the mounting hole should be more than 0.5mm longer than the dimension  $B_3$  (Eccentric collar width) shown in the table of dimensions. (See Fig.4)



⑥ For mounting Easy Mounting type Cam Followers, it is recommended to fix the fixing screw from the upper side to the stepped portion of the stud. (See Fig.5)

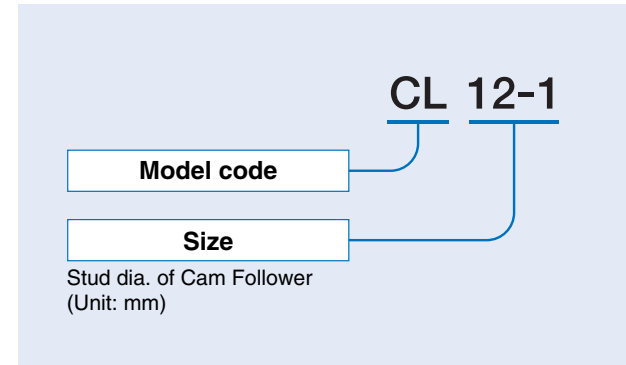


1N=0.102kgf=0.2248lbs.  
1mm=0.03937inch

# C-Lube Unit for Cam Follower

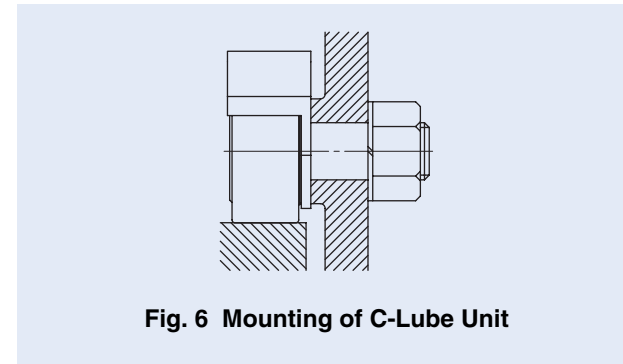
## ① Identification number

Below is shown an example of identification number of C-Lube Unit for Cam Follower.

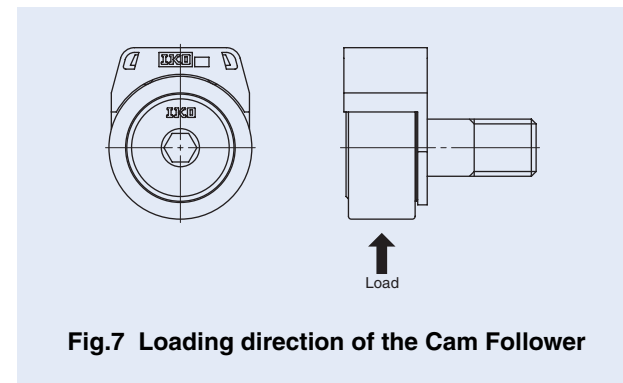


## ② Mounting

- Place C-Lube Unit perpendicularly to the central line of the stud of the Cam Follower and firmly tighten C-Lube Unit together with the Cam Follower by the nut.

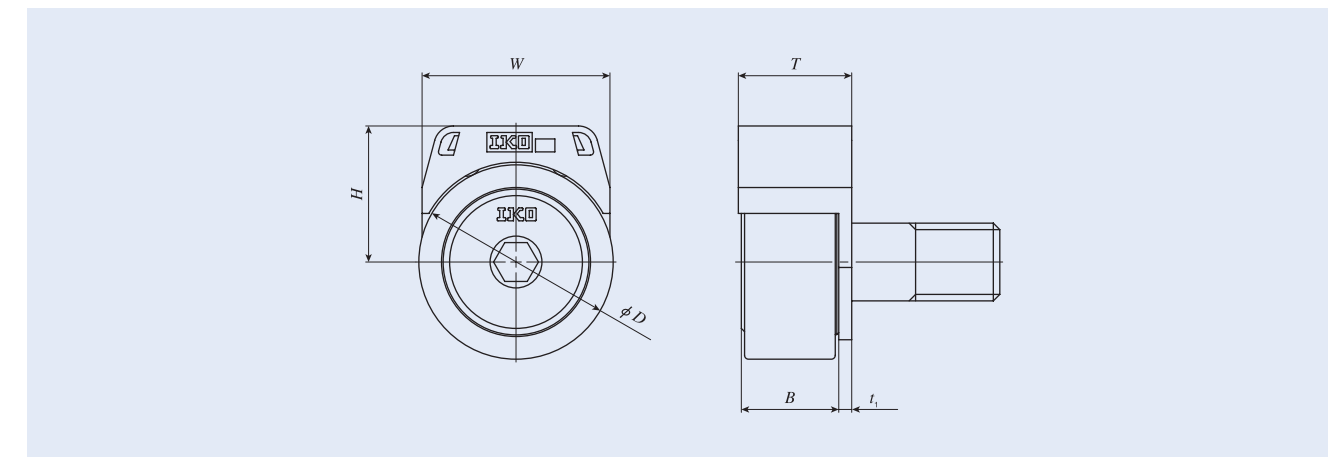


- Mount C-Lube Unit avoiding the direction in which the Cam Follower is loaded.
- Lock C-Lube Unit while adjusting its position since C-Lube Unit does not have a detent.



- Tighten the nut to secure C-Lube Unit together with the Cam Follower with a torque that does not exceed the maximum tightening torque (see the Dimensions Table of the Cam Follower).  
Use a lock nut, spring washer or particular loose-preventing nut if the nut may be loose while C-Lube Unit is in service.

## ② Dimensions



Identification number	Boundary dimensions mm				Applicable Cam Follower type		
	<i>W</i>	<i>H</i>	<i>T</i>	<i>t</i> <sub>1</sub>	Identification number <sup>(1)</sup>	Boundary dimensions <i>D</i>	<i>B</i> max
<b>CL 6</b>	15.4	12.6	14	1.5	<b>CF 6 B</b>	16	12.2
<b>CL 8</b>	18.4	14.2	14	1.5	<b>CF 8 B</b>	19	12.2
<b>CL 10</b>	21	17	15.5	2	<b>CF 10 B</b>	22	13.2
<b>CL 10-1</b>	21	19.2	15.5	2	<b>CF 10-1 B</b>	26	13.2
<b>CL 12</b>	29	21	17.5	2	<b>CF 12 B</b>	30	15.2
<b>CL 12-1</b>	29	22	17.5	2	<b>CF 12-1 B</b>	32	15.2

Note<sup>(1)</sup> Only representative identification number is shown in the table, but applicable to all Standard Type Cam Follower, Thrust Disk Type Cam Follower, C-Lube Cam Follower, and Heavy Duty Type Cam Follower of the same size.

To assure the maintenance-free effect, it is recommended to use it together with a C-Lube Cam Follower.

Remark A load applied to the cam follower before C-Lube Unit is applied must be under 80% of the maximum allowable load of the Cam Follower. For maximum allowable load of each Cam Follower, see the general catalog of the needle series.

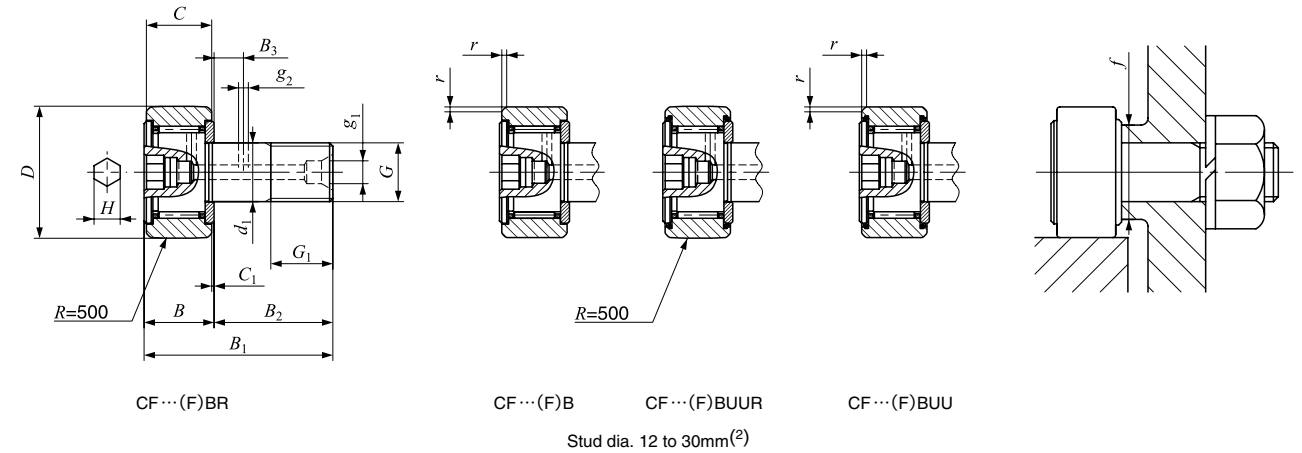
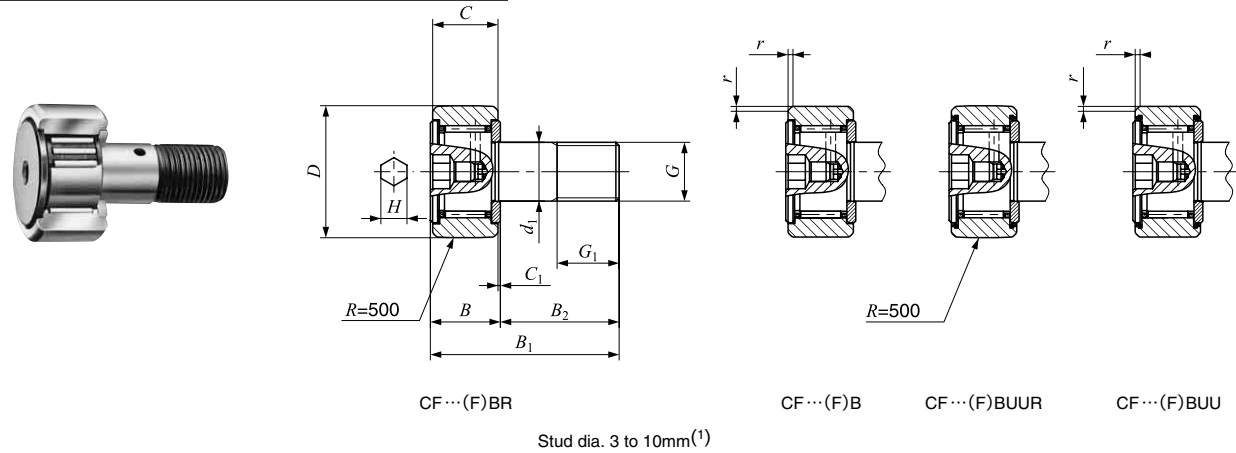
## Cautions in use

- Do not wash C-Lube Cam Follower or C-Lube Unit with organic solvent, illuminating kerosene or other degreasing liquid.
- When C-Lube Cam Follower and C-Lube Unit are mounted, a load of over 1% of the basic dynamic load rating should be applied to the Cam Follower to rotate the Cam Follower normally.
- The load applied to the cam follower mounted on C-Lube unit should be under 80% of the maximum allowable load of the Cam Follower. If the load is excessive, the mounting surface of C-Lube Unit is deformed and may cause a problem such as loosening of the Cam Follower securing nut or deviation of C-Lube Unit. In an extreme case, C-Lube Unit may be disabled.
- Before starting the operation, be sure to confirm that the

outside dia. surface of outer ring of the Cam Follower and the track surface are well lubricated. The lubricating performance of C-Lube Unit is greatly affected by the lubricating status of the track surface.

- To lubricate the whole the outside dia. surface of outer ring of the Cam Follower, rotate the outer ring of the Cam Follower at least one revolution when mounting C-Lube Unit.
- Do not use C-Lube Unit in an environment that contains objects or liquid that may damage the capillary lubricators.
- When the lubricating performance of C-Lube Cam Follower and C-Lube Unit drops, replace them by new ones since they cannot be lubricated again.
- Do not apply a load directly to C-Lube Unit to prevent the unit from being damaged or ill-lubricated.

**IKO Standard type Cam Followers CF...B**  
**IKO Standard type Cam Followers / Stainless Steel Made CF...FB**  
**With Cage / With Hexagon hole**



Stud dia. mm	Identification number				Mass (Ref.) g	Boundary dimensions mm				
	Shield type		Sealed type			D	C	d <sub>1</sub>	G	G <sub>1</sub>
	Crowned outer ring	Cylindrical outer ring	Crowned outer ring	Cylindrical outer ring						
3	CF 3 BR	CF 3 B	CF 3 BUUR	CF 3 BUU	4.3	10	7	3	M 3 × 0.5	5
	CF 3 FBR	CF 3 FB	CF 3 FBUUR	CF 3 FBUU	4.3	10	7	3	M 3 × 0.5	5
4	CF 4 BR	CF 4 B	CF 4 BUUR	CF 4 BUU	7.4	12	8	4	M 4 × 0.7	6
	CF 4 FBR	CF 4 FB	CF 4 FBUUR	CF 4 FBUU	7.4	12	8	4	M 4 × 0.7	6
5	CF 5 BR	CF 5 B	CF 5 BUUR	CF 5 BUU	10.3	13	9	5	M 5 × 0.8	7.5
	CF 5 FBR	CF 5 FB	CF 5 FBUUR	CF 5 FBUU	10.3	13	9	5	M 5 × 0.8	7.5
6	CF 6 BR	CF 6 B	CF 6 BUUR	CF 6 BUU	18.5	16	11	6	M 6 × 1	8
	CF 6 FBR	—	CF 6 FBUUR	—	18.5	16	11	6	M 6 × 1	8
8	CF 8 BR	CF 8 B	CF 8 BUUR	CF 8 BUU	28.5	19	11	8	M 8 × 1.25	10
	CF 8 FBR	—	CF 8 FBUUR	—	28.5	19	11	8	M 8 × 1.25	10
10	CF 10 BR	CF 10 B	CF 10 BUUR	CF 10 BUU	45	22	12	10	M10 × 1.25	12
	CF 10 FBR	—	CF 10 FBUUR	—	45	22	12	10	M10 × 1.25	12
	CF 10-1 BR	CF 10-1 B	CF 10-1 BUUR	CF 10-1 BUU	60	26	12	10	M10 × 1.25	12
12	CF 12 BR	CF 12 B	CF 12 BUUR	CF 12 BUU	95	30	14	12	M12 × 1.5	13
	CF 12 FBR	—	CF 12 FBUUR	—	95	30	14	12	M12 × 1.5	13
	CF 12-1 BR	CF 12-1 B	CF 12-1 BUUR	CF 12-1 BUU	105	32	14	12	M12 × 1.5	13
16	CF 16 BR	CF 16 B	CF 16 BUUR	CF 16 BUU	170	35	18	16	M16 × 1.5	17
	CF 16 FBR	—	CF 16 FBUUR	—	170	35	18	16	M16 × 1.5	17
18	CF 18 BR	CF 18 B	CF 18 BUUR	CF 18 BUU	250	40	20	18	M18 × 1.5	19
	CF 18 FBR	—	CF 18 FBUUR	—	250	40	20	18	M18 × 1.5	19
20	CF 20 BR	CF 20 B	CF 20 BUUR	CF 20 BUU	460	52	24	20	M20 × 1.5	21
	CF 20 FBR	—	CF 20 FBUUR	—	460	52	24	20	M20 × 1.5	21
	CF 20-1 BR	CF 20-1 B	CF 20-1 BUUR	CF 20-1 BUU	385	47	24	20	M20 × 1.5	21
24	CF 24 BR	CF 24 B	CF 24 BUUR	CF 24 BUU	815	62	29	24	M24 × 1.5	25
	CF 24-1 BR	CF 24-1 B	CF 24-1 BUUR	CF 24-1 BUU	1 140	72	29	24	M24 × 1.5	25
30	CF 30 BR	CF 30 B	CF 30 BUUR	CF 30 BUU	1 870	80	35	30	M30 × 1.5	32
	CF 30-1 BR	CF 30-1 B	CF 30-1 BUUR	CF 30-1 BUU	2 030	85	35	30	M30 × 1.5	32
	CF 30-2 BR	CF 30-2 B	CF 30-2 BUUR	CF 30-2 BUU	2 220	90	35	30	M30 × 1.5	32

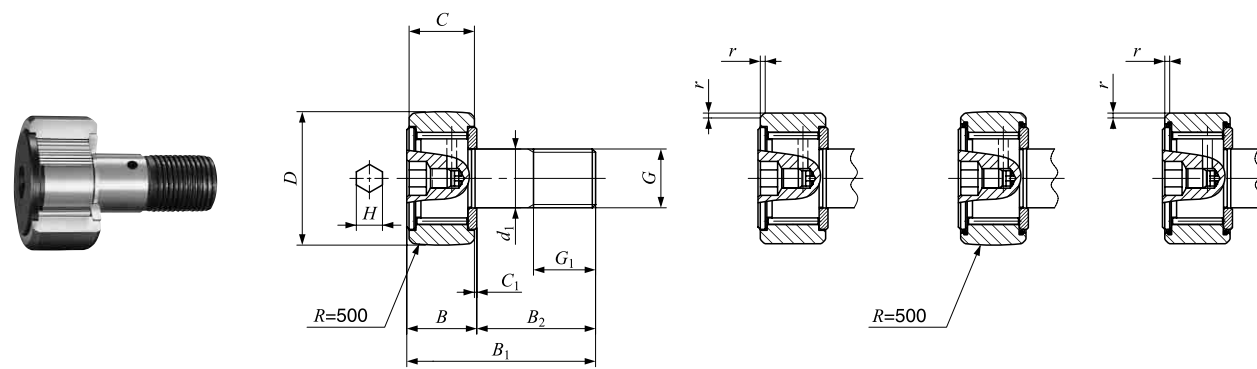
Boundary dimensions mm										Mounting dimension f Min. mm	Maximum tightening torque N · m	Basic dynamic load rating C N	Basic static load rating C <sub>0</sub> N	Maximum allowable load N
B	B <sub>1</sub>	B <sub>2</sub>	B <sub>3</sub>	C <sub>1</sub>	g <sub>1</sub>	g <sub>2</sub>	H	r <sup>(3)</sup> r <sub>smin</sub>						
8	17	9	—	0.5	—	—	2	0.2	6.8	0.34	1 500	1 020	384	
8	17	9	—	0.5	—	—	2	0.2	6.8	0.34	1 200	813	384	
9	20	11	—	0.5	—	—	2.5	0.3	8.3	0.78	2 070	1 590	834	
9	20	11	—	0.5	—	—	2.5	0.3	8.3	0.78	1 650	1 270	834	
10	23	13	—	0.5	—	—	3	0.3	9.3	1.6	2 520	2 140	1 260	
10	23	13	—	0.5	—	—	3	0.3	9.3	1.6	1 930	1 730	1 260	
12.2max	28.2max	16	—	0.6	—	—	3	0.3	11	2.7	3 660	3 650	1 950	
12.2max	28.2max	16	—	0.6	—	—	3	—	11	2.7	2 930	2 920	1 950	
12.2max	32.2max	20	—	0.6	—	—	4	0.3	13	6.5	4 250	4 740	4 620	
12.2max	32.2max	20	—	0.6	—	—	4	—	13	6.5	3 400	3 790	3 790	
13.2max	36.2max	23	—	0.6	—	—	4	0.3	16	13.8	5 430	6 890	6 890	
13.2max	36.2max	23	—	0.6	—	—	5	—	16	13.8	4 340	5 510	5 510	
13.2max	36.2max	23	—	0.6	—	—	4	0.3	16	13.8	5 430	6 890	6 890	
15.2max	40.2max	25	6	0.6	4	3	6	0.6	21	21.9	7 910	9 790	9 790	
15.2max	40.2max	25	6	0.6	4	3	6	—	21	21.9	6 330	7 830	7 830	
15.2max	40.2max	25	6	0.6	4	3	6	0.6	21	21.9	7 910	9 790	9 790	
19.6max	52.1max	32.5	8	0.8	4	3	6	0.6	26	58.5	12 000	18 300	18 300	
19.6max	52.1max	32.5	8	0.8	4	3	6	—	26	58.5	9 620	14 700	14 700	
21.6max	58.1max	36.5	8	0.8	6	3	8	1	29	86.2	14 800	25 200	25 200	
21.6max	58.1max	36.5	8	0.8	6	3	8	—	29	86.2	11 800	20 200	20 200	
25.6max	66.1max	40.5	9	0.8	6	4	8	1	34	119	20 700	34 600	34 600	
25.6max	66.1max	40.5	9	0.8	6	4	8	—	34	119	16 500	27 700	27 700	
25.6max	66.1max	40.5	9	0.8	6	4	8	1	34	119	20 700	34 600	34 600	
30.6max	80.1max	49.5	11	0.8	6	4	12	1	40	215	30 500	52 600	52 000	
30.6max	80.1max	49.5	11	0.8	6	4	12	1	40	215	30 500	52 600	52 000	
37 max	100 max	63	15	1	6	4	17	1	49	438	45 400	85 100	85 100	
37 max	100 max	63	15	1	6	4	17	1	49	438	45 400	85 100	85 100	
37 max	100 max	63	15	1	6	4	17	1	49	438	45 400	85 100	85 100	

Note(1) The Cam Followers having a stud of 4mm or less in diameter (= d<sub>1</sub>) do not have an oil hole. The Cam Followers having a stud of between 5mm and 10mm in diameter (= d<sub>1</sub>) have an oil hole (lubrication plug) in the head.  
 (2) An oil hole (grease nipple) is prepared in the stud head and oil holes are also prepared at stud-end and outer surface of stud.  
 (3) Minimum allowable value of chamfer "r".  
 Remark For the shield type Cam Followers having a stud of 10mm or less in diameter (= d<sub>1</sub>) and the sealed types, grease is pre-packed. For other types, grease is not pre-packed, therefore, lubricate them as required.



IKO Standard type Cam Followers

Full Complement with Hex Head



CF...VBR CF...VB CF...VBUUR CF...VBUU

Stud dia. 6 to 10mm<sup>(1)</sup>

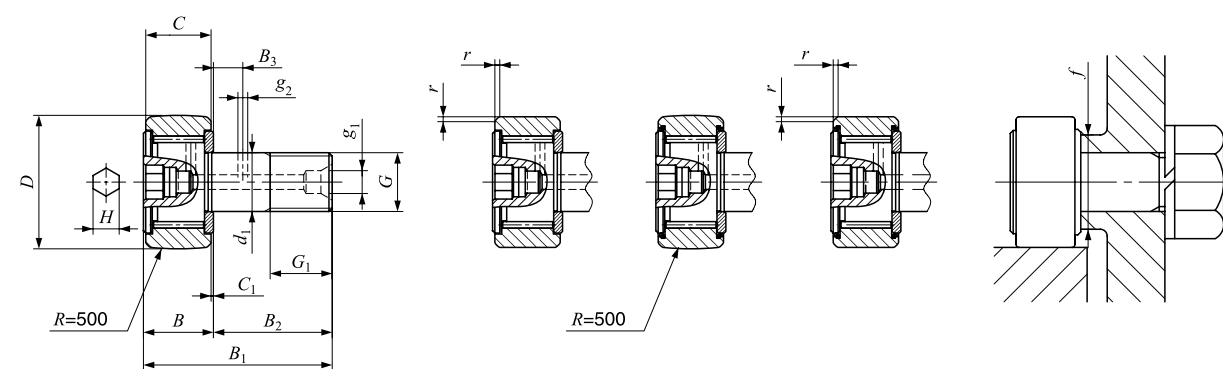
Stud dia. mm	Identification number				Mass (Ref.) g	D	C	d <sub>1</sub>
	Shield type		Sealed type					
	Crowned outer ring	Cylindrical outer ring	Crowned outer ring	Cylindrical outer ring				
6	CF 6 VBR	CF 6 VB	CF 6 VBUUR	CF 6 VBUU	19	16	11	6
	CF 6-1 VBR	CF 6-1 VB	CF 6-1 VBUUR	CF 6-1 VBUU				
8	CF 8 VBR	CF 8 VB	CF 8 VBUUR	CF 8 VBUU	29	19	11	8
	CF 8-1 VBR	CF 8-1 VB	CF 8-1 VBUUR	CF 8-1 VBUU				
10	CF 10 VBR	CF 10 VB	CF 10 VBUUR	CF 10 VBUU	46	22	12	10
	CF 10-1 VBR	CF 10-1 VB	CF 10-1 VBUUR	CF 10-1 VBUU				
12	CF 12 VBR	CF 12 VB	CF 12 VBUUR	CF 12 VBUU	97	30	14	12
	CF 12-1 VBR	CF 12-1 VB	CF 12-1 VBUUR	CF 12-1 VBUU				
16	CF 16 VBR	CF 16 VB	CF 16 VBUUR	CF 16 VBUU	173	35	18	16
18	CF 18 VBR	CF 18 VB	CF 18 VBUUR	CF 18 VBUU	255	40	20	18
	CF 18-1 VBR	CF 18-1 VB	CF 18-1 VBUUR	CF 18-1 VBUU				
20	CF 20 VBR	CF 20 VB	CF 20 VBUUR	CF 20 VBUU	465	52	24	20
	CF 20-1 VBR	CF 20-1 VB	CF 20-1 VBUUR	CF 20-1 VBUU				
24	CF 24 VBR	CF 24 VB	CF 24 VBUUR	CF 24 VBUU	820	62	29	24
	CF 24-1 VBR	CF 24-1 VB	CF 24-1 VBUUR	CF 24-1 VBUU				
30	CF 30 VBR	CF 30 VB	CF 30 VBUUR	CF 30 VBUU	1 870	80	35	30
	CF 30-1 VBR	CF 30-1 VB	CF 30-1 VBUUR	CF 30-1 VBUU	2 030	85	35	30
	CF 30-2 VBR	CF 30-2 VB	CF 30-2 VBUUR	CF 30-2 VBUU	2 220	90	35	30

Note<sup>(1)</sup> The stud-head has an oil hole (Re-greasing fitting).

<sup>(2)</sup> An oil hole(grease nipple) is prepared in the stud head and oil holes are also prepared at stud-end and outer surface of stud.

<sup>(3)</sup> Minimum allowable value of chamfer "r".

Remark Grease is pre-packed.



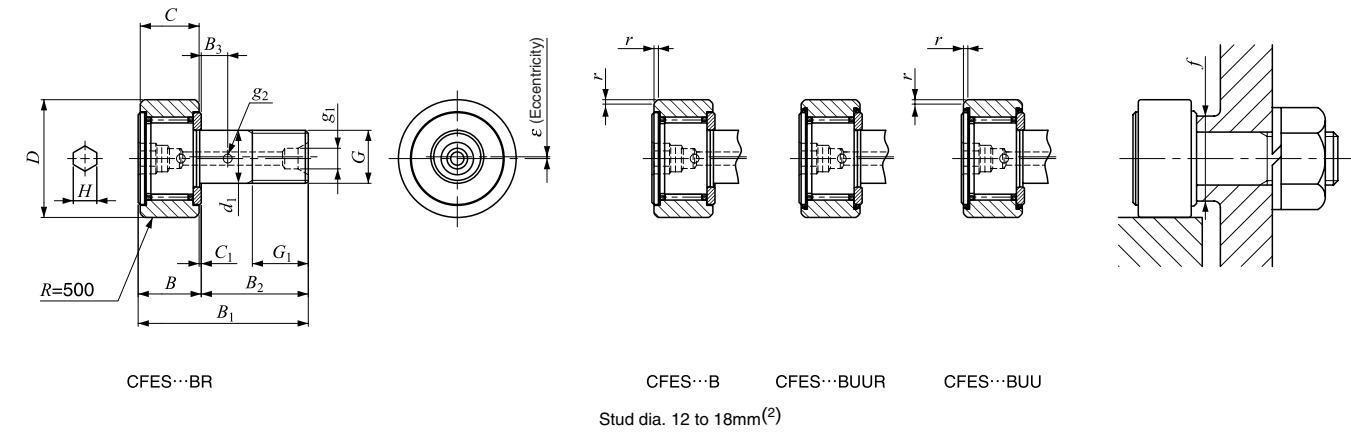
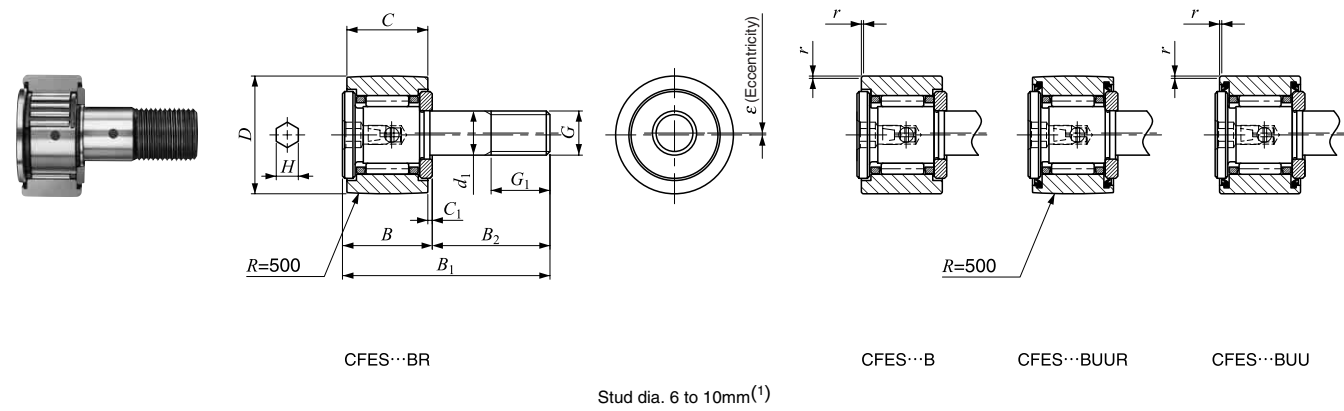
CF...VBR CF...VB CF...VBUUR CF...VBUU

Stud dia. 12 to 30mm<sup>(2)</sup>

Boundary dimensions mm											Mounting dimension f Min. mm	Maximum tightening torque N · m	Basic dynamic load rating C N	Basic static load rating C <sub>0</sub> N	Maximum allowable load N
G	G <sub>1</sub>	B max	B <sub>1</sub> max	B <sub>2</sub>	B <sub>3</sub>	C <sub>1</sub>	g <sub>1</sub>	g <sub>2</sub>	H	r <sub>smin</sub> <sup>(3)</sup>					
M 6 × 1	8	12.2	28.2	16	—	0.6	—	—	3	0.3	11	2.7	6 980	8 500	1 950
M 8 × 1.25	10	12.2	32.2	20	—	0.6	—	—	4	0.3	13	6.5	8 170	11 200	4 620
M10 × 1.25	12	13.2	36.2	23	—	0.6	—	—	4	0.3	16	13.8	9 570	14 500	8 650
M10 × 1.25	12	13.2	36.2	23	—	0.6	—	—	4	0.3	16	13.8	9 570	14 500	8 650
M12 × 1.5	13	15.2	40.2	25	6	0.6	4	3	6	0.6	21	21.9	13 500	19 700	13 200
M12 × 1.5	13	15.2	40.2	25	6	0.6	4	3	6	0.6	21	21.9	13 500	19 700	13 200
M16 × 1.5	17	19.6	52.1	32.5	8	0.8	4	3	6	0.6	26	58.5	20 700	37 600	23 200
M18 × 1.5	19	21.6	58.1	36.5	8	0.8	6	3	8	1	29	86.2	25 300	51 300	31 100
M20 × 1.5	21	25.6	66.1	40.5	9	0.8	6	4	8	1	34	119	33 200	64 500	37 500
M20 × 1.5	21	25.6	66.1	40.5	9	0.8	6	4	8	1	34	119	33 200	64 500	37 500
M24 × 1.5	25	30.6	80.1	49.5	11	0.8	6	4	12	1	40	215	46 600	92 000	52 000
M24 × 1.5	25	30.6	80.1	49.5	11	0.8	6	4	12	1	40	215	46 600	92 000	52 000
M30 × 1.5	32	37	100	63	15	1	6	4	17	1	49	438	67 700	144 000	85 900
M30 × 1.5	32	37	100	63	15	1	6	4	17	1	49	438	67 700	144 000	85 900
M30 × 1.5	32	37	100	63	15	1	6	4	17	1	49	438	67 700	144 000	85 900

# IKO Solid Eccentric Stud type Cam Followers

## With Cage / With Hexagon Hole



Stud dia. mm	Identification number				Mass (Ref.) g	D	C	d <sub>1</sub>
	Shield type		Sealed type					
	Crowned outer ring	Cylindrical outer ring	Crowned outer ring	Cylindrical outer ring				
6	CFES 6 BR	CFES 6 B	CFES 6 BUUR	CFES 6 BUU	18.5	16	11	6
8	CFES 8 BR	CFES 8 B	CFES 8 BUUR	CFES 8 BUU	28.5	19	11	8
10	CFES 10 BR	CFES 10 B	CFES 10 BUUR	CFES 10 BUU	45	22	12	10
	CFES 10-1 BR	CFES 10-1 B	CFES 10-1 BUUR	CFES 10-1 BUU	60	26	12	10
12	CFES 12 BR	CFES 12 B	CFES 12 BUUR	CFES 12 BUU	95	30	14	12
	CFES 12-1 BR	CFES 12-1 B	CFES 12-1 BUUR	CFES 12-1 BUU	105	32	14	12
16	CFES 16 BR	CFES 16 B	CFES 16 BUUR	CFES 16 BUU	170	35	18	16
18	CFES 18 BR	CFES 18 B	CFES 18 BUUR	CFES 18 BUU	250	40	20	18

Note<sup>(1)</sup> The stud-head has an oil hole (Re-greasing fitting).

<sup>(2)</sup> An oil hole(grease nipple) is prepared in the stud head and oil holes are also prepared at stud-end and outer surface of stud.

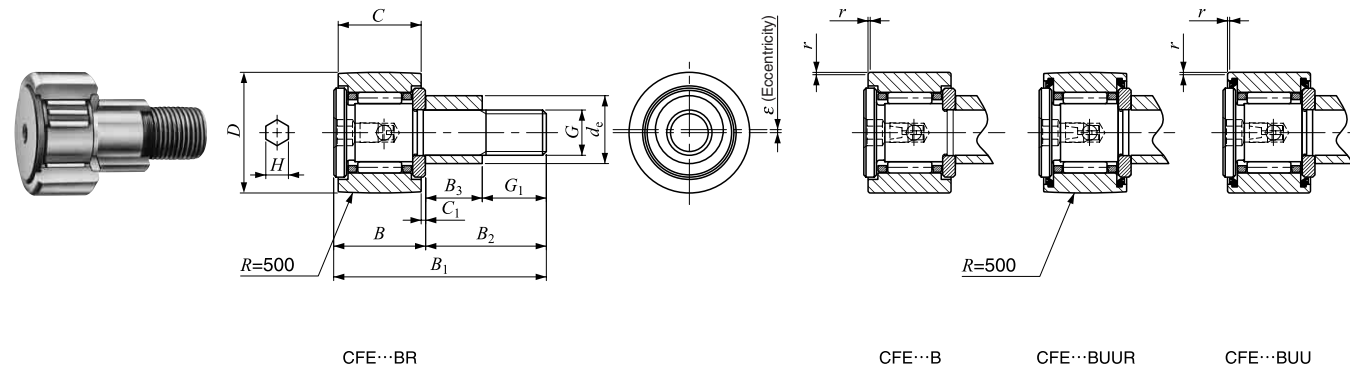
<sup>(3)</sup> Minimum allowable value of chamfer "r".

Remark For the shield type Cam Followers having a stud of 10mm or less in diameter (= d<sub>1</sub>) and the sealed types, grease is pre-packed. For other types, grease is not pre-packed, therefore, lubricate them as required.

Boundary dimensions mm												Eccentricity ε	Mounting dimension f Min. mm	Maximum tightening torque N·m	Basic dynamic load rating C N	Basic static load rating C <sub>0</sub> N	Maximum allowable load N
G	G <sub>1</sub>	B max	B <sub>1</sub> max	B <sub>2</sub>	B <sub>3</sub>	C <sub>1</sub>	g <sub>1</sub>	g <sub>2</sub>	H	r <sup>(3)</sup> r <sub>smin</sub>							
M 6 × 1	8	12.2	28.2	16	—	0.6	—	—	3	0.3	0.25	11	2.7	3 660	3 650	1 980	
M 8 × 1.25	10	12.2	32.2	20	—	0.6	—	—	4	0.3	0.25	13	6.5	4 250	4 740	4 670	
M10 × 1.25	12	13.2	36.2	23	—	0.6	—	—	4	0.3	0.3	16	13.8	5 430	6 890	6 890	
M10 × 1.25	12	13.2	36.2	23	—	0.6	—	—	4	0.3	0.3	16	13.8	5 430	6 890	6 890	
M12 × 1.5	13	15.2	40.2	25	6	0.6	4	3	6	0.6	0.4	21	21.9	7 910	9 790	9 790	
M12 × 1.5	13	15.2	40.2	25	6	0.6	4	3	6	0.6	0.4	21	21.9	7 910	9 790	9 790	
M16 × 1.5	17	19.6	52.1	32.5	8	0.8	4	3	6	0.6	0.5	26	58.5	12 000	18 300	18 300	
M18 × 1.5	19	21.6	58.1	36.5	8	0.8	6	3	8	1	0.6	29	86.2	14 800	25 200	25 200	

# IKO Eccentric type Cam Follower

## With Cage / With Hexagon Hole



Outside diameter of eccentric collar 9 to 13mm<sup>(1)</sup>

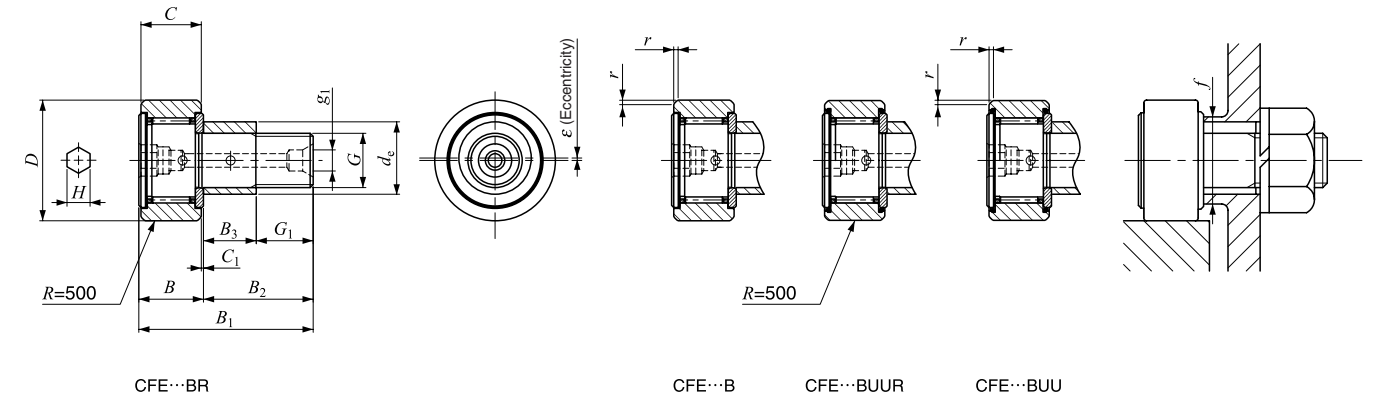
Outside diameter of eccentric collar mm	Identification number				Mass (Ref.) g	D	C	d <sub>e</sub>				
	Shield type		Sealed type									
	Crowned outer ring	Cylindrical outer ring	Crowned outer ring	Cylindrical outer ring								
9	CFE 6 BR	CFE 6 B	CFE 6 BUUR	CFE 6 BUU	20.5	16	11	9				
11	CFE 8 BR	CFE 8 B	CFE 8 BUUR	CFE 8 BUU	32	19	11	11				
13	CFE 10 BR	CFE 10 B	CFE 10 BUUR	CFE 10 BUU	49.5	22	12	13				
	CFE 10-1 BR	CFE 10-1 B	CFE 10-1 BUUR	CFE 10-1 BUU					65	26	12	13
16	CFE 12 BR	CFE 12 B	CFE 12 BUUR	CFE 12 BUU	105	30	14	16				
	CFE 12-1 BR	CFE 12-1 B	CFE 12-1 BUUR	CFE 12-1 BUU					115	32	14	16
22	CFE 16 BR	CFE 16 B	CFE 16 BUUR	CFE 16 BUU	190	35	18	22				
24	CFE 18 BR	CFE 18 B	CFE 18 BUUR	CFE 18 BUU	280	40	20	24				
27	CFE 20 BR	CFE 20 B	CFE 20 BUUR	CFE 20 BUU	500	52	24	27				
	CFE 20-1 BR	CFE 20-1 B	CFE 20-1 BUUR	CFE 20-1 BUU					425	47	24	27
33	CFE 24 BR	CFE 24 B	CFE 24 BUUR	CFE 24 BUU	895	62	29	33				
	CFE 24-1 BR	CFE 24-1 B	CFE 24-1 BUUR	CFE 24-1 BUU					1 220	72	29	33
41	CFE 30 BR	CFE 30 B	CFE 30 BUUR	CFE 30 BUU	2 030	80	35	41				
	CFE 30-1 BR	CFE 30-1 B	CFE 30-1 BUUR	CFE 30-1 BUU					2 190	85	35	41
	CFE 30-2 BR	CFE 30-2 B	CFE 30-2 BUUR	CFE 30-2 BUU					2 380	90	35	41

Note<sup>(1)</sup> The stud-head has an oil hole (Re-greasing fitting).

<sup>(2)</sup> An oil hole(grease nipple) is prepared in the stud head and oil holes are also prepared at stud-end and outer surface of stud.

<sup>(3)</sup> Minimum allowable value of chamfer "r".

Remark For the shield type Cam Followers having a stud of 10mm or less in diameter (= d<sub>1</sub>) and the sealed types, grease is pre-packed. For other types, grease is not pre-packed, therefore, lubricate them as required.

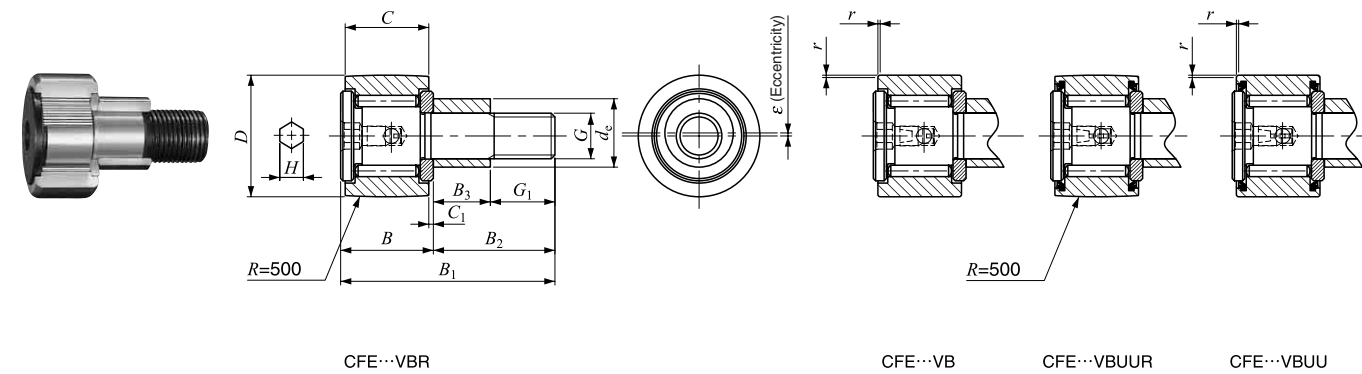


Outside diameter of eccentric collar 16 to 41mm<sup>(2)</sup>

Boundary dimensions mm											Eccentricity ε	Mounting dimension f Min. mm	Maximum tightening torque N·m	Basic dynamic load rating C N	Basic static load rating C <sub>0</sub> N	Maximum allowable load N
G	B <sub>3</sub>	B max	B <sub>1</sub> max	B <sub>2</sub>	C <sub>1</sub>	g <sub>1</sub>	G <sub>1</sub>	H	r <sub>smin</sub> <sup>(3)</sup>							
M 6 × 1	7.5	12.2	28.2	16	0.6	—	8.5	3	0.3	0.4	11	2.7	3 660	3 650	1 950	
M 8 × 1.25	9.5	12.2	32.2	20	0.6	—	10.5	4	0.3	0.4	13	6.5	4 250	4 740	4 620	
M10 × 1.25	10.5	13.2	36.2	23	0.6	—	12.5	4	0.3	0.4	16	13.8	5 430	6 890	6 890	
M10 × 1.25	10.5	13.2	36.2	23	0.6	—	12.5	4	0.3	0.4	16	13.8	5 430	6 890	6 890	
M12 × 1.5	11.5	15.2	40.2	25	0.6	4	13.5	6	0.6	0.8	21	21.9	7 910	9 790	9 790	
M12 × 1.5	11.5	15.2	40.2	25	0.6	4	13.5	6	0.6	0.8	21	21.9	7 910	9 790	9 790	
M16 × 1.5	15.5	19.6	52.1	32.5	0.8	4	17	6	0.6	0.8	26	58.5	12 000	18 300	18 300	
M18 × 1.5	17.5	21.6	58.1	36.5	0.8	6	19	8	1	0.8	29	86.2	14 800	25 200	25 200	
M20 × 1.5	19.5	25.6	66.1	40.5	0.8	6	21	8	1	0.8	34	119	20 700	34 600	34 600	
M20 × 1.5	19.5	25.6	66.1	40.5	0.8	6	21	8	1	0.8	34	119	20 700	34 600	34 600	
M24 × 1.5	25.5	30.6	80.1	49.5	0.8	6	24	12	1	0.8	40	215	30 500	52 600	52 000	
M24 × 1.5	25.5	30.6	80.1	49.5	0.8	6	24	12	1	0.8	40	215	30 500	52 600	52 000	
M30 × 1.5	32.5	37	100	63	1	6	30.5	17	1	1.5	49	438	45 400	85 100	85 100	
M30 × 1.5	32.5	37	100	63	1	6	30.5	17	1	1.5	49	438	45 400	85 100	85 100	
M30 × 1.5	32.5	37	100	63	1	6	30.5	17	1	1.5	49	438	45 400	85 100	85 100	

**IKO Eccentric type Cam Follower**

**Full Complement type / With Hexagon Hole**



Outside diameter of eccentric collar 9 to 13mm<sup>(1)</sup>

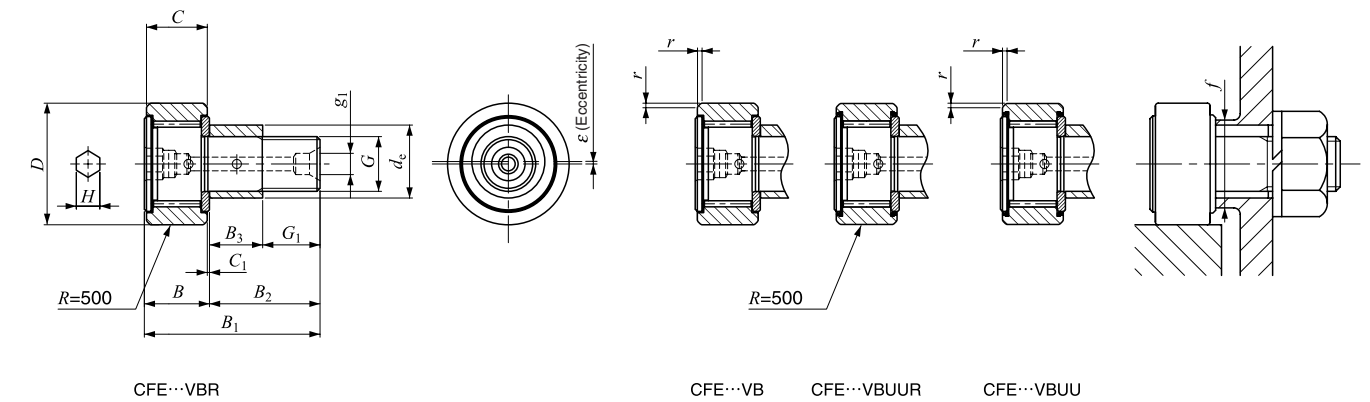
Outside diameter of eccentric collar mm	Identification number				Mass (Ref.) g	D	C	dc
	Shield type		Sealed type					
	Crowned outer ring	Cylindrical outer ring	Crowned outer ring	Cylindrical outer ring				
9	CFE 6 VBR	CFE 6 VB	CFE 6 VBUUR	CFE 6 VBUU	21	16	11	9
	CFE 6 VBR	CFE 6 VB	CFE 6 VBUUR	CFE 6 VBUU				
11	CFE 8 VBR	CFE 8 VB	CFE 8 VBUUR	CFE 8 VBUU	32.5	19	11	11
	CFE 8 VBR	CFE 8 VB	CFE 8 VBUUR	CFE 8 VBUU				
13	CFE 10 VBR	CFE 10 VB	CFE 10 VBUUR	CFE 10 VBUU	50.5	22	12	13
	CFE 10-1 VBR	CFE 10-1 VB	CFE 10-1 VBUUR	CFE 10-1 VBUU				
16	CFE 12 VBR	CFE 12 VB	CFE 12 VBUUR	CFE 12 VBUU	107	30	14	16
	CFE 12-1 VBR	CFE 12-1 VB	CFE 12-1 VBUUR	CFE 12-1 VBUU				
22	CFE 16 VBR	CFE 16 VB	CFE 16 VBUUR	CFE 16 VBUU	193	35	18	22
	CFE 16 VBR	CFE 16 VB	CFE 16 VBUUR	CFE 16 VBUU				
24	CFE 18 VBR	CFE 18 VB	CFE 18 VBUUR	CFE 18 VBUU	285	40	20	24
	CFE 18 VBR	CFE 18 VB	CFE 18 VBUUR	CFE 18 VBUU				
27	CFE 20 VBR	CFE 20 VB	CFE 20 VBUUR	CFE 20 VBUU	505	52	24	27
	CFE 20-1 VBR	CFE 20-1 VB	CFE 20-1 VBUUR	CFE 20-1 VBUU				
33	CFE 24 VBR	CFE 24 VB	CFE 24 VBUUR	CFE 24 VBUU	900	62	29	33
	CFE 24-1 VBR	CFE 24-1 VB	CFE 24-1 VBUUR	CFE 24-1 VBUU				
41	CFE 30 VBR	CFE 30 VB	CFE 30 VBUUR	CFE 30 VBUU	2 030	80	35	41
	CFE 30-1 VBR	CFE 30-1 VB	CFE 30-1 VBUUR	CFE 30-1 VBUU				
	CFE 30-2 VBR	CFE 30-2 VB	CFE 30-2 VBUUR	CFE 30-2 VBUU				

Note<sup>(1)</sup> The stud-head has an oil hole (Re-greasing fitting).

<sup>(2)</sup> An oil hole(grease nipple) is prepared in the stud head and oil holes are also prepared at stud-end and outer surface of stud.

<sup>(3)</sup> Minimum allowable value of chamfer "r".

Remark Grease is pre-packed.



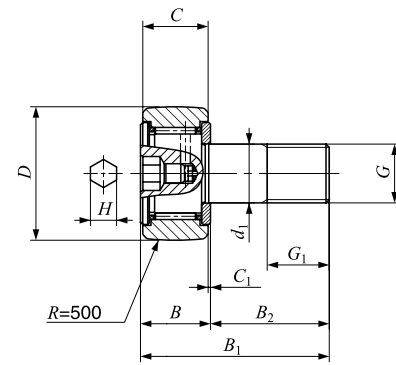
Outside diameter of eccentric collar 16 to 41mm<sup>(2)</sup>

Boundary dimensions mm											Eccentricity ε	Mounting dimension f Min. mm	Maximum tightening torque N·m	Basic dynamic load rating C N	Basic static load rating C <sub>0</sub> N	Maximum allowable load N
G	B <sub>3</sub>	B max	B <sub>1</sub> max	B <sub>2</sub>	C <sub>1</sub>	g <sub>1</sub>	G <sub>1</sub>	H	r <sub>smin</sub> <sup>(3)</sup>	ε						
M 6 × 1	7.5	12.2	28.2	16	0.6	—	8.5	3	0.3	0.4	11	2.7	6 980	8 500	1 950	
M 8 × 1.25	9.5	12.2	32.2	20	0.6	—	10.5	4	0.3	0.4	13	6.5	8 170	11 200	4 620	
M10 × 1.25	10.5	13.2	36.2	23	0.6	—	12.5	4	0.3	0.4	16	13.8	9 570	14 500	8 650	
M10 × 1.25	10.5	13.2	36.2	23	0.6	—	12.5	4	0.3	0.4	16	13.8	9 570	14 500	8 650	
M12 × 1.5	11.5	15.2	40.2	25	0.6	4	13.5	6	0.6	0.8	21	21.9	13 500	19 700	13 200	
M12 × 1.5	11.5	15.2	40.2	25	0.6	4	13.5	6	0.6	0.8	21	21.9	13 500	19 700	13 200	
M16 × 1.5	15.5	19.6	52.1	32.5	0.8	4	17	6	0.6	0.8	26	58.5	20 700	37 600	23 200	
M18 × 1.5	17.5	21.6	58.1	36.5	0.8	6	19	8	1	0.8	29	86.2	25 300	51 300	31 100	
M20 × 1.5	19.5	25.6	66.1	40.5	0.8	6	21	8	1	0.8	34	119	33 200	64 500	37 500	
M20 × 1.5	19.5	25.6	66.1	40.5	0.8	6	21	8	1	0.8	34	119	33 200	64 500	37 500	
M24 × 1.5	25.5	30.6	80.1	49.5	0.8	6	24	12	1	0.8	40	215	46 600	92 000	52 000	
M24 × 1.5	25.5	30.6	80.1	49.5	0.8	6	24	12	1	0.8	40	215	46 600	92 000	52 000	
M30 × 1.5	32.5	37	100	63	1	6	30.5	17	1	1.5	49	438	67 700	144 000	85 900	
M30 × 1.5	32.5	37	100	63	1	6	30.5	17	1	1.5	49	438	67 700	144 000	85 900	
M30 × 1.5	32.5	37	100	63	1	6	30.5	17	1	1.5	49	438	67 700	144 000	85 900	

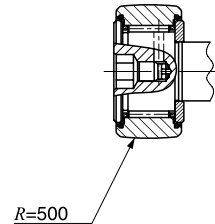
IKO Cam Followers with Thrust Washer CF...WB

IKO Stainless Cam Followers with Thrust Washer CF...FWB

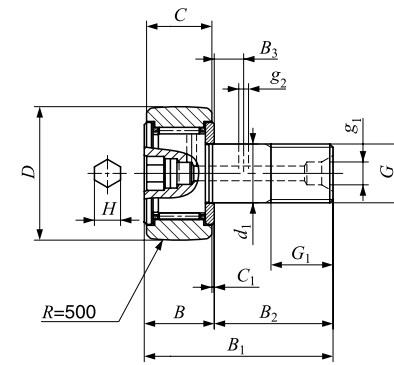
Caged with Hex Head



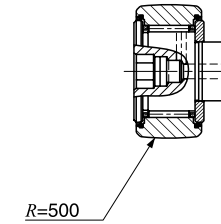
CF...WBR  
Stud dia. 3 to 10mm<sup>(1)</sup>



CF...WBUUR



CF...WBR



CF...WBUUR

Stud dia. 12 to 20mm<sup>(2)</sup>

Stud dia. mm	Identification number		Mass (Ref.) g	Boundary dimensions mm				
	Shield type	Sealed type		D	C	d <sub>1</sub>	G	G <sub>1</sub>
3	CF 3 WBR	CF 3 WBUUR	4.3	10	7	3	M 3×0.5	5
	CF 3 FWBR	CF 3 FWBUUR	4.3	10	7	3	M 3×0.5	5
4	CF 4 WBR	CF 4 WBUUR	7.4	12	8	4	M 4×0.7	6
	CF 4 FWBR	CF 4 FWBUUR	7.4	12	8	4	M 4×0.7	6
5	CF 5 WBR	CF 5 WBUUR	10.3	13	9	5	M 5×0.8	7.5
	CF 5 FWBR	CF 5 FWBUUR	10.3	13	9	5	M 5×0.8	7.5
6	CF 6 WBR	CF 6 WBUUR	18.5	16	11	6	M 6×1	8
8	CF 8 WBR	CF 8 WBUUR	28.5	19	11	8	M 8×1.25	10
10	CF 10 WBR	CF 10 WBUUR	45	22	12	10	M10×1.25	12
	CF 10-1 WBR	CF 10-1 WBUUR	60	26	12	10	M10×1.25	12
12	CF 12 WBR	CF 12 WBUUR	95	30	14	12	M12×1.5	13
	CF 12-1 WBR	CF 12-1 WBUUR	105	32	14	12	M12×1.5	13
16	CF 16 WBR	CF 16 WBUUR	170	35	18	16	M16×1.5	17
18	CF 18 WBR	CF 18 WBUUR	250	40	20	18	M18×1.5	19
20	CF 20 WBR	CF 20 WBUUR	460	52	24	20	M20×1.5	21
	CF 20-1 WBR	CF 20-1 WBUUR	385	47	24	20	M20×1.5	21

Note<sup>(1)</sup> The Cam Followers having a stud of 4mm or less in diameter (= d<sub>1</sub>) do not have an oil hole. The Cam Followers having a stud of between 5mm and 10mm in diameter (= d<sub>1</sub>) have an oil hole (Re-greasing fitting) in the head.

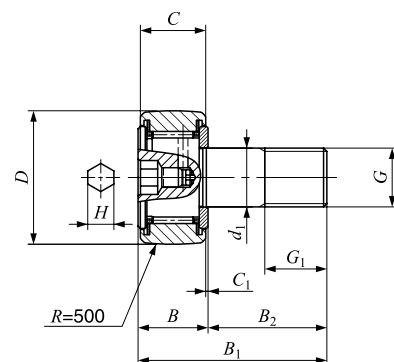
<sup>(2)</sup> An oil hole(grease nipple) is prepared in the stud head and oil holes are also prepared at stud-end and outer surface of stud.

Remark For the shield type Cam Followers having a stud of 10mm or less in diameter (= d<sub>1</sub>) and the sealed types, grease is pre-packed. For other types, grease is not pre-packed, therefore, lubricate them as required.

B	B <sub>1</sub>	B <sub>2</sub>	B <sub>3</sub>	C <sub>1</sub>	g <sub>1</sub>	g <sub>2</sub>	H	Mounting dimension f Min. mm	Maximum tightening torque N·m	Basic dynamic load rating	Basic static load rating	Maximum allowable load
										C N	C <sub>0</sub> N	
8	17	9	—	0.5	—	—	2	6.8	0.34	1 500	1 020	384
8	17	9	—	0.5	—	—	2	6.8	0.34	1 200	813	384
9	20	11	—	0.5	—	—	2.5	8.3	0.78	2 070	1 590	834
9	20	11	—	0.5	—	—	2.5	8.3	0.78	1 650	1 270	834
10	23	13	—	0.5	—	—	3	9.3	1.6	2 520	2 140	1 260
10	23	13	—	0.5	—	—	3	9.3	1.6	1 930	1 730	1 260
12.2max	28.2max	16	—	0.6	—	—	3	11	2.7	3 660	3 650	1 950
12.2max	32.2max	20	—	0.6	—	—	4	13	6.5	4 250	4 740	4 620
13.2max	36.2max	23	—	0.6	—	—	4	16	13.8	5 430	6 890	6 890
13.2max	36.2max	23	—	0.6	—	—	4	16	13.8	5 430	6 890	6 890
15.2max	40.2max	25	6	0.6	4	3	6	21	21.9	7 910	9 790	9 790
15.2max	40.2max	25	6	0.6	4	3	6	21	21.9	7 910	9 790	9 790
19.6max	52.1max	32.5	8	0.8	4	3	6	26	58.5	12 000	18 300	18 300
21.6max	58.1max	36.5	8	0.8	6	3	8	29	86.2	14 800	25 200	25 200
25.6max	66.1max	40.5	9	0.8	6	4	8	34	119	20 700	34 600	34 600
25.6max	66.1max	40.5	9	0.8	6	4	8	34	119	20 700	34 600	34 600

**IKO C-Lube Cam Follower**

**With Cage / With Hexagon Hole**



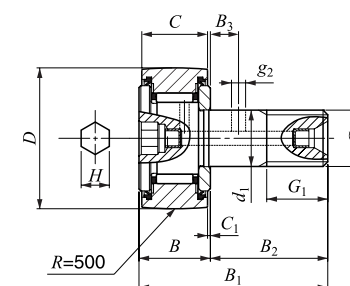
Stud dia. 6 to 10mm<sup>(1)</sup>

Stud dia. mm	Identification number	Mass (Ref.) g	Boundary dimensions mm						
			D	C	d <sub>1</sub>	G	G <sub>1</sub>	B max	B <sub>1</sub> max
6	CF 6 WBUUR/SG	18.5	16	11	6	M 6 × 1	8	12.2	28.2
8	CF 8 WBUUR/SG	28.5	19	11	8	M 8 × 1.25	10	12.2	32.2
10	CF 10 WBUUR/SG	45	22	12	10	M10 × 1.25	12	13.2	36.2
	CF 10-1 WBUUR/SG	60	26	12	10	M10 × 1.25	12	13.2	36.2
12	CF 12 WBUUR/SG	95	30	14	12	M12 × 1.5	13	15.2	40.2
	CF 12-1 WBUUR/SG	105	32	14	12	M12 × 1.5	13	15.2	40.2
16	CF 16 WBUUR/SG	170	35	18	16	M16 × 1.5	17	19.6	52.1
18	CF 18 WBUUR/SG	250	40	20	18	M18 × 1.5	19	21.6	58.1
20	CF 20 WBUUR/SG	460	52	24	20	M20 × 1.5	21	25.6	66.1
	CF 20-1 WBUUR/SG	385	47	24	20	M20 × 1.5	21	25.6	66.1

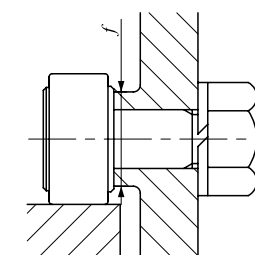
Note<sup>(1)</sup> Oil hole is not prepared.

<sup>(2)</sup> Oil hole is prepared at outer surface of stud.

Remark Grease cannot be supplied to the bearing space since the space is filled with a solid thermosetting resin lubricant C-Lube.



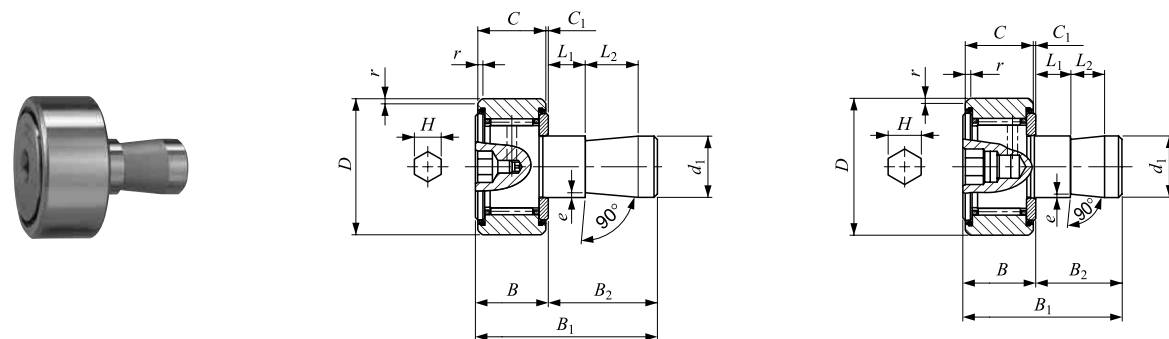
Stud dia. 12 to 20mm<sup>(2)</sup>



B <sub>2</sub>	B <sub>3</sub>	C <sub>1</sub>	g <sub>2</sub>	H	Mounting dimension f Min. mm	Maximum tightening torque N · m	Basic dynamic load rating C N	Basic static load rating C <sub>0</sub> N	Maximum allowable load N
20	—	0.6	—	4	13	6.5	4 250	4 740	4 620
23	—	0.6	—	4	16	13.8	5 430	6 890	6 890
23	—	0.6	—	4	16	13.8	5 430	6 890	6 890
25	6	0.6	3	6	21	21.9	7 910	9 790	9 790
25	6	0.6	3	6	21	21.9	7 910	9 790	9 790
32.5	8	0.8	3	6	26	58.5	12 000	18 300	18 300
36.5	8	0.8	3	8	29	86.2	14 800	25 200	25 200
40.5	9	0.8	4	8	34	119	20 700	34 600	34 600
40.5	9	0.8	4	8	34	119	20 700	34 600	34 600

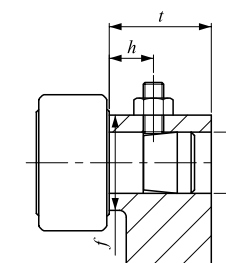
# IKO Easy Mounting type Follower

With Cage / With Hexagon Hole



Stud dia. 6 to 10mm<sup>(1)</sup>

Stud dia. 12 to 20mm<sup>(2)</sup>



Stud dia. mm	Identification number	Mass (Ref.) g	Boundary dimensions mm							
			D	C	d <sub>1</sub>	B max	B <sub>1</sub> max	B <sub>2</sub>	C <sub>1</sub>	L <sub>1</sub>
6	<b>CF-SFU- 6 B</b>	19.5	16	11	6	12.2	32	19.8	0.6	5
8	<b>CF-SFU- 8 B</b>	29	19	11	8	12.2	32	19.8	0.6	5
10	<b>CF-SFU- 10 B</b>	44	22	12	10	13.2	33	19.8	0.6	5
	<b>CF-SFU- 10-1 B</b>	59	26	12	10	13.2	33	19.8	0.6	5
12	<b>CF-SFU- 12 B</b>	94	30	14	12	15.2	35	19.8	0.6	5
	<b>CF-SFU- 12-1 B</b>	104	32	14	12	15.2	35	19.8	0.6	5
16	<b>CF-SFU- 16 B</b>	164	35	18	16	19.6	44.5	24.9	0.8	10
18	<b>CF-SFU- 18 B</b>	235	40	20	18	21.6	46.5	24.9	0.8	10
20	<b>CF-SFU- 20 B</b>	435	52	24	20	25.6	50.5	24.9	0.8	10
	<b>CF-SFU- 20-1 B</b>	360	47	24	20	25.6	50.5	24.9	0.8	10

Note<sup>(1)</sup> The stud-head has an oil hole (Re-greasing fitting).

<sup>(2)</sup> An oil hole(grease nipple) is prepared in the stud head

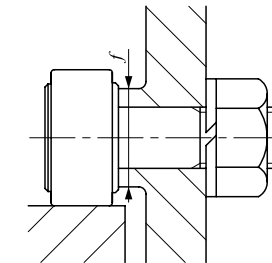
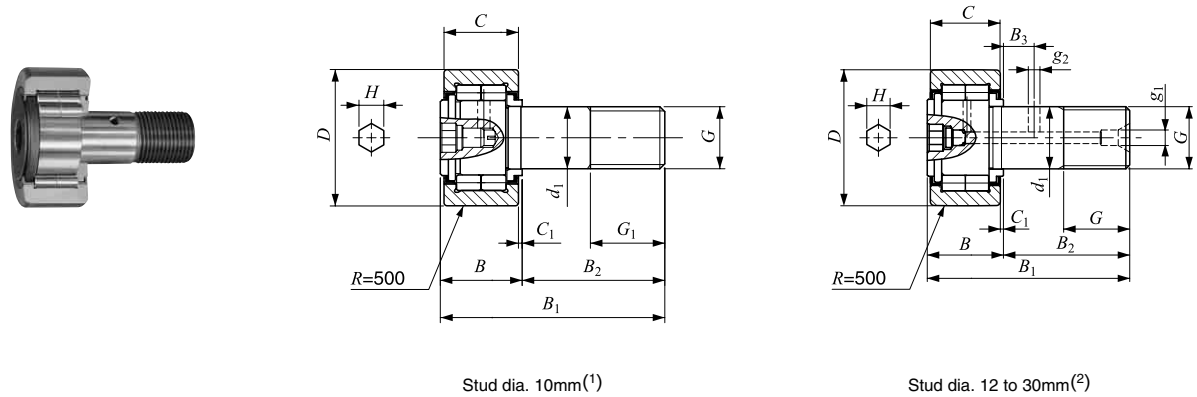
<sup>(3)</sup> Minimum allowable value of chamfer "r".

Remark Grease is pre-packed.

L <sub>2</sub>	H	e	r <sub>smin</sub> <sup>(3)</sup>	Mounting dimension mm					Basic dynamic load rating C N	Basic static load rating C <sub>0</sub> N	Maximum allowable load N
				D <sub>1</sub>	Tolerance	t Min.	f Min.	h (Ref.)			
10	3	0.3	0.3	6	+0.012 0	20	11	10	3 660	3 650	1 950
10	4	0.5	0.3	8	+0.015 0	20	13	10	4 250	4 740	4 620
10	4	0.5	0.3	10		20	16	10	5 430	6 890	6 890
10	4	0.5	0.3	10	+0.018 0	20	16	10	5 430	6 890	6 890
10	6	1	0.6	12		20	21	10	7 910	9 790	9 790
10	6	1	0.6	12	+0.018 0	20	21	10	7 910	9 790	9 790
10	6	1	0.6	16		25	26	15	12 000	18 300	18 300
10	6	1	0.6	16	+0.018 0	25	26	15	12 000	18 300	18 300
10	8	1	1	18		25	29	15	14 800	25 200	25 200
10	8	1	1	20	+0.021 0	25	34	15	20 700	34 600	34 600
10	8	1	1	20		25	34	15	20 700	34 600	34 600

**IKO Heavy Duty type Cam Follower**

**Full Complement type / With Hexagon Hole**



Stud dia. mm	Identification number	Mass (Ref.) g	Boundary dimensions mm							
			D	C	d <sub>1</sub>	G	G <sub>1</sub>	B max	B <sub>1</sub> max	B <sub>2</sub>
10	NUCF 10 BR	44	22	12	10	M10 × 1.25	12	13.2	36.2	23
	NUCF 10-1 BR	58	26	12	10	M10 × 1.25	12	13.2	36.2	23
12	NUCF 12 BR	86	30	14	12	M12 × 1.5	13	15.2	40.2	25
	NUCF 12-1 BR	97	32	14	12	M12 × 1.5	13	15.2	40.2	25
16	NUCF 16 BR	167	35	18	16	M16 × 1.5	17	19.6	52.1	32.5
18	NUCF 18 BR	244	40	20	18	M18 × 1.5	19	21.6	58.1	36.5
20	NUCF 20 BR	457	52	24	20	M20 × 1.5	21	25.6	66.1	40.5
	NUCF 20-1 BR	384	47	24	20	M20 × 1.5	21	25.6	66.1	40.5
24	NUCF 24 BR	789	62	29	24	M24 × 1.5	25	30.6	80.1	49.5
	NUCF 24-1 BR	1 020	72	29	24	M24 × 1.5	25	30.6	80.1	49.5
30	NUCF 30 BR	1 600	80	35	30	M30 × 1.5	32	37	100	63
	NUCF 30-2 BR	1 970	90	35	30	M30 × 1.5	32	37	100	63

Note(1) The stud-head has an oil hole (Re-greasing fitting).

(2) An oil hole(grease nipple) is prepared in the stud head and oil holes are also prepared at stud-end and outer surface of stud.

Remark Grease is pre-packed.

B <sub>3</sub>	C <sub>1</sub>	g <sub>1</sub>	g <sub>2</sub>	H	Mounting dimension f Min. mm	Maximum tightening torque N · m	Basic dynamic	Basic static	Maximum allowable load N
							load rating C N	load rating C <sub>0</sub> N	
—	0.6	—	—	4	12	13.8	10 400	11 500	5 300
—	0.6	—	—	4	12	13.8	10 400	11 500	9 210
6	0.6	4	3	6	17	21.9	14 000	13 400	5 650
6	0.6	4	3	6	17	21.9	14 000	13 400	9 040
8	0.8	4	3	6	20	58.5	23 400	27 300	11 800
8	0.8	6	3	8	22	86.2	25 200	30 900	20 300
9	0.8	6	4	8	31	119	43 100	58 100	30 000
9	0.8	6	4	8	27	119	38 900	49 000	27 200
11	0.8	6	4	12	38	215	58 200	75 300	35 200
11	0.8	6	4	12	44	215	63 900	88 800	57 000
15	1	6	4	17	45	438	90 300	121 000	98 300
15	1	6	4	17	45	438	90 300	121 000	98 300



# Environment-friendly **IKO** C-Lube Bearings Minimizing Lubricant Requirement



## What is your trouble?

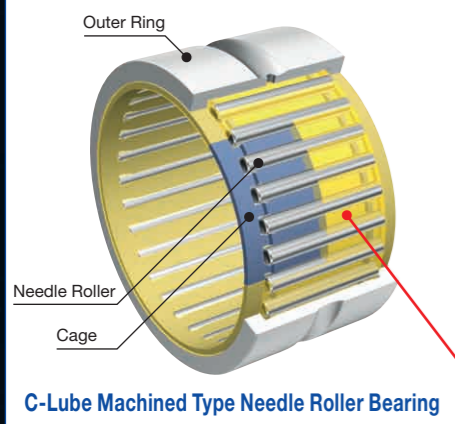
- 1 *Hard access to lubricating?*
- 2 *Machines and work places are dirty with lubricant?*
- 3 *Lubricating tools and instruments occupy the working places?*
- 4 *Having problems keeping up with lubrication maintenance schedule?*

## Find solutions with **IKO**

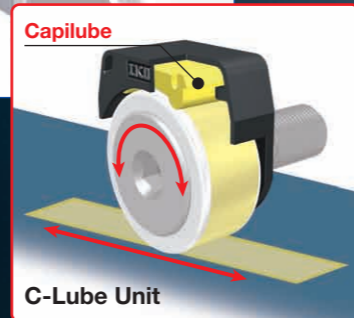
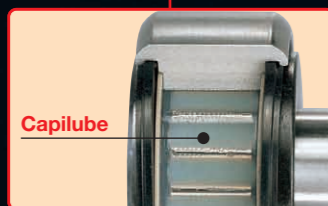
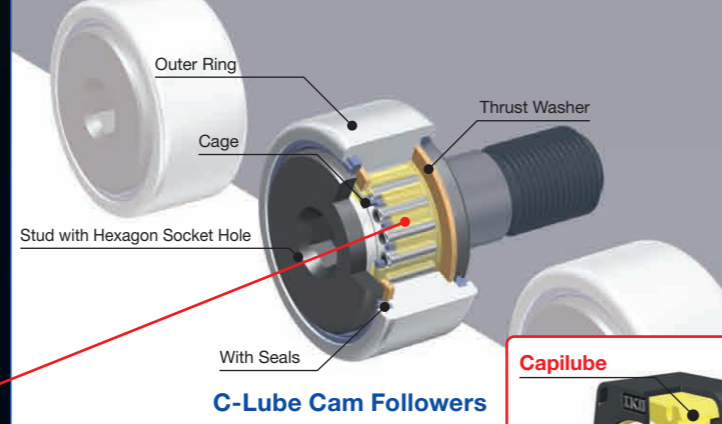
"C-Lube bearings" are **IKO's** unique maintenance free bearing products with thermosetting solid lubricant (Capilube) pre-packed in the bearing space. As the bearing rotates, the lubricating oil oozes out onto needle rollers and raceways in proper quantity keeping the lubrication performance for a long period of time.



### For shaft support



### For cam mechanisms and follower bearings



## **IKO** Maintenance Free C-Lube Bearing CAT-57165

**Maintenance work can be reduced greatly**

*Requires no periodical lubrication and increases the productivity.*

**Minimizes the amount of lubricant and contributes to the earth environment**

*Contributes to the earth environment and reduces the running cost.*

**Suppresses machine designing and device costs**

*Working spaces can be utilized.*

## **NIPPON THOMPSON CO., LTD.**

Head office : 19-19 Takanawa 2-chome Minato-ku  
Tokyo 108-8586, Japan  
Phone : +81 (0)3-3448-5850  
Fax : +81 (0)3-3447-7637  
E-mail : ntt@ikonet.co.jp  
URL : <http://www.ikont.co.jp/eg/>  
Plant : Gifu, Kamakura

## **NIPPON THOMPSON CO., LTD.**

### **ASEAN REPRESENTATIVE OFFICE**

Level 8, #1 Silom Road, Silom  
Bangrak, Bangkok  
Thailand 10500  
Phone: +66 (0)-2-231-8278  
Fax: +66 (0)-2-231-8121  
E-mail: ntar@ikonet.co.jp

## **IKO-THOMPSON (SHANGHAI) LTD.**

Unit G, 23<sup>rd</sup> Floor, Zhao Feng World Trade Building  
No.369, Jiang Su Road  
Changning District, Shanghai 200050  
People's Republic of China  
Phone: +86 (0)21-5237-9100  
Fax: +86 (0)21-5237-9095  
E-mail: ntc@ikonet.co.jp

## **IKO INTERNATIONAL, INC.**

<http://www.ikont.com/>

### **East coast**

91 Walsh Drive  
Parsippany, NJ 07054  
U.S.A.  
Phone: +1 973-402-0254  
Toll Free: 1-800-922-0337  
Fax: +1 973-402-0441  
E-mail: eco@ikonet.co.jp

### **Midwest**

500 East Thorndale Avenue  
Wood Dale, IL 60191  
U.S.A.  
Phone: +1 630-766-6464  
Toll Free: 1-800-323-6694  
Fax: +1 630-766-6869  
E-mail: mwo@ikonet.co.jp

### **West coast**

20170 South Western Avenue  
Torrance, CA 90501  
U.S.A.  
Phone: +1 310-609-3988  
Toll Free: 1-800-252-3665  
Fax: +1 310-609-3916  
E-mail: wco@ikonet.co.jp

### **Southeast**

2150 Boggs Road, Suite 100  
Duluth, GA 30096  
U.S.A.  
Phone: +1 770-418-1904  
Toll Free: 1-800-874-6445  
Fax: +1 770-418-9403  
E-mail: seo@ikonet.co.jp

### **Southwest**

8105 N. Beltline Road  
Suite 130, Irving, TX 75063  
U.S.A.  
Phone: +1 972-929-1515  
Toll Free: 1-800-295-7886  
Fax: +1 972-915-0060  
E-mail: swo@ikonet.co.jp

## **NIPPON THOMPSON EUROPE B.V.**

<http://www.ikont.eu/>

### **The Netherlands**

Sheffieldstraat 35-39  
3047 AN Rotterdam  
The Netherlands  
Phone: +31 (0)10-4626868  
Fax: +31 (0)10-4626099  
E-mail: nte@ikonet.co.jp

### **Germany**

Mündelheimer Weg 56  
40472 Düsseldorf  
Germany  
Phone: +49 (0)211-414061  
Fax: +49 (0)211-427693  
E-mail: ntd@ikonet.co.jp

Im Gewerbepark D 30  
93059 Regensburg  
Germany  
Phone: +49 (0)941-206070  
Fax: +49 (0)941-2060719  
E-mail: ntdr@iko-nt.de

Gruben Str.95c  
66540 Neunkirchen  
Germany  
Phone: +49 (0)6821-999-860  
Fax: +49 (0)6821-999-8626  
E-mail: ntdn@iko-nt.de

### **UK**

2 Vincent Avenue, Crownhill  
Milton Keynes Bucks MK8 0AB  
United Kingdom  
Phone: +44 (0)1908-566144  
Fax: +44 (0)1908-565458  
E-mail: sales@iko.co.uk

### **Spain**

Autovia Madrid-Barcelona, Km. 43,700  
Polig. Ind. AIDA, A-8, Ofic. 2, 1<sup>a</sup>  
19200-Azuqueca de Henares  
Guadalajara, Spain  
Phone: +34 949-263390  
Fax: +34 949-263113  
E-mail: nts@ikonet.co.jp

### **France**

Roissypole Le Dôme  
2 rue de La Haye  
BP 15950 Tremblay en France  
95733 Roissy C. D. G. Cedex  
France  
Phone: +33 (0)1-48165739  
Fax: +33 (0)1-48165746  
E-mail: ntf@ikonet.co.jp

Recognizing that conservation of the global environment is the top-priority challenge for the world's population, IKO will conduct its activities with consideration of the environment as a corporate social responsibility, reduce its negative impact on the environment, and help foster a rich global environment.

**ISO 9001 & 14001 Quality system  
registration certificate**

