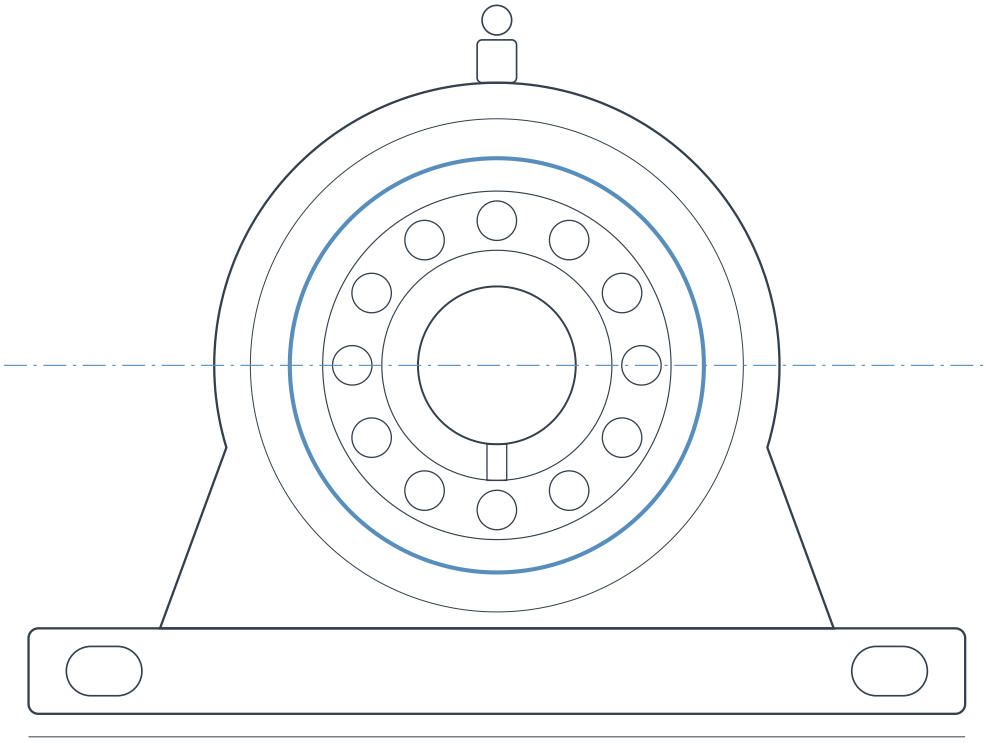

FYH

Mounted Bearing Units

کاتالوگ یاتاقان FYH

استعلام قیمت و خرید یاتاقان FYH ←

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FYH®

MOUNTED BEARING UNITS

FYH INC.

CAT.NO.3330a

FYH®

www.fyh.co.jp

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	Oval Flange Units	
	4-Bolt Flange Cartridge Units	
	Stamped Steel Flange Units	
	Take-Up Units	
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	Hanger Units	
	Ball Bearing Inserts	
	Parts and Accessories	Parts and Accessories
SPHERICAL ROLLER BEARING UNITS	Technical Section	Technical Section
	Spherical Roller Bearing Units	
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★The contents of this catalogue are subject to change without prior notice. Every possible effort has been made to ensure that the data listed in this catalog is correct. However, we can not assume responsibility for any errors or omissions.

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1 Structure and Features

FYH Ball Bearing Units are manufactured to exacting standards comprising grease sealed deep groove ball bearings and housings in various forms.

Self-aligning units allow for easy installation and are supplied with grease fittings in order to facilitate quick and convenient re-lubrication.

1.1 Structure

FYH Ball Bearing Units are constructed of high carbon chromium bearing steel and have precision honed raceways and riveted steel cages (**Fig. 1.1**).

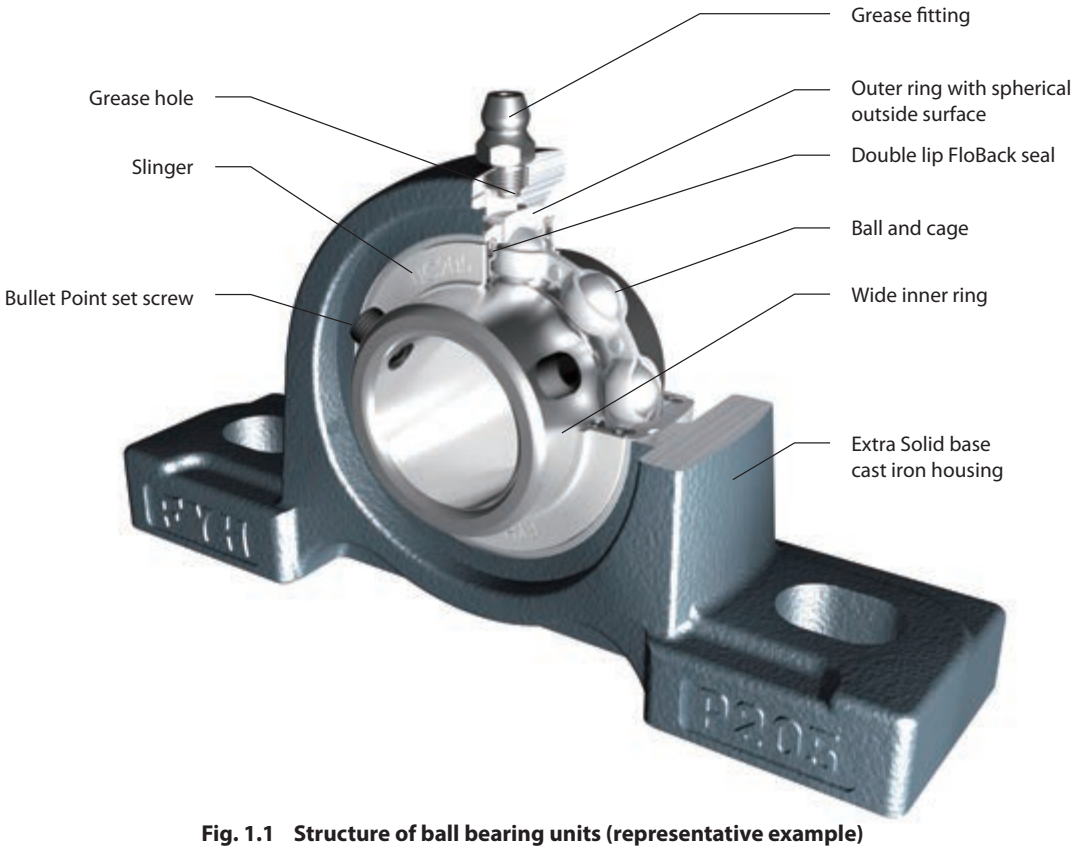


Fig. 1.1 Structure of ball bearing units (representative example)

1.2 Features

FYH Ball Bearing Units have many features and are available in various models. A wide selection of mounted units is offered to fit virtually any application.

1 Supreme load capacity and accuracy

FYH Ball Bearing Units feature an internal structure identical to single row deep groove ball bearings and can bear significant radial load, as well as a great deal of axial load in both directions. The hardened steel balls exhibit a high degree of "roundness" and the races are highly polished to accommodate a smooth ride at a wide range of speeds.

2 Rational self-aligning mechanism and optimal fit

FYH Ball Bearing Units have the special ability to self-align inside the housing because of the spherical shape of the outer diameter of the bearing insert and the concave shape of the inner diameter of the housing into which it fits.

This design allows the bearing unit to self-adjust for shaft deviation and reduce abnormal bearing load. Therefore, the original rated life of the bearing can be guaranteed. Since the spherical outside surface of the bearing is precision ground and the spherical bore of the housing is machined by a boring machine with great accuracy, optimal fitting of the bearing and the housing can be obtained, as well as superior aligning performance. The allowable aligning angle of standard ball bearing units is 3°, while units with covers is 1°.

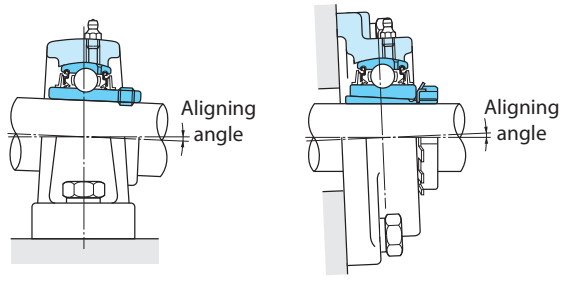


Fig. 1.2 Allowable aligning angle of ball bearing units

3 Superior sealing performance

FYH Ball Bearing Units efficiently prevent grease from leaking out of the interior of the bearing, and perform extremely well at keeping contaminants, such as dust and water, from entering. This is achieved by installing the seal on the outer ring and the slinger on the inner ring of the bearing.

The FloBack seal, used in the standard FYH Ball Bearing Units, will contribute to the long life of the bearing. It consists of a double-lip seal which is stamped into place in the outer ring of the bearing to reduce the possibility of being pushed out from over-lubrication. The first seal makes contact with the inside of the slinger, which provides the first line of defense against contamination. The next seal makes contact with the inner ring to provide another level of contamination resistance. An additional level of protection exists in the extra non-contact inward facing lip, which allows grease to flow back towards the balls and raceways during operation, thereby improving lubrication performance and extending bearing life.

Allowable rotating speed is the same as the previous seal design while providing more than four times better protection.

4 Simple lubrication

FYH Ball Bearing Units are tapped to accept a grease fitting which is also supplied with every mounted unit. Bearings are pre-lubricated at the factory and do not require additional grease upon installation. When operating in excessively moist, dusty, or hot environments, it is recommended that grease be supplied at regular intervals. If appropriately maintained, the rated life of the bearing can be extended.

The grease fittings that are supplied with FYH mounted units include 1/4-28UNF for smaller units and R1/8 for larger units. Additional styles are available upon request.

Fig. 1.3 Sealing mechanism of ball bearing units

5 Highly rigid and rugged cast iron housings

FYH Ball Bearing Unit housings are designed so that they are optimized for reduction of deformation due to centralization of stress and load. Only the best material is selected to be cast by a highly advanced technique or press working technique, depending on the housing. Since any abnormal load on the bearing is eliminated by the housing, the life of the bearing can be extended. A Granular material baking finish coating (powder coating) helps resist corrosion and protect the surface of the housing for an extended period of time.

FYH original solid base pillow block housings fit better and provide a more stable mounting configuration that significantly reduces vibration.

The support ribs have been eliminated to make more room for mounting bolts and washers, yet these housings are more than 30% stronger than before while also reducing housing weight. The increased downward crush strength is such that the inserts will fail before the housings.

6 Simple installation and handling

FYH Ball Bearing Units are interchangeable with many different models and can be bolted to machinery without modification. Proper clearance is provided between the bore and the shaft to ensure a secure fit. Therefore, FYH Ball Bearing Units do not require additional lubrication or separate seal installation. As a result, handling time and downtime can be drastically reduced.
Five different locking mechanisms are available:

(1) Set Screw
(2) Eccentric Locking Collar
(3) Tapered Adapter
(4) Concentric Collar
(5) Z-LOCK Sleeve

Mounting the bearing to the shaft can be executed easily and securely by adopting any of these methods.

7 Series and models

FYH Ball Bearing Units are available in various series and models. Reliability of machinery or equipment, used together with these units, can be improved by selecting and using units optimal for the application and operating conditions.

●Dust Resistant Units

Triple-lip seal inserts
Felt seal inserts

●Dirt Resistant Units

Tight Triple-lip seal inserts
Units with Covers

●High / Low Temperature Series

●Corrosion Resistant Series

Stainless Units
Plastic Units
Nickel plated Units

●Air Handling Series

S5 Bearing Units
NC-LOC Units

●Tougher casting Series
Ductile iron housing

●Compact and lightweight Series
Small die cast Units
Lightweight casting Units
Stamped Units

2 Selection Guide

2.1 Selection Guide

1. Select the housing style that best suits your application.

P - PILLOW BLOCK
LP - LIGHT
F - 4-BOLT FLANGE
FL - 2-BOLT FLANGE
FA - ADJUSTABLE
FC - 4-BOLT FLANGE CARTRIDGE
T - TAKE-UP
PA - TAPPED-BASE
IP - THICK
FS - SQUARE PILOTED
LF - LIGHT
FB - 3-BOLT FLANGE
C - CARTRIDGE
PH - HIGH-BASE
PP - STAMPED STEEL
PFL - STAMPED STEEL
H - HANGER

2. Select the shaft size and duty that is needed for your application.

SU - FROM 10 MM TO 30 MM BORE
SA & SB - FROM 12 MM & 1/2" TO 40 MM & 1-9/16" BORE
UC - FROM 12 MM & 1/2" TO 140 MM BORE
NA - FROM 12 MM & 1/2" TO 75 MM & 3" BORE
NC - FROM 20 MM & 3/4" TO 60 MM & 2-7/16" BORE
UK - FROM 20 MM & 3/4" TO 125 MM BORE
ZK - FROM 20 MM TO 55 MM BORE

3. Select the right bearing for your application.

DUST - **L3** TRIPLE-LIP SEAL, COVERS
DIRT - **LT3** TIGHT TRIPLE-LIP SEAL, COVERS
TEMP - **D2K2** -58°F TO 68°F (-50°C TO 20°C),
D1K2 176°F TO 356°F (80°C TO 180°C),
D6K2 176°F TO 446°F (80°C TO 230°C)
WASH DOWN - STAINLESS STEEL UNITS, PLASTIC HOUSING UNITS,
AIR HANDLING - **S5** NON-CONTACT SEAL

4. Select the locking style type for your insert.

UC - SET SCREW LOCK
NA - ECCENTRIC COLLAR LOCK
NC - CONCENTRIC COLLAR LOCK
UK - ADAPTER SLEEVE LOCK
ZK - Z-LOCK SLEEVE

5. Your Unit

2.2 Dust Resistant Units

The FYH Dust Resistant Units consist of a variety of supplemental sealing options that function extremely well in the exclusion of foreign matter. These options can work well by themselves or in combination with each other. From food processing and agriculture to wash-down, mining, and aggregate applications, the FYH Dust Resistant Units can stand up to the toughest contamination challenges.

Triple-Lip Seals (suffix code: L3)

The L3 seal consists of a stamped steel shield with a molded NBR triple-lip seal affixed to the inner portion of the shield, all of which is attached to the outer ring of the bearing. The triple-lip seal is excellent for resisting all types of contamination and is appropriate for low to moderate speeds.

Tight Triple-Lip Seals (suffix code: LT3)

The LT3 Triple-Lip Seal fits tighter than the standard L3 seal. The rotating torque of the LT3 seal is approximately double that of the standard L3 seal, and it is appropriate where contamination or moisture are very high and rotating speeds are very low.

Stamped steel and cast iron covers are available in open or closed versions in a complete range of sizes. They are easy to install and they offer great resistance to wet and dry contaminants, and shocks and heat. Covers protect the entire bearing insert from contamination and they also help to provide a safer working environment.

Stamped Steel Open Covers

Cast Iron Open Covers

BACKSIDE GUARD

The nitrile rubber shields can be mounted on the backside of two and four bolt flange units and the equipment it is bolted onto. The backside guard protects your bearings from dust and moisture and helps lead to longer bearing life in applications where this can be an issue.

The nitrile rubber on the steel plate comes without a drain slot and is designed for dust protection. Some applications where this product could be used include: aggregate applications, fertilizer spreaders, salt spreaders and agricultural applications where dirt can reach the backside of bearing units.
The nitrile rubber on the 304 stainless steel plate with the drain slot is designed to protect your bearing units in applications that are exposed to moisture and where moisture or water buildup can create issues. These backside guards can be utilized in food and beverage applications where they are being washed down as well as pharmaceutical applications. The stainless steel core is perfect for situations where regular steel can rust quickly.

2.3 High / Low Temperature Series

(suffix codes - High temperature: D1K2 & D6K2, Low temperature: D2K2)

For applications that require bearing units to be used at a higher or lower temperature range than our standard models FYH offers several options. For high temperature units that require lubrication please specify D1K2 as a suffix to the standard part number. For high temperature units that do not require lubrication specify D6K2.
The D6K2 insert uses a fluoro-grease that allows for excellent heat resistance and operation with minimal maintenance.
Specifications for the high temperature and low temperature units are shown in **Table 2.1**.

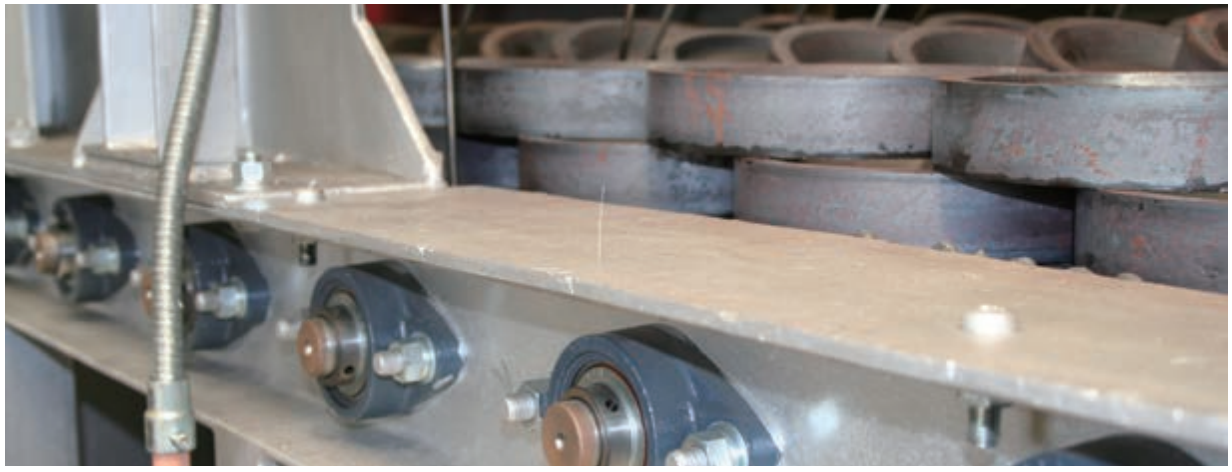


Table 2.1 Specifications of High / Low Temperature Series

Specifications of High / Low Temperature Series							
Category	Suffix code	Operating temperature range		Grease	Seal rubber material	Bearing internal clearance	
		(°C)	(°F)			UC type	UK type
Standard	-	−20 to 100	−4 to 212	Lithium	Nitrile	CN	C3
Cold resistant	D2K2	−50 to 20	−58 to 68	Lithium	Silicone	CN	C3
Heat resistant	D1K2	80 to 180	176 to 356	Diurea	Silicone	C4	C5
Heat resistant	D6K2	80 to 230	176 to 446	Fluorinated grease	Silicone	C4	C5

Specifications of Extreme High Temperature Series							
Category	Suffix code	Operating temperature range		Grease	Seal rubber material	Bearing internal clearance	
		(°C)	(°F)			UC type	UK type
Heat resistant	D6P4S6Y2	80 to 260	176 to 500	Fluorinated grease	-	C4	-
Extreme heat resistant	S6Y3	300 to 450	572 to 842	Solid graphite lubricant	-	Special	-

Remark Operating temperature range for stainless steel: 0°C to 100°C (32°F to 212°F).

Table 2.2 Grease Schedule of Ball Bearing Units

Grease schedule of ball bearing units					
Operating temperature °C		Grease Intervals			Bearing used
Over	Incl.	Substantially clean	Excessive dust	Excessive dust and moisture	
(Cold resistant)	20	3 months	2 months	1 month	Low temperature D2K2
Ambient 50 70	50 70 100	not necessary 1 year 6 months	1 year 4 months 2 months	4 months 1 month 2 weeks	Standard bearing
100 120 150	120 150 180	2 months 2 weeks 1 week	2 weeks 5 days 2 days	5 days 2 days 1 day	High temperature D1K2

Remark Greasing intervals shown in this table are applicable to a unit operated for 8 to 10 hours per day.
If the time of operation is greater than this range, then a more frequent greasing interval must be specified.
For example, if the unit is operated 16 to 20 hours per day, then the greasing interval must be twice as frequent.

2.3.1 Rotational speed adjustment due to shaft fit

A marginal degree of clearance is typically used to facilitate easy installation of a bearing to a shaft.

The amount of clearance between the bearing and shaft must be factored in to determine the maximum allowable rotational speed, and as rotational speed is increased, the amount of clearance must be decreased.

Table 2.3 shows the factor that must be used to correct the allowable rotational speed. The maximum rotational speed is determined by multiplying the speed found in **Table 6.1** by the factors below.

Table 2.3 Fitting factor of ball bearing units f_c (recommended)

Type of ball bearing units	Fitting factor f_c					
	Shaft tolerance range class					
	h5, j5	j6	h6	h7	h8	h9
Heat resistant type (Suffix code: D1K2)	–	–	–	1	1	0.7
Cold resistant type (Suffix code: D2K2)	–	–	–	1	1	0.7

2.3.2 Correction of basic load rating due to temperature

If a ball bearing unit is used at a relatively high temperature the physical composition of the bearing material is changed leading to decreased hardness. This decreased hardness leads to the basic dynamic load rating being reduced. Once the structure of the bearing material has been changed, it will remain this way for the life of the unit, even when it returns to room temperature.

When using a ball bearing unit at 150 ℃ or more, the basic load rating must be corrected by multiplying the basic dynamic load rating shown in the dimensional table by the temperature factor shown in **Table 2.4**.

Table 2.4 Temperature factor

Bearing temperature, ℃	125	150	175	200	250
Temperature factor	1	1	0.95	0.9	0.75

2.3.3 Operating temperature range

The operating temperature of a ball bearing unit depends on the type of grease, the material of the seal, and the internal clearance of the bearing. FYH Ball Bearing Units are available in high temperature (D1K2, D6K2) and low temperature (D2K2) series, in addition to the standard models, to allow selection of the correct bearing for your operational temperature (see **Table 2.1**). The correct unit must be chosen for the desired temperature range, and it is equally important to use the appropriate grease according to the specified schedule.

2.3.4 Operating temperature and internal clearance of bearings

When bearings are operated in a high ambient temperature environment, or when the operating temperature is high because of rotational speed, differential expansion rates occur within the bearing components. This causes higher friction, grease breakdown, and eventual seizure.

If the temperature difference between the inner and outer ring is known, or can be approximated, then the following **Formula (2.1)** may be applied.

Under these conditions, decrease in the internal clearance must be calculated, and the internal clearance of bearing needs to be selected properly.

$$S_{t1} = \alpha \cdot D_e \cdot \Delta_t \quad \cdots\cdots (2.1)$$

Where,

S_{t1}: Decrease in the internal clearance of bearings depending on the difference in the temperatures of the bearing inner ring and the bearing outer ring can be found by formula, mm

α: Line expansion factor of bearing steel, 12.5×10^{-6}

D_e: Raceway dia. of bearing outer ring, mm

Diameter series 2, X ····· $D_e \fallingdotseq 0.92\,D$

Diameter series 3 ····· $D_e \fallingdotseq 0.9\,D$

D: Nominal bearing outer dia., mm

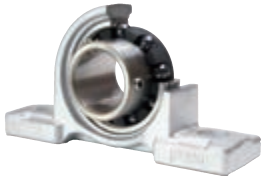
Δ_t: Difference in temperatures of bearing inner ring and outer ring, ℃

If a ball bearing unit is used in a high temperature environment, an abnormal load will result due to thermal expansion of the shaft. This must be compensated for by allowing free movement of one side of the shaft.

(See "**9 Design of shaft and base**")

CERAMIC BALL UNITS

Y2: Ceramic balls with stainless units



Y3: Ceramic balls with a solid self-lubricating lubricant

Ceramic Ball Units features

- Reduced maintenance costs
- Green bearings
- Independent operation
- Low friction
- High stress resistance
- Non-conductive

2.4 Corrosion Resistant Series

The Corrosion Resistant Series is available in a wide array of sizes and styles, and units may be customized with a number of different specialized options to accommodate virtually any application. Federal compliance can be assured with FYH Bearing Units.

S6 STAINLESS INSERT

RINGS	Stainless steel (SUS 440C equivalent)
BALLS	SUS 440C
CAGE	SUS304
GREASE	H1 FOOD GRADE (FDA /USDA)
SEALS	NBR
SLINGER	SUS304
ANTI-ROTATION PIN	SUS304
SET SCREWS	SUS304*
AVAILABLE SIZES	201X - 203X, 204 - 213
CLEARANCE	C3

*The M3, M4, and M5 set screws are made of SCM435 steel with a stainless steel coating.

S7 PLATED INSERT

RINGS	SUJ2 + (zinc plated + trivalent chromate treatment)
BALLS	SUJ2
CAGE	NYLON
GREASE	H1 FOOD GRADE (FDA /USDA)
SEALS	NBR
SLINGER	SPCC + (zinc plated + trivalent chromate treatment)
ANTI-ROTATION PIN	SUS304
SET SCREWS	SCM435 + (zinc plated + trivalent chromate treatment)
AVAILABLE SIZES	204 - 210
CLEARANCE	C3

Stainless Steel Housings

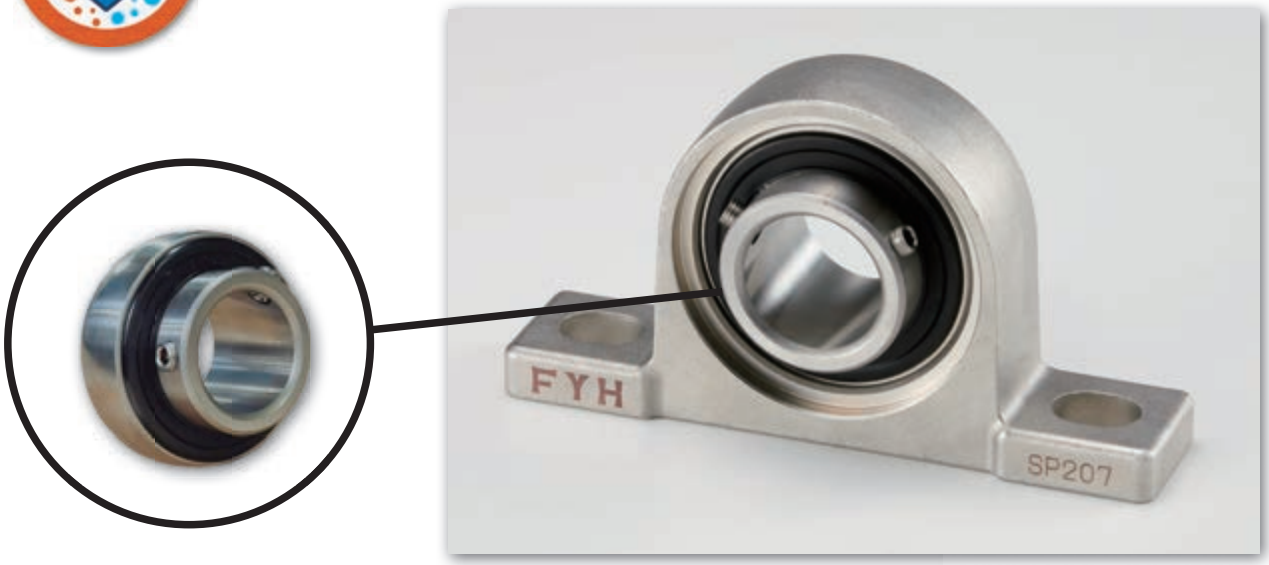
Lost Wax Casting
(SUS304 or 316 equivalent)

VP VF VFL VPAN VFB
Thermoplastic Housings

Thermoplastic Polyester

2.4.1 IP69K

Fully Stainless Steel Bearing Units – Waterproof and Dustproof
Ideal for Use in Food and Beverage Processing Equipment



S9 STAINLESS INSERT

MATERIAL SPECIFICATIONS	Same as S6 series
AVAILABLE SIZE	204 – 213

A seal lip on the slinger **provides** excellent **protection**

Fully pre-lubed design **for enhanced protection**

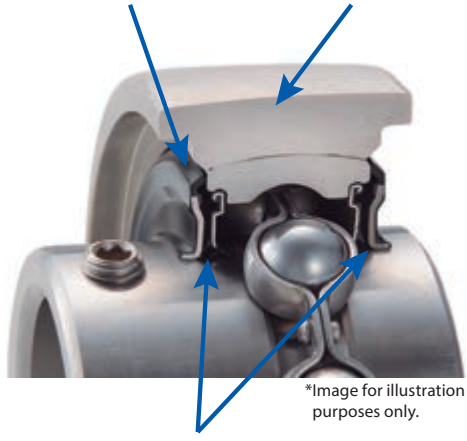


*Image for illustration purposes only.

Lips on the seal end surfaces **for enhanced protection**

PRODUCT FEATURES

Excellent Ingress Protection

No water or dust penetrated the bearing during IP69K testing performed in accordance with ISO20653

Pre-Lubricated Design

Factory-lubricated for enhanced protection
Filled with NSF H1-certified grease, safe for use in food machinery

Standardized Dimensions

Same dimensions as our conventional models
Interchangeable with our standard models

Multiple Housing Options

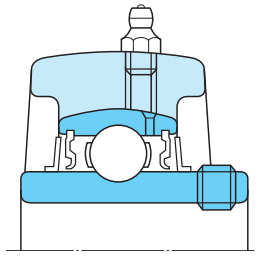
A variety of housing types available to suit different applications

2.5 Air Handling Series

Units for HVAC and air handling (suffix code: S5)

Ball bearing units for blowers must meet the demands of high speed rotation, low vibration, low noise, and decreased temperature output.
To meet these performance needs FYH produces S5 series with tighter bore tolerances.
S5 uses non-contact seals as well as an improved machining accuracy to cut down on heat, noise, and vibration.

Table 2.5 Specifications of air handling units

Air Handling Fit	
100% Noise Check	
P11	The anti-rotation pin
C2	Internal bearing clearance is defined as the allowable space between the rolling elements and the raceways. **C2** has smaller clearance than the standard, and it reduces the noise and vibration in high speed applications. This is not applicable to UK series.
P18	**P18** is the suffix code that designates smaller bore tolerance which allows for a tighter fit with the shaft. This, in turn, reduces vibration and noise and dramatically increases bearing life. This is not applicable to UK series.
K3	Non-contact lip seal is available for the lighter torque. 

2.5.1 Features of the air handling units

The air handling unit is manufactured with original fitting called the air handling fit which exists in the middle with fitting "H" which can be assembled more easily than a standard fit "J." In addition, "J" fit the standard is fit that there is not the need for the anti-rotation pin, but can be very secure in high speed applications by adding the anti-rotation pin.

S5 bearings are sound tested to ensure the noise level is low enough for high speed applications such as blowers.

2.5.2 Feature of air handling S5 specification for blowers

(1) Dimensional tolerances of shafts for blowers (used with set screw bearings)

For bearings used in blowers (suffix code: S5), a C2 internal ball clearance is recommended to reduce vibration and noise during operation.

Therefore, the shaft tolerance classes shown in **Table 2.6** are recommended for bearings with set screws.

Refer to (**"11.3 Internal bearing clearance"**) Details of the internal C2 ball clearance.

Table 2.6 Dimensional tolerance of shaft used for bearings (set screw type, cylindrical bore with locking collar) for blowers

unit: μm

Shaft dia. (mm)		Dimensional tolerance of shaft			
		h5		j5	
Over	Incl.	Max.	Min.	Max.	Min.
10	**18**	0	− 8	+5	− 3
18	**30**	0	− 9	+5	− 4
30	**50**	0	−11	+6	− 5
50	**80**	0	−13	+6	− 7
80	**120**	0	−15	+6	− 9
120	**180**	0	−18	+7	−11

(2) Tolerance of inner rings of S5 specification

P18 is the suffix code that designates smaller bore tolerance which allows for a tighter fit with the shaft. This, in turn, reduces vibration and noise and dramatically increases bearing life.

Table 2.7 Tolerance and tolerance values of inner rings of P18 suffix (unit: μm)

Nominal bearing bore dia. d (mm)		Variation of tolerance of average bore dia. in plane Δ_{dmp}		Unequal bore dia. in plane V_{dsp}	Radial runout of inner ring K_{ia}
Over	Incl.	Max.	Min.	Max.	Max.
10	**18**	+13	0	6	7
18	**31.75**	+13	0	6	8
31.75	**50.8**	+13	0	10	10
50.8	**80**	+15	0	10	10

Table 2.8 Tolerance and tolerance values of inner rings of ISO standard (unit: μm)

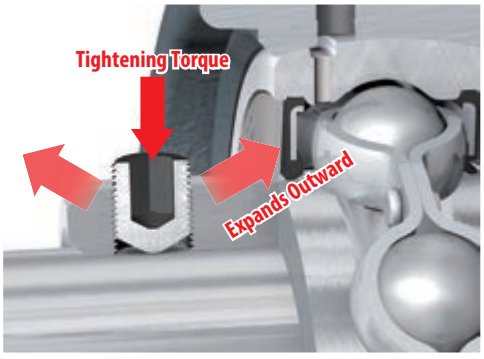
Nominal bearing bore dia. d (mm)		Variation of tolerance of average bore dia. in plane Δ_{dmp}		Unequal bore dia. in plane V_{dsp}	Radial runout of inner ring K_{ia}
Over	Incl.	Max.	Min.	Max.	Max.
10	**18**	+15	0	10	15
18	**31.75**	+18	0	12	18
31.75	**50.8**	+21	0	14	20
50.8	**80**	+24	0	16	25

ORIGINAL DESIGNED SET SCREW

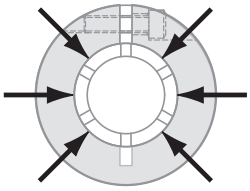
BULLET POINT®

The innovative FYH Bullet Point set screw is a one piece ball point set screw which is designed to expand the threads of the screw as the point of the screw contacts the surface of the shaft.The resulting force creates superior holding power especially where vibration is present. Other set screws have larger contact areas with sharp edges at the point of the screw to bite into the shaft. However, these sharp edges damage more easily from vibration which creates a gap between the point of the set screw and the shaft. Once this gap is established, the set screw will begin to loosen.

When the Bullet Point set screw is tightened, the original shape of the point causes the threads of the screw to expand up to and beyond the elastic limit to achieve the maximum possible holding power. The thickness of the point is also designed to expand easily. This specialized design drastically reduces the potential for damage to both the set screw and shaft from normal use or for severe vibration, shock load, and high speed.



360° SHAFT CONTACT TRUE Concentric-LOC



The **FYH NC-LOC** bearing grips the shaft more uniformly, which allows for 360 degrees of equalized locking contact.
Compared to set screw bearings, the roundness of the ball path on the NC-LOC bearings results in better operation and longer life.

NC-LOC concentric locking collars are designed to prevent shafts from becoming marred or burred. A single standard hex head cap screw can be tightened quickly and easily, and NC-LOC bearings can replace either set screw or eccentric locking collar inserts.

NC-LOC concentric locking collar with a single cap screw provides excellent holding power. The collar is installed over the slotted inner ring on the shaft concentrically.
Quick & Easy Installation with a single hex cap screw.

NC-LOC's standard tolerance specification is designed for air handling applications, and the greater roundness of the ball path enables the use of smaller internal ball clearance.

Z-LOCK® SLEEVE

FYH HAS REINVENTED THE ADAPTER SLEEVE

This is the ball bearing version of revolutionary locking system — Z-LOCK.
The new series, called ZK, features a tapered bore UK insert combined with our original Z-LOCK sleeve, replacing the traditional adapter sleeve.
Installation of the ZK unit is remarkably simple: just one key is needed to hand-tighten two set screws. No torque charts are required, and the system does not affect the bearing's internal clearance at all.

With ZK units
The set screws can be tightened easily by hand, yet they generate exceptional holding power — all without altering the bearing clearance.

With traditional UK units
Assembly requires multiple tools. The lock nut is tightened with a torque wrench according to the torque chart, ensuring proper fit. Careful adjustment is necessary to maintain internal clearance and extend bearing life.

3 Models

3.1 Model List

Table 3.1 and **Table 3.2** show the models of FYH Ball Bearing Units and ball bearing inserts.

Table 3.1 FYH Ball Bearing Units models

Model	Type	Bearing bore dia. Surface (fixing to shaft)	Model code	Shaft dia. (inch) min.	Shaft dia. (inch) max.	Shaft dia. (mm) min.	Shaft dia. (mm) max.	Dimension table
1 Pillow Block Units	(1) Pillow Block Units	with set screws	**UCP**	1/2	4	12	140	P.82
		with concentric locking collar	**NCP**	3/4	2 7/16	20	60	P.85
		with eccentric locking collar	**NAP**	1/2	2 15/16	12	75	P.86
			NAP-E	1 3/16	2 15/16	–	–	P.87
			NAPK	1/2	2 15/16	12	75	P.88
		Tapered bore (with adapter)	**UKP**	3/4	4 1/2	20	125	P.90
	(2) Thick Pillow Block Units	with set screws	**UCIP**	1 1/2	4	40	140	P.92
		Tapered bore (with adapter)	**UKIP**	1 1/4	4 1/2	35	125	P.93
	(3) Tapped-Base Pillow Block Units	with set screws	**UCPA**	1/2	2	12	50	P.94
			UCPAN	3/4	1 7/16	20	35	P.95
		with concentric locking collar	**NCPA**	3/4	2	20	50	P.96
			NCPAN	3/4	1 7/16	20	35	P.97
	(4) High-Base Pillow Block Units	with set screws	**UCPH**	1/2	2	12	50	P.98
	(5) Compact Pillow Block Units	with set screws	**UP**	–	–	10	30	P.99
	(6) Narrow Inner Ring Bearing Pillow Block Units	with set screws	**SBP-RKP8**	3/4	1 1/2	20	40	P.100
		with eccentric locking collar	**SAP-FP9**	3/4	2 3/16	20	55	P.100
		with set screws	**SBPAN-RKP8**	3/4	1 7/16	20	35	P.102
		with eccentric locking collar	**SAPAN-FP9**	3/4	1 7/16	20	35	P.102
	(7) Light Pillow Block Units	with set screws	**BLP**	1/2	1 1/2	12	40	P.104
		with eccentric locking collar	**ALP**	1/2	1 9/16	12	40	P.104
	(8) Corrosion Resistant Series Pillow Block Units	with set screws	**UCSP-S6**	1/2	2 1/2	12	65	P.106
			UCSPA-S6	1/2	2	12	50	P.107
			USP-S6	–	–	10	30	P.108
			UCVP-S6	3/4	2	20	50	P.109
			UCVP-S7	3/4	2	20	50	P.110
			UCVPAN-S7	3/4	1 7/16	20	35	P.111
	(9) Stamped Steel Pillow Block Units	with set screws	**SBPP**	1/2	1 1/4	12	30	P.112
		with eccentric locking collar	**SAPP**	1/2	1 1/4	12	30	P.112
2 4-Bolt Flange Units	(1) 4-Bolt Flange Units	with set screws	**UCF**	1/2	4	12	140	P.114
			UCF-E	1/2	3 7/16	12	85	P.118
		with concentric locking collar	**NCF**	3/4	2 7/16	20	60	P.120
			NCF-E	3/4	2 7/16	20	60	P.121
		Tapered bore (with adapter)	**UKF**	3/4	4 1/2	20	125	P.122
		with eccentric locking collar	**NANF**	1/2	2 7/16	12	60	P.124
	(2) Square Piloted 4-Bolt Flange Units	with set screws	**UCFS**	1	4	25	140	P.126
		Tapered bore (with adapter)	**UKFS**	3/4	4 1/2	20	125	P.127
	(3) Narrow Inner Ring Bearing 4-Bolt Flange Units	with set screws	**SBF-RKP8**	3/4	1 1/2	20	40	P.128
		with eccentric locking collar	**SAF-FP9**	3/4	2 3/16	20	55	P.128
	(4) Corrosion Resistant Series 4-Bolt Flange Units	with set screws	**UCSF-S6**	3/4	2 1/2	20	65	P.130
			UCSF-ES6	3/4	2 1/2	20	65	P.131
			UCVF-S6	3/4	2	20	50	P.132
			UCVF-S7	3/4	2	20	50	P.133
3 Oval Flange Units	(1) 2-Bolt Flange Units	with set screws	**UCFL**	1/2	4	12	120	P.134
			UCFL-E	1/2	3 1/4	12	85	P.136
		with concentric locking collar	**NCFL**	3/4	2 7/16	20	60	P.138
			NCFL-E	3/4	2 7/16	20	60	P.139
		Tapered bore (with adapter)	**UKFL**	3/4	4	20	110	P.140
		with eccentric locking collar	**NANFL**	1/2	2 3/16	12	55	P.142
	(2) Compact 2-Bolt Flange Units	with set screws	**UFL**	–	–	8	30	P.143
	(3) Adjustable 2-Bolt Flange Units	with set screws	**UCFA**	1/2	2 3/16	12	55	P.144
	(4) 3-Bolt Flange Units	with set screws	**UCFB**	1/2	2	12	50	P.145
	(5) Narrow Inner Ring Bearing 2-Bolt Flange Units	with set screws	**SBFL-RKP8**	3/4	1 1/2	20	40	P.146
		with eccentric locking collar	**SAFL-FP9**	3/4	2 3/16	20	55	P.146
	(6) Light 3-Bolt Flange Units	with set screws	**SBTFD-H4RKP8**	1/2	1 7/16	12	35	P.148
		with eccentric locking collar	**SATFD-FH4P9**	1/2	1 7/16	12	35	P.148
	(7) Light 2-Bolt Flange Units	with set screws	**BLF**	1/2	1 7/16	12	35	P.150
		with eccentric locking collar	**ALF**	1/2	1 7/16	12	35	P.150
	(8) Corrosion Resistant Series 2-Bolt Flange Units	with set screws	**UCSFL-S6**	1/2	2	12	50	P.152
			UCSFL-ES6	1/2	2	12	50	P.153
			USFL-S6	–	–	10	30	P.154
			UCVFL-S6	3/4	2	20	50	P.155
			UCVFL-S7	3/4	2	20	50	P.156
	(9) Corrosion Resistant Series 3-Bolt Flange Units	with set screws	**UCVFB-S7**	3/4	1 7/16	20	35	P.157

Table 3.1 FYH Ball Bearing Units models (continued)

Model	Type	Bearing bore dia. Surface (fixing to shaft)	Model code	Shaft dia. (inch) min.	Shaft dia. (inch) max.	Shaft dia. (mm) min.	Shaft dia. (mm) max.	Dimension table
4 4-Bolt Flange Cartridge Units	(1) 4-Bolt Flange Cartridge Units	with set screws	**UCFC**	1/2	4	12	100	P.158
			UCFCX-E	1	4	25	100	P.160
			UCFCF	7/8	2 3/16	25	55	P.161
		Tapered bore (with adapter)	**UKFC**	3/4	3 1/2	20	90	P.162
		with concentric locking collar	**NCFC**	3/4	2 7/16	20	60	P.164
	(2) Corrosion Resistant Series 4-Bolt Flange Cartridge Units	with set screws	**UCSFC-S6**	3/4	2	20	50	P.165
	(3) Narrow Inner Ring Bearing 4-Bolt Flange Cartridge Units	with set screws	**SBFC-RKP8**	3/4	1 1/2	20	40	P.166
		with eccentric locking collar	**SAFC-FP9**	3/4	2 3/16	20	55	P.166
5 Stamped Steel Flange Units	(1) Stamped Steel 3-Bolt Flange Cartridge Units	with set screws	**SBPF**	1/2	1 7/16	12	35	P.168
		with eccentric locking collar	**SAPF**	1/2	1 7/16	12	35	P.168
	(2) Stamped Steel 2-Bolt Flange Units	with set screws	**SBPFL**	1/2	1 7/16	12	35	P.170
		with eccentric locking collar	**SAPFL**	1/2	1 7/16	12	35	P.170
6 Take-Up Units	(1) Take-Up Units	with set screws	**UCT**	1/2	4	12	140	P.172
			UCT-E	1/2	3 7/16	12	85	P.176
		with eccentric locking collar	**NAT-E**	1/2	2 15/16	12	75	P.180
		with concentric locking collar	**NCT**	3/4	2 7/16	20	60	P.182
			NCT-E	3/4	2 7/16	20	60	P.184
		Tapered bore (with adapter)	**UKT**	3/4	4 1/2	20	125	P.186
	(2) Narrow Slot Take-Up Units	with set screws	**UCTRS**	7/8	1 7/16	25	35	P.188
	(3) Corrosion Resistant Series Take-Up Units	with set screws	**UCST-S6**	3/4	2	20	50	P.190
			UCST-ES6	3/4	2	20	50	P.191
	(4) Section Steel Frame Take-Up Units	with set screws	**UCTH**	1/2	2 1/2	12	65	P.192
	(5) Channel Steel Frame Take-Up Units	with set screws	**UCTL**	–	–	20	45	P.193
			UCTU	–	–	40	90	P.194
	(6) Steel Plate Frame Take-Up Units	with set screws	**SBPTH**	–	–	12	25	P.196
			SBNPTH	–	–	12	25	P.196
7 Other Units	(1) Cartridge Units	with set screws	**UCC**	1/2	4	12	140	P.198
		Tapered bore (with adapter)	**UKC**	3/4	4 1/2	20	125	P.200
	(2) Hanger Units	with set screws	**UCHA**	1/2	3	12	75	P.202

Table 3.2 Bearing insert models

Model	Type	Bearing bore dia. Surface (fixing to shaft)	Model code	Shaft dia. (inch) min.	Shaft dia. (inch) max.	Shaft dia. (mm) min.	Shaft dia. (mm) max.	Dimension table
8 Ball Bearing Inserts	(1) UC inserts	with set screws	**UC**	1/2	4	12	140	P.204
	UC inserts (Stainless steel)		**UC-S6**	1/2	2 1/2	12	65	P.212
	(2) UK inserts	Tapered bore (with adapter)	**UK**	3/4	4 1/2	20	125	P.224
	(3) ZK inserts	Tapered bore (with adapter)	**ZK**	–	–	20	55	P.230
	(4) NC inserts	with concentric locking collar	**NC**	3/4	2 7/16	20	60	P.220
	(5) NA inserts	with eccentric locking collar	**NA**	1/2	3	12	75	P.214
	(6) SB inserts (Lightweight)	with set screws	**SB**	1/2	1 1/2	12	40	P.204
			SB-RKP8	1/2	1 1/2	12	40	P.204
	(7) SA inserts (Lightweight)	with eccentric locking collar	**SA**	1/2	1 9/16	12	40	P.214
			SA-F	1/2	2 3/16	12	55	P.214
	(8) SU inserts. Small size	with set screws	**SU**	–	–	8	30	P.204
	SU inserts. Small size (Stainless steel)		**SU-S6**	–	–	10	30	P.212
	(9) Cylindrical O.D.	with set screws	**ER**	1/2	2 7/16	12	60	P.232
	(with lubricating mechanism and snap ring)	with concentric locking collar	**ERC**	3/4	2 7/16	20	60	P.222
	(10) Cylindrical O.D.	with set screws	**RB**	1/2	1 9/16	12	40	P.232
	(11) Standard	Cylindrical bore	**SC**	–	–	17	40	P.236
	(12) Cylindrical O.D.	with set screws	**SBB-RK**	1/2	1 1/2	12	40	P.234
		with eccentric locking collar	**SAA-F**	1/2	2 3/16	12	55	P.234
	(13) Adapter		**H2300X**	3/4	5	20	125	P.238
			ZK00	–	–	20	55	P.242

3.2 Models and Features

FYH Ball Bearing Units are available in a variety of styles and sizes.
Models and features of the Ball Bearing Units are shown below.

Note [1)] Descriptions of codes for units with covers are shown in the table below. (common to all the models)

Diameter series	Code	Descriptions
2	C, D, CD	Stamped steel plate cover type
	FC, FD, FCD	Cast iron cover type
X	C, D, CD	From **X05** to **X17**: Stamped steel plate cover type **X18** and **X20**: Cast iron cover type
3	C, D, CD	Cast iron cover type

1 Pillow Block Units

1 Pillow Block Units

UCP

NCP

UCP is a pillow block unit with a rigid cast iron housing.
It features two specially designed set screws in the inner ring, spaced 120 degrees apart, providing maximum holding power and reliable performance across a wide variety of applications and operating conditions.

Duty: Standard, Medium, Heavy

NAP

NAP-E

NCP is a pillow block unit featuring a specially designed concentric locking collar that provides 360-degree shaft contact. It offers a more uniform and secure lock on the shaft compared to other locking styles and is well-suited for high-speed applications.

Duty: Standard

NAPK

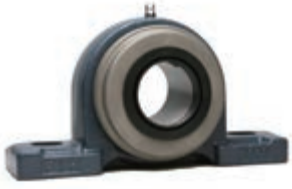
UKP+H

NAP is a pillow block unit with an eccentric locking collar insert that provides a secure grip on the shaft, which becomes even tighter during continued operation. It is specifically used for single-direction/non-reversing rotation.

Duty: Standard, Heavy

UKP is a pillow block unit with a tapered-bore bearing insert that utilizes an adapter sleeve assembly to produce a highly concentric and secure lock on the shaft, thereby reducing slippage and fretting corrosion even under adverse conditions.

Duty: Standard, Medium, Heavy



UCP-C, CD
UKP-C, CD

UCP-FC, FCD
UKP-FC, FCD

2 Thick Pillow Block Units

UCIP

UKIP+H

UCIP is a pillow block unit with a highly rigid and rugged casting for particularly demanding applications. The two bolt holes are round for more accurate positioning and the strength ratings of the housing are substantially improved over standard pillow block housings.
UK, NA, and NC styles are also available.

Duty: Standard, Heavy

3 Tapped-Base Pillow Block Units

UCPA

UCPAN

NCPA

NCPAN

UCPA and **UCPAN** are tapped-base pillow blocks with threaded bolt holes on the bottom of the housings. They are ideal for exact unit positioning and limited space applications. They are available in both inch and metric bolt-hole dimensions.
UK, NA, and NC styles are also available.

Duty: Standard

4 High-Base Pillow Block Units

UCPH

UCPH is a pedestal pillow block unit with an exceptionally high mounting base. It is ideal for applications where a shouldered shaft could create interference with the mounting surface when using a standard pillow block unit.
UK, NA, and NC styles are also available.

Duty: Standard

5 Compact Pillow Block Units

UP

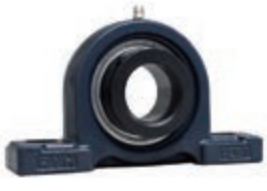
UP-C, CD

UP is a light-duty pillow block unit that is part of the Clean Series. It has a zinc-alloy housing for a high level of corrosion resistance and can accommodate end covers to increase contamination resistance.

Duty: Light

6 Narrow Inner Ring Bearing Pillow Block Units

SBP-RKP8



SAP-FP9

SBPAN-RKP8

SAPAN-FP9

SBP-RKP8 is a lightweight bearing-mounted pillow block unit, ideal for limited space and light to moderate duty applications.
SAP-FP9 with SA style eccentric locking collar is also available.

SBPAN-RKP8 is a lightweight bearing-mounted tapped-base pillow unit, ideal for limited space and light to moderate duty applications.
SAPAN-FP9 with SA style eccentric locking collar is also available.

Duty: Standard

(1 Pillow Block Units)

7 Light Pillow Block Units

BLP

ALP

BLP is a compact and lightweight pillow block unit, ideal for limited space and light to moderate duty applications.
ALP with SA style eccentric locking collar is also available.

Duty: Light

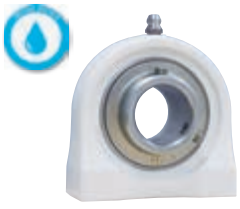
8 Corrosion Resistant Series Pillow Block Units

UCSP-S6

UCSPA-S6

USP-S6

UCVP-S6
UCVP-S7



UCVPAN-S7

UCSP is a pillow block unit that is made entirely of stainless steel components, providing the highest level of corrosion resistance for a mounted bearing unit. It is also pre-filled with food grade grease for food processing applications.

Duty: Standard

UCSPA is a tapped-base pillow block unit with threaded bolt holes in the bottom of the housing. It is made entirely out of stainless steel components for the highest level of corrosion resistance for a mounted bearing unit. It is ideal for exact unit positioning and limited space applications. It is also pre-filled with food grade grease for food processing applications.

Duty: Standard

USP-S6 is a light duty stainless pillow block unit that is part of the Clean Series. It features a stainless housing for a high level of corrosion resistance and it is capable of accepting end covers to further increase contamination resistance.

Duty: Light

UCVP and **UCVPAN** are pillow block units with a corrosion resistant thermoplastic housing, available with either a stainless steel bearing insert or a zinc chromate plated bearing insert. Both bearing inserts offer a high level of corrosion resistance and they are factory lubricated with food grade grease.

Duty: Standard

9 Stamped Steel Pillow Block Units

SBPP

SAPP

SBPP is a pillow block unit with a lightweight and compact stamped steel housing for light to moderate duty applications.
SAPP with SA style eccentric locking collar is also available.

Duty: Light

2 4-Bolt Flange Units

1 4-Bolt Flange Units

UCF
UCF-E

NCF
NCF-E

UKF+H

NANF

UCF is a four-bolt flange unit with a rigid cast iron housing. It features two specially designed set screws in the inner ring, spaced 120 degrees apart, providing maximum holding power and reliable performance across a wide variety of applications and operating conditions.
UK style is also available.

Duty: Standard, Medium, Heavy

NCF is a four-bolt flange unit featuring a specially designed concentric locking collar that provides 360-degree shaft contact. It offers a more uniform and secure lock on the shaft compared to other locking styles and is well-suited for high-speed applications.

Duty: Standard

NANF is a four-bolt flange unit with an eccentric locking collar insert that provides a secure grip on the shaft that becomes even tighter during continued operation. It is specifically used for single-direction/non-reversing rotation.

Duty: Standard

2 Square Piloted 4-Bolt Flange Units

UCFS

UKFS+H

UCFS is a piloted four-bolt flange unit available with a heavy duty bearing insert for demanding operating environments. The pilot on the back of the housing allows for precise mounting where necessary.
UK style is also available.

Duty: Heavy

3 Narrow Inner Ring Bearing 4-Bolt Flange Units

SBF-RKP8

SAF-FP9

SBF-RKP8 is a lightweight bearing mounted four-bolt flange unit, ideal for limited space and light to moderate duty applications.
SAF-FP9 with SA style eccentric locking collar is also available.

Duty: Standard

4 Corrosion Resistant Series 4-Bolt Flange Units

UCSF-S6
UCSF-ES6

UCVF-S6
UCVF-S7

UCSF is a four-bolt flange unit that is made entirely of stainless steel components, providing the highest level of corrosion resistance for a mounted bearing unit. It is also pre-filled with food grade grease for food processing applications.

UCVF is a four-bolt flange unit with a corrosion resistant thermoplastic housing, available with either a stainless steel bearing insert or a zinc chromate plated bearing insert. Both bearing inserts offer a high level of corrosion resistance and are factory lubricated with food grade grease.

Duty: Standard

3 Oval Flange Units

1 2-Bolt Flange Units

UCFL
UCFL-E

NCFL
NCFL-E

UCFL is a two-bolt flange unit with a rigid cast iron housing.
It features two specially designed set screws in the inner ring, spaced 120 degrees apart, providing maximum holding power and reliable performance across a wide variety of applications and operating conditions.
UK style is also available.

Duty: Standard, Medium, Heavy

UKFL+H

NANFL

NCFL is a two-bolt flange unit featuring a specially designed concentric locking collar that provides 360-degree shaft contact. It offers a more uniform and secure lock on the shaft compared to other locking styles and is well-suited for high-speed applications.

Duty: Standard

NANFL is a two-bolt flange unit with an eccentric locking collar insert that provides a very secure grip on the shaft that becomes even tighter during continued operation. It is specifically used for single-direction/non-reversing rotation.

Duty: Standard

2 Compact 2-Bolt Flange Units

UFL

UFL-C, D

UFL is a light duty two-bolt flange unit that is part of the Clean Series. It features a zinc-alloy housing for a high level of corrosion resistance and it is capable of accepting end covers to further increase contamination resistance.

Duty: Light

3 Adjustable 2-Bolt Flange Units

UCFA

UCFA is an adjustable two-bolt flange unit with a rigid cast iron housing. It features two specially designed set screws in the inner ring, spaced 120 degrees apart, providing maximum holding power and reliable performance across a wide variety of applications and operating conditions.

Duty: Standard

4 3-Bolt Flange Units

UCFB

UCFB is a three-bolt flange unit with a rigid cast iron housing.
It features two specially designed set screws in the inner ring, spaced 120 degrees apart, providing maximum holding power and reliable performance across a wide variety of applications and operating conditions.
They are available in both inch and metric bolt-hole dimensions.

Duty: Standard

5 Narrow Inner Ring Bearing 2-Bolt Flange Units

SBFL-RKP8

SAFL-FP9

SBFL-RKP8 is a lightweight bearing mounted two-bolt flange unit, ideal for limited space and light to moderate duty applications.
SAFL-FP9 with SA style eccentric locking collar is also available.

Duty: Standard

6 Light 3-Bolt Flange Units

SBTFD-H4RKP8

SATFD-FH4P9

SATFD is a compact and lightweight three-bolt flange unit, featuring square bolt holes for carriage bolts and a ductile iron housing for added strength. It is ideal for limited space and light to moderate duty applications.

Duty: Light

7 Light 2-Bolt Flange Units

BLF

ALF

BLF is a compact and lightweight two-bolt flange unit, ideal for limited space and light to moderate duty applications.
ALF with SA style eccentric locking collar is also available.

Duty: Light

8 Corrosion Resistant Series 2-Bolt Flange Units

UCSFL-S6
UCSFL-ES6

USFL-S6

UCVFL-S6
UCVFL-S7

UCSFL is a two-bolt flange unit that is made entirely of stainless steel components, providing the highest level of corrosion resistance for a mounted bearing unit. It is also pre-filled with food grade grease for food processing applications.

Duty: Standard

USFL-S6 is a light duty stainless two-bolt flange unit that is part of the Clean Series. It features a stainless housing for a high level of corrosion resistance and it is capable of accepting end covers to further increase contamination resistance.

Duty: Light

UCVFL is a two-bolt flange unit with a corrosion resistant thermo-plastic housing, available with either a stainless steel bearing insert or a zinc chromate plated bearing insert. Both bearing inserts offer a high level of corrosion resistance and are factory lubricated with food grade grease.

Duty: Standard

(3 Oval Flange Units)

9 Corrosion Resistant Series 3-Bolt Flange Units

UCVFB-S7

UCVFB is a three-bolt flange unit with a corrosion-resistant thermoplastic housing, available with either a stainless steel bearing insert or a zinc chromate plated bearing insert. Both inserts offer a high level of corrosion resistance and are factory lubricated with food grade grease.

Duty: Standard

4 4-Bolt Flange Cartridge Units

1 4-Bolt Flange Cartridge Units

UCFC
UCFCX-E
UCFCF

UKFC+H

NCFC

UCFC is a piloted flange cartridge unit with a rigid cast iron housing. It features two specially designed set screws in the inner ring, spaced 120 degrees apart, providing maximum holding power and reliable performance across a wide variety of applications and operating conditions. The pilot on the back of the housing allows for precise mounting where necessary.
UK and NA styles are also available.

Duty: Standard, Medium

NCFC is a piloted flange cartridge unit featuring a specially designed concentric locking collar that provides 360-degree shaft contact. It offers a more uniform and secure lock on the shaft compared to other locking styles and is well-suited for high-speed applications.

Duty: Standard

2 Corrosion Resistant Series 4-Bolt Flange Cartridge Units

UCSFC-S6

UCSFC is a four-bolt flange cartridge unit that is made entirely of stainless steel components, providing the highest level of corrosion resistance on a mounted bearing unit. It is also pre-filled with food grade grease for food processing applications.

Duty: Standard

3 Narrow Inner Ring Bearing 4-Bolt Flange Cartridge Units

SBFC-RKP8

SAFC-FP9

SBFC-RKP8 is a lightweight bearing mounted four-bolt flange cartridge unit, ideal for limited space and light to moderate duty applications.
SAFC-FP9 with SA style eccentric locking collar is also available.

Duty: Standard

5 Stamped Steel Plate Flange Units

1 Stamped Steel 3-Bolt Flange Cartridge Units

SBPF

SAPF

SBPF is a round three-bolt flange unit with a lightweight and compact stamped steel housing for light to moderate duty applications.
SAPF with SA style eccentric locking collar is also available.

Duty: Light

2 Stamped Steel 2-Bolt Flange Units

SBPFL

SAPFL

SBPFL is a two-bolt flange unit with a lightweight and compact stamped steel housing for light to moderate duty applications.
SAPFL with SA style eccentric locking collar is also available.

Duty: Light

6 Take-Up Units

1 Take-Up Units

UCT
UCT-E

NAT-E

UCT is a wide-slot take-up unit suitable for use in a side-mount take-up frame. It features a rigid cast iron housing and two specially designed set screws in the inner ring, spaced 120 degrees apart. These set screws provide maximum holding power and reliable performance across a wide variety of applications and operating conditions.
UK style is also available.

Duty: Standard, Medium, Heavy

NAT is a wide-slot take-up unit with an eccentric locking collar insert that provides a secure grip on the shaft that becomes even tighter during continued operation. It is specifically used for single-direction/non-reversing rotation.

Duty: Standard

NCT
NCT-E

UKT+H

NCT is a wide-slot take-up unit featuring a specially designed concentric locking collar that provides 360-degree shaft contact. It offers a more uniform and secure lock on the shaft compared to other locking styles and is well-suited for high-speed applications.

Duty: Standard

UCTRS

UCTRS is a narrow slot take up unit. It features a rigid cast iron housing and two specially designed set screws in the inner ring, spaced 120 degrees apart. These set screws provide maximum holding power and reliability for a wide variety of applications and operating conditions.

Duty: Standard

(6 Take-Up Units)

2 Corrosion Resistant Series Take-Up Units

UCST-S6
UCST-ES6

UCST is a wide-slot take-up unit that is made entirely of stainless steel components, providing the highest level of corrosion resistance for a mounted bearing unit. It is also pre-filled with food grade grease for food processing applications.

Duty: Standard

3 Section Steel Frame Take-Up Units

UCTH

UCTH is a take-up unit with a section steel frame.

Duty: Standard

4 Channel Steel Frame Take-Up Units

UCTL

UCTU

UCTL is a take-up unit with a channel steel frame.
Duty: Standard

UCTU is a take-up unit with a channel steel frame.
Duty: Standard, Heavy

5 Steel Plate Frame Take-Up Units

SBPTH

SBNPTH

SBPTH is a take-up unit with a steel plate frame.
Duty: Standard

SBNPTH is a take-up unit with a steel plate frame.
Duty: Standard

7 Other Units

1 Cartridge Units

UCC

UKC+H

UCC is a cartridge unit with two specially designed set screws in the inner ring spaced 120 degrees apart. These set screws provide maximum holding power and reliable performance across a wide variety of applications and operating conditions. The cartridge housing allows for precise shaft mounting and expansion capability where necessary.
UK, NA, and NC styles are also available.

Duty: Standard, Medium, Heavy

2 Hanger Units

UCHA

UCHA is a hanger unit with a threaded base for simple installation on a threaded pipe mounting configuration. It features two specially designed set screws in the inner ring, spaced 120 degrees apart, providing maximum holding power and reliability for a wide variety of applications and operating conditions.
UK, NA, and NC styles are also available.

Duty: Standard

8 Ball Bearing Inserts

1 UC inserts

UC

UC-L3

UC-S6

with set screws

UC2 (X, 3)…Standard type Duty: Standard, Medium, Heavy

UC2 (X, 3) L3…Triple-lip seal type

UC2-S6…Stainless steel series Duty: Standard

This deep-groove ball bearing insert with a rubber seal and metal slinger comes pre-lubricated with FYH grease. This insert incorporates a wide inner ring design with FYH Bullet Point set screws as standard, spaced 120 degrees apart to mount the insert to the shaft. The set screw locking design with wide inner ring is the most common type and can be used in a wide variety of applications. The spherical O.D. of the insert has both a grease groove and grease holes to re-lubricate the insert when needed. The UC insert can be ordered with a triple-lip seal by using L3 designation in the suffix.

The UC-S6 series incorporates the same design and dimensions as a standard UC insert but is constructed of corrosion-resistant stainless steel for washdown and other corrosive environments. These inserts come with food grade grease as standard and are primarily used in food, pharmaceutical, fertilizer, and other demanding applications.

2 UK inserts

UK

UK+H

UK-L3

UK-L3+H

with adapter

UK2 (X, 3)…Standard type Duty: Standard, Medium, Heavy

UK2 (3) L3…Triple-lip seal type

This deep-groove ball bearing insert with a rubber seal and metal slinger comes pre-lubricated with FYH grease. The UK series incorporates a tapered inner ring and uses a corresponding adapter to match the bore size and mount the insert to the shaft. The UK series is well-suited for applications where shock loads may damage other locking devices. The tapered bore with adapter provides true 360-degree shaft contact along the entire length of the inner ring. The spherical O.D. has a grease groove and grease holes for re-lubrication. The insert and adapter come as two separate items and must be ordered separately. The insert is also available in a triple-lip design by adding the L3 designation to the suffix.

3 ZK inserts

ZK

with adapter

ZK2 Duty: Standard

The ZK series is a bearing type that combines a UK bearing with FYH's original Z-LOCK sleeve adapter.
The Z-LOCK sleeve is compatible with the H2300X series adapter, and by tightening two set screws, it securely clamps around the entire circumference of the shaft to ensure firm fixation.
The bearing designation changes from UK to ZK.

(8 Ball Bearing Inserts)

4 NC inserts

NC

with concentric locking collar

NC2 Duty: Standard

The FYH NC-LOC bearing features a concentric locking collar that provides 360-degree locking contact. This deep-groove ball bearing insert uses a grooved inner ring with a collar that incorporates a hex screw that is tightened to apply equal pressure against the inner ring. The NC-LOC insert has a spherical O.D. with a grease groove and grease holes for re-lubrication.
The precise ball path created by the NC-LOC bearing results in smoother operation and longer service life. The collar is designed to prevent shaft marring and burring that can occur with other locking options.

5 NA inserts

NA

with eccentric locking collar

NA2 Duty: Standard, Heavy

This deep-groove ball bearing insert with rubber seal and metal slinger comes pre-lubricated with FYH grease. It features a wide inner ring design with an eccentric locking collar for securing the insert to the shaft. The insert has grease holes and a grease groove on the outer ring for re-lubrication.
The spherical O.D. allows this insert to be installed in a wide range of housings. When mounted on the shaft, the eccentric collar's elliptical shape engages with the matching elliptical surface of the inner ring, ensuring a secure fit.
As the inner ring turns, it locks the shaft in place and a set screw is tightened to keep it from slipping.

6 SB inserts

SB

SB-RKP8

with set screws

SB2 Duty: Light

This deep-groove ball bearing insert with a spherical O.D. comes pre-lubricated from the factory with FYH grease. This bearing can be ordered in either a re-lube style or a sealed for life. The re-lube style has a grease groove and grease holes on the O.D. while the sealed-for-life style does not. The SB series has the same load ratings as a UC bearing but has a narrow inner ring, and uses a one piece seal and slinger design rather than a separate seal and slinger. This insert is secured to the shaft using two set screws spaced 120 degrees apart. To order this same bearing with a cylindrical O.D., use the designation SBB.

7 SA inserts

SA

SA-F

SA-FP9

with eccentric locking collar

SA2, SA2-F Duty: Light

This deep-groove ball bearing unit with a spherical O.D. uses an eccentric locking collar to attach to the shaft. The insert comes pre-lubricated from the factory with FYH grease. This bearing can be ordered in either a re-lube style or sealed-for-life style. The re-lube style has a grease groove and grease holes on the O.D., while the sealed-for-life style does not. This series also has a re-lube backside style, designated by an F in the suffix for compatibility with other industry standards.
When mounted on the shaft, the eccentric collar's elliptical shape engages with the inner ring's profile.
As the inner ring turns, it locks the shaft in place, and a set screw is tightened to prevent slipping. To order this same bearing with a cylindrical O.D., use the designation SAA.

8 SU inserts (Small size)

SU

SU-S6

with set screws

SU0…Standard type Duty: Light

SU0-S6…Stainless steel

This deep-groove ball bearing insert is intended for very light loads and is used in light-duty conveying applications as part of our Clean Series. It features a spherical O.D. with a wider inner ring and comes pre-lubricated from the factory. These inserts have no grease groove or grease holes for re-lubrication. The insert is secured to the shaft using two set screws spaced 120 degrees apart. The SU-S6 bearing is constructed of stainless steel and is part of our Stainless Clean Series. The stainless steel is superior in corrosion resistance compared to the standard Clean Series insert.

9 ER inserts

ER

ERC

with set screws, cylindrical O.D. lubricating mechanism, locating snap ring and snap ring groove

ER2, ERC2 Duty: Standard

This deep-groove ball bearing insert with a rubber seal and metal slinger comes pre-lubricated with FYH grease. The ER series has a cylindrical O.D. with a grease groove and grease holes on the outer ring for re-lubrication. The ER series uses two FYH Bullet Point type set screws, spaced 120 degrees apart, to mount the insert to the shaft. ER bearings have a snap ring on the outer ring to simplify bearing location during installation.
ERC with NC-LOC style concentric locking collar is also available.

10 RB inserts

RB

with set screws, cylindrical O.D.

RB2 Duty: Standard

This deep-groove ball bearing insert with a rubber seal and metal slinger comes pre-lubricated with FYH grease. The RB series has a cylindrical O.D. and the same dimensions as the ER series but does not have a snap ring for locating, or a grease groove and grease holes for re-lubrication. The RB series uses two FYH Bullet Point type set screws, spaced 120 degrees apart, to mount the insert to the shaft.

(8 Ball Bearing Inserts)

11 SC inserts

SC

SC2 Duty: Light

The SC series is a non-extending inner ring insert with a spherical outer-diameter, allowing it to be mounted in a traditional housing. It offers a more precise bore tolerance than typical mounted bearings, enabling press-fit shaft mounting.

12 SBB, SAA inserts

SBB-RK

SAA-F

with set screws, cylindrical O.D.

SBB2, SAA2-F Duty: Light

The SBB and SAA insert series both have a cylindrical outer diameter for press-fit mounting directly into component machinery. They are not self-aligning and cannot be mounted in traditional housings.

13 Adapter H2300X

H2300X

Adapter

H2300X

The H2300X adapter series is for use in the tapered-bore UK series. Proper assembly of adapter sleeves provides secure holding power on the shaft.

14 Adapter ZK00

ZK00

Adapter

ZK00

The ZK00 series is an adapter for the UK series tapered-bore bearings that incorporates FYH's original Z-LOCK locking method. The Z-LOCK sleeve is compatible with the H2300X series adapter, and by tightening two set screws with a hex wrench, it securely fits around the entire circumference of the shaft to ensure firm fixation.

4 Rating Life of Bearings

When ball bearing units are installed and operated on a piece of machinery eventually a failure will occur. The period of operation until the unit cannot be used due to failure is called the bearing life.

Bearing failure is caused by two main reasons. The first is fatigue of bearing material, and the second is lubricant degradation. The life is figured on whichever fails first.

Proper bearing lubrication will eliminate grease degradation and allow full bearing life to be achieved. If the bearing units are run without replenishment of the grease the bearing life will have to be factored by either the grease life or the bearing life. During installation, care must be taken not to damage the bearing. Proper bearing maintenance and lubrication will ensure long bearing life.

4.1 Basic Rating Life and Basic Load Rating

4.1.1 Basic rating life

When a bearing is rotated under load the raceways and the rolling elements are continuously exposed to load. Damage, such as scaling (flaking or peeling), eventually appears on the material, and the total rotating frequency until the damage appears is called the "fatigue limit of the bearing". Fatigue limit of the bearing can vary greatly even if the bearings have the same structure, dimensions, materials, machining methods, and are operated under the same conditions.

To account for this variation, a group of the same bearings operating under the same conditions are tested, and the total rotating frequency of 90% of the bearings operating with no damage due to rotating fatigue (90% reliability) is called the basic load rating.

4.1.2 Basic load rating

Dynamic ratings are determined by placing a pure radial load on a radial bearing or by placing a central axial load on a thrust bearing. The dynamic rating is the load that the bearing will withstand for one million cycles before failure of the bearing.

These ratings are referred to as the **basic dynamic radial load rating** (C_r) or the **basic dynamic axial load rating** (C_a). These values are indicated in the catalog as the basic dynamic radial load rating (C_r), and the value is shown in the dimensional table.

4.2 Calculation of Rating Life

The relationship between the basic rating life, the basic dynamic load rating, and the dynamic equivalent load of the ball bearing is indicated in **Formula (4.1)**. If the ball bearing unit is being used at a fixed rotating speed, the life is indicated as time. This is shown in **Formula (4.2)**.

(Total rotating frequency) $$L_{10} = \left(\frac{C_r}{P_r}\right)^3 \quad \cdots\cdots (4.1)$$

(Time) $$L_{10h} = \frac{10^6}{60n}\left(\frac{C_r}{P_r}\right)^3 \quad \cdots (4.2)$$

Where,

L_{10}: Basic rating life, 10^6 rotations

L_{10h}: Basic rating life, hr

C_r: Basic dynamic load rating, N

P_r: Dynamic equivalent load, N (see **"5 Bearing load"**)

n: Rotating speed, min^{-1}

Calculation of the basic rating life using the life factor (f_h) and the speed factor (f_n) in **Formula (4.2)** is shown below.

$$L_{10h} = 500\, f_h^{\,3} \quad \cdots\cdots (4.3)$$

Life factor $$f_h = f_n \cdot \frac{C_r}{P_r} \quad \cdots\cdots (4.4)$$

Speed factor $$f_n = \left(\frac{10^6}{500 \times 60n}\right)^{1/3} = (0.03n)^{-1/3} \quad \cdots\cdots (4.5)$$

Values of f_n, f_h and L_{10h} can be found using the nomogram of **Fig. 4.1**.

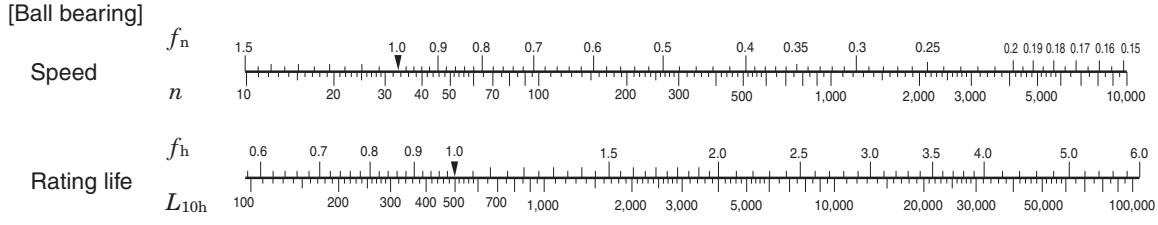


Fig. 4.1 Relation between basic rating life (L_{10h}) and rotating speed (n), speed factor (f_n), and life factor (f_h)

4.2.1 Correction of basic load rating due to temperature

If a ball bearing unit is used at a relatively high temperature the physical composition of the bearing material is changed leading to decreased hardness. This decreased hardness leads to the basic dynamic load rating being reduced. Once the structure of the bearing material has been changed, it will remain this way for the life of the unit, even when it returns to room temperature.

When using a ball bearing unit at 150 ℃ or more, the basic load rating must be corrected by multiplying the basic dynamic load rating shown in the dimensional table by the temperature factor shown in **Table 4.1**.

Table 4.1 Temperature factor

Bearing temperature, ℃	125	150	175	200	250
Temperature factor	1	1	0.95	0.9	0.75

4.2.2 Corrected rating life

The basic L_{10} rating life shown in **Formula (4.1)** is the fatigue life of a bearing with 90% reliability however; there are circumstances where bearings need greater reliability. The bearing life may be extended by using special materials.

Other conditions, including lubrication, may influence the bearing life.

The corrected rating life is found by taking the basic rating life and taking the factors in **Formula (4.6)** into consideration.

$$L_{na} = a_1 a_2 a_3 L_{10} \quad \cdots\cdots (4.6)$$

Where,

L_{na}: Corrected rating life, 10^6 rotations
Bearing characteristics and operating conditions are taken into consideration with reliability 100–n% (breakage probability)

L_{10}: Basic load rating, 10^6 rotations
Life with 90% reliability

a_1: Reliability factor ..... see (1)

a_2: Bearing characterization factor ..... see (2)

a_3: Operating condition factor ..... see (3)

(1) Reliability factor a_1

Table 4.2 shows the values used when a corrected bearing life that has less than a 10% breakage probability is necessary.

Table 4.2 Reliability factor a_1

Reliability, %	L_{na}	a_1
90	L_{10a}	1
95	L_{5a}	0.62
96	L_{4a}	0.53
97	L_{3a}	0.44
98	L_{2a}	0.33
99	L_{1a}	0.21

(2) Bearing characterization factor a_2

The material make-up of a bearing can have an effect on its basic rating life. Factors that can influence the bearing include bearing material (type of steel), production procedures, and bearing design. Bearing characterization is shown as factor a_2.

FYH ball bearing inserts use high quality vacuum degassed bearing steel as standard material, and this material allows for a longer rating life. For FYH ball bearing units, the bearing characterization factor a_2 is 1 ($a_2 = 1$). When bearings with special materials are used for a longer fatigue limit the characterization factor can be shown as a_2 being greater than 1 ($a_2 > 1$).

(3) Operating condition factor a_3

Operating conditions may directly influence the life of the bearing (especially proper or improper lubrication). The basic rating life should be corrected using the operating condition factor a_3. If lubrication is being maintained the factor $a_3 = 1$. If excellent re-lubrication practices are being maintained the factor $a_3 > 1$ should be applied.

If any of the following operating conditions are applicable the condition should be applied as $a_3 < 1$.

(1) Kinematic viscosity of lubricant during operation is low:
Ball bearing: 13 mm^2/s or less,
Roller bearing: 20 mm^2/s or less

(2) Rotating speed is low:
$d_m n$: 10,000 or less
Note: d_m (Pitch dia. of ball set in mm) × n (Rotating speed)

(3) Foreign matters are mixed in lubricant

Even if the bearing characterization factor is improved i.e., $a_2 > 1$, the life of the bearing must still be down-rated if the combination, $a_2 \times a_3 > 1$.

4.2.3 Required lifetime of bearings

At some point, the economical nature of a ball bearing begins to decline. The operating conditions, type of bearing used, and type of machine the bearing is used on all influence the operational life of the bearing.

The required lifetime of the ball bearing is shown in **Table 4.3**.

Table 4.3 Required life time of ball bearing units (reference)

Operating conditions	Machines used	Required life time, hrs
Operated in short periods or intermittently	Home electric appliances, electric tools, agricultural machinery, hoists, etc.	4,000 – 8,000
Operated for several minutes or hours at a time, but less than 8 hours per day	Factory motor, ordinary gearing, etc.	12,000 – 20,000
Constantly operated for 8 hours or longer per day or operated continuously for long periods	General machinery, blowers, etc.	20,000 – 30,000
Operated continuously for 24 hours, no fault is allowed	Power plants, mine drainage facility, etc.	100,000 –200,000

4.3 Grease Life

The grease life for ball bearing units is influenced by: the level of the load, rotating speed of the bearing, and the operating temperature.

The grease life for ball bearing units being used under appropriate operating conditions can be found by the formula shown below.

$$\log L = 6.10 - 4.40 \times 10^{-6} d_m n - 2.50 \left(\frac{P_r}{C_r} - 0.05 \right) - (0.021 - 1.80 \times 10^{-8} d_m n)\, T \quad \cdots\cdots\cdots\cdots (4.7)$$

Where,

L: Grease life, hr

d_m: Pitch dia. of ball set, mm

$$d_m = \frac{(D + d)}{2}$$

(D: Nominal bearing outer dia., d: Nominal bearing bore dia.)

n: Rotating speed of bearing, $\min^{-1}$

P_r: Dynamic equivalent radial load, N (see **"5 Bearing load"**)

C_r: Basic dynamic radial load rating of bearing, N

T: Operating temperature of bearing, °C

Applicable conditions for the **Formula (4.7)** are shown below.

1) Operating temperature of bearing: T °C

To be applied if the following condition is satisfied: $T \leq 100$

(If T is smaller than 50 ($T < 50$), following condition should be applied: $T = 50$.)

If T is larger than 100 ($T > 100$), contact FYH.

2) Rotating speed of bearing: $d_m n$

To be applied if the following condition is satisfied: $d_m n \leq 30 \times 10^4$

(If $d_m n$ is smaller than 12.5×10^4 ($d_m n < 12.5 \times 10^4$), following condition should be applied: $d_m n = 12.5 \times 10^4$)

If $d_m n$ is larger than 30×10^4 ($d_m n > 30 \times 10^4$), contact FYH.

3) Load condition of bearing: $\frac{P_r}{C_r}$

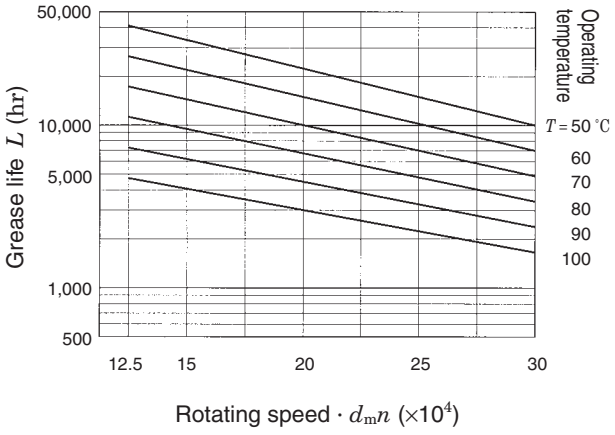
To be applied if the following condition is satisfied: $\frac{P_r}{C_r} \leq 0.2$

(If $\frac{P_r}{C_r}$ is smaller than 0.05 ($\frac{P_r}{C_r} < 0.05$), following condition should be applied: $\frac{P_r}{C_r} = 0.05$)

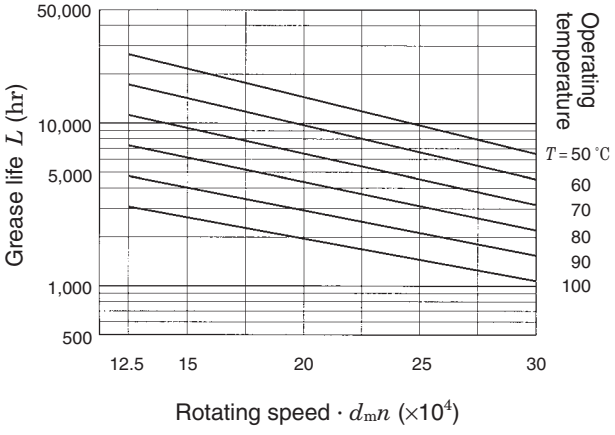
If $\frac{P_r}{C_r}$ is larger than 0.2 ($\frac{P_r}{C_r} > 0.2$), contact FYH.

Reference figure of grease life obtained by the **Formula (4.7)** is shown in **Fig. 4.2**.

(1) Bearing load · $\frac{P_r}{C_r} = 0.05$



(2) Bearing load · $\frac{P_r}{C_r} = 0.125$



(3) Bearing load · $\frac{P_r}{C_r} = 0.2$

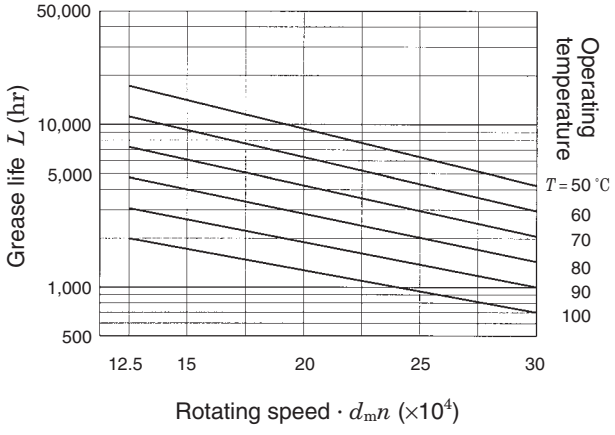


Fig. 4.2 Relation of grease life to bearing load, rotating speed, and operating temperature (reference)

5 Bearing Load

Loads that are applied to bearings come from a variety of sources.

In addition to the primary load, other resultant loads include the weight of associated components, such as shafts, gears, pulleys, torsion from chains and belts, and so on. Shock or dynamic load can also be derived from these sources.

In many cases, these loads cannot be determined by a simple or single calculation; and since these loads often fluctuate in intensity, it is difficult to determine the exact magnitude of them prior to actual lab or field measurements on the machinery in question.

However, in order to approximate the loads involved prior to putting a machine into operation, the technique shown below should be used. This technique uses multiplication factors that have been determined empirically from sample measurements taken on actual machines in operation.

5.1 Loads Applied to Bearings

5.1.1 Load factor

Even if the static radial load and the axial load can be accurately calculated, the actual loads are generally greater than the calculated figures. This is due to the presence of vibration and shock load during actual machine operation.

To find the loads actually applied to a bearing, multiply the values determined for the static load by the following load factors.

$$F = f_w \cdot F_c \quad \cdots\cdots (5.1)$$

Where,

F: Load actually applied to bearing, N

F_c: Theoretically calculated load, N

f_w: Load factor (see **Table 5.1**)

Table 5.1 Load factor f_w

Operating conditions	Applications	f_w
Virtually no vibration or impact	Electric machines and instruments	1 –1.2
Ordinary operation (light impact)	Agricultural machines and blowers	1.2–2
Great vibration and impact	Construction machines and grinders	2 –3

5.1.2 Loads from belts or chain drives

The load calculated for the bearing is equal to the tensile load of the belt. However, this load must be multiplied by the load factor (f_w), which accounts for vibration and impact of the machine and a belt factor (f_b), which accounts for the vibration and impact generated through the belt.

When calculating loads for a chain drive, use the same factor (f_b) as used for belt drives.

$$F_b = \frac{2M}{D_p} \cdot f_w \cdot f_b = \frac{19.1 \times 10^6 W}{D_p \cdot n} \cdot f_w \cdot f_b \quad \cdots\cdots (5.2)$$

Where,

F_b: Load actually applied to pulley shaft or sprocket shaft, N

M: Torque applied to pulley or sprocket, mN · m

W: Transmitted power, kW

D_p: Pitch circle dia. of pulley or sprocket, mm

n: Rotating speed, min^{-1}

f_w: Load factor (see **Table 5.1**)

f_b: Belt factor (see **Table 5.2**)

Table 5.2 Belt factor f_b

Belt type	f_b
Toothed belt	1.3–2
V belt	2 –2.5
Flat belt (with tension pulley)	2.5–3
Flat belt	4 –5
Chain	1.2–1.5

5.1.3 Load of gear transmissions

Gear transmissions have a load in the tangential direction (K_t), a load in the radial direction (K_r), and an axial load (K_a). Different types of gears are calculated differently.

The following is a sample of a calculation for an ordinary spur gear arrangement. A flat spur gear will not support an axial load.

(1) Load applied to gear in tangential direction (tangential line force)

$$K_t = \frac{2M}{D_p} = \frac{19.1 \times 10^6 W}{D_p n} \quad \cdots\cdots (5.3)$$

(2) Load applied to gear in radius direction (separating force)

$$K_r = K_t \tan \alpha \quad \cdots\cdots (5.4)$$

(3) Synthetic load applied to gear

$$K_g = \sqrt{K_t^2 + K_r^2} = K_t \sec\alpha \quad \cdots\cdots (5.5)$$

Where,

K_t: Load applied to gear in tangential direction (tangential line force), N

K_r: Load applied to gear in radius direction (separating force), N

K_g: Synthetic load applied to gear, N

M: Torque applied to gear, mN · m

D_p: Pitch circle dia. of gear, mm

W: Transmission power, kW

n: Rotating speed, min^{-1}

α: Pressure angle of gear, °

Note that the actual gear load must be found by multiplying the theoretical load by the load factor (f_w) obtained by taking into consideration the vibration and impact loads generated while the machine is in operation. The gear factor (f_g) is determined by taking into consideration the accuracy of machining and the finish of the gears.

$$F_g = f_w \cdot f_g \cdot K_g \quad \cdots\cdots (5.6)$$

Where,

F_g: Load actually applied to gear, N

K_g: Theoretical synthetic load applied to gear, N

f_w: Load factor (see **Table 5.1**)

f_g: Gear factor (see **Table 5.3**)

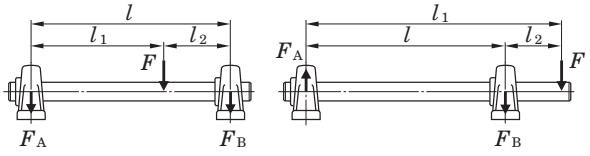
Table 5.3 Gear factor f_g

Gear type	f_g
Precision gear (both pitch error and tooth profile error should be 0.02 mm or less)	1 –1.1
Ordinary gear (both pitch error and tooth profile error should be 0.1 mm or less)	1.1–1.3

5.2 Distribution of Bearing Load

In order to determine the radial load distribution to each bearing attached to a shaft, use the procedure shown below. Use the load factors shown in **Table 5.1** to account for vibration and impact.

A standard radial ball bearing bears an axial load component in addition to the radial component. The total vectored load can be calculated by taking the square root of the sum of the squares of each load as shown in the previous calculation.



$$F_A = \frac{l_2}{l} \cdot F \quad \cdots\cdots (5.7)$$

$$F_B = \frac{l_1}{l} \cdot F \quad \cdots\cdots (5.8)$$

Fig. 5.1 Distribution of load to bearings

5.3 Dynamic Equivalent Load

In many cases, a bearing is exposed to the combined vector load of both radial and axial load components. It may also be used under more severe conditions such as vibration and shock load. In this case, a direct comparison to the dynamic load rating is not appropriate.

In such a case, find the load equivalent to a direct radial load only and compare this with the basic dynamic load rating.

The converted virtual load is called dynamic equivalent load (P).

5.3.1 Calculation of dynamic equivalent load

The dynamic equivalent radial load (P_r) of a bearing that bears radial and axial loads as well as vibration and impact is found by the following formula.

$$P_r = XF_r + YF_a \quad \cdots\cdots (5.9)$$

Where,

P_r: Dynamic equivalent radial load, N
F_r: Radial load, N
F_a: Axial load, N
X: Radial load factor (see **Table 5.4**)
Y: Axial load factor (see **Table 5.4**)

Table 5.4 Radial load factor (X) and axial load factor (Y)

$\frac{f_0 F_a}{C_{0r}}$	e	$F_a / F_r \le e$		$F_a / F_r > e$	
		X	Y	X	Y
0.172	0.19	1	0	0.56	2.30
0.345	0.22				1.99
0.689	0.26				1.71
1.03	0.28				1.55
1.38	0.30				1.45
2.07	0.34				1.31
3.45	0.38				1.15
5.17	0.42				1.04
6.89	0.44				1.00

Remarks 1. C_{0r} (basic static radial load rating) and f_0 (factor) are shown in the dimensional tables.
2. If $f_0 F_a / C_{0r}$ does not conform to the table above, find by interpolation.

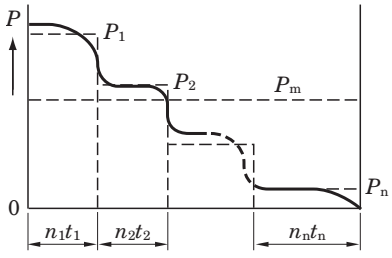
5.3.2 Average dynamic equivalent load in the case of fluctuating loads

If the level or direction of the load applied to a bearing is fluctuating, it is necessary to find the average dynamic equivalent load to calculate the bearing life.

Table 5.5 shows the method of finding the average dynamic equivalent load under various types of fluctuating conditions.

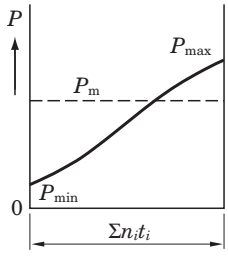
Table 5.5 Calculation of average dynamic equivalent load in case of fluctuated load

(1) Graduated fluctuation



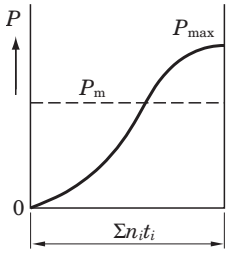
$$P_m = \sqrt[p]{\frac{P_1^p\, n_1t_1 + P_2^p\, n_2t_2 + \cdots\cdots + P_n^p\, n_nt_n}{n_1t_1 + n_2t_2 + \cdots\cdots + n_nt_n}} \quad \cdots\cdots (5.10)$$

(2) Monotone fluctuation



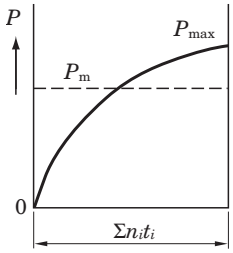
$$P_m = \frac{P_{min} + 2\,P_{max}}{3} \quad \cdots\cdots (5.11)$$

(3) Sine curve fluctuation



$$P_m = 0.68\,P_{max} \quad \cdots\cdots (5.12)$$

(4) Sine curve fluctuation (upper half of sine curve)



$$P_m = 0.75\,P_{max} \quad \cdots\cdots (5.13)$$

Where,

P_m: Average dynamic equivalent load, N

P_1: Dynamic equivalent load actuating for t_1 hours at rotating speed of n_1, N

P_2: Dynamic equivalent load actuating for t_2 hours at rotating speed of n_2, N

.
.
.

P_n: Dynamic equivalent load actuating for t_n hours at rotating speed of n_n, N

P_{min}: Minimum dynamic equivalent load, N

P_{max}: Maximum dynamic equivalent load, N

Σn_it_i: Total rotating frequency for t_1 to t_i hours

5.4 Basic Static Load Rating and Static Equivalent Load

5.4.1 Basic static load rating

If a bearing is exposed to excessive static or impact load even when running at low rotational speed, partial permanent deformation occurs to the contact surface of the raceways of the bearing. The amount of permanent deformation increases with increased loads, and at some point, the bearing will no longer rotate smoothly.

The basic static load rating of a bearing is the static load that generates the calculated contact stresses shown below at the center of the contact surfaces of the raceways.

(1) Self aligning ball bearings ..... 4,600 MPa
(2) Other ball bearings
(mounted ball bearings included) ..... 4,200 MPa
(3) Roller bearings ..... 4,000 MPa

The total permanent deformation that occurs to the raceways and the balls under the above critical contact stresses is 0.0001 times the diameter of the ball.

In ball bearing units, this is indicated as the basic static radial load rating (C_{0r}) and these values are shown in the dimensional tables.

5.4.2 Static equivalent loads

Static equivalent load is the equivalent of the combined (vectored) load converted to the equivalent direct radial load. The term "static" refers to no rotation or very little rotation.

Static equivalent radial load (P_{0r}) can be calculated by using the formula below.

$$P_{0r} = 0.6F_r + 0.5F_a \quad \cdots\cdots (5.14)$$

$$P_{0r} = F_r \quad \cdots\cdots (5.15)$$

Where,

P_{0r}: Static equivalent radial load, N

F_r: Radial load, N

F_a: Axial load, N

5.4.3 Safety factor

The static equivalent load that can be withstood by a bearing, in addition to the above considerations, is sometimes dependent upon unforeseen conditions in the operating environment. Therefore, a safety factor is always built in to ensure success in the application.

$$f_s = \frac{C_{0r}}{P_{0r}} \quad \cdots\cdots (5.16)$$

Where,

f_s: Safety factor (see **Table 5.6**)

C_{0r}: Basic static radial load rating, N

P_{0r}: Static equivalent radial load, N

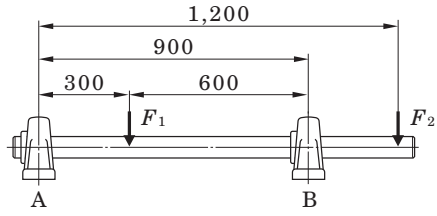
Table 5.6 Safety factor f_s (recommended)

Operating conditions		f_s (Min.)
Being rotated	High rotating accuracy is required	2
	Ordinary operating conditions	1
	Impact	1.5
Not always being rotated (sometimes oscillated)	Ordinary operating conditions	0.5
	Impact, unevenly distributed load	1

5.5 Example of Applied Calculation

Example 1 Distributing load

Find the load applied to the bearing A and bearing B, if the radial load F_1 (F_1 = 1.5 kN) and F_2 (F_2 = 4.5 kN) are applied.



(1) Find the radial load F_{1A} applied to the bearing A by F_1, with **Formula (5.7)** and **Formula (5.8)**.

$$F_{1A} = \frac{600}{900} \times 1.5 = 1.0 \text{ (kN)}$$

In a similar manner, find the radial load F_{2A} applied to the bearing A by F_2.

$$F_{2A} = -\frac{1{,}200 - 900}{900} \times 4.5 = -1.5 \text{ (kN)}$$

Remark: Negative load is the upward load.

Radial load F_A applied to the bearing A:

$$F_A = F_{1A} + F_{2A} = 1.0 + (-1.5) = -0.5 \text{ (kN)}$$

(2) In a similar manner to (1), find the radial load F_B applied to the bearing B.

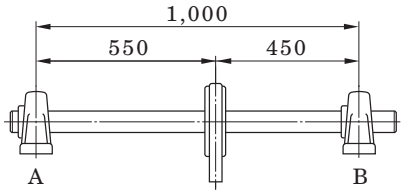
$$F_{1B} = \frac{300}{900} \times 1.5 = 0.5 \text{ (kN)}$$

$$F_{2B} = \frac{1{,}200}{900} \times 4.5 = 6.0 \text{ (kN)}$$

$$F_B = F_{1B} + F_{2B} = 0.5 + 6.0 = 6.5 \text{ (kN)}$$

Example 2 Calculating load by V-belt transmission

Find the load applied to the bearing A and bearing B when the shaft is driven by the V-belt, transmission power W is 7.5 kW (W = 7.5 kW), rotating speed n is 300 $\min^{-1}$ (n = 300 $\min^{-1}$), effective diameter of pulley D_p is 300 mm (D_p = 300 mm).



(1) Find the load actually applied to the pulley shaft F_b with **Formula (5.2)**.

From **Table 5.1**, load factor f_w is 1.2 (f_w = 1.2), and the belt factor f_b is 2.5 (f_b = 2.5), from **Table 5.2**.

$$F_b = \frac{19.1 \times 10^6\, W}{D_p \cdot n} \cdot f_w \cdot f_b$$

$$= \frac{19.1 \times 10^6 \times 7.5}{300 \times 300} \times 1.2 \times 2.5 = 4.78 \text{ (kN)}$$

(2) Find the load actually applied to the bearing A and bearing B (F_A and F_B) with **Formulas (5.7)** and **(5.8)**.

$$F_A = \frac{450}{1{,}000} \times 4.78 = 2.15 \text{ (kN)}$$

$$F_B = \frac{550}{1{,}000} \times 4.78 = 2.63 \text{ (kN)}$$

Example 3 Calculating dynamic equivalent radial load

Find the dynamic equivalent radial load P_r when the radial load F_r, 1.5 kN (F_r = 1.5 kN), and the axial load F_a, 0.85 kN, (F_a = 0.85 kN) are applied to the pillow type unit UCP306J (bearing UC306).

(1) Find the radial load factor (X) and the axial load factor (Y) with using the static radial load rating C_{0r} of UCP306J (bearing UC306), 15.0 kN (C_{0r} = 15.0 kN), and **Table 5.4**.

Find the solutions of the following formulas:

$$\frac{f_0 F_a}{C_{0r}} = \frac{13.3 \times 0.85}{15.0} = 0.754,\ e = 0.264$$

$$\frac{F_a}{F_r} = \frac{0.85}{1.5} = 0.567 > e\ (0.264)$$

Therefore, X = 0.56, Y = 1.68

(2) Find the dynamic equivalent radial load P_r with **Formula (5.9)**.

$$P_r = XF_r + YF_a = 0.56 \times 1.5 + 1.68 \times 0.85$$

$$= 2.27 \text{ (kN)}$$

Example 4 Calculating bearing life

Under the conditions shown in **Example 3**, find the bearing life L_{10h} when a bearing is used for a blower with a rotating speed n, 1,000 $\min^{-1}$.

(1) Select the load factor f_w is 1.2 (f_w = 1.2) from **Table 5.1**, and find the bearing load P_r.

$$P_r = f_w \cdot F = 1.2 \times 2.27 = 2.72 \text{ (kN)}$$

(2) The dynamic radial load rating of UCP306J (bearing UC306), C_r, is 26.7 kN (C_r = 26.7 kN), and calculate the bearing life L_{10h} with the **Formula (4.2)**.

$$L_{10h} = \frac{10^6}{60n} \cdot \left(\frac{C_r}{P_r}\right)^3 = \frac{10^6}{60 \times 1{,}000} \times \left(\frac{26.7}{2.72}\right)^3$$

$$\approx 15{,}800 \text{ (hr)}$$

(3) Calculate bearing life L_{10h} with the nomogram shown in **Fig. 4.1**.

When the rotating speed n is 1,000 $\min^{-1}$ (n = 1,000 $\min^{-1}$), rotating factor f_n is 0.32 (f_n = 0.32). Next, find the life factor f_h by speed factor f_n, dynamic radial load rating of bearing C_r, and the bearing load P_r.

$$\text{Life factor } f_h = f_n \cdot \frac{C_r}{P_r} = 0.32 \times \frac{26.7}{2.72} = 3.14$$

From life factor f_h, bearing life $L_{10h} \approx$ 16,000 hours.

Example 5 Selecting ball bearing units

If a bearing is operated under the following conditions, select the flange type unit (UCF) with at least two years (5,000 hours) or longer rating life: rotating speed of shaft n is 1,500 $\min^{-1}$ (n = 1,500 $\min^{-1}$), and radial load F_r is 5 kN (F_r = 5 kN). The radial load F_r includes the load factor and gear factor.

(1) From the nomogram shown in **Fig. 4.1**, when life time L_h is 5,000 hr (L_h = 5,000 hr), life factor f_h can be found as 2.16 ($f_h \approx$ 2.16), and speed factor f_n can be found as 0.28 ($f_n \approx$ 0.28) when the rotating speed n is 1,500 $\min^{-1}$ (n = 1,500 $\min^{-1}$).

$$\text{Dynamic radial load rating } C_r = F_r \cdot \frac{f_h}{f_n} = 5 \times \frac{2.16}{0.28}$$

$$\approx 38.6 \text{ (kN)}$$

(2) Find the flange type unit that meets the following condition: dynamic radial load rating C_r is 38.6 kN (C_r = 38.6 kN). For the 200 series. UCF211J (dynamic radial load rating C_r is 43.4 kN (C_r = 43.4 kN)) can be selected.

Example 6 Selecting pillow type units for low speed

If a bearing is used for a dolly under the following conditions, select the pillow type unit (UCP) with 10,000 hours rating life: radial load F_r is 12 kN (F_r = 12 kN), and rotating speed is 8 $\mathrm{min^{-1}}$.

(1) Find the required dynamic radial load rating C_r using **Formulas (4.4)** and **(4.5)**.

Speed factor $f_n = (0.03n)^{-1/p} = (0.03 \times 8)^{-1/3} \approx 1.61$

Life factor $f_h = \left(\frac{L_{10h}}{500}\right)^{1/p} = \left(\frac{10{,}000}{500}\right)^{1/3} \approx 2.71$

Dynamic radial load rating $C_r = P_r \cdot \frac{f_h}{f_n} = 12 \times \frac{2.71}{1.61}$

≈ 20.2 (kN)

(2) From **Table 5.6**, define safe factor f_s as 2 (f_s = 2), and find the static radial load rating of bearing required C_{0r}.

$C_{0r} = f_s \cdot P_r = 2 \times 12 = 24$ (kN)

(3) The unit is used for a dolly, and vibration or impact may occur. Thus, select UCP308J (C_r = 40.7 kN, C_{0r} = 24.0 kN).

Example 7 Calculating bearing life in high temperature applications

Find the bearing life if the heat resistant pillow type unit (UCP215D1K2) is operated under the following conditions: operating temperature is 175 ºC, radial load F_r is 4 kN (F_r = 4 kN), and the rotating speed n is 800 $\mathrm{min^{-1}}$ (n = 800 $\mathrm{min^{-1}}$). Note that the radial load F_r includes load factor and gear factor.

(1) From **Table 4.1**, find the dynamic load rating C_r in the case that a bearing is used at 175 ºC.

$C_r = 67.4 \times 0.95 = 64.0$ (kN)

Find the bearing life L_{10h} using **Formula (4.2)**.

$$L_{10h} = \frac{10^6}{60n} \cdot \left(\frac{C_r}{P_r}\right)^3 = \frac{10^6}{60 \times 800} \times \left(\frac{64.0}{4}\right)^3$$

$\approx 85{,}000$ (hr)

(2) If a bearing unit is operated at 175 ºC, grease is degraded faster, and it cannot be used without lubrication. Supply grease at intervals specified in **Table 14.4**.

(3) If the shaft experiences axial expansion due to heat, install a fixed bearing unit on one end of the assembly and install floating bearing unit on the other side that allows the shaft to move freely through the bore of the bearing. More information is offered in **Section 9**. (see **"9 Design of shaft and base"**).

Example 8 Calculating grease life

Find the grease life for pillow type unit UCP204J (bearing UC204) under the following conditions: radial load F_r is 1 kN (F_r = 1 kN), and rotating speed n is 800 $\mathrm{min^{-1}}$ (n = 800 $\mathrm{min^{-1}}$). Note that the radial load F_r includes load factor and belt factor. Operating temperature of the bearing should be 40 ºC.

Find the grease life L using **Formula (4.7)**.

$$\log L = 6.10 - 4.40 \times 10^{-6}\, d_m n - 2.50 \left(\frac{P_r}{C_r} - 0.05\right) - (0.021 - 1.80 \times 10^{-8}\, d_m n)\, T$$

$$= 6.10 - 4.40 \times 10^{-6} \times 12.5 \times 10^4 - 2.50 \left(\frac{1}{12.8} - 0.05\right) - (0.021 - 1.80 \times 10^{-8} \times 12.5 \times 10^4) \times 50$$

$$= 4.542$$

$L \approx 34{,}800$ (hr)

Example 9 Calculating life of bearing units in case of non-lubrication

Find the life of a bearing unit in the case that it is operated under the conditions shown in **Example 8**, but without lubrication.

(1) Find the rating life of bearings L_{10h} using **Formula (4.2)**.

$$L_{10h} = \frac{10^6}{60n} \cdot \left(\frac{C_r}{P_r}\right)^3 = \frac{10^6}{60 \times 800} \times \left(\frac{12.8}{1}\right)^3$$

$\approx 43{,}700$ (hr)

(2) Compare the grease life L shown in **Example 8** to the rating life of bearings L_h. Then, grease life L is shorter than the bearing rating life. Therefore, life of a bearing unit should be the same as the grease life L, 34,800 hours (L = 34,800 hours).

Table 5.7 (1) Radial Load/Speed Chart

Normal Duty **Unit : lbf**

SHAFT SIZE	L_{10h}	Allowable Radial Load at Various RPM																					
		RPM (min^{-1})																					
		50	100	150	300	500	750	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500	8000	8500
1/2" 5/8" 3/4" 12 mm - 20 mm	10000	927	736	643	510	430	376	341	298	271	252	237	225	215	207	200	193	188	183	179	174	171	167
	25000	683	542	474	376	317	277	252	220	200	185	174	166	158	152	147	143	138	135	132	129	126	123
	50000	542	430	376	298	252	220	200	174	158	147	138	132	126	121	117	113	110	107	104	102	100	98
	70000	485	385	336	267	225	196	179	156	142	132	124	118	112	108	104	101	98	96	93	91	89	87
	100000	430	341	298	237	200	174	158	138	126	117	110	104	100	96	93	90	87	85	83	81	79	78
7/8" 15/16" 1" 25 mm	10000	1014	805	703	558	471	411	373	326	296	275	259	246	235	226	218	212	206	200	195	191		
	25000	747	593	518	411	347	303	275	240	218	203	191	181	173	167	161	156	151	147	144	141		
	50000	593	471	411	326	275	240	218	191	173	161	151	144	138	132	128	124	120	117	114	112		
	70000	530	421	367	292	246	215	195	171	155	144	135	129	123	118	114	111	107	105	102	100		
	100000	471	373	326	259	218	191	173	151	138	128	120	114	109	105	101	98	95	93	91	89		
1-1/8" 1-3/16" 1-1/4" 30 mm	10000	1412	1121	979	777	655	573	520	454	413	383	361	343	328	315	304	295	286					
	25000	1040	826	721	573	483	422	383	335	304	282	266	252	241	232	224	217	211					
	50000	826	655	573	454	383	335	304	266	241	224	211	200	192	184	178	172	167					
	70000	738	586	512	406	343	299	272	238	216	200	189	179	171	165	159	154	150					
	100000	655	520	454	361	304	266	241	211	192	178	167	159	152	146	141	137	133					
1-1/4" 1-5/16" 1-3/8" 1-7/16" 35 mm	10000	1861	1477	1290	1024	864	755	686	599	544	505	475	452	432	415	401	388						
	25000	1371	1088	951	755	636	556	505	441	401	372	350	333	318	306	295	286						
	50000	1088	864	755	599	505	441	401	350	318	295	278	264	253	243	234	227						
	70000	973	772	675	535	452	394	358	313	284	264	248	236	226	217	210	203						
	100000	864	686	599	475	401	350	318	278	253	234	221	210	200	193	186	180						
1-1/2" 1-9/16" 40 mm	10000	2107	1672	1461	1160	978	854	776	678	616	572	538	511	489	470	454							
	25000	1553	1232	1077	854	721	630	572	500	454	421	397	377	360	346	334							
	50000	1232	978	854	678	572	500	454	397	360	334	315	299	286	275	265							
	70000	1102	874	764	606	511	447	406	355	322	299	281	267	256	246	237							
	100000	978	776	678	538	454	397	360	315	286	265	250	237	227	218	211							
1-5/8" 1-11/16" 1-3/4" 45 mm	10000	2469	1960	1712	1359	1146	1001	910	795	722	670	631	599	573	551								
	25000	1819	1444	1261	1001	844	738	670	586	532	494	465	441	422	406								
	50000	1444	1146	1001	795	670	586	532	465	422	392	369	350	335	322								
	70000	1291	1025	895	710	599	523	476	415	377	350	330	313	300	288								
	100000	1146	910	795	631	532	465	422	369	335	311	293	278	266	256								
1-7/8" 1-15/16" 2" 50 mm	10000	2542	2017	1762	1399	1180	1031	936	818	743	690	649	617	590									
	25000	1873	1486	1298	1031	869	759	690	603	548	508	478	454	435									
	50000	1486	1180	1031	818	690	603	548	478	435	403	380	361	345									
	70000	1329	1055	921	731	617	539	489	428	389	361	339	322	308									
	100000	1180	936	818	649	548	478	435	380	345	320	301	286	274									
2" 2-1/8" 2-3/16" 55 mm	10000	3143	2494	2179	1729	1459	1274	1158	1011	919	853	803	763										
	25000	2316	1838	1606	1274	1075	939	853	745	677	629	591	562										
	50000	1838	1459	1274	1011	853	745	677	591	537	499	469	446										
	70000	1643	1304	1139	904	763	666	605	529	480	446	420	399										
	100000	1459	1158	1011	803	677	591	537	469	427	396	373	354										
2-1/4" 2-3/8" 2-7/16" 60 mm	10000	3794	3012	2631	2088	1761	1539	1398	1221	1109	1030	969	921										
	25000	2796	2219	1938	1539	1298	1134	1030	900	817	759	714	678										
	50000	2219	1761	1539	1221	1030	900	817	714	649	602	567	538										
	70000	1984	1574	1375	1092	921	804	731	638	580	538	507	481										
	100000	1761	1398	1221	969	817	714	649	567	515	478	450	427										
2-1/2" 65 mm	10000	4142	3287	2872	2279	1923	1679	1526	1333	1211	1124	1058											
	25000	3052	2422	2116	1679	1417	1237	1124	982	892	828	780											
	50000	2422	1923	1679	1333	1124	982	892	780	708	657	619											
	70000	2165	1719	1501	1192	1005	878	798	697	633	588	553											
	100000	1923	1526	1333	1058	892	780	708	619	562	522	491											
2-3/4" 70 mm	10000	4504	3575	3123	2479	2091	1826	1659	1450	1317	1223	1150											
	25000	3319	2634	2301	1826	1540	1346	1223	1068	970	901	848											
	50000	2634	2091	1826	1450	1223	1068	970	848	770	715	673											
	70000	2355	1869	1633	1296	1093	955	867	758	688	639	601											
	100000	2091	1659	1450	1150	970	848	770	673	611	567	534											
2-15/16" 3" 75 mm	10000	4881	3874	3384	2686	2265	1979	1798	1571	1427	1325												
	25000	3596	2854	2493	1979	1669	1458	1325	1157	1051	976												
	50000	2854	2265	1979	1571	1325	1157	1051	919	835	775												
	70000	2551	2025	1769	1404	1184	1035	940	821	746	693												
	100000	2265	1798	1571	1247	1051	919	835	729	662	615												
3-1/8" 80 mm	10000	5264	4178	3650	2897	2443	2135	1939	1694	1539	1429												
	25000	3879	3079	2689	2135	1800	1573	1429	1248	1134	1053												
	50000	3079	2443	2135	1694	1429	1248	1134	991	900	836												
	70000	2752	2184	1908	1514	1277	1116	1014	886	805	747												
	100000	2443	1939	1694	1345	1134	991	900	786	714	663												
3-1/4" 85 mm	10000	6083	4828	4217	3347	2823	2466	2241	1958	1779	1651												
	25000	4482	3557	3107	2466	2080	1817	1651	1442	1310	1217												
	50000	3557	2823	2466	1958	1651	1442	1310	1145	1040	966												
	70000	3180	2524	2205	1750	1476	1289	1171	1023	930	863												
	100000	2823	2241	1958	1554	1310	1145	1040	909	826	766												
3-1/2" 90 mm	10000	6959	5523	4825	3830	3230	2822	2564	2240	2035													
	25000	5127	4070	3555	2822	2380	2079	1889	1650	1499													
	50000	4070	3230	2822	2240	1889	1650	1499	1310	1190													
	70000	3638	2887	2522	2002	1688	1475	1340	1171	1064													
	100000	3230	2564	2240	1778	1499	1310	1190	1040	944													

1 . Shaded area A non-contact seal is used.

If the bearing with set screws is exposed
to a heavy load (Pr / Cr > 0.12), vibration,
or heavy impact, use a tighter shaft tolerance than normal.

Table 5.7 (2) Radial Load/Speed Chart

Medium Duty **Unit : lbf**

SHAFT SIZE	L_{10h}	Allowable Radial Load at Various RPM																
		RPM (min^{-1})																
		50	100	150	300	500	750	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000
1″ 25 mm	10000	1412	1121	979	777	655	573	520	454	413	383	361	343	328	315	304	295	286
	25000	1040	826	721	573	483	422	383	335	304	282	266	252	241	232	224	217	211
	50000	826	655	573	454	383	335	304	266	241	224	211	200	192	184	178	172	167
	70000	738	586	512	406	343	299	272	238	216	200	189	179	171	165	159	154	150
	100000	655	520	454	361	304	266	241	211	192	178	167	159	152	146	141	137	133
1-3/16″ 1-1/4″ 30 mm	10000	1861	1477	1290	1024	864	755	686	599	544	505	475	452	432	415	401	388	
	25000	1371	1088	951	755	636	556	505	441	401	372	350	333	318	306	295	286	
	50000	1088	864	755	599	505	441	401	350	318	295	278	264	253	243	234	227	
	70000	973	772	675	535	452	394	358	313	284	264	248	236	226	217	210	203	
	100000	864	686	599	475	401	350	318	278	253	234	221	210	200	193	186	180	
1-3/8″ 1-7/16″ 35 mm	10000	2107	1672	1461	1160	978	854	776	678	616	572	538	511	489	470	454		
	25000	1553	1232	1077	854	721	630	572	500	454	421	397	377	360	346	334		
	50000	1232	978	854	678	572	500	454	397	360	334	315	299	286	275	265		
	70000	1102	874	764	606	511	447	406	355	322	299	281	267	256	246	237		
	100000	978	776	678	538	454	397	360	315	286	265	250	237	227	218	211		
1-1/2″ 40 mm	10000	2469	1960	1712	1359	1146	1001	910	795	722	670	631	599	573	551			
	25000	1819	1444	1261	1001	844	738	670	586	532	494	465	441	422	406			
	50000	1444	1146	1001	795	670	586	532	465	422	392	369	350	335	322			
	70000	1291	1025	895	710	599	523	476	415	377	350	330	313	300	288			
	100000	1146	910	795	631	532	465	422	369	335	311	293	278	266	256			
1-3/4″ 45 mm	10000	2542	2017	1762	1399	1180	1031	936	818	743	690	649	617	590				
	25000	1873	1486	1298	1031	869	759	690	603	548	508	478	454	435				
	50000	1486	1180	1031	818	690	603	548	478	435	403	380	361	345				
	70000	1329	1055	921	731	617	539	489	428	389	361	339	322	308				
	100000	1180	936	818	649	548	478	435	380	345	320	301	286	274				
1-15/16″ 2″ 50 mm	10000	3143	2494	2179	1729	1459	1274	1158	1011	919	853	803	763					
	25000	2316	1838	1606	1274	1075	939	853	745	677	629	591	562					
	50000	1838	1459	1274	1011	853	745	677	591	537	499	469	446					
	70000	1643	1304	1139	904	763	666	605	529	480	446	420	399					
	100000	1459	1158	1011	803	677	591	537	469	427	396	373	354					
2-3/16″ 2-1/4″ 55 mm	10000	3794	3012	2631	2088	1761	1539	1398	1221	1109	1030	969	921					
	25000	2796	2219	1938	1539	1298	1134	1030	900	817	759	714	678					
	50000	2219	1761	1539	1221	1030	900	817	714	649	602	567	538					
	70000	1984	1574	1375	1092	921	804	731	638	580	538	507	481					
	100000	1761	1398	1221	969	817	714	649	567	515	478	450	427					
2-7/16″ 60 mm	10000	4142	3287	2872	2279	1923	1679	1526	1333	1211	1124	1058						
	25000	3052	2422	2116	1679	1417	1237	1124	982	892	828	780						
	50000	2422	1923	1679	1333	1124	982	892	780	708	657	619						
	70000	2165	1719	1501	1192	1005	878	798	697	633	588	553						
	100000	1923	1526	1333	1058	892	780	708	619	562	522	491						
2-1/2″ 65 mm	10000	4504	3575	3123	2479	2091	1826	1659	1450	1317	1223	1150						
	25000	3319	2634	2301	1826	1540	1346	1223	1068	970	901	848						
	50000	2634	2091	1826	1450	1223	1068	970	848	770	715	673						
	70000	2355	1869	1633	1296	1093	955	867	758	688	639	601						
	100000	2091	1659	1450	1150	970	848	770	673	611	567	534						
2-3/4″ 70 mm	10000	4881	3874	3384	2686	2265	1979	1798	1571	1427	1325							
	25000	3596	2854	2493	1979	1669	1458	1325	1157	1051	976							
	50000	2854	2265	1979	1571	1325	1157	1051	919	835	775							
	70000	2551	2025	1769	1404	1184	1035	940	821	746	693							
	100000	2265	1798	1571	1247	1051	919	835	729	662	615							
2-15/16″ 3″ 75 mm	10000	5264	4178	3650	2897	2443	2135	1939	1694	1539	1429							
	25000	3879	3079	2689	2135	1800	1573	1429	1248	1134	1053							
	50000	3079	2443	2135	1694	1429	1248	1134	991	900	836							
	70000	2752	2184	1908	1514	1277	1116	1014	886	805	747							
	100000	2443	1939	1694	1345	1134	991	900	786	714	663							
80 mm	10000	6083	4828	4217	3347	2823	2466	2241	1958	1779	1651							
	25000	4482	3557	3107	2466	2080	1817	1651	1442	1310	1217							
	50000	3557	2823	2466	1958	1651	1442	1310	1145	1040	966							
	70000	3180	2524	2205	1750	1476	1289	1171	1023	930	863							
	100000	2823	2241	1958	1554	1310	1145	1040	909	826	766							
3-7/16″ 85 mm	10000	6959	5523	4825	3830	3230	2822	2564	2240	2035								
	25000	5127	4070	3555	2822	2380	2079	1889	1650	1499								
	50000	4070	3230	2822	2240	1889	1650	1499	1310	1190								
	70000	3638	2887	2522	2002	1688	1475	1340	1171	1064								
	100000	3230	2564	2240	1778	1499	1310	1190	1040	944								
90 mm	10000	7893	6265	5473	4344	3664	3200	2908	2540	2308								
	25000	5816	4616	4032	3200	2699	2358	2142	1872	1700								
	50000	4616	3664	3200	2540	2142	1872	1700	1485	1350								
	70000	4126	3275	2861	2271	1915	1673	1520	1328	1206								
	100000	3664	2908	2540	2016	1700	1485	1350	1179	1071								
3-15/16″ 4″ 100 mm	10000	9631	7644	6678	5300	4470	3905	3548	3099	2816								
	25000	7096	5632	4920	3905	3294	2877	2614	2284	2075								
	50000	5632	4470	3905	3099	2614	2284	2075	1813	1647								
	70000	5035	3996	3491	2771	2337	2041	1855	1620	1472								
	100000	4470	3548	3099	2460	2075	1813	1647	1439	1307								

1 . Shaded area A non-contact seal is used.

If the bearing with set screws is exposed
to a heavy load (Pr / Cr > 0.12), vibration,
or heavy impact, use a tighter shaft tolerance than normal.

Table 5.7 (3) Radial Load/Speed Chart

Heavy Duty

Unit : lbf

SHAFT SIZE	L_{10h}	Allowable Radial Load at Various RPM — RPM (min^{-1})																	
		50	100	150	300	500	750	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500
1" 25 mm	10000	1535	1218	1064	845	713	622	566	494	449	417	392	372	356	343	331	320	311	303
	25000	1131	898	784	622	525	459	417	364	331	307	289	274	263	252	244	236	229	223
	50000	898	713	622	494	417	364	331	289	263	244	229	218	208	200	193	187	182	177
	70000	803	637	556	442	372	325	296	258	235	218	205	195	186	179	173	167	163	158
	100000	713	566	494	392	331	289	263	229	208	193	182	173	165	159	154	149	144	141
30 mm	10000	1933	1535	1341	1064	897	784	712	622	565	525	494	469	449	431	417	404		
	25000	1425	1131	988	784	661	578	525	458	417	387	364	346	331	318	307	297		
	50000	1131	897	784	622	525	458	417	364	331	307	289	274	262	252	244	236		
	70000	1011	802	701	556	469	410	372	325	296	274	258	245	235	226	218	211		
	100000	897	712	622	494	417	364	331	289	262	244	229	218	208	200	193	187		
35 mm	10000	2419	1920	1677	1331	1123	981	891	778	707	656	618	587	561	540	521			
	25000	1782	1414	1236	981	827	723	656	574	521	484	455	432	414	398	384			
	50000	1414	1123	981	778	656	574	521	455	414	384	361	343	328	316	305			
	70000	1264	1003	877	696	587	513	466	407	370	343	323	307	293	282	272			
	100000	1123	891	778	618	521	455	414	361	328	305	287	272	261	251	242			
1-1/2" 40 mm	10000	2947	2339	2043	1622	1368	1195	1086	948	862	800	753	715	684	658				
	25000	2171	1724	1506	1195	1008	880	800	699	635	589	555	527	504	485				
	50000	1724	1368	1195	948	800	699	635	555	504	468	440	418	400	385				
	70000	1541	1223	1068	848	715	625	568	496	450	418	394	374	358	344				
	100000	1368	1086	948	753	635	555	504	440	400	371	349	332	317	305				
1-3/4" 45 mm	10000	3541	2810	2455	1949	1644	1436	1304	1140	1035	961	904	859	822					
	25000	2609	2071	1809	1436	1211	1058	961	840	763	708	666	633	605					
	50000	2071	1644	1436	1140	961	840	763	666	605	562	529	502	481					
	70000	1851	1469	1283	1019	859	751	682	596	541	502	473	449	430					
	100000	1644	1304	1140	904	763	666	605	529	481	446	420	399	381					
50 mm	10000	4490	3563	3113	2471	2084	1820	1654	1445	1313	1219	1147	1089						
	25000	3308	2625	2294	1820	1535	1341	1219	1065	967	898	845	803						
	50000	2625	2084	1820	1445	1219	1065	967	845	768	713	671	637						
	70000	2347	1863	1627	1292	1089	952	865	755	686	637	599	569						
	100000	2084	1654	1445	1147	967	845	768	671	609	566	532	506						
2" 2-3/16" 55 mm	10000	5185	4115	3595	2853	2407	2102	1910	1669	1516	1407	1324							
	25000	3820	3032	2649	2102	1773	1549	1407	1229	1117	1037	976							
	50000	3032	2407	2102	1669	1407	1229	1117	976	887	823	774							
	70000	2710	2151	1879	1492	1258	1099	998	872	793	736	692							
	100000	2407	1910	1669	1324	1117	976	887	774	704	653	615							
2-7/16" 60 mm	10000	5931	4707	4112	3264	2753	2405	2185	1909	1734	1610	1515							
	25000	4370	3468	3030	2405	2028	1772	1610	1406	1278	1186	1116							
	50000	3468	2753	2405	1909	1610	1406	1278	1116	1014	941	886							
	70000	3100	2461	2150	1706	1439	1257	1142	998	907	842	792							
	100000	2753	2185	1909	1515	1278	1116	1014	886	805	747	703							
2-1/2" 65 mm	10000	6713	5328	4654	3694	3116	2722	2473	2160	1963	1822								
	25000	4946	3926	3429	2722	2296	2005	1822	1592	1446	1343								
	50000	3926	3116	2722	2160	1822	1592	1446	1263	1148	1066								
	70000	3509	2785	2433	1931	1629	1423	1293	1129	1026	953								
	100000	3116	2473	2160	1715	1446	1263	1148	1003	911	846								
2-3/4" 70 mm	10000	7531	5977	5222	4144	3495	3054	2774	2424	2202	2044								
	25000	5549	4404	3847	3054	2576	2250	2044	1786	1622	1506								
	50000	4404	3495	3054	2424	2044	1786	1622	1417	1288	1195								
	70000	3937	3125	2730	2167	1827	1596	1450	1267	1151	1069								
	100000	3495	2774	2424	1924	1622	1417	1288	1125	1022	949								
2-15/16" 3" 75 mm	10000	8183	6494	5673	4503	3798	3318	3014	2633	2393	2221								
	25000	6029	4785	4180	3318	2798	2445	2221	1940	1763	1637								
	50000	4785	3798	3318	2633	2221	1940	1763	1540	1399	1299								
	70000	4277	3395	2966	2354	1985	1734	1576	1377	1251	1161								
	100000	3798	3014	2633	2090	1763	1540	1399	1222	1111	1031								

SHAFT SIZE	L_{10h}	Allowable Radial Load at Various RPM — RPM (min^{-1})								
		50	100	150	300	500	750	1000	1500	2000
80 mm	10000	8907	7069	6176	4902	4134	3611	3281	2866	2604
	25000	6562	5209	4550	3611	3046	2661	2418	2112	1919
	50000	5209	4134	3611	2866	2418	2112	1919	1676	1523
	70000	4656	3695	3228	2562	2161	1888	1715	1498	1361
	100000	4134	3281	2866	2275	1919	1676	1523	1330	1209
85 mm	10000	9631	7644	6678	5300	4470	3905	3548	3099	2816
	25000	7096	5632	4920	3905	3294	2877	2614	2284	2075
	50000	5632	4470	3905	3099	2614	2284	2075	1813	1647
	70000	5035	3996	3491	2771	2337	2041	1855	1620	1472
	100000	4470	3548	3099	2460	2075	1813	1647	1439	1307
3-1/2" 90 mm	10000	10355	8219	7180	5699	4806	4199	3815	3333	3028
	25000	7630	6056	5290	4199	3541	3094	2811	2455	2231
	50000	6056	4806	4199	3333	2811	2455	2231	1949	1771
	70000	5413	4296	3753	2979	2513	2195	1994	1742	1583
	100000	4806	3815	3333	2645	2231	1949	1771	1547	1405
95 mm	10000	11079	8793	7682	6097	5142	4492	4082	3566	3240
	25000	8163	6479	5660	4492	3789	3310	3007	2627	2387
	50000	6479	5142	4492	3566	3007	2627	2387	2085	1894
	70000	5792	4597	4016	3187	2688	2348	2134	1864	1693
	100000	5142	4082	3566	2830	2387	2085	1894	1655	1504
3-15/16" 4" 100 mm	10000	12527	9943	8686	6894	5815	5080	4615	4032	
	25000	9230	7326	6400	5080	4284	3743	3400	2971	
	50000	7326	5815	5080	4032	3400	2971	2699	2358	
	70000	6549	5198	4541	3604	3040	2655	2413	2108	
	100000	5815	4615	4032	3200	2699	2358	2142	1871	
105 mm	10000	13324	10575	9238	7332	6184	5403	4909	4288	
	25000	9817	7792	6807	5403	4557	3981	3617	3159	
	50000	7792	6184	5403	4288	3617	3159	2871	2508	
	70000	6965	5528	4829	3833	3233	2824	2566	2242	
	100000	6184	4909	4288	3403	2871	2508	2278	1990	
110 mm	10000	14844	11782	10293	8169	6890	6019	5469	4777	
	25000	10937	8681	7584	6019	5077	4435	4029	3520	
	50000	8681	6890	6019	4777	4029	3520	3198	2794	
	70000	7760	6159	5381	4271	3602	3147	2859	2497	
	100000	6890	5469	4777	3792	3198	2794	2538	2217	
120 mm	10000	14989	11897	10393	8249	6957	6078	5522	4824	
	25000	11044	8766	7658	6078	5126	4478	4069	3554	
	50000	8766	6957	6078	4824	4069	3554	3229	2821	
	70000	7836	6219	5433	4312	3637	3177	2887	2522	
	100000	6957	5522	4824	3829	3229	2821	2563	2239	
130 mm	10000	16582	13161	11498	9126	7697	6724	6109	5337	
	25000	12218	9697	8471	6724	5671	4954	4501	3932	
	50000	9697	7697	6724	5337	4501	3932	3573	3121	
	70000	8669	6880	6010	4770	4024	3515	3194	2790	
	100000	7697	6109	5337	4236	3573	3121	2836	2477	
140 mm	10000	18320	14541	12702	10082	8503	7428	6749		
	25000	13498	10714	9359	7428	6265	5473	4973		
	50000	10714	8503	7428	5896	4973	4344	3947		
	70000	9577	7601	6640	5270	4445	3883	3528		
	100000	8503	6749	5896	4680	3947	3448	3133		

1 . Shaded area A non-contact seal is used.

If the bearing with set screws is exposed to a heavy load (Pr / Cr > 0.12), vibration, or heavy impact, use a tighter shaft tolerance than normal.

Ball Bearing Life Calculations

The relationship between the basic rating life, the basic dynamic load rating, and the dynamic equivalent load of the ball bearing is indicated in Formula 1.
If the ball bearing unit is being used at a fixed rotating speed, the life is indicated as time. This is shown in Formula 2.

1. $$L_{10} = \left(\frac{Cr}{Pr}\right)^3$$

2. $$L_{10h} = \frac{10^6 L_{10}}{60n} = \frac{10^6}{60n} \cdot \left(\frac{Cr}{Pr}\right)^3$$

L_{10} : Basic Rating Life 10^6rotations
L_{10h} : Rated Life (hr)
Cr : Basic Dynamic Load Rating (kN)
Pr : Dynamic equivalent Load (kN)
n : Speed (min^{-1})

Basic Loads (lbf)		
SIZE	Dynamic Load (C_r)	Static Load (C_{0r})
UC201	2880	1496
UC202	2880	1496
UC203	2880	1496
UC204	2880	1496
UC205	3150	1766
UC206	4388	2543
UC207	5783	3465
UC208	6548	4005
UC209	7673	4793
UC210	7898	5243
UC211	9765	6615
UC212	11790	8145
UC213	12870	9023
UC214	13995	9923
UC215	15165	10868
UC216	16358	11925
UC217	18900	13928
UC218	21623	16088

Basic Loads (lbf)		
SIZE	Dynamic Load (C_r)	Static Load (C_{0r})
UC305	4770	2453
UC306	6008	3375
UC307	7515	4343
UC308	9158	5400
UC309	11003	6638
UC310	13950	8618
UC311	16110	10125
UC312	18428	11745
UC313	20858	13478
UC314	23400	15345
UC315	25425	17370
UC316	27675	19508
UC317	29925	21780
UC318	32175	24075
UC319	34425	26775
UC320	38925	31725
UC321	41400	34425
UC322	46125	40500
UC324	46575	41625
UC326	51525	48150
UC328	56925	55350

Basic Loads (lbf)		
SIZE	Dynamic Load (C_r)	Static Load (C_{0r})
UCX05	4388	2543
UCX06	5783	3465
UCX07	6548	4005
UCX08	7673	4793
UCX09	7898	5243
UCX10	9765	6615
UCX11	11790	8145
UCX12	12870	9023
UCX13	13995	9923
UCX14	15165	10868
UCX15	16358	11925
UCX16	18900	13928
UCX17	21623	16088
UCX18	24525	18428
UCX20	29925	23625

6 Allowable Rotating Speed

6.1 Allowable Rotating Speed

The rotational speed of a bearing is limited by the temperature increase, mainly due to friction. When the bearing reaches the speed limits shown below, it will seize if operated continuously at these levels.

The limiting rotational speed is the maximum speed at which the bearing can be safely operated continuously.

These allowable rotational speeds of a ball bearing unit are dependent upon the dimensions of the bearing, type of seal, and the fit of the bearing inner ring to the shaft.

Table 6.1 shows the standard allowable rotating speeds of ball bearing units.

Table 6.1 Allowable rotating speed of ball bearing units (standard value)

Unit: min^{-1}

Bore dia. code	UC type bearing, UC-S6 type bearing, UK type bearing, NC type bearing, NA type bearing, ER, RB type bearing									SA type bearing SB type bearing	SU type bearing SU-S6 type bearing
	Standard type, heat resistant (D1K2), cold resistant type (D2K2), Heat-resistant (D6K2)			Triple-lip seal type (L3)			Non-contact seal (K3), Non-contact seal for blowers (S5)				
	Diameter series[3)]			Diameter series[3)]			Diameter series[3)]			Diameter series[3)]	Diameter series[3)]
	2	X	3	2	X	3	2	X	3	2	0
8											10,000
00	–			–			–			–	10,000
01	5,800			2,300			8,700			6,800	8,000
02	5,800			2,300			8,700			6,800	6,600
03	5,800			2,300			8,700			6,800	5,800
04	5,800	–	–	2,300	–		8,700	–	–	5,800	5,000
05	5,100	4,300	4,600	2,100	960		7,700	6,400	6,700	5,100	4,000
06	4,300	3,700	3,900	960	830	–	6,400	5,500	5,800	4,300	3,300
07	3,700	3,300	3,400	830	750	770	5,500	5,000	5,100	3,700	–
08	3,300	3,100	3,100	750	690	690	5,000	4,600	4,600	3,300	
09	3,100	2,800	2,700	690	640	620	4,600	4,300	4,100	3,100	
10	2,800	2,500	2,400	640	570	550	4,300	3,800	3,700	2,800	
11	2,500	2,300	2,300	570	520	510	3,800	3,500	3,400		
12	2,300	2,200	2,100	520	490	470	3,500	3,200	3,100		
13	2,200	2,100	1,900	490	460	440	3,200	3,100	2,900		
14	2,100	2,000	1,800	460	440	410	3,100	2,900	2,700		
15	2,000	1,800	1,700	440	410	380	2,900	2,700	2,600		
16	1,800	1,700	1,600	410	380	360	2,700	2,600	2,400		
17	1,700	1,600	1,500	380	360	340	2,600	2,400	2,300		
18	1,600	1,500	1,400	360	340	320	2,400	2,300	2,100		
19	–	–	1,400	–	–	310	–	–	2,000		
20		1,300	1,300		300	280		2,000	1,900		
21		–	1,200		–	–		–	1,800		
22			1,100			250			1,700		
24			1,100			240			1,600		
26			1,000			220			1,500		
28			910			200			1,400		

Remarks 1. Allowable rotating speed of the units with covers is 80% of the value shown in the table above.

2. If a bearing unit is used with an excessively loose fit, allowable rotating speed must be corrected by multiplying it by the fitting factor f_c shown in **Table 6.2**.

3. The basic bearing size number consists of the duty code (2, X, or 3) followed by the inner ring size code (07, 10, 24, etc.)

6.2 Rotational Speed Adjustment Due to Shaft Fit

A marginal degree of clearance is typically used to facilitate easy installation of a bearing on a shaft. The amount of clearance between the bearing and shaft must be factored in to determine the maximum allowable rotational speed, and as rotational speed is increased, the amount of clearance must be decreased.

Table 6.2 shows the factor that must be used to correct the allowable rotational speed. The maximum rotational speed is determined by multiplying the speed found in **Table 6.1** by the factors below. This table includes the multiplying factors for set screw bearings as well as bearings with adapters and eccentric locking collars. Due to the characteristics of bearings with adapters, a loose fit, h8 or h9, is acceptable. Bearings with eccentric locking collars function optimally with less clearance and therefore, an h5 or j5 fit is recommended to achieve the maximum allowable speed.

Table 6.2 Fitting factor of ball bearing units f_c (recommended)

Type of ball bearing units	Fitting factor f_c					
	Shaft tolerance range class					
	h5, j5	j6	h6	h7	h8	h9
With set screws						
Standard type	–	1	1	0.8	0.5	0.2
LⅢ type (Suffix code: L3)	–	–	–	1	1	0.9
Heat resistant type (Suffix code: D1K2)	–	–	–	1	1	0.7
Cold resistant type (Suffix code: D2K2)	–	–	–	1	1	0.7
For high speed (Suffix code: K3)	–	1	0.8	0.6	–	–
For blower (Suffix code: S5)	1	–	0.8	0.6	–	–
With adapters	–	–	–	–	1	1
With eccentric locking collar	1	–	–	–	–	–
NC concentric locking collar						

7 Operating Temperature and Bearing Specifications

7.1 Operating Temperature Range

The operating temperature of a ball bearing unit depends on the type of grease, the material of the seal, and the internal clearance of the bearing.

FYH Ball Bearing Units are available in high temperature (D1K2, D6K2) and low temperature (D2K2) series, in addition to the standard models, to allow selection of the correct bearing for your operational temperature (see **Table 2.1**).

The correct unit must be chosen for the desired temperature range, and it is equally important to use the appropriate grease according to the specified schedule.

7.2 Operating Temperature and Internal Clearance of Bearings

When bearings are operated in a high ambient temperature environment, or when the operating temperature is high because of rotational speed, differential expansion rates occur within the bearing components. This causes higher friction, grease breakdown, and eventual seizure.

If the temperature difference between the inner and outer ring is known, or can be approximated, then the following **Formula (7.1)** may be applied.

Under these conditions, decrease in the internal clearance must be calculated, and the internal clearance of bearing needs to be selected properly.

$$S_{t1} = \alpha \cdot D_e \cdot \Delta_t \quad \cdots\cdots (7.1)$$

Where,

S_{t1}: Decrease in the internal clearance of bearings depending on the difference in the temperatures of the bearing inner ring and the bearing outer ring can be found by formula, mm

α: Line expansion factor of bearing steel, 12.5×10^{-6}

D_e: Raceway dia. of bearing outer ring, mm

Diameter series 2, X ····· $D_e \approx 0.92\ D$

Diameter series 3 ····· $D_e \approx 0.9\ D$

D: Nominal bearing outer dia., mm

Δ_t: Difference in temperatures of bearing inner ring and outer ring, ℃

If a ball bearing unit is used in a high temperature environment, an abnormal load may occur due to thermal expansion of the shaft. This must be compensated for by allowing free movement of one side of the shaft.

(See **"9 Design of Shaft and Base"**)

8 Strength of Housings

FYH bearings can withstand very high loads due to the use of only high quality material and excellent design. However, when high static or impact loads are encountered, the load capacity of the bearing must be determined.

The housing design is such that it can withstand loads from any angle; however the bearing is strongest with a direct downward load through the base of the unit. For loads in other directions, the allowable load must be determined specifically for the direction in question.

Rigidity of the base and flatness of the mounting surface also affect the housing strength. The equipment designer or installer must examine and perform calculations for the complete supporting structure of the bearing.

8.1 Strength of Cast Iron Housings

Although gray cast iron has many superior characteristics, it may fail under impact loads, particularly in a low temperature environment.

Table 8.1 shows the applicable design safety factors for gray cast iron. **Fig. 8.1** to **8.7** show the static rupture strength of the various housing types.

Table 8.1 Safety factor of gray cast iron products (recommended)

Property of load	Safety factor of gray cast iron
Static load	4
With vibration	10
With impact	15

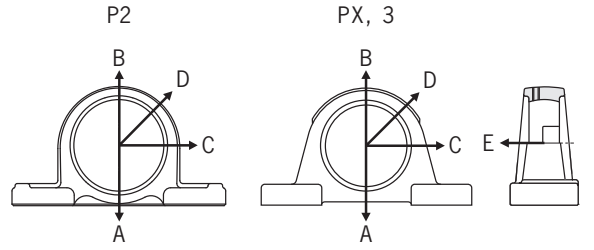
8.2 Strength of Ductile Cast Iron Housings

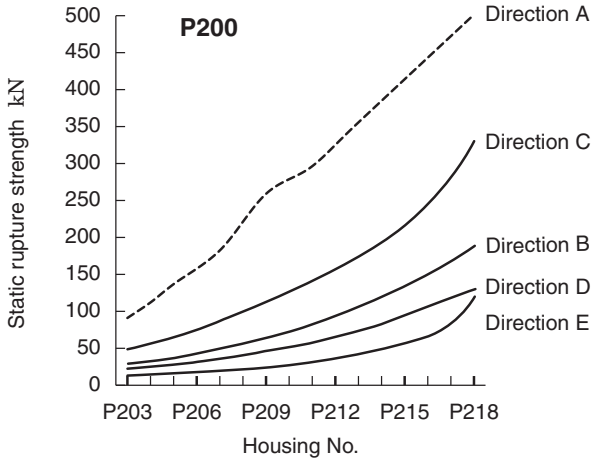
The high-strength ductile cast iron series has the same shape and dimensions as the standard gray cast iron series, but is acceptable in environments where high-strength is required.

Table 8.2 shows safety factors of the load on ductile cast iron housings, and **Fig. 8.8** to **8.11** show the approximate rupture strength of pillow type, flange type, and take-up type housings.

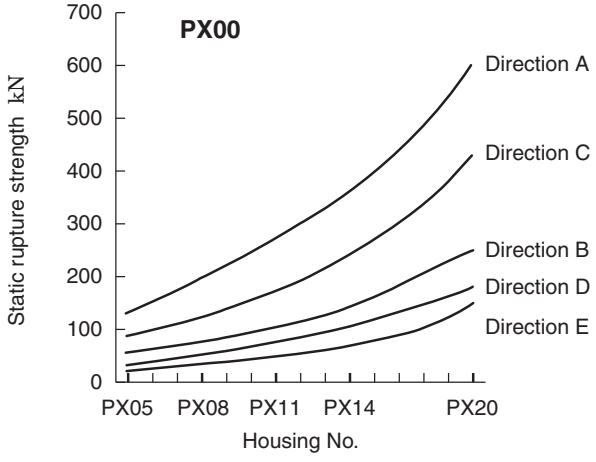
Table 8.2 Safety factor of ductile cast iron (recommended)

Property of load	Safety factor of ductile cast iron
Static load	3
With vibration	5
With impact	10





Remarks The graph value "Direction of A" is a reference value.



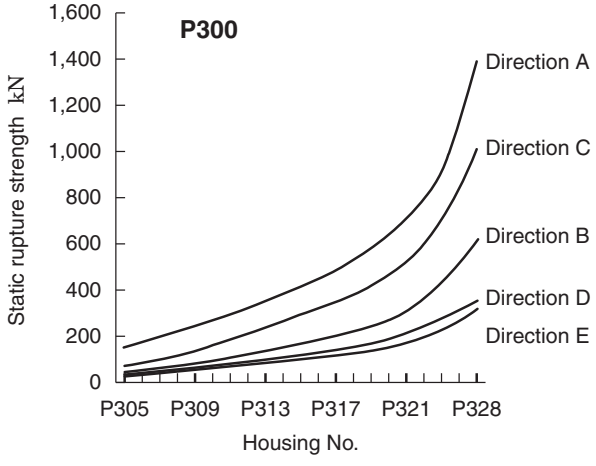


Fig. 8.1 Static rupture strength of pillow type housings (P)

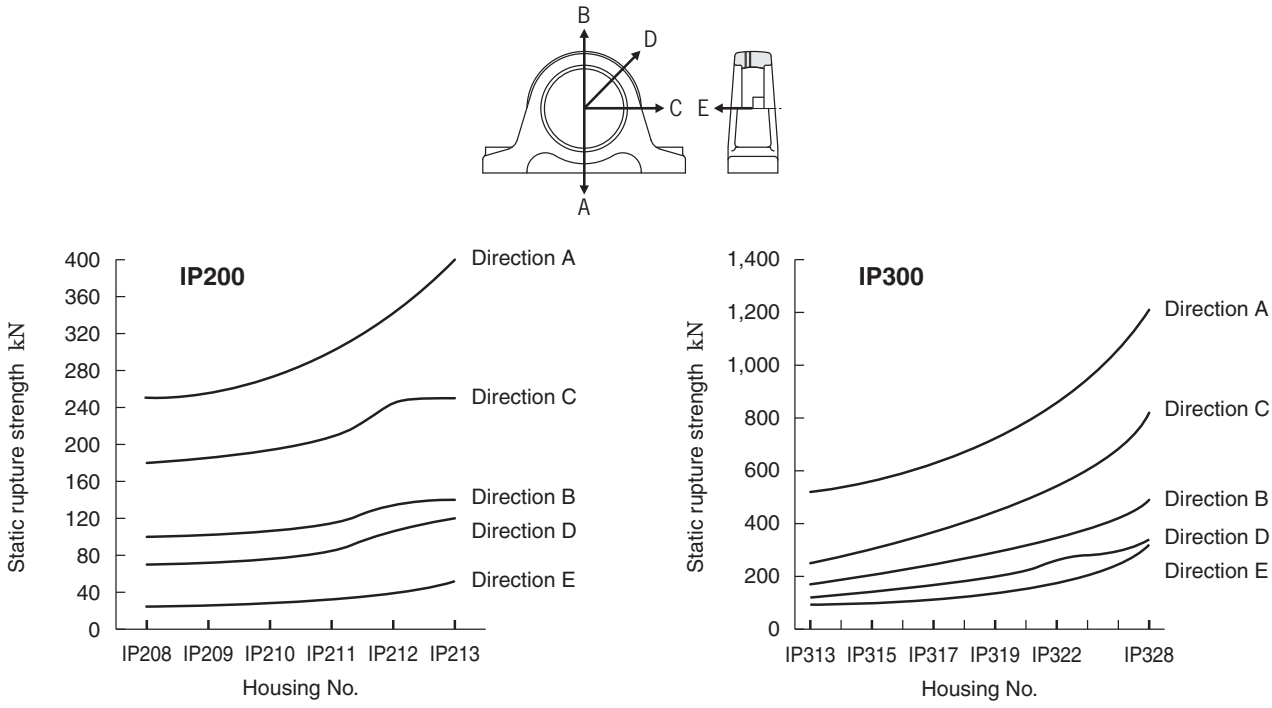


Fig. 8.2 Static rupture strength of thick pillow type housings (IP)

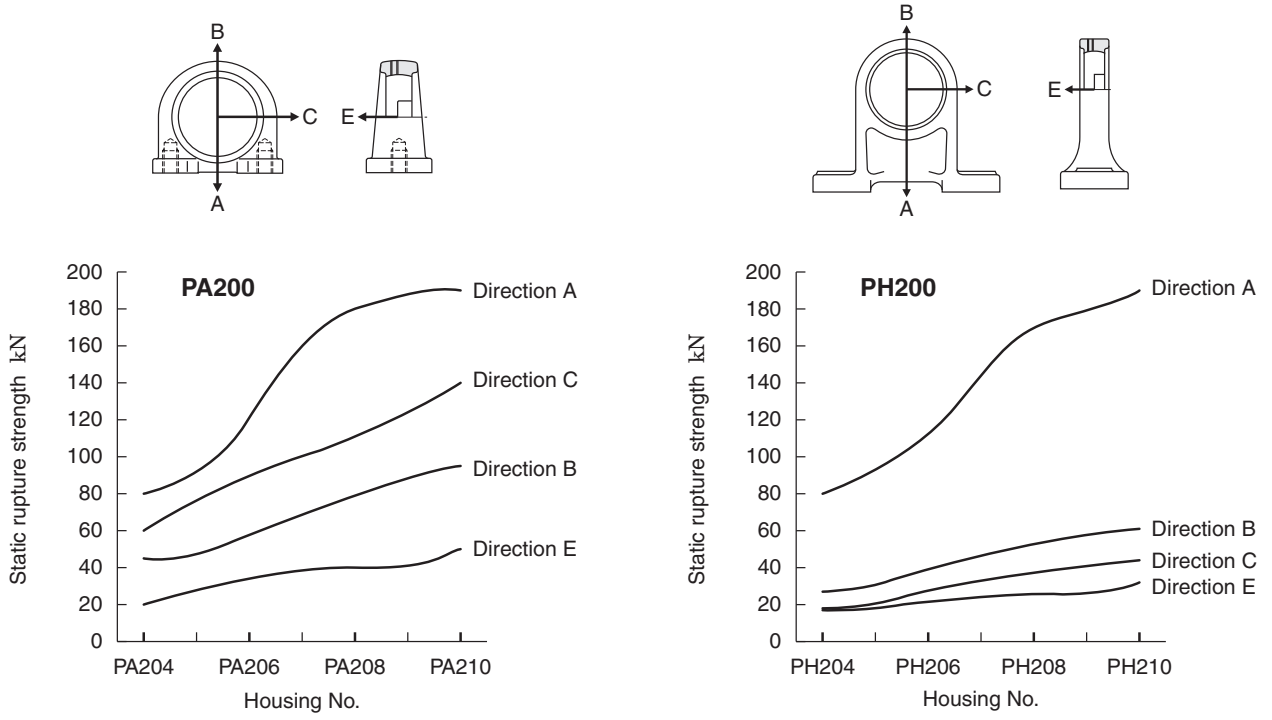
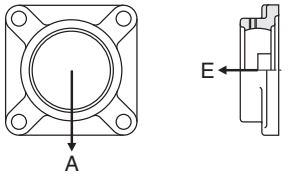
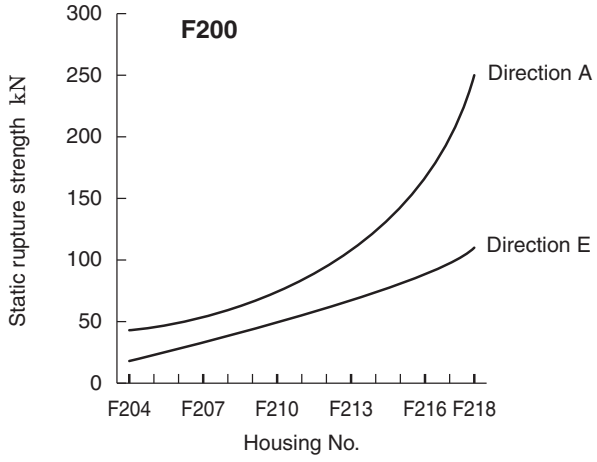
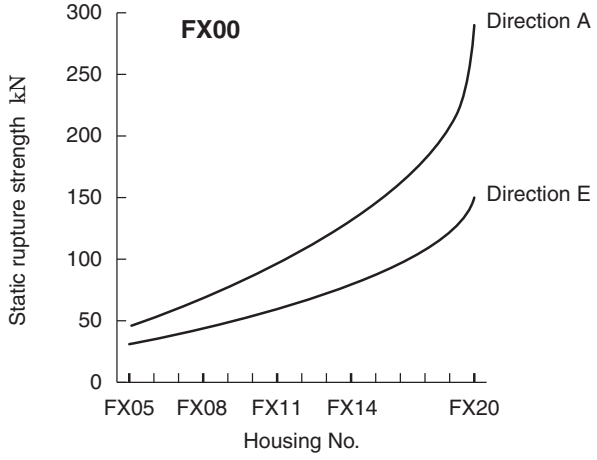


Fig. 8.3 Static rupture strength of tapped base pillow type housings (PA)

Fig. 8.4 Static rupture strength of High-Base pillow type housings (PH)







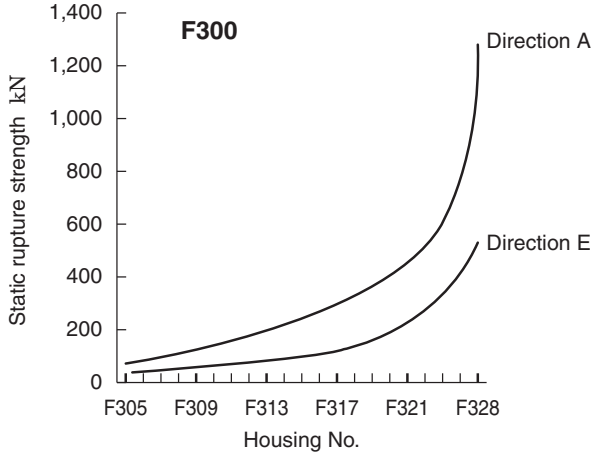
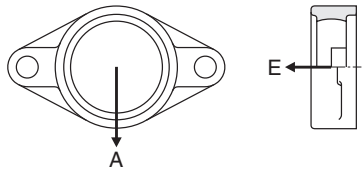
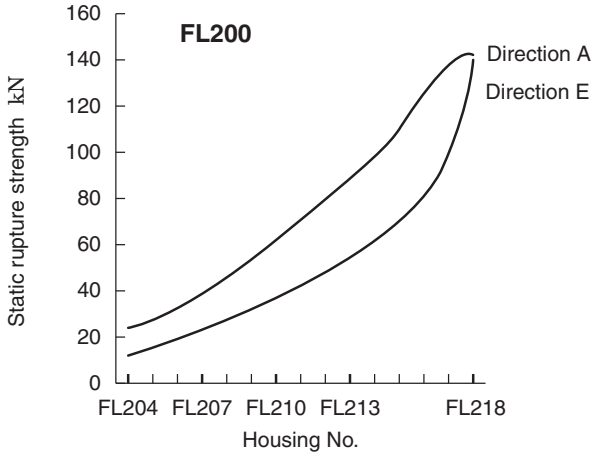
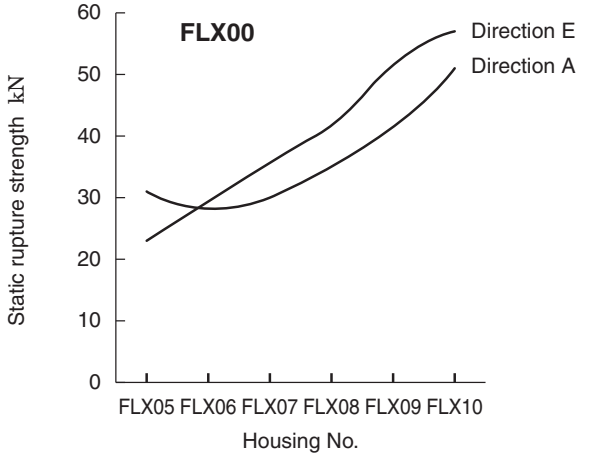


Fig. 8.5 Static rupture strength of square flange type housings (F)







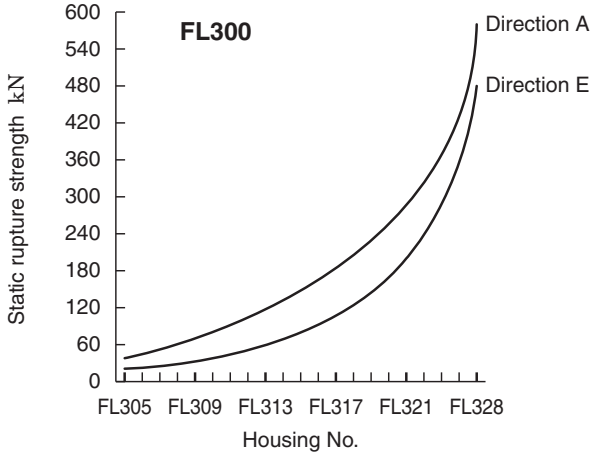
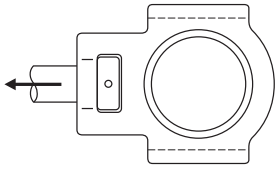


Fig. 8.6 Static rupture strength of oval flange type housings (FL)



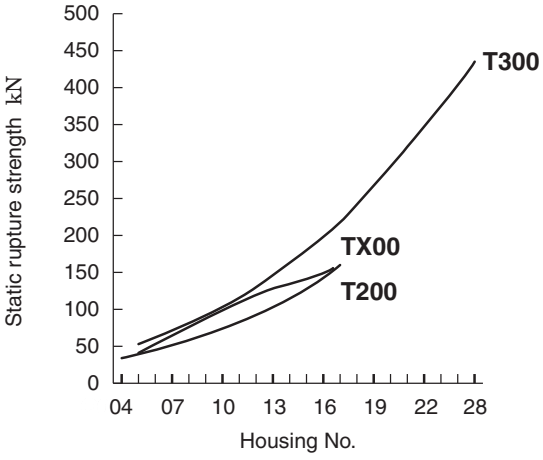
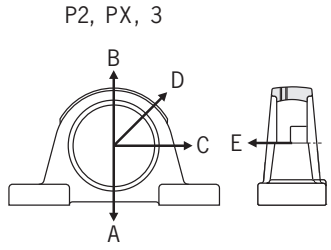
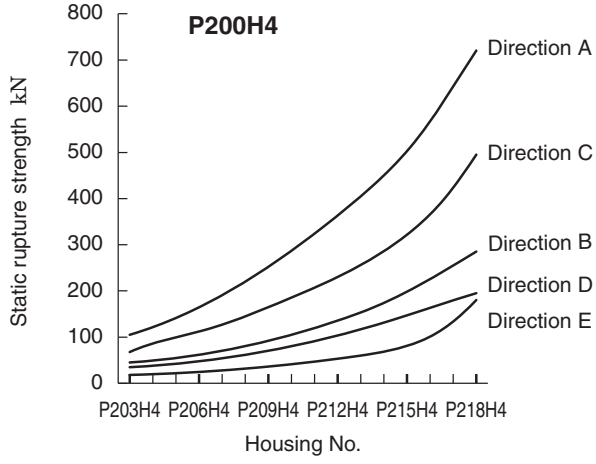
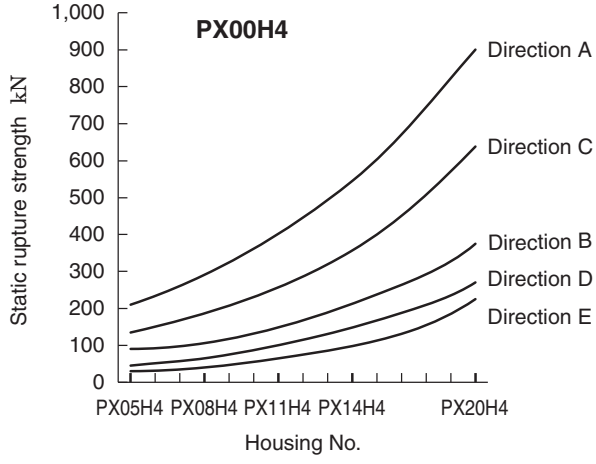


Fig. 8.7 Static rupture strength of take-up type housings (T)







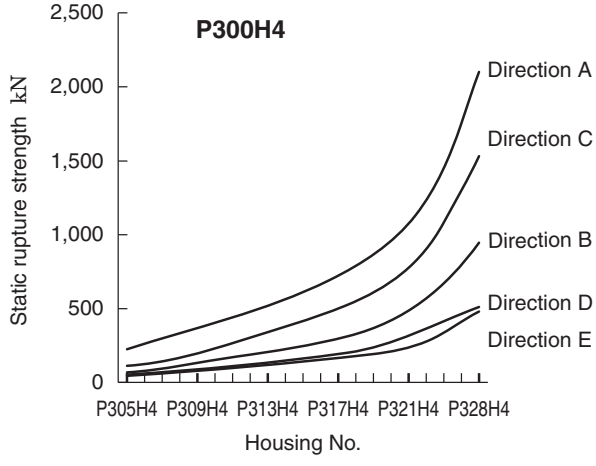
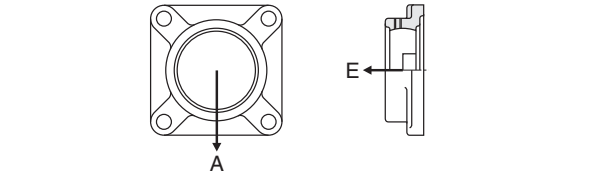
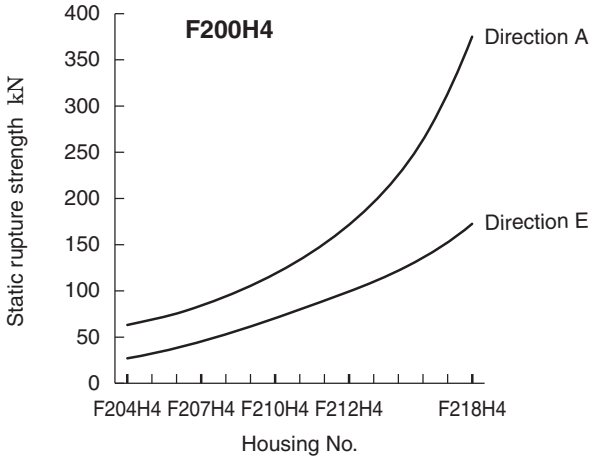
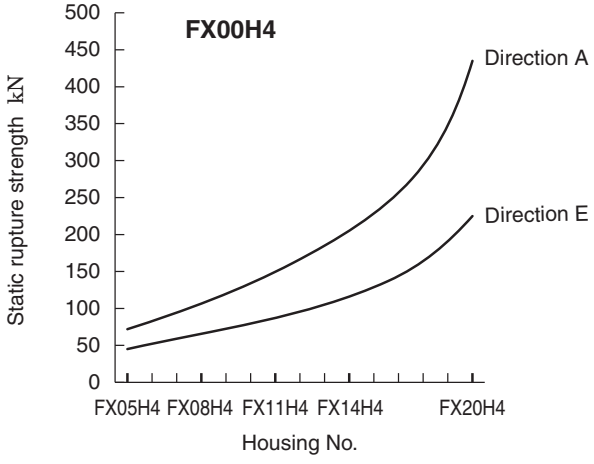


Fig. 8.8 Static rupture strength of ductile cast iron pillow type housings (P_{H4})







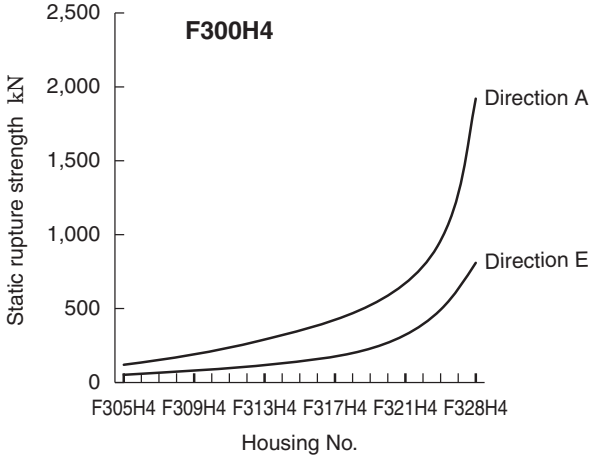
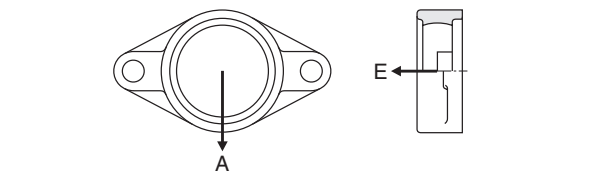
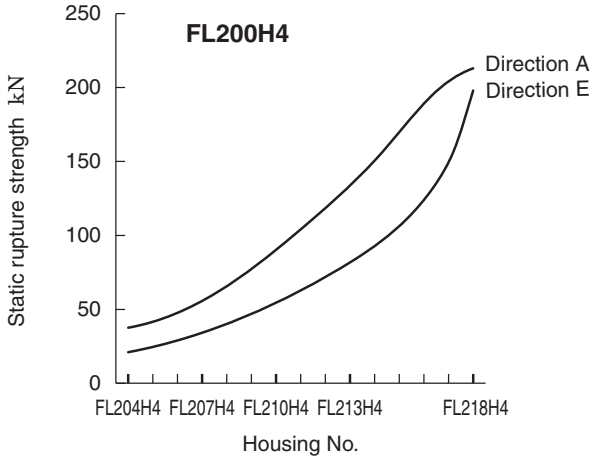
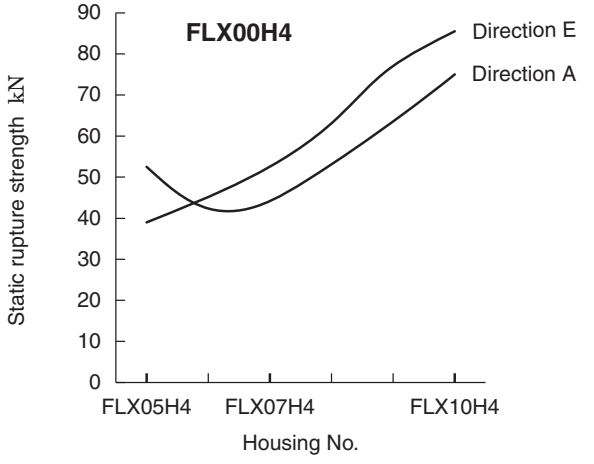


Fig. 8.9 Static rupture strength of ductile cast iron square flange type housings (FH4)







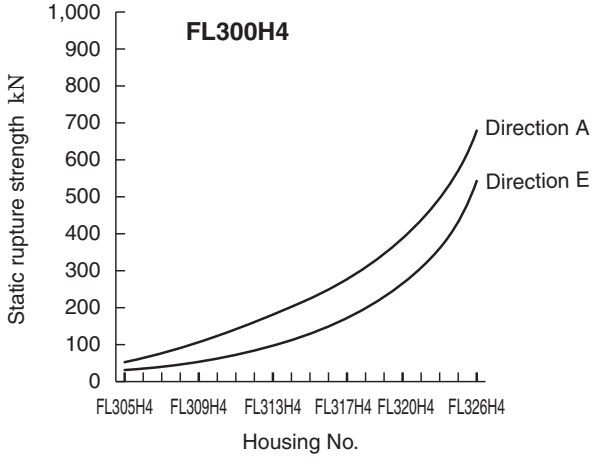


Fig. 8.10 Static rupture strength of ductile cast iron oval flange type housings (FLH4)

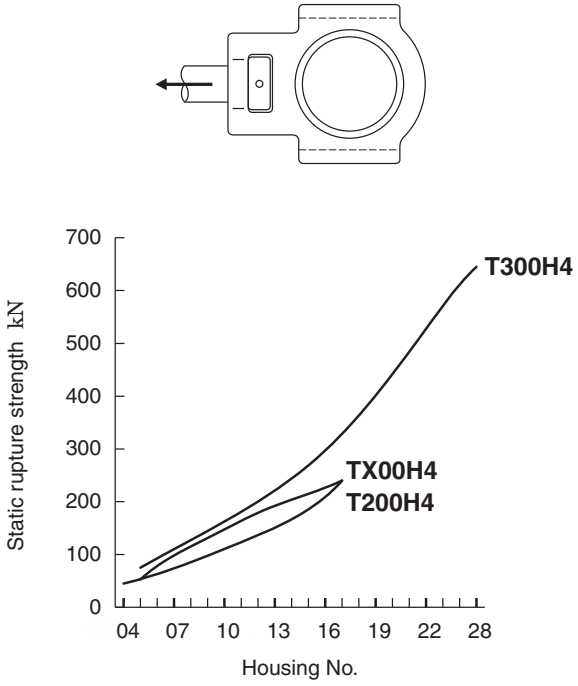


Fig. 8.11 Static rupture strength of ductile cast iron take-up type housings (T_{H4})

8.3 Strength of Stamped Steel Housings

The precisely formed stamped steel housing is very rigid, but it is not as strong as cast iron or cast steel housings. Therefore, it will not support loads to the maximum rating of the bearing itself and must be down-rated per **Table 8.3**.

Table 8.3 Allowable load of steel plate housings (recommended)

Load direction	Allowable load of stamped steel housings
Radial	Approx. 1/6 of basic dynamic radial load rating of bearing (C_r)
Axial	Approx. 1/18 of basic dynamic radial load rating of bearing (C_r)

8.4 Strength of Stainless Steel Housings

FYH supplies stainless steel housings (SP, SPA, SF, SFL, ST, SFC).

Table 8.4 shows the safety factors for stainless steel products. As for the basic values of the static rupture strength of SP, SPA, SF, SFL, ST, SFC type housings, apply P200 of **Fig. 8.1**, PA200 of **Fig. 8.3**, F200 of **Fig. 8.5**, FL200 of **Fig. 8.6** and T200 of **Fig. 8.7**. As for the basic values of the static rupture strength of SFC housings, apply F200 of **Fig. 8.5**. For the basic values of the static rupture strength of the SP and SFL type housings, see P000~P006 of **Fig. 8.12** and FL000~FL006 of **Fig. 8.13** and multiply each value by 1.5.

Table 8.4 Safety factor of stainless steel products

Property of load	Safety factor of stainless steel products
Static load	3
With vibration	5
With impact	10

8.5 Strength of Die-cast Housings

The clean series housing is made of die-cast zinc alloy, but the zinc alloy material is not as strong as cast iron or cast steel. **Table 8.5** shows safety factors for die-cast zinc alloy, and **Fig. 8.12** and **8.13** show the basic values of the static rupture strength of the die-cast zinc alloy housing.

Table 8.5 Safety factor of zinc alloy die-cast products

Property of load	Safety factor of die-cast products
Static load	8
With vibration	15
With impact	20

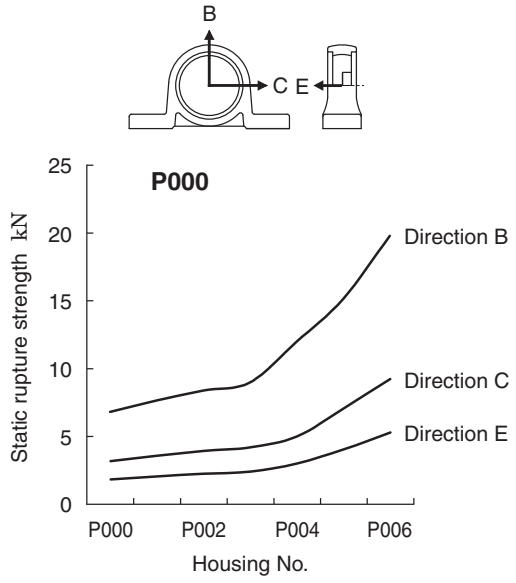


Fig. 8.12 Static rupture strength of clean housings (P)

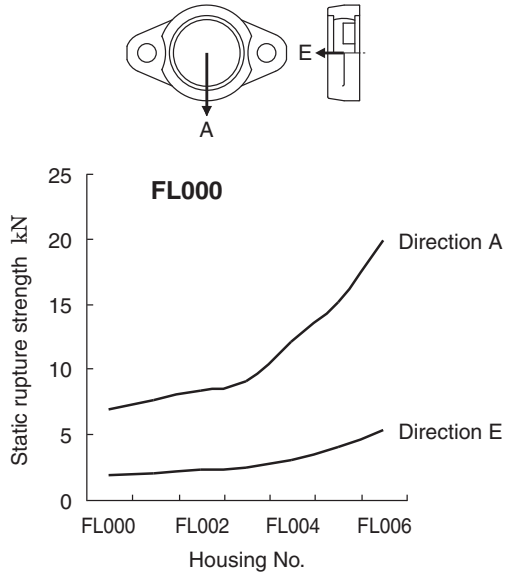


Fig. 8.13 Static rupture strength of clean housings (FL)

8.6 Static Rupture Strength of Plastic Housings

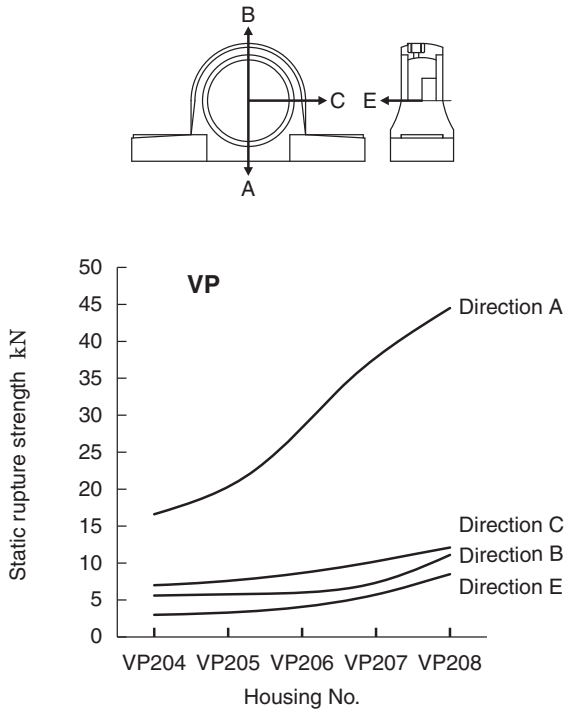


Fig. 8.14 Static rupture strength of plastic housings (VP)

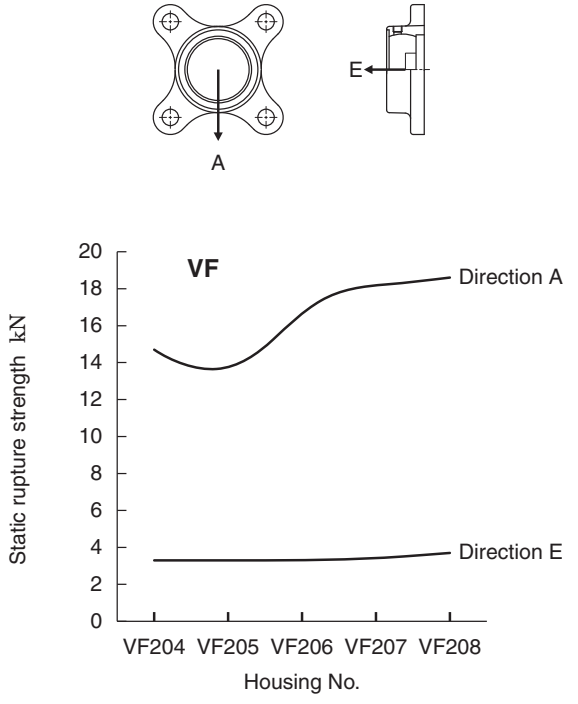


Fig. 8.15 Static rupture strength of plastic housings (VF)

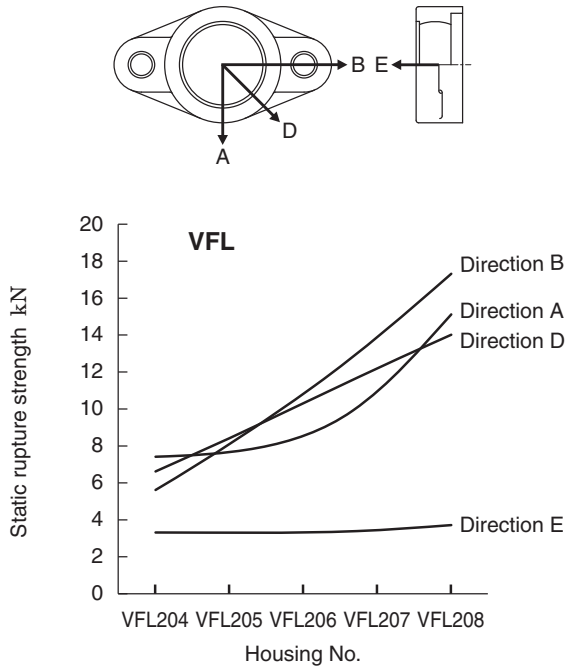


Fig. 8.16 Static rupture strength of plastic housings (VFL)

Note:

The figure shows the average static rupture strength of housings.

The correct safety factor should be considered to properly account for combined load in various directions at room temperature (23 ℃ ±5 ℃).

9 Design of Shaft and Base

9.1 Design of Shaft

For optimal performance of a ball bearing unit, and for maintenance-free operation for an extended period of time, proper shaft selection is very important. The shaft should be straight, of sufficient tensile strength, and free of burrs and scratches.

9.1.1 Dimensional accuracy of shaft

(1) Dimensional tolerance of shaft used for set screw bearings

For bearings with set screws, a relatively looser class of fit makes assembly easier and is perfectly acceptable at low operating speeds. The clearance between the bore of the bearing and the shaft must be decreased as the rotational speed is increased.

Table 9.1 shows the guidelines for the tolerance class for the rotational speed of bearings with set screws.

If the bearing with set screws is exposed to a heavy load ($P_r / C_r > 0.12$), vibration, or heavy impact, use a tighter shaft tolerance than normal.

Table 9.2 shows the tolerances for tight fits.

Table 9.3 shows the recommended roundness and cylindricity for shafts.

Table 9.1 Dimensional tolerance of shaft used for cylindrical bore bearing with set screws (recommended) (clearance fit or intermediate fit)

Unit: μm

Shaft dia. (mm)		Dimensional tolerance of shaft							
		j6		h6		h7		h8	
Over	Incl.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
6	**10**	+ 7	− 2	0	− 9	0	−15	0	−22
10	**18**	+ 8	− 3	0	−11	0	−18	0	−27
18	**30**	+ 9	− 4	0	−13	0	−21	0	−33
30	**50**	+11	− 5	0	−16	0	−25	0	−39
50	**80**	+12	− 7	0	−19	0	−30	0	−46
80	**120**	+13	− 9	0	−22	0	−35	0	−54
120	**180**	+14	−11	0	−25	0	−40	0	−63
Applicable rotating speed dn [1)]		Over 120,000		Over 100,000, incl. 120,000		Over 60,000, incl. 100,000		Incl. 60,000	

Note [1)] $dn = d$ (bearing bore dia., mm) $\times n$ (rotating speed, min^{-1})

Table 9.2 Dimensional tolerance of shaft used for cylindrical bore bearing with set screws (recommended) (intermediate fitting or tight fitting)

Unit: μm

Shaft dia. (mm)		Dimensional tolerance of shaft					
		k6		k7		m6	
Over	Incl.	Max.	Min.	Max.	Min.	Max.	Min.
6	**10**	+10	+1	+16	+1	+15	+ 6
10	**18**	+12	+1	+19	+1	+18	+ 7
18	**30**	+15	+2	+23	+2	+21	+ 8
30	**50**	+18	+2	+27	+2	+25	+ 9
50	**80**	+21	+2	+32	+2	+30	+11
80	**120**	+25	+3	+38	+3	+35	+13
120	**180**	+28	+3	+43	+3	+40	+15

Table 9.3 Recommended accuracy of shaft used for ball bearing units

Unit: μm

Shaft dia. (mm)		Tolerance of shaft roundness and cylindricity (max.)
Over	Incl.	
6	**10**	6
10	**18**	8
18	**30**	9
30	**50**	11
50	**80**	13
80	**120**	15
120	**180**	18

(2) Dimensional tolerance of shaft used with tapered bore bearings

Since tapered bore bearings are fixed to the shaft with an adapter, a looser fit is allowable since the adapter sleeve provides excellent concentricity. This makes mounting of the bearing to the shaft much easier.

Table 9.4 shows the dimensional tolerance of the shaft used with tapered bore bearings (with adapters).

Table 9.4 Dimensional tolerance of shaft used for tapered bore bearings (with adapters) (recommended)

Unit: μm

Shaft dia. (mm)		Dimensional tolerance of shaft			
		h8		h9	
Over	Incl.	Max.	Min.	Max.	Min.
18	30	0	–33	0	– 52
30	50	0	–39	0	– 62
50	80	0	–46	0	– 74
80	120	0	–54	0	– 87
120	180	0	–63	0	–100

(3) Dimensional tolerance of shaft with eccentric locking collar

Eccentric locking collar bearings have greater clearance (more eccentricity) between the shaft and the bore of the bearing when installed. Therefore, the shaft tolerances must be tighter (h5 or j5) to reduce the clearance (eccentricity). The same clearance fits are recommended as with blower bearings as shown in **Table 2.6**.

(4) Dimensional tolerance of shaft used for concentric locking collar

Regarding the shaft used for concentric locking collar bearings, the same clearance (h5 or j5) fits are recommended as with air handling bearings as shown in **Table 2.6**.

(5) Dimensional tolerance of shaft for ZK

Regarding the shaft used for ZK, the same clearance (h7) fits are recommended as with cylindrical bore bearing with set screws as shown in **Table 9.1**.

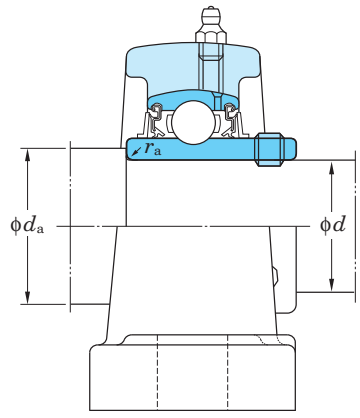
9.1.2 Dimensions of shouldered shafts

When using a set screw or eccentric locking collar bearing that is exposed to a high axial load, excessive vibration, or impact, a shouldered shaft may be used. The inner ring of the bearing is then tightened in place with a locknut, if the shaft is threaded, or with a locking ring otherwise.

However, when mounted units are used with shouldered shafts, a clearance of 2 mm or more is recommended between the end face of the inner ring and the shaft shoulder.

Table 9.5 shows the shoulder diameter and the fillet radius of the shouldered shaft.

Table 9.5 Recommended shoulder diameter and fillet radius of a shouldered shaft



Unit: mm

Bore dia. code	Nominal bearing bore dia. d	Diameter Series[1] UC200, UCX00		Diameter Series[1] UC300	
		Shoulder dia. d_a	Fillet roundness radius r_a (max.)	Shoulder dia. d_a	Fillet roundness radius r_a (max.)
01	12	17	0.6		
02	15	20	0.6		
03	17	22	0.6		
04	20	30	1	–	–
05	25	35	1	35	1
06	30	40	1	40	1
07	35	45	1	45	1.5
08	40	50	1	50	1.5
09	45	55	1	55	1.5
10	50	60	1	60	2
11	55	65	1.5	65	2
12	60	70	1.5	75	2
13	65	75	1.5	80	2
14	70	80	1.5	85	2
15	75	85	1.5	90	2
16	80	90	2	95	2
17	85	95	2	100	2.5
18	90	100	2	105	2.5
19	95	–	–	110	2.5
20	100			115	2.5
21	105			120	2.5
22	110			125	2.5
24	120			135	2.5
26	130			150	3
28	140			160	3

The basic bearing size number consists of a duty code (2, X, or 3) followed by the inner ring size code (07, 10, 24, etc.)

9.1.3 High temperature applications

In general, two bearing units are used per shaft. If the distance between the bearings is small, or if the temperature change of the shaft is small, both bearings may be fixed in position.

However, if the distance between the bearings is large and the shaft is exposed to heat, then only one bearing should be fixed and the opposing bearing must be free to float in the axial direction.

This is because shaft expansion due to temperature change of the shaft causes a high axial load and can cause failure of fixed bearings. The amount of shaft expansion due to temperature change may be calculated by using **Formula (9.1)**.

$$\Delta_\ell = \alpha \cdot \Delta_t \cdot l \quad \cdots\cdots (9.1)$$

Where,

Δ_ℓ: Expansion of shaft, mm

α: Linear expansion coefficient of shaft
in the case of ordinary steel, 11~12 × 10^{-6}

Δ_t: Temperature increase, ℃

l: Installation distance of unit, mm

Proper installation procedures for a shaft exposed to temperature changes are shown below.

(1) Installation with a dog point set screw on the free side

To accommodate shaft expansion in the axial direction, the bearing must be installed so that the shaft can move freely through the bore in either axial direction.

To accomplish this, the shaft must be grooved for a full dog point set screw (suffix code: G6). This should be done on the free side only. The dog point screw allows free movement in the axial direction and provides force to rotate the bearing in the radial direction.

Fig. 9.1 shows an example of the structure of a bearing with a key groove on the shaft and a full dog point set screw. **Table 9.6** shows the dimensions of the key groove for the full dog point set screw. Note that the full dog point set screw in the image is also capped so that it may be tightened against the bearing, not the shaft. A full dog point set screw with a jam nut will also work to achieve this function.

The tolerance class of the shaft to be used is h7.

If the temperature of the shaft is higher than that of the bearing, then a looser fit tolerance class is specified.

When using this method to allow for free expansion, there is a possibility of fretting between the shaft and the inner race. In order to prevent fretting, a high temperature grease must be applied to the inner ring of the bearing and the shaft prior to installation.

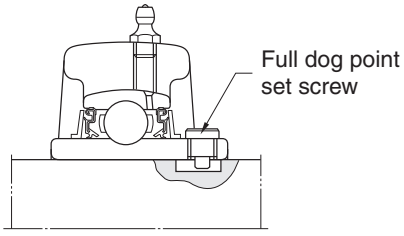


Fig. 9.1 Use on free side with full dog point set screw

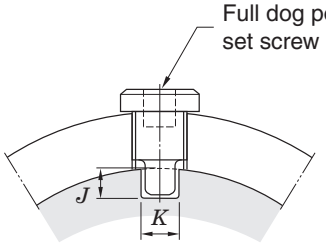


Table 9.6 Dimensions of key groove for full dog point set screw (use on free side)

Nominal size of set screw	Dimensions of key groove (mm)		Applicable nominal bearing code		
	J	K	UC200	UCX00	UC300
M6 × 0.75	5	4	201–206	X05	305, 306
M8 × 1	6	6	207–209	X06–X08	307
M10 × 1.25	6.5	7	210–212	X09–X11	308, 309
M12 × 1.5	7	9	213–218	X12–X17	310–314
M14 × 1.5	7	10		X18	315, 316
M16 × 1.5	8	12		X20	317–319
M18 × 1.5	8	13			320–324
M20 × 1.5	8	15			326, 328

Allowable tolerance of key groove dimension “K” (Recommended value: 0~+0.2mm)

(2) Installation of cartridge type units on the free side

If the rotational speed is high or if the bearing is exposed to high vibration, the cartridge type unit is recommended on the free side. In this case, the housing of the cartridge unit is free to move axially within the mounting bore and the bearing insert is rigidly attached to the shaft.

Fig. 9.2 shows the required structure for the cartridge type unit on the free side.

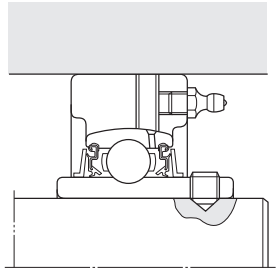


Fig. 9.2 Use of cartridge type units on free side

If, in addition to the expansion of the shaft, the ball bearing itself is exposed to heat, then a calculation of the decrease in internal clearances of the bearing must be made. The appropriate bearing internal clearance must be specified. (see **"7 Operating temperature and bearing specifications"**).

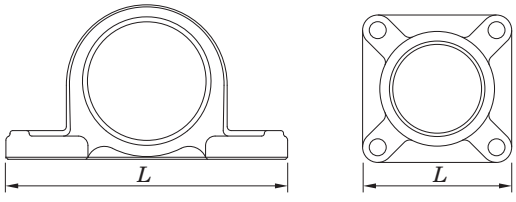
9.2 Mounting Base Design

9.2.1 Rigidity of base and flatness of mounting surface

If rigidity of the base on which a ball bearing unit is to be mounted is not sufficient, or if the flatness of the mounting surface is poor, then vibration or abnormal noise may occur during operation. This may lead to premature bearing failure since the strength of the housing is diminished from improper support.

The mounting surface must be accurately machined to eliminate deformation of the housing.

Fig. 9.3 shows the recommended values for flatness of the mounting surface on which the ball bearing unit is to be installed.



Max.: L / 1,000 mm

Fig. 9.3 Flatness of mounting surface of base (recommended value)

9.2.2 Mounting cartridge type units in high temperature applications

Cartridge units are designed to fit into an accurately bored cylindrical opening in the mounting base. Under ordinary operating conditions, H7 is an adequate choice for the tolerance class of the cylindrically bored hole.

In instances where both the bearing and the shaft are heated during operation, select G7 as the tolerance class of the cylindrical bore.

If the bearing is exposed to excessive vibration or impact, then an even tighter tolerance class must be specified.

Table 9.7 shows the dimensional requirements for the cylindrical bore.

Table 9.7 Dimensional tolerance of cylindrical bore for mounting cartridge type units (recommended values)

Unit: μm

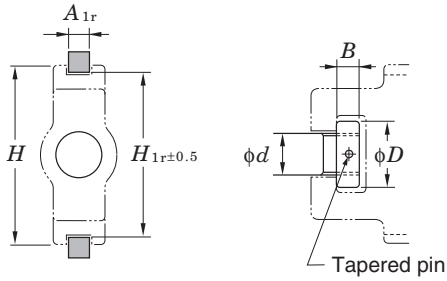
Nominal bore dia. of cylindrical bore (mm)		Dimensional tolerance of cylindrical bore			
		H7		G7	
Over	Incl.	Max.	Min.	Max.	Min.
50	**80**	+30	0	+40	+10
80	**120**	+35	0	+47	+12
120	**180**	+40	0	+54	+14
180	**250**	+46	0	+61	+15
250	**315**	+52	0	+69	+17
315	**400**	+57	0	+75	+18

9.2.3 Installation of take-up units

A take-up unit is positioned between two guide rails and enables linear adjustment by means of the threaded rod and bolt.

Table 9.8 shows the dimensions of the guide rail, adjuster bolt, and fixed nut.

Table 9.8 Dimensions relative to installation of take-up type units (recommended values)



Unit: mm

Nominal bearing code	Dimensions of guide rail			Dimensions of adjuster bolt and round nut		
	A_{1r}	H_{1r}	H (Reference)	d	D	B
T204 **T205**	11	77	89	16	28	14
T206 **T207**	11	90	102	18	32	14
T208	15	103	114	24	42	16
T209 **T210**	15	103	117	24	42	16
T211 **T212**	20	131	146	30	55	20 27
T213 **T214** **T215**	24	152	167	36	60	27
T216	24	166	184	36	60	27
T217	28	174	198	42	60	30
TX05 **TX06**	11	90	102	18	32	14
TX07	15	103	114	24	42	16
TX08 **TX09**	15	103	117	24	42	16
TX10 **TX11**	20	131	146	30	55	20 27
TX12 **TX13** **TX14**	24	152	167	36	60	27
TX15	26	166	184	36	60	27
TX16 **TX17**	26	174	198	42	60	30

Remark This table is also applicable to stainless steel housings.

Unit: mm

Nominal bearing code	Dimensions of guide rail			Dimensions of adjuster bolt and round nut		
	A_{1r}	H_{1r}	H (Reference)	d	D	B
T305	11	81	89	22	32	12
T306 **T307**	15	91 101	100 111	24 26	36 40	14
T308 **T309**	16	113 126	124 138	28 30	45 50	16 18
T310	18	141	151	32	55	20
T311 **T312**	20	151 161	163 178	34 36	60 65	22 24
T313 **T314** **T315**	24	171 181 193	190 202 216	38 40 40	65 80 80	26 28 28
T316	28	205	230	46	90	34
T317 **T318**	30	216 230	240 255	46 50	90 95	34 38
T319	32	242	270	50	95	38
T320 **T321**	32	262	290	52	100	40
T322	36	287	320	55	110	44
T324	42	322	355	60	120	50
T326 **T328**	47	352 382	385 415	65 70	130 140	55 60

9.3 Dowel Pins for Accurate Unit Mounting

The pillow type, square flange type, and oval flange type housings all have a dowel pin seat on the mounting base. If accurate positioning of the housing is required, then the bottom of the housing may be drilled for dowel pins which fit into corresponding holes in the mounting surface. The dimensions for the hole and pin sizes can be found in **Appendix Table 5** at the back of the catalog.

10 Nomenclature

Nomenclature of FYH Ball Bearing Units conforms to JIS B 1557, and consists of the bearing unit model code (comprising bearing model code and housing model code), diameter series code, bore diameter code, accessory code, and special code.

UC P 207 J L3

Bearing No.:	UC207L3
Housing No.:	P207J

UK P 209 J CD + H2309X

Bearing No.:	UK209+H2309X
Housing No.:	P209JE1
Steel plate cover No.:	(Open type) C-9x40
	(Closed type) D-9

UC F 209 J L3 FD D1K2 G6 A1

Bearing No.:	UC209L3D1K2G6
Housing No.:	F209JA1E3
Cast iron cover No.:	(Closed type) 209FD

- A1 — Housing special code (**Table 10.8**)
- G6 — Bearing special code (**Table 10.7**)
- D1K2 — Accessory code (**Table 10.6**)
- FD — Fitting code (**Table 10.5**)
- L3 — Bore dia. code (**Table 10.4**)
- J — Diameter series code (**Table 10.3**)
- 209 — Housing model code (**Table 10.2**)
- F — Bearing model code (**Table 10.1**)
- UC — Bearing model code (**Table 10.1**)

Remark The above code shows an example of nomenclature structure. It may depend on the bearing unit model.

Table 10.1 Bearing model code

Bearing model code	Details
UC	with set screws
UC-S6	with set screws (stainless steel series)
UK	Tapered bore with adapter sleeve
NA	with eccentric locking collar
NC	with concentric locking collar
SB	with set screws (lightweight type)
SU	with set screws (clean series)
SA	with eccentric locking collar (lightweight type)
SA-F	with eccentric locking collar, Lubricating mechanism (lightweight type)
SU-S6	with set screws (stainless steel series)
ER	with set screws, cylindrical O.D., Lubricating mechanism, snap ring
ERC	with concentric locking collar, cylindrical O.D., Lubricating mechanism, snap ring
RB	with set screws, cylindrical O.D.
SBB	with set screws, cylindrical O.D.
SAA-F	with eccentric locking collar, cylindrical O.D. (lightweight type)

Table 10.2 Housing model code

Housing model code	Details
P	Pillow type
IP	Thick pillow type
PA	Tapped-Base pillow
PAN	Tapped-Base pillow
PH	High-Base pillow type
LP	Lightweight pillow type
P	Pillow type (clean series)
SP	Pillow type (stainless steel series)
SPA	Tapped-Base pillow (stainless steel series)

Table 10.2 Housing model code (continued)

Housing model code	Details
VP	Pillow type (thermoplastic series)
VPAN	Tapped-Base pillow (thermoplastic series)
PP	Stamped steel pillow type
F	Square four-bolt flange type
NF	Square four-bolt flange type
FL	Oval two-bolt flange type
NFL	Oval two-bolt flange type
FA	Adjustable oval two-bolt flange type
FB	Three-bolt flange type
FC	Round flange cartridge type
FCF	Round flange cartridge type
FS	Square four-bolt cartridge flange type
FL	Oval two-bolt flange type (clean series)
TFD-H4	Three-bolt flange type (Ductile cast iron)
LF	Lightweight oval two-bolt flange type
SF	Square four-bolt flange type (stainless steel series)
SFL	Oval two-bolt flange type (stainless steel series)
SFC	Round flange cartridge type (stainless steel series)
PF	Stamped steel plate round three-bolt flange type
PFL	Stamped steel plate oval two-bolt flange type
VF	Square four-bolt flange type (thermoplastic series)
VFL	Oval two-bolt flange type (thermoplastic series)
VFB	Three-bolt flange type (thermoplastic series)
T	Take-up type
TRS	Narrow slot Take-up type
ST	Take-up type (stainless steel series)
TH	Section steel frame take-up type
TL	Light channel steel frame take-up type
TU	Channel steel frame take-up type
PTH	Steel plate frame take-up type
NPTH	Steel plate frame take-up type

Table 10.2 Housing model code (continued)

Housing model code	Details
C	Cartridge type
HA	Hanger type

Table 10.3 Diameter series code

Diameter series code	Details
0	Small size light duty
2	Normal duty
X	Medium duty
3	Heavy duty

Table 10.4 Bore dia. code

Bore dia. code	Details
8	Nominal bearing bore dia. 8 mm
00	Nominal bearing bore dia. 10 mm
01	Nominal bearing bore dia. 12 mm
02	Nominal bearing bore dia. 15 mm
03	Nominal bearing bore dia. 17 mm
04 and above	(Bore dia. code) × 5 = Nominal bearing bore dia. (mm)
01–8	– (bore dia. code) /16 = nominal bearing bore dia. (inch) (in this case, 8/16 = 1/2 inch = 12.7 mm) As for the bore dia. inch series bearing.

Table 10.5 Fitting code

Fitting code	Details
J	Tolerance class of spherical bore of the housing is J7 (not shown where the spherical bore diameter exceeds 120 mm)
H	Tolerance class of spherical bore of the housing is H7
K	Tolerance class of spherical bore of the housing is K7

Table 10.6 Accessory code

Accessory code	Details
C[1)]	Cover, open type
D[1)]	Cover, closed type
FC	Cast iron cover, open type
FD	Cast iron cover, closed type
L3	Triple-lip seal type

Note [1)] Standard specifications of codes C and D are as shown below.
201–218, X05–X17.....Steel plate cover
X18–X20, 305–328.....Cast iron cover

Table 10.7 Bearing special code

Item	Bearing special code	Details
Grease	D1	Diurea
	D2	Lithium
	D6	Fluorinated grease
Set Screw	G4	Cone point
	G6	Capped full dog point
Seal	K2	Silicone rubber
	K3	Non-contact type
Sealing Device	P3	Without seal, slinger
	P4	Without seal
Others	S5	For blower (seal: K3, inner clearance and bearing accuracy are specially controlled)
	S6	Stainless steel bearing
	S7	Plated bearing (for corrosion-resistance)

Table 10.8 Housing special code

Item	Housing special code	Details
Grease Fitting Thread Bore dia.	A1	Rc1/8 tube thread
	A2	G1/8 tube thread
	A3	Rc1/4 tube thread
	A4	G1/4 tube thread
	A5	1/8NPT tube thread
Grease Fitting Thread Bore Position	B1	Right
	B2	Left
	B3	45°
	B5	30°
	B7	Both right and left
Machining	E1	Stamped steel cover mounting groove (diameter series 2, X)
	E3	Cast iron cover mounting groove (diameter series 2, X, 3)
	E4	Non-lubricating type
Housing Material	H4	Ductile iron (FCD450-10)
	H5	Rolled steel for general purpose (SS400)
Grease Fitting	N1	B type (67.5°)
	N2	C type (90°)
Surface treatment	Z5	Nickel plated housing

11 Accuracy and Internal Clearance

Accuracy of a ball bearing unit is specified in JIS B 1558 (Rolling bearings–Insert bearings and eccentric locking collars) and JIS B 1559 (Rolling bearings–Cast and pressed housings for insert bearings). FYH produces products conforming to these standards.

11.1 Accuracy of Bearings

Table 11.1 to **Table 11.4** show the accuracy of ball bearings for ball bearing units.

Ball bearings for blowers (special code: S5) are produced with greater accuracy than standard models (see **Table 11.3**).

Table 11.5 shows the tolerance limitations of inner rings for cylindrical bore bearings.

Table 11.2 Tolerances and tolerance values of outer rings of ball bearing inserts

Unit: μm

Nominal bearing outer dia. D (mm)		Variation of tolerance of average outer dia. Δ_{Dm}		Radial runout of outer ring K_{ea}
Over	Incl.	Max.	Min.	Max.
18	**30**	0	− 9	15
30	**50**	0	−11	20
50	**80**	0	−13	25
80	**120**	0	−15	35
120	**150**	0	−18	40
150	**180**	0	−25	45
180	**250**	0	−30	50
250	**315**	0	−35	60

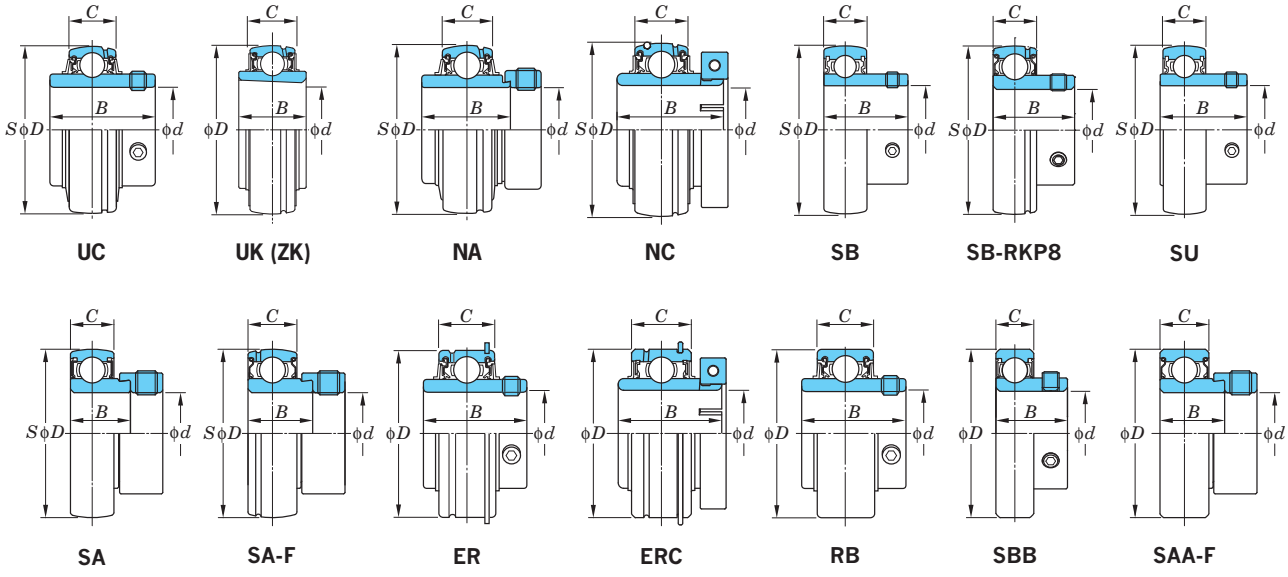
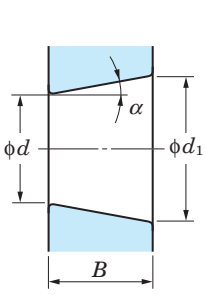


Table 11.1 Tolerances and tolerance values of inner rings of ball bearings for ball bearing units

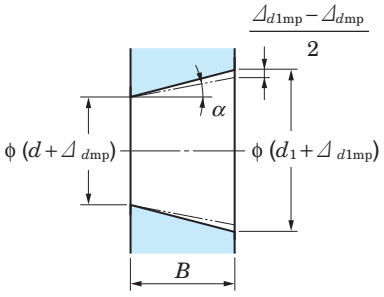
Unit: μm

Nominal bearing bore dia. d (mm)		Variation of tolerance of average bore dia. in plane Δ_{dmp}		Unequal bore dia. in plane V_{dsp}	Variation of tolerance of eccentricity on eccentric surface of inner ring and eccentric locking collar Δ_{Hs}		Variation of tolerance of inner ring width Δ_{Bs}		Radial runout of inner ring K_{ia}
Over	Incl.	Max.	Min.	Max.	Max.	Min.	Max.	Min.	Max.
–	**10**	+15	0	10	+100	−100	0	−120	10
10	**18**	+15	0	10	+100	−100	0	−120	15
18	**31.75**	+18	0	12	+100	−100	0	−120	18
31.75	**50.8**	+21	0	14	+100	−100	0	−120	20
50.8	**80**	+24	0	16	+100	−100	0	−150	25
80	**120**	+28	0	19	+100	−100	0	−200	30
120	**180**	+33	0	22	+100	−100	0	−250	35

Table 11.3 Variation of tolerances and tolerance values for tapered bores of tapered bore bearings



Theoretical tapered bore



Tapered bore with variation of tolerance of average bore dia. in plane

Unit: μm

Nominal bearing bore dia. d, mm		Δ_{dmp}		$\Delta_{d1mp} - \Delta_{dmp}$		V_{dsp} [1)]
Over	Incl.	Max.	Min.	Max.	Min.	Max.
18	**30**	+33	0	+21	0	13
30	**50**	+39	0	+25	0	16
50	**80**	+46	0	+30	0	19
80	**120**	+54	0	+35	0	22
120	**180**	+63	0	+40	0	40

Note [1)] To be applied to all the radial planes of tapered bore

Remarks 1. Applicable range
Applicable to tapered bore of inner ring of tapered bore radial bearing that standard value of taper ratio is 1/12.

2. Amount code

d_1: Standard diameter at theoretical large end of tapered bore

Standard diameter $d_1 = d + \frac{1}{12} B$

Δ_{dmp}: Variation of tolerance of average bore diameter in plane at theoretical small end of tapered bore

Δ_{d1mp}: Variation of tolerance of average bore diameter in plane at theoretical large end of tapered bore

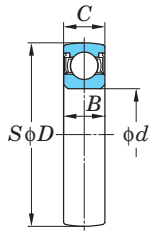
V_{dsp}: Unequal bore diameter in plane

B: Nominal inner ring width

α: 1/2 of nominal taper angle of tapered bore

α = 2° 23' 9.4"
= 2.385 94°
= 0.041 643 rad

Table 11.4 Tolerances and tolerance values of inner rings of SC ball bearings

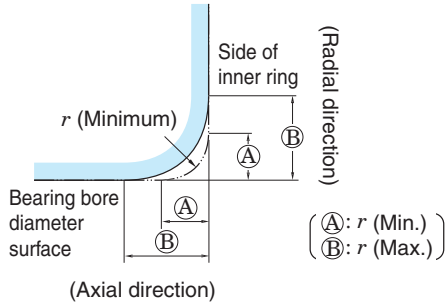


SC

Unit: μm

Nominal bearing bore dia. d (mm)		Variation of tolerance of average bore dia. in plane Δ_{dmp}		Unequal average bore dia. in plane V_{dsp}	Radial runout of inner ring K_{ia}
Over	Incl.	Max.	Min.	Max.	Max.
10	**18**	0	− 8	6	15
18	**31.75**	0	−10	6	18
31.75	**50.8**	0	−12	10	20

Table 11.5 Tolerance limitations for radius dimensions for the inner ring of cylindrical bore bearings



Unit: mm

r (Min.)	r (Max.)	
	Radial direction	Axial direction
0.6	1	2
1	1.5	3
1.1	2	3.5
1.5	2.3	4
2	3	4.5
2.1	4	6.5
2.5	3.8	6
3	5	8
4	6.5	9

Remark Although the accurate profile of chamfered surface is not specified, the profile on the axial plane should not exceed the virtual arc of radius r (minimum) that contacts the side of inner ring and the bearing bore diameter surface.

11.2 Accuracy of Housings

This section details the tolerance specifications of the inner diameter of the spherical bore of FYH housings. These values determine how tight or how loose the bearing fits inside the housing.

Table 11.6 shows the tolerance of the diameter of the spherical bore of housings.

Standard tolerance for mounted units, between the outer diameter of the bearing and the inner diameter of the housing, is a class J7 intermediate fit.

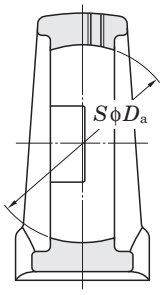
A class H7 tolerance allows greater clearance for applications where minor shaft alignment constantly occurs or in environments where higher temperatures can cause thermal expansion. An anti-rotation pin on the outer ring of the bearing is supplied with these units to prevent the outer ring of the bearing from spinning inside the housing.

A class K7 tolerance allows less clearance and is recommended to prevent the outer ring of the bearing from rotating inside the housing.

Fig. 11.1 shows examples of housing dimensions relative to installation position with tolerance values.

Table 11.6 Tolerance of spherical bore diameter of housings

Unit: μm

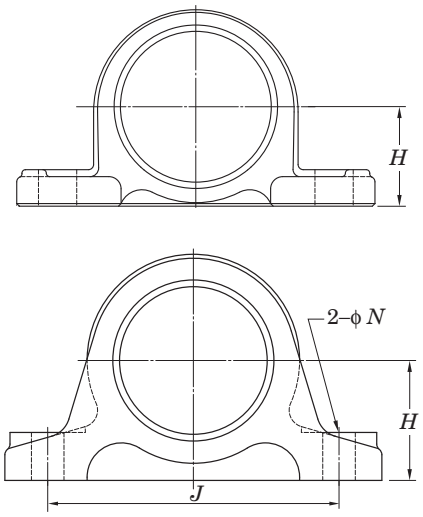


Nominal dia. of spherical bore D_a (mm)		Tolerance class H7		Tolerance class J7		Tolerance class K7	
		Variation of tolerance of spherical bore dia. Δ_{Dam}		Variation of tolerance of spherical bore dia. Δ_{Dam}		Variation of tolerance of spherical bore dia. Δ_{Dam}	
Over	Incl.	Max.	Min.	Max.	Min.	Max.	Min.
18	**30**	+21	0	+12	− 9	+ 6	−15
30	**50**	+25	0	+14	−11	+ 7	−18
50	**80**	+30	0	+18	−12	+ 9	−21
80	**120**	+35	0	+22	−13	+10	−25
120	**180**	+40	0	+26	−14	+12	−28
180	**250**	+46	0	+30	−16	+13	−33
250	**315**	+52	0	+36	−16	+16	−36

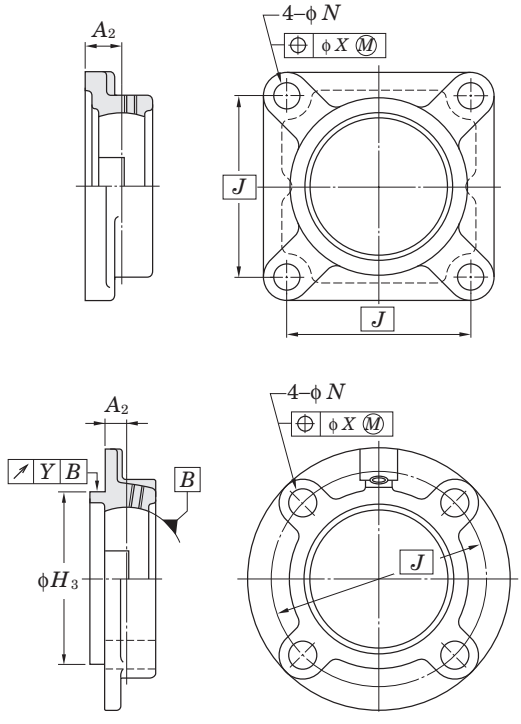
Remark FYH basically applies type J, and applies H or K depending on the application.

Fig. 11.1 Dimensions relative to installation of housings with tolerances and tolerance values (representative example)

Pillow type housings

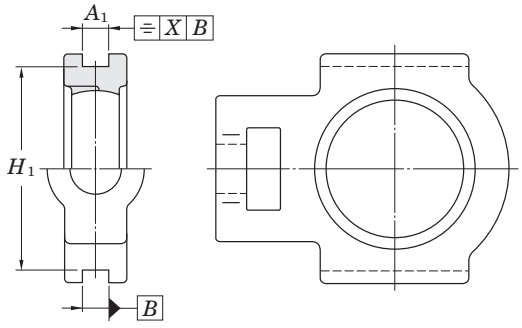


Flange type housings

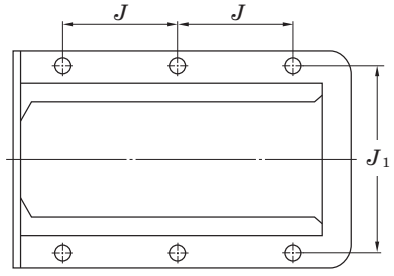


Remark Respective tolerances and tolerance values for housings are shown in dimensional tables.

Take-up type housings



Frame for take-up type units



Cartridge type housings

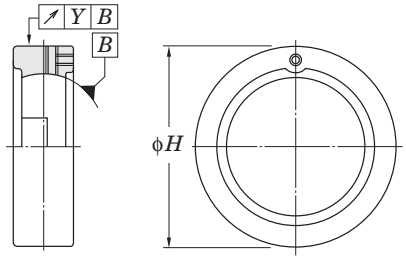


Table 11.7 shows ordinary dimensional tolerance of cut or cast portions not specified in this catalog.

Table 11.7 Ordinary dimensional tolerance not specified

Item	Standard code	Class
Cutting	JIS B 0405	Medium
Casting of cast iron	JIS B 0403	Ordinary
Casting of cast steel	JIS B 0403	Ordinary

11.3 Internal Bearing Clearance

Internal bearing clearance is defined as the allowable space between the bearing balls and the raceways. The degree of internal clearance, referred to as "operating clearance", greatly influences operational life of the bearing as well as characteristics of heat, noise, and vibration.

If the clearance is exceptionally tight between the shaft and the inner ring of the bearing then expansion of the inner ring must be taken into consideration and the correct ball clearance should be selected. Transmission heat from the shaft is also a factor to consider when determining the correct amount of ball clearance (see **"7 Operating temperature and bearing specifications"**).

Table 11.8 shows the internal clearance applicable to specific operating conditions and **Table 11.9** shows the available options for internal clearance.

Table 11.8 Internal clearance applicable to specific operating conditions

Type	Applicable internal clearance	
	Bearing with cylindrical bore	Bearing with tapered bore
Standard type	CN	C3
NC	CN	–
Stainless steel type	C3	–
Heat resistant type (suffix code: D1K2)	C4	C5
Heat resistant type (suffix code: D6K2)	C4	C5
Cold resistant type (suffix code: D2K2)	CN	C3
High speed type (suffix code: K3)	CN	C3
For highspeed blower (suffix code: S5)	C2	C3

Remark For bearings with suffix codes, as those indicated above, the clearance is implied and not indicated in the part number.

Table 11.9 Available options for internal clearance

Unit: μm

Nominal bearing bore dia. d (mm)		Internal clearance											
		C2		CN		GN		C3		C4		C5	
Over	Incl.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
6	**10**	0	7	2	13	–	–	8	23	14	29	20	37
10	**18**	0	9	3	18	10	25	11	25	18	33	25	45
18	**24**	0	10	5	20	12	28	13	28	20	36	28	48
24	**30**	1	11	5	20	12	28	13	28	23	41	30	53
30	**40**	1	11	6	20	13	33	15	33	28	46	40	64
40	**50**	1	11	6	23	14	36	18	36	30	51	45	73
50	**65**	1	15	8	28	18	43	23	43	38	61	55	90
65	**80**	1	15	10	30	20	51	25	51	46	71	65	105
80	**100**	1	18	12	36	24	58	30	58	53	84	75	120
100	**120**	2	20	15	41	28	66	36	66	61	97	90	140
120	**140**	2	23	18	48	33	81	41	81	71	114	105	160

Remarks 1. Radial internal clearance in this table conforms to JIS B 1558 (Rolling bearings–Insert bearings and eccentric locking collars) and JIS B 1520-1 (Internal clearance — Part 1: Radial internal clearance for radial bearings)

2. Increase in radial internal clearance generated by measured load conforms to the table below. Smaller correction of C2 clearance is applicable to the minimum clearance, while larger correction is applicable to the maximum clearance.

Unit: μm

Nominal bearing bore dia. d (mm)		Measured load	Correction of clearance				
Over	Incl.	N	C2	CN	GN, C3	C4	C5
2.5	**18**	24.5	3 – 4	4	4		
18	**50**	49	4 – 5	5	6		
50	**140**	147	6 – 8	8	9		

12 Materials

12.1 Bearing Material

Ball bearing inserts consist of inner and outer rings, balls, and steel ball cages all of which are made from the highest quality of bearing steel.

These bearings possess the following features.

(1) High elastic limit to resist strong opposing force
(2) High rolling fatigue strength to allow for heavy loads
(3) Superior hardness
(4) Superior wear resistance
(5) Superior toughness against impact and shock loads
(6) Superior precision of dimensional tolerances

High carbon chrome bearing steel is utilized for the bearing components as specified in JIS (Japanese Industrial Standards).

To increase reliability and reduce contamination within the material, a vacuum degassing process is executed to reduce non-metallic elements and any oxygen in the steel.

After the bearing is assembled it is quenched and tempered until the hardness reaches 60HRC.

Table 12.1 shows the chemical components of high carbon chrome bearing steel. Stainless steel bearing inserts (suffix: S6) utilize superior corrosion resistant JIS certified stainless steel.

Riveted steel ball cages are made of JIS certified cold rolled steel which is shown in **Table 12.2**.

12.2 Housing Material

FYH housings are made primarily of gray cast iron, and stamped steel. Gray cast iron is the most popular choice for mounted units because of its optimal characteristics of vibration absorption, high strength, and excellent heat dissipation.

Table 12.3 shows the mechanical properties of gray cast iron (FC200).

Nodular graphite cast iron, or ductile iron, (FCD450-10 of JIS G 5502) provides a good combination of rigidity and fracture resistance, and it is suitable where heavy vibration or impact forces are present.

Housings for units within the Clean Series are available in die-cast zinc alloy as well as stainless steel. Housing material for stamped steel units consists of thick gauge cold rolled sheet steel and steel strip.

Table 12.4 to **12.8** show the mechanical properties of these housing materials.

Table 12.1 Chemical components of high carbon chrome bearing steel (JIS G 4805)

Code	Chemical components (%)						
	C	Si	Mn	P	S	Cr	Mo
SUJ 2	0.95–1.10	0.15–0.35	0.50 or less	0.025 or less	0.025 or less	1.30–1.60	–
SUJ 3	0.95–1.10	0.40–0.70	0.90–1.15	0.025 or less	0.025 or less	0.90–1.20	–

Table 12.2 Chemical components of cold rolled steel and steel strip (SPCC) (JIS G 3141)

Code	Chemical components (%)						
	C	Si	Mn	P	S	Ni	Cr
SPCC	0.15 or less	–	1.00 or less	0.100 or less	0.035 or less	–	–
SPCD	0.10 or less	–	0.50 or less	0.040 or less	0.035 or less	–	–

Table 12.3 Mechanical properties of gray cast iron (FC200)

Type code	Tensile strength N/mm^2	Hardness HB
FC200	200 or more	223 or less

Table 12.4 Mechanical properties of cast carbon steel products (JIS G 3101)

Type code	Yielding point or bearing force N/mm²			Tensile strength N/mm²	Thickness of steel mm	Tensile test piece	Elongation %	Bending property		
	Thickness of steel mm							Bending angle	Inside dia.	Test piece
	incl. 16	Over 16 incl. 40	Over 40							
SS400	245 or more	235 or more	215 or more	400–510	Over 5, 16 max.	No.1A	17 or more	180°	1.5 times of thickness	No.1
					Over 16, 50 max.	No.1A	21 or more			
					Over 40	No.4	23 or more			

Table 12.5 Mechanical properties of zinc alloy die-cast (ZDC2) (JIS H 5301) (Reference)

Code	Tensile strength N/mm²	Elongation %	Impact N · m/cm²	Hardness HB
ZDC2	285	10	140	82

Table 12.6 Mechanical properties of stainless cast steel products (SCS 13 , SCS 14) (JIS G 5121)

Type code	Bearing force N/mm²	Tensile strength N/mm²	Elongation %	Hardness HB
SCS 13	185 or more	440 or more	30 or more	183 or less
SCS 14	185 or more	440 or more	28 or more	183 or less

Correspondence standards
SCS 13: ISO GX5CrNi 19 9 , ASTM CF-8 (AISI 304)
SCS 14: ISO GX5CrNiMo 19 11 2 , ASTM CF-8M (AISI 316)

Table 12.7 Mechanical properties of cold rolled sheet steel and steel strip (SPCC) (JIS G 3141)

Type code	Tensile strength N/mm²	Elongation %
SPCC	270 or more	34 or more
SPCD	270 or more	36 or more

Table 12.8 Mechanical properties of ductile cast iron (FCD450-10) (JIS G 5502)

Type code	Tensile strength N/mm²	Elongation %
FCD	450 or more	10 or more

12.3 Materials of Parts and Accessories

Table 12.9 shows materials of parts and accessories of a ball bearing unit.

Table 12.9 Materials of parts and accessories of ball bearing units

Designations	Materials	Code	Standard code
Seal (standard type)	Nitrile rubber	NBR	–
Seal (heat resistant, cold resistant)	Silicone rubber	VMQ	–
Slinger (flinger)	Cold rolled steel plate and steel strip	SPCC	JIS G 3141
Stainless steel slinger (flinger)	Cold rolled stainless steel plate and steel strip	SUS304-CP, SUS304-CS	JIS G 4305
Steel plate cover	Cold rolled steel plate and steel strip	SPCD	JIS G 3141
Stainless steel plate cover	Cold rolled stainless steel plate and steel strip	SUS304-CP, SUS304-CS	JIS G 4305
Cast iron cover	Gray cast iron products	FC200	JIS G 5501
Hexagon socket set screw	Chrome molybdenum steel	SCM435	JIS G 4053
Stainless steel hexagon socket set screw	Stainless steel bars	SUS304	JIS G 4303
Adapter sleeve for bearing	Mechanical structural carbon steel	S20C	JIS G 4051
Lock nut for bearing	Mechanical structural carbon steel	S20C	JIS G 4051
Washer for bearing	Cold rolled steel plate and steel strip	SPCC	JIS G 3141
Locking collar	Mechanical structural carbon steel	S17C	JIS G 4051
Grease fitting	Copper and copper alloy rod	SUM24L	JIS G 4804

13 Performance

13.1 Bearing Friction Torque

Bearing friction torque is the conglomeration of the rolling friction between the balls and the inner and outer rings, the sliding friction between the balls and the cage, the agitating resistance of lubricants, and the friction resistance of the seals.

The specific amount of friction torque is influenced by the particular bearing model, dimensions, bearing load, rotating speed, and lubricating conditions.

Bearings with triple-lip seals and open cover seals will have greater friction torque and overall greater friction resistance.

Friction torque for bearings can be calculated by the formulas below.

$$M = M_p + M_k \quad \cdots\cdots (13.1)$$

$$M_p = \mu \cdot P \cdot \frac{d}{2} \quad \cdots\cdots (13.2)$$

Where,

M: Friction torque of bearing, $\mathrm{mN \cdot m}$

M_p: Friction torque of sections changed by load, $\mathrm{mN \cdot m}$

M_k: Friction torque of sections changed by rotating speed, $\mathrm{mN \cdot m}$

μ: Friction coefficient (0.0015 to 0.002)

P: Load applied to bearings, N

d: Nominal bearing bore dia., mm

Note that the agitating resistance of lubricants and the friction resistance of the seals are difficult to calculate since the resistance fluctuates with speed.

Fig. 13.1 shows the result of measurement of friction torque of the typical ball bearing unit.

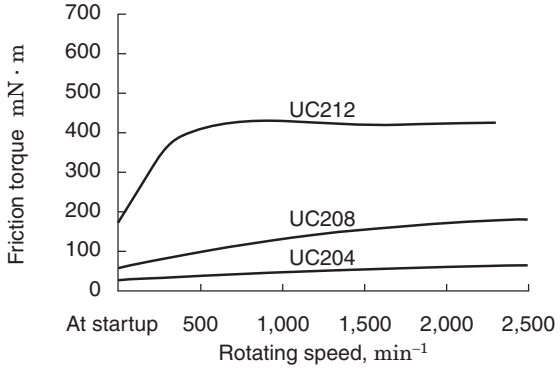


Fig. 13.1 Example of measurement result of ball bearing units

13.2 Bearing Temperature Increase

The increase in temperature of the bearing is represented as heat energy created from friction torque in the bearing during operation. The temperature of the bearing during operation increases in proportion to the amount of friction torque, and friction torque increases in proportion to the increase in bearing load.

The increase in temperature of the bearing depends on the heating value generated by friction in the bearing and the amount of heat discharged from the bearing and housing in which it is mounted. Therefore, the temperature level of the bearing is influenced by the environmental conditions of the location in which the bearing unit is installed (quality of heat radiation environment).

The operating temperature of the bearing unit increases gradually after startup of operation and reaches the maximum level after one or two hours if no abnormalities occur. Then it decreases slightly and enters a steady state (see **Fig. 13.2**).

If the operating conditions are not changed, bearing temperature will remain virtually constant, and measurement of the temperature and assumption of the bearing status are enabled.

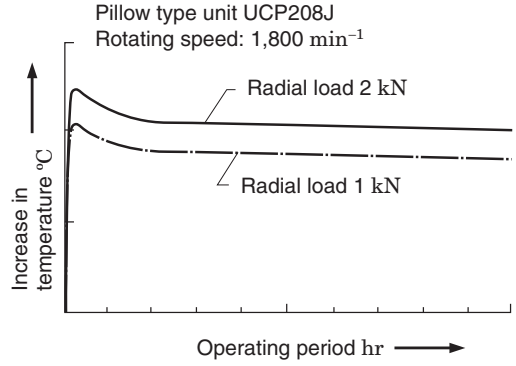


Fig. 13.2 Example of temperature measurement during operation of pillow type units

Increase in temperature during operation of the bearing depends on the type of seal used in the bearing as well as friction torque.

Increase in temperature of triple-lip bearings (suffix code: L3) is greater than that of the standard single lip model, and that of the non-contact seal (suffix code: K3, S5) is lower than that of the standard single lip model. Bearings for blowers and other high-speed applications are equipped with non-contact seals, with grease or oil, for high-speed operation as well as reduction of heat, vibration, and noise.

14 Handling

14.1 Installation

14.1.1 Installation of set screw units

When installing set screw units, it is important to tighten the set screws to the shaft with the specified torque.

When the clearance between the inner ring and the shaft is small, then grind the surface of the shaft where the set screw contacts and make a flat base (**Fig. 14.1**). It helps you to take the shaft out of the inner ring.

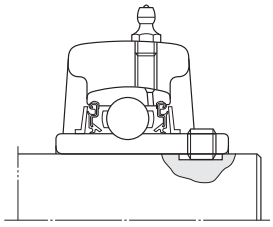


Fig. 14.1 Flat seat provided for shaft

If the unit is exposed to great load or excessive vibration, another option is to use a shouldered shaft and tighten the inner ring of the bearing with a shaft nut. (**Fig. 14.2**)

For dimensions of the shouldered shaft, see **"9 Design of shaft and base"**.

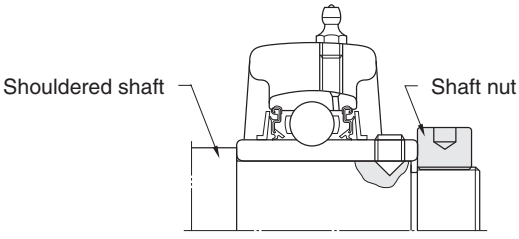


Fig. 14.2 Example of installation with a shouldered shaft and shaft nut

FYH Bearings are available with a variety of set screw options including **Double Point** and **Bullet Point** set screws which provide a secure fit to the shaft. Additional styles of set screws are also available to meet a range of purposes and operating conditions (see **Table 14.1**).

Table 14.1 Set screws of ball bearings for units

Designations (code)	Details
Bullet Point	The tip of the FYH Bullet Point set screw has a ball shape, and it is designed to firmly grip the shaft by expanding its threads outward against the threads of the inner ring of the bearing as it is tightened. When shock or vibration are problems, the Bullet Point set screw can remain affixed to the shaft longer than other set screw styles including double point, ball point, or others.
Double Point (**G7**)	The cone point at the center of the screw, combined with the round point at the outer edge, provides excellent shaft contact and greatly reduced fitting error. This style is also available with a nylon film fused to the thread surface to prevent the screw from loosening during operation.
Cone Point (**G4**)	The cone point set screw has a 90º angle and fits a drilled cone seat in the shaft. It allows correct positioning on the shaft and prevents shaft movement in an axial direction. (**Fig14.3**)
Capped Full Dog Point (**G6**)	The capped full dog point set screw fits into the keyed groove in the shaft and allows for expansion and contraction of the shaft. It tightens to the inner ring of the bearing (not the shaft) to allow the shaft to float within the bore of the bearing.

When correct positioning is required, make a drilled cone base on the shaft, and tighten the shaft, using a cone point set screw (**Fig. 14.3**).

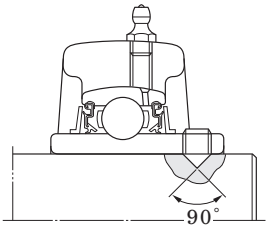


Fig. 14.3 Drilled seat provided for shaft

Contact FYH for additional set screw styles.

Shown below are installation procedures for bearing units with set screws.

(1) Inspect the unit to ensure that the rigidity of the base, flatness of the mounting surface, and tolerance of the shaft meet the required standards. Check the shaft for bends, burrs, and other flaws.

(2) Make sure that the set screws are retracted far enough so that they do not contact the shaft as the bearing is installed.

(3) Fit the bearing unit onto the shaft and slide it to the specified position. In order to secure a tight fit, press-fit the bearing unit to the shaft with a press, cold-fit by cooling the shaft, or shrink-fit the bearing unit by warming it with an air bath (100 ℃ or less). Avoid striking the bearing with a hammer to press-fit the bearing onto the shaft. If you give a strong impact to the side surface of the inner ring, both slingers move, and it may cause a problem.

(4) Align the bearing unit to the specified position on the base and secure it with washers and bolts (**Fig. 14.4**). Use a torque wrench to tighten the bolts to the housing to the specified torque setting. For mounting bolt torque specifications, see **Appendix Table 2** at the back of the catalog.

Fig. 14.4 Installation of set screw units

(5) Tighten both of the set screws on the inner ring to the specified torque setting (**Fig. 14.5**). For set screw torque specifications, see **Appendix Table 3** at the back of the catalog.

Fig. 14.5 Tightening of set screws

(6) Turn the shaft by hand and tighten the set screws of all other bearings on the same shaft to the specified torque setting.

(7) Finally, turn the shaft by hand and make sure that it rotates without any problems.

14.1.2 Installation of adapter style units

Adapter units, comprised of an adapter sleeve, locknut, and washer, can be installed into environments where they are exposed to excessive vibration and impact.

It is of great importance that these units are properly mounted. If the locknut is not properly tightened, the sleeve may be loose which could lead to slippage and wear on the shaft or bearing. Conversely, if the locknut is over-tightened, the inner ring of the bearing can expand and reduce internal ball clearance which could cause excessive heat and premature failure.

Installation procedures for adapter style bearings are shown below.

(1) Inspect the unit to ensure that the rigidity of the base, flatness of the mounting surface, and tolerance of the shaft meet the required standards. Check the shaft for bends, burrs, and other flaws.

(2) Slide the adapter sleeve onto the shaft where the bearing unit will be installed.

If the sleeve is too tight, place a screwdriver in the slotted portion of the sleeve and expand the slot to open the sleeve.

(3) Slide the bearing unit over the shaft and onto the adapter sleeve, then place a cylindrical reinforcing ring against the inner ring of the front side of the bearing. Seat the adapter sleeve by lightly tapping all around the backside of the sleeve (**Fig. 14.6**).

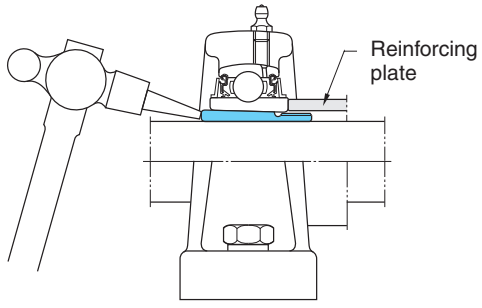


Fig. 14.6 Fitting adapter sleeve to bearing with tapered bore

(4) Attach the lock washer so that the tab fits into the slot in the sleeve, and, making sure the tapered side is facing the bearing, tighten the locknut on the sleeve by hand.

(5) Align the bearing unit to the specified position on the base and secure it with washers and bolts. Use a torque wrench to tighten the bolts to the housing to the specified torque setting. For mounting bolt torque specifications, see **Appendix Table 2** at the back of the catalog.

(6) Use a torque wrench to tighten the locknut to the correct specification (**Fig. 14.7**). For locknut torque specifications, see **Appendix Table 4** at the back of the catalog.

Fig. 14.7 Tightening locknut

(7A) For pillow block housings, loosen the mounting bolts and adjust the unit axially while rotating the shaft by hand. Then re-tighten the mounting bolts to the correct specification.
(7B) For flange block housings, the position of the unit must be in the correct axial position in relation to the shaft, so take extra care to properly align them before completing installation.
(8) Bend one of the tabs on the washer so that it fits into one of the slots on the locknut (**Fig. 14.8**).

Fig. 14.8 Bending claw of washer
(Locking locknut)

(9) Finally, turn the shaft by hand and make sure that it rotates without any problems.

14.1.3 Installation of units with eccentric locking collars

Eccentric locking collar bearings provide another option for shaft locking.

Since the rotating force of the shaft increases the tightening force of the eccentric ring, the eccentric locking collar type bearing provides a secure grip on the shaft (**Fig. 14.9**).

Fig. 14.9 Ball bearing units with eccentric locking collar

Installation procedures for eccentric locking collar style bearings are shown below.
(1) Inspect the unit to ensure that the rigidity of the base, flatness of the mounting surface, and tolerance of the shaft meet the required standards. Check the shaft for bends, burrs, and other flaws.
(2) Slide the bearing unit onto the shaft, and place it at the specified mounting position.
(3) Align the bearing unit to the specified position on the base and affix it with washers and bolts. (**Fig. 14.4**). Use a torque wrench to tighten the bolts to the housing to the specified torque setting. For mounting bolt torque specifications, see **Appendix Table 2** at the back of this catalog.
(4A) Fit the eccentric section of the inner ring of the bearing to the eccentric recessed section of the eccentric locking collar, and rotate the collar in the direction of shaft rotation. Then, tighten the set screw on the eccentric locking collar to the specified torque setting (**Fig. 14.10**).

Fig. 14.10 Installing eccentric locking collar

(4B) The NC-LOC collar is tightened by a hexagon head bolt to a specified torque setting in order to apply the correct amount of force to the inner ring of the bearing (**Fig. 14.11**).

Regarding tightening torque for set screws or hexagon head bolts, see **Appendix Table 3** at the back of this catalog.

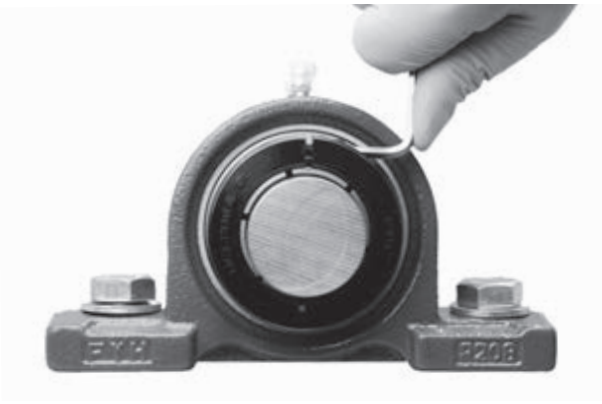


Fig. 14.11 Installation of NC-LOC units

(5) Rotate the shaft by hand and then install the next eccentric locking collar unit onto the shaft.
(6) Finally, turn the shaft by hand and make sure that it rotates without any problems.

14.1.4 Installation of the Z-LOCK Sleeve

When installing a bearing onto a shaft using a Z-LOCK Sleeve, insert the Z-LOCK Sleeve (sleeve and lock nut) between the tapered bore of the bearing and the shaft. The bearing can be securely fixed to the shaft with just a hex wrench, allowing for easy and reliable installation by anyone.

Installation procedures for Z-LOCK Sleeve are shown below.

(1) Check the machine base for rigidity, flatness of the mounting surface, and dimensional tolerances of the shaft to ensure they meet the specifications. Also, confirm that the shaft has no bends, scratches, or burrs.
(2) Remove the lock nut from the Z-LOCK Sleeve, insert the sleeve onto the shaft, and move it to the mounting position of the bearing unit.
(3) Insert the bearing unit onto the shaft, place it in the specified position on the machine base, and temporarily secure it with bolts. Then, place a cylindrical spacer in full contact with the side surface of the inner ring of the bearing (on the side where the lock nut will be installed). Lightly tap the large-diameter end face of the sleeve evenly around the circumference to ensure the inner surface of the bearing and the tapered surface of the sleeve are in full contact.
(4) Fit the lock nut onto the sleeve and tighten it by hand. At this point, manually rotate the shaft to check for abnormal resistance or catching. If any irregularities are found, lightly tap the bearing housing with a plastic hammer while rotating the shaft by hand to eliminate the catching.
(5) Tighten the lock nut's set screws evenly to the specified tightening torque (**Fig. 14.12**). Refer to **Appendix Table 3** at the end of the manual for the set screw torque values.

Fig. 14.12 Tightening of Z-LOCK Sleeve

(6A) For pillow block units: Loosen the mounting bolts of one bearing housing, adjust the axial position of the bearing unit while rotating the shaft by hand, then tighten the mounting bolts to the specified torque using a torque wrench. Refer to Appendix Table 2 for the torque values.
(6B) For flange-type units: The axial positions of the bearing and the bearing housing must be precisely aligned. Therefore, take great care not to disturb the position of the inner ring when tightening the set screws of the lock nut.
(7) Finally, rotate the shaft manually and check for any irregularities in the bearing's rotation.

14.1.5 Installing units with covers

Covers for ball bearing units are available in two types, steel plate and cast iron. Install both the covers at last after installation of the bearing and housing is complete.

Procedures for installation of the ball bearing units with covers are shown below.

(1) Apply grease all around the seal lip of the cover, and pack the internal space of the cover with grease (approximately 1/3 to 1/2 of the space capacity) (**Fig. 14.13**).

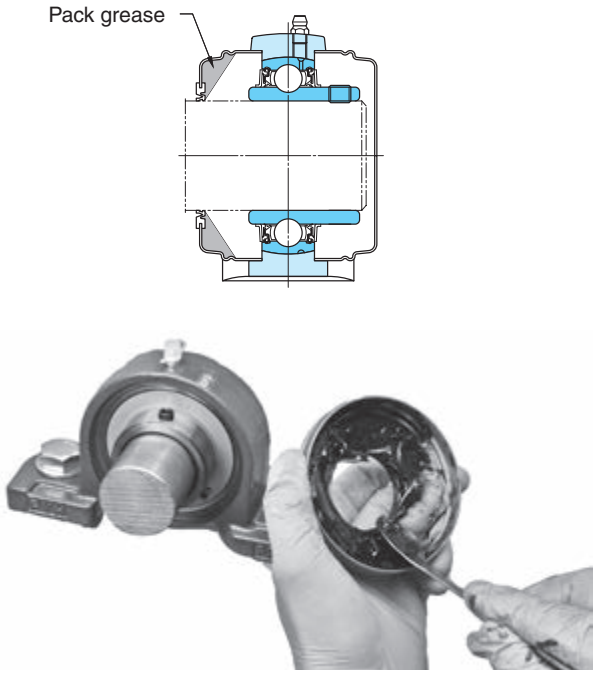


Fig. 14.13 Packing grease in internal space of seal lip of covers

(2) Make sure that the bearing unit is securely fixed to the shaft and mounting base.

(3) Slide the cover over the shaft to the groove in the housing and lightly press it into place.

(4A) For stamped steel covers, use a plastic mallet to prevent deformation, and evenly tap all around the periphery of the cover to install it to the housing (**Fig. 14.14**).

To remove the stamped steel cover, put a screwdriver into the groove on the periphery of the cover and slightly pry it.

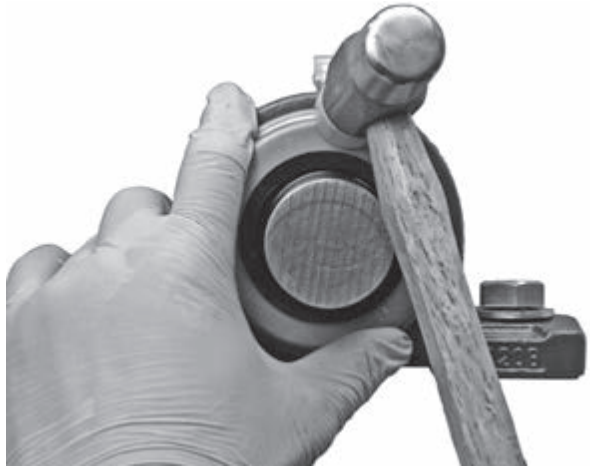


Fig. 14.14 Installing steel plate covers

(4B) When installing a cast iron cover, fit the cover to the cover groove of the housing, and secure it with the supplied bolts.

For the tightening torque of the cast iron cover mounting bolts, see **Appendix Table 2** at the end of this catalog.

(5) Install another cover to the housing in a similar manner.

(6) Check the installed cover for any abnormalities.

(7) Finally, turn the shaft by hand, and check for abnormalities in the bearing.

14.2 Test Run Inspection

After the installation of the ball bearing unit is complete, perform a test run inspection to ensure that it was done properly.

The test run inspection should be executed by following the procedures below.

(1) Turn the shaft by hand and make sure that the bearing rotates smoothly.
If there is any resistance, vibration, excessive rotational torque, or uneven rotation, the bearing is judged to be faulty.

(2) Perform a powered test run with no load and at low speed, and check for abnormal noise and vibration.

(3) Perform a powered test run under normal operating conditions and check for abnormal noise, vibration, and temperature increase.

Table 14.2 shows the main faults that may occur during the test run inspection of the ball bearing unit and their causes.

Table 14.2 Main causes of bearing failure during test runs and their causes

Faults	Causes
Excessive torque, uneven rotating torque	(1) Faulty installation, causes preload on bearing (2) Inappropriate handling or installation, leading to interference of seal with slinger (3) Excessive tightening of locknut (adapter) causing too small internal clearance of bearing
Abnormal noise, abnormal vibration	(1) Improper tightening of set screws or of mounting bolts (2) Excessively large internal clearance of bearings (3) Bent shaft, or shouldered shaft may be machined eccentrically (4) Shaft tolerance chosen improperly (5) Mounting base not rigid or flat
Abnormal temperature increase	(1) Too small internal clearance of bearing (2) Faulty installation, causes preload on bearing (3) Load too great (4) Allowable rotational speed exceeded (5) Mounting base not rigid or flat (6) Inappropriate handling or installation, leading to interference of seal with slinger

14.3 Periodic Inspection

FYH Ball Bearing Units do not need to be inspected as frequently as lower quality bearings. However, it is good practice to set up an inspection schedule for even these high quality bearings.

Since a ball bearing unit cannot be disassembled for inspection of the internal status of components, the external appearance of the bearing must be inspected to give tell-tale signs of the status and expected life of the bearing. The following characteristics must be checked per the inspection schedule that is established for a particular application.

(1) Overall appearance
(2) Loose set screws or mounting bolts
(3) Noise from vibration
(4) Temperature of the bearing housing or the inner ring
(5) Grease supply interval and quantity of grease injected into the bearing (either too much or too little grease can be detrimental to the life of the bearing)

Table 14.3 shows the main faults that are usually found during periodic inspections and their causes.

If any fault is found in a ball bearing unit during an inspection, then immediate action must be taken to correct the situation and prevent deterioration of the bearing components. If serious damage has already occurred to the bearing unit, then the bearing unit must be replaced immediately to prevent damage to other machine components.

Table 14.3 Main faults found during periodic inspection and their causes

Faults	Causes
Excessive torque	(1) Degraded grease (2) Interference of seal with slinger due to excessive supply of grease (3) Deformation of slinger causing interference with seal (4) High load due to shaft expansion
Abnormal noise, abnormal vibration	(1) Improper tightening of set screws, locknut (adapter), or of mounting bolts (2) Wear on inner ring of bearing or shaft due to creep or fretting (3) Ingress of foreign matter (dirt) into bearing (4) Damage to cage or ball surfaces due to rolling fatigue (5) Indentation on raceway surface or ball surface due to excessive load (6) Warped or bent shaft
Abnormal temperature increase	(1) Degraded grease (2) Interference of seal with slinger due to excessive supply of grease (3) Deformation of slinger causing interference with seal (4) Looseness of set screw, eccentric locking collar, or adapter lock nut for tapered bore bearings (5) High load due to shaft expansion (6) Damage to cage or ball surfaces due to rolling fatigue

14.4 Supply of Grease

FYH Ball Bearing Units are supplied with high quality lithium bearing grease and seals. Therefore, under clean operating conditions, light loads, low speeds, and low temperatures the bearing may be used with no further lubrication.

However, under harsher operating conditions and environments, the grease will deteriorate much more rapidly.

This would include environments exposed to dust, moisture, or higher operating temperatures.

In such cases, a re-greasing schedule must be established to prevent premature failure of the bearing. The life of the bearing can be greatly extended by proper attention to the re-greasing schedule and by supplying the proper amount of grease. Please note that too much grease can be detrimental as well as too little grease.

14.4.1 Grease life and supply intervals

The grease life of a bearing unit can be found using **Formula (4.7)** on page 27.

The re-greasing schedule should be set at 1/4 to 1/3 of the grease life found by the calculation shown above; however this may be adjusted for particularly demanding environments or conditions.

In addition, some environments may be unusually dirty or wet, and these conditions may be exacerbated by higher temperatures. Under such harsh conditions, a more frequent re-greasing schedule will extend the life of the bearing.

Under normal operating conditions, adhere to the guidelines outlined in **Table 2.2** on page 10.

14.4.2 Amount of grease

The amount of grease initially supplied in a new FYH Ball Bearing Unit is approximately 30 to 35% of the internal space capacity of the bearing. If the bearing is over greased, the agitation of the grease causes internal friction and heating of the bearing. The first sign of failure will be excessive grease finding its way to the outside of the bearing. DO NOT exceed the initial greasing amount.

Table 14.4 shows the recommended amount of grease to be used for re-greasing FYH bearings.

In severely dusty or wet environments, the amount of grease may be as much as doubled if operating speeds are low.

Note:

1. **Table 14.4** applies to UK units as well.
2. For greasing triple-lip (L3) type bearings, use 1 1/2 times the amount of grease recommended in the table.
3. Values shown in the table are applicable to standard grease (density: 0.9 g/ml). If a compatible grease of another specific gravity is used, then the proper conversion must be made to ensure that the recommended volume is put into the bearing.

Table 14.4 Amount of recommended grease for ball bearing units

Bore dia. code	Greasing amount, g		
	Diameter Series[1)]		
	UC200	UCX00	UC300
01	0.7		
02	0.7		
03	0.7		
04	0.7		
05	0.8	1.3	1.8
06	1.3	1.8	2.5
07	1.8	2.3	3.4
08	2.3	2.8	4.6
09	2.8	3.2	6.3
10	3.2	4.3	8.1
11	4.3	5.5	11
12	5.5	6.8	14
13	6.8	7.7	17
14	7.7	9	21
15	9	11	25
16	11	14	29
17	14	17	34
18	17	21	40
19	–	–	47
20	–	29	61
21	–	–	69
22	–	–	84
24	–	–	98
26	–	–	126
28	–	–	151

The basic bearing size number consists of the duty code (2, X, or 3) followed by the inner ring size code (07, 10, 24, etc.)

14.4.3 Types of grease supplied

Many different types of grease are available for use in ball bearings. However, if a non-compatible grease is used, particularly a non-lithium based grease, then performance may be drastically reduced.

Only use the grease recommended in **Table 2.1** (page 10) to ensure optimum performance of your bearings.

If another grease is used in an emergency situation, for instance, please ensure that this grease is compatible with a lithium base at the minimum.

14.4.4 Relubricating the unit at the specified interval

Note **Fig. 14.15** which shows the grease fitting, grease groove and grease holes for relubrication of the unit.

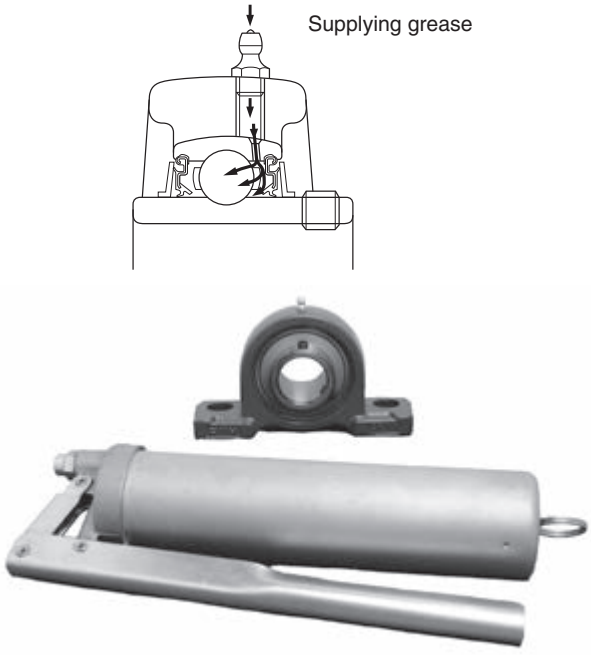


Fig. 14.15 Supplying grease to ball bearing units

(1) Clean the grease fitting and the area around it to prevent dirt and foreign material from entering the unit.
(2) Clean the grease gun and pack it with clean grease.
(3) Grease the unit with the recommended amount of grease.

When lubricating the ball bearing unit, slowly turn the shaft with your hand. This allows the fresh grease to be uniformly distributed inside the unit.

If it is difficult to access the standard straight type grease fitting with a grease gun, 67.5° and 90° angled fittings are available as an option. See the images below of these grease fittings. Contact FYH for more information.

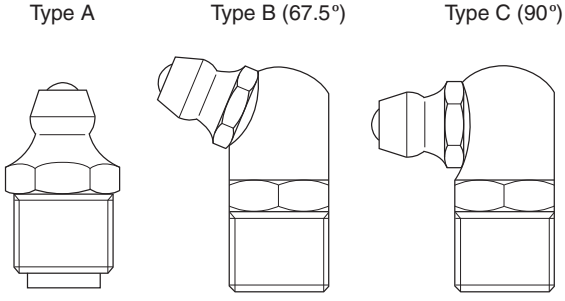


Fig. 14.16 Types of grease fittings for ball bearing units

When using a centralized automatic lubrication system with ball bearings, it is important to use softer grease than normal. The grease should be specified with a "worked penetration number" between 300 and 380. This is NLGI grade "0" or "1". Piping from the lubricating system must be sized so that the specified volume of grease is supplied.

Piping must be connected to the threaded hole on the ball bearing unit. This is either 1/4-28UNF tapered threads for units up to and including 210 ring size, or R1/8 (BSPT) for ball bearing units with a 211 ring size and larger. If the piping size used is larger than the threaded hole in the ball bearing unit, then the appropriate reducing coupling (or street elbow) must be used to fit the threaded hole.

Fig. 14.17 shows the body of a pipe reducer.

When using an automatic centralized lubrication system, it is imperative to ensure that the correct volume of grease is supplied to each individual bearing as specified in **Table 14.5**. The total amount of grease is a multiple of the number of bearings being supplied by the central lubrication system.

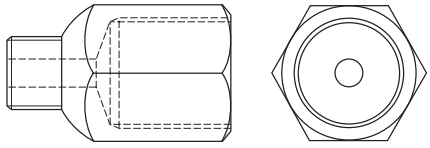


Fig. 14.17 Reducing coupling for centralized lubrication systems

14.5 Replacing Bearings

If a bearing insert needs to be replaced, it is not always necessary to replace the housing if the housing is intact.

After carefully inspecting the housing to ensure that it is not damaged, simply insert a new bearing into the existing housing.

Replacement procedures for a bearing insert are listed below.

(1) Remove the complete bearing unit from the shaft and mounting base.
(2) Screw in the set screws so that the head of each set screw does not protrude outside the outer diameter of the inner ring. Otherwise, the head of the set screw may damage the bearing seat inside the housing.
(3) Use a bar or pipe to rotate the bearing 90° until the bearing is horizontal.
(4) Remove the bearing insert from the housing via the loading slot in the back of the housing.

Reverse the above procedure to put in a new bearing insert. Ensure that the set screws are screwed in before proceeding with the replacement.

15 Dimensional Tables for Ball Bearing Units

1 Pillow Block Units

Pillow Block Units

UCP (d 12 ~ 140) 82
NCP (d 20 ~ 60) 85
NAP (d 12 ~ 75) 86
NAP-E (d 1 3/16 ~ 2 15/16) 87
NAPK (d 12 ~ 75) 88
UKP (d_1 20 ~ 125) 90

Thick Pillow Block Units

UCIP (d 40 ~ 140) 92
UKIP (d_1 35 ~ 125) 93

Tapped-Base Pillow Block Units

UCPA (d 12 ~ 50) 94
UCPAN (d 20 ~ 35) 95
NCPA (d 20 ~ 50) 96
NCPAN (d 20 ~ 35) 97

High-Base Pillow Block Units

UCPH (d 12 ~ 50) 98

Compact Pillow Block Units

UP (d 10 ~ 30) 99

Narrow Inner Ring Bearing Pillow Block Units

SBP-RKP8 (d 20 ~ 40) 100
SAP-FP9 (d 20 ~ 55) 100
SBPAN-RKP8 (d 20 ~ 35) 102
SAPAN-FP9 (d 20 ~ 35) 102

Light Pillow Block Units

BLP (d 12 ~ 40) 104
ALP (d 12 ~ 40) 104

Corrosion Resistant Series Pillow Block Units

UCSP-S6 (d 12 ~ 65) 106
UCSPA-S6 (d 12 ~ 50) 107
USP-S6 (d 10 ~ 30) 108
UCVP-S6 (d 20 ~ 50) 109
UCVP-S7 (d 20 ~ 50) 110
UCVPAN-S7 (d 20 ~ 35) 111

Stamped Steel Pillow Block Units

SBPP (d 12 ~ 30) 112
SAPP (d 12 ~ 30) 112

2 4-Bolt Flange Units

4-Bolt Flange Units

UCF (d 12 ~ 140) 114
UCF-E (d 12 ~ 85) 118
NCF (d 20 ~ 60) 120
NCF-E (d 20 ~ 60) 121
UKF (d_1 20 ~ 125) 122
NANF (d 12 ~ 60) 124

Square Piloted 4-Bolt Flange Units

UCFS (d 25 ~ 140) 126
UKFS (d_1 20 ~ 125) 127

Narrow Inner Ring Bearing 4-Bolt Flange Units

SBF-RKP8 (d 20 ~ 40) 128
SAF-FP9 (d 20 ~ 55) 128

Corrosion Resistant Series 4-Bolt Flange Units

UCSF-S6 (d 20 ~ 65) 130
UCSF-ES6 (d 20 ~ 65) 131
UCVF-S6 (d 20 ~ 50) 132
UCVF-S7 (d 20 ~ 50) 133

3 Oval Flange Units

2-Bolt Flange Units

UCFL (d 12 ~ 120) 134
UCFL-E (d 12 ~ 85) 136
NCFL (d 20 ~ 60) 138
NCFL-E (d 20 ~ 60) 139
UKFL (d_1 20 ~ 110) 140
NANFL (d 12 ~ 55) 142

Compact 2-Bolt Flange Units

UFL (d 8 ~ 30) 143

Adjustable 2-Bolt Flange Units

UCFA (d 12 ~ 55) 144

3-Bolt Flange Units

UCFB (d 12 ~ 50) 145

Narrow Inner Ring Bearing 2-Bolt Flange Units

SBFL-RKP8 (d 20 ~ 40) 146
SAFL-FP9 (d 20 ~ 55) 146

Light 3-Bolt Flange Units

SBTFD-H4RKP8 (d 12 ~ 35) 148
SATFD-FH4P9 (d 12 ~ 35) 148

Light 2-Bolt Flange Units

BLF (d 12 ~ 35) 150
ALF (d 12 ~ 35) 150

Corrosion Resistant Series 2-Bolt Flange Units

UCSFL-S6 (d 12 ~ 50) 152
UCSFL-ES6 (d 12 ~ 50) 153
USFL-S6 (d 10 ~ 30) 154
UCVFL-S6 (d 20 ~ 50) 155
UCVFL-S7 (d 20 ~ 50) 156

Corrosion Resistant Series 3-Bolt Flange Units

UCVFB-S7 (d 20 ~ 35) 157

4 4-Bolt Flange Cartridge Units

4-Bolt Flange Cartridge Units

UCFC (d 12 ~ 100) 158
UCFCX-E (d 25 ~ 100) 160
UCFCF (d 25 ~ 55) 161
UKFC (d_1 20 ~ 90) 162
NCFC (d 20 ~ 60) 164

Corrosion Resistant Series 4-Bolt Flange Cartridge Units

UCSFC-S6 (d 20 ~ 50) 165

Narrow Inner Ring Bearing 4-Bolt Flange Cartridge Units

SBFC-RKP8 (d 20 ~ 40) 166
SAFC-FP9 (d 20 ~ 55) 166

5 Stamped Steel Flange Units

Stamped Steel 3-Bolt Flange Cartridge Units

SBPF (d 12 ~ 35) 168
SAPF (d 12 ~ 35) 168

Stamped Steel 2-Bolt Flange Units

SBPFL (d 12 ~ 35) 170
SAPFL (d 12 ~ 35) 170

6 Take-Up Units

Take-Up Units

UCT (d 12 ~ 140) 172
UCT-E (d 12 ~ 85) 176
NAT-E (d 12 ~ 75) 180
NCT (d 20 ~ 60) 182
NCT-E (d 20 ~ 60) 184
UKT (d_1 20 ~ 125) 186

Narrow Slot Take-Up Units

UCTRS (d 25 ~ 35) 188

Corrosion Resistant Series Take-Up Units

UCST-S6 (d 20 ~ 50) 190
UCST-ES6 (d 20 ~ 50) 191

Section Steel Frame Take-Up Units

UCTH (d 12 ~ 65) 192

Channel Steel Frame Take-Up Units

UCTL (d 20 ~ 45) 193
UCTU (d 40 ~ 90) 194

Steel Plate Frame Take-Up Units

SBPTH (d 12 ~ 25) 196
SBNPTH (d 12 ~ 25) 196

7 Other Units

Cartridge Units

UCC (d 12 ~ 140) 198
UKC (d 20 ~ 125) 200

Hanger Units

UCHA (d 12 ~ 75) 202

8 Ball Bearing Inserts

Cylindrical bore (with set screws)

UC, SB, SB-RKP8, SU (d 8 ~ 140) 204

Stainless steel series Cylindrical bore (with set screws)

UC-S6, SU-S6 (d 10 ~ 65) 212

Cylindrical bore (with eccentric locking collar)

SA, SA-F, NA (d 12 ~ 75) 214

Cylindrical bore (with concentric locking collar)

NC2 (d 20 ~ 60) 220

Cylindrical bore (with concentric locking collar) Cylindrical O. D.

ERC (d 20 ~ 60) 222

Tapered bore (with adapter)

UK (d_1 20 ~ 125) 224
ZK (d_1 20 ~ 55) 230

Cylindrical bore (with set screws) Cylindrical O. D.

ER, RB (d 12 ~ 60) 232

Cylindrical bore (with set screws) Cylindrical O. D.

SBB-RK (d 12 ~ 55) 234

Cylindrical bore (with eccentric locking collar) Cylindrical O. D.

SAA-FP7 (d 12 ~ 55) 234

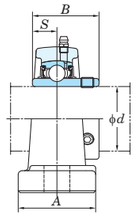
Cylindrical bore

SC (d 17 ~ 40) 236

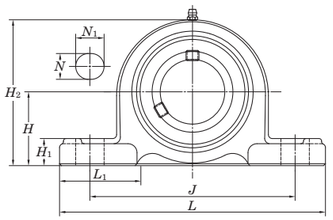
9 Bearing Adapter

H2300X (d_1 20 ~ 125) 238
ZK00 (d_1 20 ~ 55) 242

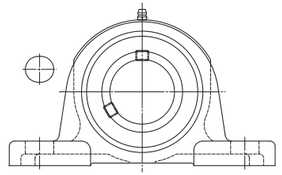
UCP
Cylindrical bore (with set screws)
d 12 ~ (85) mm



UCP2



UCPX, 3



Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm H	L	A	J	N	N_1	H_1	H_2	L_1	B	S	Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Mass kg
12	1/2	1 3/16	5	1 1/2	3 3/4	1/2	23/32	5/8	2 3/8	1 13/32	1.220	0.500	3/8	UCP201	P203	UC201	0.63
														UCP201-8		UC201-8	0.63
15		30.2	127	38	95	13	18	16	60	36	31	12.7	M10	UCP202		UC202	0.61
	5/8													UCP202-10		UC202-10	0.61
17														UCP203		UC203	0.60
20	3/4	1 5/16	5	1 1/2	3 3/4	1/2	23/32	5/8	2 9/16	1 13/32	1.220	0.500	3/8	UCP204-12	P204	UC204-12	0.66
		33.3	127	38	95	13	18	16	65	36	31	12.7	M10	UCP204		UC204	0.66
25	7/8													UCP205-14	P205	UC205-14	0.80
	15/16	1 7/16	5 1/2	1 1/2	4 1/8	1/2	23/32	5/8	2 3/4	1 1/2	1.343	0.563	3/8	UCP205-15		UC205-15	0.80
		36.5	140	38	105	13	18	16	70	38	34.1	14.3	M10	UCP205		UC205	0.80
	1													UCP205-16		UC205-16	0.80
	1	1 3/4	6 1/4	2	4 11/16	21/32	31/32	5/8	3 3/8	1 27/32	1.500	0.626	1/2	UCPX05	PX05	UCX05	1.5
		44.4	159	51	119	17	25	16	86	47	38.1	15.9	M14	UCPX05-16		UCX05-16	1.5
		1 49/64	6 7/8	1 25/32	5 3/16	21/32	25/32	5/8	3 3/8	2 5/32	1.496	0.591	1/2	UC305	P305	UC305	1.7
	1	45	175	45	132	17	20	16	86	55	38	15	M14	UCP305-16		UC305-16	1.7
30	1 1/8													UCP206-18	P206	UC206-18	1.3
		1 11/16	6 1/2	1 7/8	4 3/4	21/32	13/16	21/32	3 5/16	1 7/8	1.500	0.626	1/2	UCP206		UC206	1.3
	1 3/16	42.9	165	48	121	17	21	17	84	48	38.1	15.9	M14	UCP206-19		UC206-19	1.3
	1 1/4													UCP206-20		UC206-20	1.3
		1 7/8	6 7/8	2 1/4	5	21/32	31/32	21/32	3 21/32	2 5/32	1.689	0.689	1/2	UCPX06	PX06	UCX06	2.1
	1 3/16	47.6	175	57	127	17	25	17	93	55	42.9	17.5	M14	UCPX06-19		UCX06-19	2.1
	1 1/4													UCPX06-20		UCX06-20	2.1
	–	1 31/32	7 3/32	1 31/32	5 1/2	21/32	25/32	21/32	3 3/4	2 3/32	1.693	0.669	1/2	UCP306	P306	UC306	2.2
		50	180	50	140	17	20	17	95	53	43	17	M14				
35	1 1/4													UCP207-20	P207	UC207-20	1.6
	1 5/16													UCP207-21		UC207-21	1.6
	1 3/8	1 7/8	6 9/16	1 7/8	5	21/32	13/16	23/32	3 3/4	1 27/32	1.689	0.689	1/2	UCP207-22		UC207-22	1.6
		47.6	167	48	127	17	21	18	95	47	42.9	17.5	M14	UCP207		UC207	1.6
	1 7/16													UCP207-23		UC207-23	1.6
	1 3/8													UCPX07-22	PX07	UCX07-22	2.7
		2 1/8	8	2 1/4	5 21/32	21/32	1 3/16	3/4	4 1/8	2 17/32	1.937	0.748	1/2	UCPX07		UCX07	2.7
	1 7/16	54	203	57	144	17	30	19	105	64	49.2	19	M14	UCPX07-23		UCX07-23	2.7
	–	2 13/64	8 9/32	2 7/32	6 5/16	21/32	31/32	3/4	4 7/32	2 9/16	1.890	0.748	1/2	UCP307	P307	UC307	3.0
		56	210	56	160	17	25	19	107	65	48	19	M14				
40	1 1/2													UCP208-24	P208	UC208-24	2.0
	1 9/16	1 15/16	7 1/4	2 1/8	5 13/32	21/32	13/16	23/32	3 27/32	2 3/32	1.937	0.748	1/2	UCP208-25		UC208-25	2.0
		49.2	184	54	137	17	21	18	98	53	49.2	19	M14	UCP208		UC208	2.0
	1 1/2	2 5/16	8 3/4	2 5/8	6 5/32	25/32	1 1/4	13/16	4 1/2	2 25/32	1.937	0.748	5/8	UCPX08-24	PX08	UCX08-24	3.5
		58.7	222	67	156	20	32	21	114	71	49.2	19	M16	UCPX08		UCX08	3.5

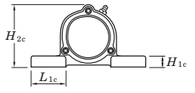
Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 201~210, X05~X09, 305~308
   A-R1/8..... 211~218, X10~X20, 309~328
3. As for the triple seal type product (from 201 to 205 are the double seal type products), suffix code L3 (or L2) follows the Part No. of unit or bearing. (Example of Part No. : UCP206JL3, UC206L3)
4. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
5. Representative examples of the forms of housing are indicated.
6. Housings of nodular graphite cast iron are also available.

Variations of tolerance of distance from mounting bottom to center of spherical bore (ΔH_s)

Unit: mm

Housing No.			ΔH_s
P203~P210	PX05~PX10	P305~P310	±0.15
P211~P218	PX11~PX18	P311~P318	±0.2
	PX20	P319~P328	±0.3

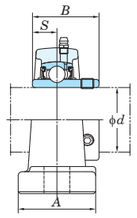
Forms and dimensions of P204FJE3 and P205FJE3 (housing with cast iron cover) are shown below.



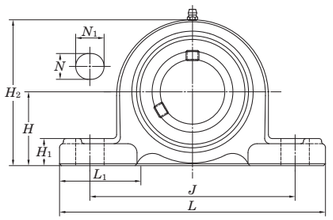
P204FJE3 H_{1c} = 12, H_{2c} = 70, L_{1c} = 38.5
P205FJE3 H_{1c} = 13, H_{2c} = 77, L_{1c} = 43

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm H	L	A	J	N	N_1	H_1	H_2	L_1	B	S	Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Mass kg
40	1 1/2	2 23/64	8 21/32	2 3/8	6 11/16	21/32	1 1/16	3/4	4 21/32	2 9/16	2.047	0.748	1/2	UCP308-24	P308	UC308-24	3.8
		60	220	60	170	17	27	19	118	65	52	19	M14	UCP308		UC308	3.8
45	1 5/8													UCP209-26	P209	UC209-26	2.2
	1 11/16	2 1/8	7 15/32	2 1/8	5 3/4	21/32	13/16	25/32	4 3/16	2 5/32	1.937	0.748	1/2	UCP209-27		UC209-27	2.2
	1 3/4	54	190	54	146	17	21	20	106	55	49.2	19	M14	UCP209-28		UC209-28	2.2
														UCP209		UC209	2.2
	1 11/16	2 5/16	8 3/4	2 5/8	6 5/32	25/32	1 5/16	13/16	4 9/16	2 25/32	2.031	0.748	5/8	UCPX09-27	PX09	UCX09-27	3.7
	1 3/4	58.7	222	67	156	20	33	21	116	71	51.6	19	M16	UCPX09-28		UCX09-28	3.7
														UCPX09		UCX09	3.7
	1 3/4	2 41/64	9 21/32	2 5/8	7 15/32	25/32	1 3/16	13/16	5 3/16	2 15/16	2.244	0.866	5/8	UCP309-28	P309	UC309-28	4.9
		67	245	67	190	20	30	21	132	75	57	22	M16	UCP309		UC309	4.9
50	1 7/8													UCP210-30	P210	UC210-30	2.9
	1 15/16	2 1/4	8 1/8	2 3/8	6 1/4	25/32	7/8	13/16	4 7/16	2 3/8	2.031	0.748	5/8	UCP210-31		UC210-31	2.9
		57.2	206	60	159	20	22	21	113	60	51.6	19	M16	UCP210		UC210	2.9
	2													UCP210-32		UC210-32	2.9
	1 15/16	2 1/2	9 1/2	2 7/8	6 23/32	25/32	1 13/32	7/8	4 31/32	3	2.189	0.874	5/8	UCPX10-31	PX10	UCX10-31	4.6
		63.5	241	73	171	20	36	22	126	76	55.6	22.2	M16	UCPX10		UCX10	4.6
	2													UCPX10-32		UCX10-32	4.6
	–	2 61/64	10 13/16	2 15/16	8 11/32	25/32	1 3/8	15/16	5 3/4	3 15/32	2.402	0.866	5/8	UCP310	P310	UC310	6.6
		75	275	75	212	20	35	24	146	88	61	22	M16				
55	2													UCP211-32	P211	UC211-32	3.6
	2 1/8	2 1/2	8 5/8	2 3/8	6 23/32	25/32	7/8	29/32	4 29/32	2 9/16	2.189	0.874	5/8	UCP211-34		UC211-34	3.6
		63.5	219	60	171	20	22	23	125	65	55.6	22.2	M16	UCP211		UC211	3.6
	2 3/16													UCP211-35		UC211-35	3.6
	2 3/16	2 3/4	10 1/4	3 1/8	7 1/4	31/32	1 13/32	1 3/32	5 15/32	3 9/32	2.563	1.000	3/4	UCPX11	PX11	UCX11	6.5
		69.8	260	79	184	25	36	28	139	83	65.1	25.4	M20	UCPX11-35		UCX11-35	6.5
	2 1/4													UCPX11-36		UCX11-36	6.5
	2	3 5/32	12 7/32	3 5/32	9 9/32	25/32	1 1/2	1 1/16	6 7/32	3 17/32	2.598	0.984	5/8	UCP311-32	P311	UC311-32	7.9
		80	310	80	236	20	38	27	158	90	66	25	M16	UCP311		UC311	7.9
	2 3/16													UCP311-35		UC311-35	7.9
	2 1/4													UCP212-36	P212	UC212-36	4.9
		2 3/4	9 1/2	2 3/4	7 1/4	25/32	31/32	31/32	5 7/16	2 7/8	2.563	1.000	5/8	UCP212		UC212	4.9
	2 3/8	69.8	241	70	184	20	25	25	138	73	65.1	25.4	M16	UCP212-38		UC212-38	4.9
60	2 7/16													UCP212-39		UC212-39	4.9
	2 7/16	3	11 1/4	3 9/32	8	31/32	1 9/16	1 3/32	5 31/32	3 15/32	2.563	1.000	3/4	UCPX12	PX12	UCX12	7.7
		76.2	286	83	203	25	40	28	152	88	65.1	25.4	M20	UCPX12-39		UCX12-39	7.7
	2 7/16	3 11/32	13	3 11/32	9 27/32	31/32	1 1/2	1 5/32	6 9/16	4 1/16	2.795	1.024	3/4	UCP312	P312	UC312	9.5
		85	330	85	250	25	38	29	167	103	71	26	M20	UCP312-39		UC312-39	9.5
65	2 1/2	3	10 7/16	2 3/4	8	31/32	1 3/16	1 1/16	5 29/32	3 1/16	2.563	1.000	3/4	UCP213-40	P213	UC213-40	5.9
		76.2	265	70	203	25	30	27	150	78	65.1	25.4	M20	UCP213		UC213	5.9
	2 1/2	3	11 1/4	3 9/32	8	31/32	1 9/16	1 3/32	6 3/32	3 15/32	2.937	1.189	3/4	UCPX13-40	PX13	UCX13-40	8.1
		76.2	286	83	203	25	40	28	155	88	74.6	30.2	M20	UCPX13		UCX13	8.1
	2 1/2	3 35/64	13 3/8	3 17/32	10 1/4	31/32	1 1/2	1 1/4	6 15/16	4 11/32	2.953	1.181	3/4	UCP313-40	P313	UC313-40	10.7
		90	340	90	260	25	38	32	176	110	75	30	M20	UCP313		UC313	10.7
70	2 3/4	3 1/8	10 15/32	2 27/32	8 9/32	31/32	1 3/16	1 1/16	6 3/16	2 15/16	2.937	1.189	3/4	UCP214-44	P214	UC214-44	6.8
		79.4	266	72	210	25	30	27	157	75	74.6	30.2	M20	UCP214		UC214	6.8
	2 3/4	3 1/2	13	3 1/2	9 1/32	1 1/16	1 31/32	1 1/4	6 23/32	3 27/32	3.063	1.311	7/8	UCPX14-44	PX14	UCX14-44	10.2
		88.9	330	89	229	27	50	32	171	98	77.8	33.3	M22	UCPX14		UCX14	10.2
	2 3/4	3 47/64	14 3/16	3 17/32	11 1/32	1 1/16	1 9/16	1 3/8	7 5/16	4 11/32	3.071	1.299	7/8	UCP314-44	P314	UC314-44	12.4
		95	360	90	280	27	40	35	186	110	78	33	M22	UCP314		UC314	12.4
75	2 15/16	3 1/4	10 13/16	2 29/32	8 17/32	31/32	1 3/16	1 3/32	6 3/8	3 1/16	3.063	1.311	3/4	UCP215-47	P215	UC215-47	7.4
		82.6	275	74	217	25	30	28	162	78	77.8	33.3	M20	UCP215		UC215	7.4
	3													UCP215-48		UC215-48	7.4
	2 15/16	3 1/2	13	3 1/2	9 1/32	1 1/16	1 31/32	1 1/4	6 7/8	3 29/32	3.252	1.311	7/8	UCPX15-47	PX15	UCX15-47	10.8
		88.9	330	89	229	27	50	32	175	99	82.6	33.3	M22	UCPX15		UCX15	10.8
	3													UCPX15-48		UCX15-48	10.8
	2 15/16	3 15/16	14 31/32	3 15/16	11 13/32	1 1/16	1 9/16	1 3/8	7 25/32	4 7/32	3.228	1.260	7/8	UCP315-47	P315	UC315-47	14.8
		100	380	100	290	27	40	35	198	107	82	32	M22	UCP315		UC315	14.8
	3													UCP315-48		UC315-48	14.8
80	3 1/8	3 1/2	11 1/2	3 1/16	9 1/8	31/32	1 3/8	1 3/16	6 27/32	3 9/32	3.252	1.311	3/4	UCP216-50	P216	UC216-50	9.0
		88.9	292	78	232	25	35	30	174	83	82.6	33.3	M20	UCP216		UC216	9.0
	–	4	15	4 1/32	11 5/32	1 1/16	2 9/32	1 11/32	7 11/16	4 9/16	3.374	1.343	7/8	UCP316	P316	UC316	15.3
		101.6	381	102	283	27	58	34	195	116	85.7	34.1	M22				
	–	4 11/64	15 3/4	4 11/32	11 13/16	1 1/16	1 9/16	1 3/8	8 7/32	4 23/32	3.386	1.339	7/8	UCP316	P316	UC316	18.5
		106	400	110	300	27	40	35	209	120	86	34	M22				
85	3 1/4	3 3/4	12 7/32	3 9/32	9 23/32	31/32	1 9/16	1 1/4	7 9/32	3 7/16	3.374	1.343	3/4	UCP217-52	P217	UC217-52	10.8
		95.2	310	83	247	25	40	32	185	87	85.7	34.1	M20	UCP217		UC217	10.8

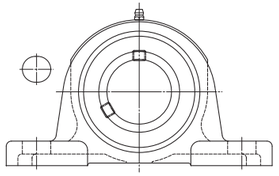
UCP
Cylindrical bore (with set screws)
d (85) ~ 140 mm



UCP2



UCPX, 3



Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm											Bolt Size inch	Bolt Size mm	Unit No.	Housing No.	Bearing No.	Mass
d		H	L	A	J	N	N_1	H_1	H_2	L_1	B	S						kg
85	3 7/16	4	15	4 1/32	11 5/32	1 1/16	2 3/8	1 11/32	7 7/8	4 9/16	3.780	1.563	7/8	M22	UCPX17	PX17	UCX17	16.1
		101.6	381	102	283	27	60	34	200	116	96	39.7			UCPX17-55		UCX17-55	16.1
	–	4 13/32	16 17/32	4 11/32	12 19/32	1 5/16	1 25/32	1 9/16	8 21/32	4 23/32	3.780	1.575	1	M27	UCP317	P317	UC317	20.3
		112	420	110	320	33	45	40	220	120	96	40						
90	3 1/2	4	12 7/8	3 15/32	10 5/16	1 1/16	1 25/32	1 5/16	7 25/32	3 11/16	3.780	1.563	7/8	M22	UCP218-56	P218	UC218-56	13.9
		101.6	327	88	262	27	45	33	198	94	96	39.7			UCP218		UC218	13.9
	–	4	15	4 3/8	11 5/32	1 1/16	2 3/8	1 1/2	8 1/32	4 9/16	4.094	1.689	7/8	M22	UCPX18	PX18	UCX18	19.1
		101.6	381	111	283	27	60	38	204	116	104	42.9						
	3 1/2	4 41/64	16 15/16	4 11/32	13	1 5/16	1 25/32	1 9/16	9 7/32	4 23/32	3.780	1.575	1	M27	UCP318-56	P318	UC318-56	22.8
		118	430	110	330	33	45	40	234	120	96	40			UCP318		UC318	22.8
95	–	4 59/64	18 1/2	4 23/32	14 3/16	1 13/32	1 31/32	1 13/16	9 3/4	4 29/32	4.055	1.614	1 1/8	M30	UCP319	P319	UC319	29.0
		125	470	120	360	36	50	46	248	125	103	41						
100	3 15/16	5	17	4 3/4	13 9/32	1 5/16	2 9/16	1 25/32	9 21/32	4 31/32	4.626	1.937	1	M27	UCPX20	PX20	UCX20	30.4
		127	432	121	337	33	65	45	245	126	117.5	49.2			UCPX20-63		UCX20-63	30.4
	4														UCPX20-64		UCX20-64	30.4
	3 15/16	5 33/64	19 9/32	4 23/32	14 31/32	1 13/32	1 31/32	1 13/16	10 3/4	5 1/2	4.252	1.654	1 1/8	M30	UCP320	P320	UC320	35.1
		140	490	120	380	36	50	46	273	140	108	42			UCP320-63		UC320-63	35.1
	4														UCP320-64		UC320-64	35.1
105	–	5 33/64	19 9/32	4 23/32	14 31/32	1 13/32	1 31/32	1 13/16	10 15/16	5 1/2	4.409	1.732	1 1/8	M30	UCP321	P321	UC321	37.6
		140	490	120	380	36	50	46	278	140	112	44						
110	–	5 29/32	20 15/32	5 1/2	15 3/4	1 9/16	2 5/32	1 31/32	11 21/32	5 29/32	4.606	1.811	1 1/4	M33	UCP322	P322	UC322	44.0
		150	520	140	400	40	55	50	296	150	117	46						
120	–	6 19/64	22 7/16	5 1/2	17 23/32	1 9/16	2 5/32	1 31/32	12 7/16	6 5/16	4.961	2.008	1 1/4	M33	UCP324	P324	UC324	55.4
		160	570	140	450	40	55	50	316	160	126	51						
130	–	7 3/32	23 5/8	5 1/2	18 29/32	1 9/16	2 5/32	1 31/32	13 31/32	7 11/16	5.315	2.126	1 1/4	M33	UCP326	P326	UC326	72.1
		180	600	140	480	40	55	50	355	195	135	54						
140	–	7 7/8	24 13/32	5 1/2	19 11/16	1 9/16	2 5/32	2 3/8	15 15/32	7 9/32	5.709	2.323	1 1/4	M33	UCP328	P328	UC328	92.5
		200	620	140	500	40	55	60	393	185	145	59						

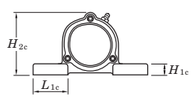
Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 201~210, X05~X09, 305~308
   A-R1/8..... 211~218, X10~X20, 309~328
3. As for the triple seal type product (from 201 to 205 are the double seal type products), suffix code L3 (or L2) follows the Part No. of unit or bearing. (Example of Part No. : UCP206JL3, UC206L3)
4. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
5. Representative examples of the forms of housing are indicated.
6. Housings of nodular graphite cast iron are also available.

Variations of tolerance of distance from mounting bottom to center of spherical bore (Δ_{H_S})

Unit: mm

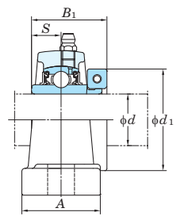
Housing No.			Δ_{H_S}
P203~P210	PX05~PX10	P305~P310	±0.15
P211~P218	PX11~PX18	P311~P318	±0.2
	PX20	P319~P328	±0.3

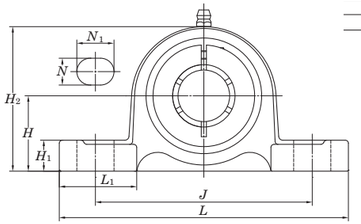
Forms and dimensions of P204FJE3 and P205FJE3 (housing with cast iron cover) are shown below.



P204FJE3 H_{1c} = 12, H_{2c} = 70, L_{1c} = 38.5
P205FJE3 H_{1c} = 13, H_{2c} = 77, L_{1c} = 43

NCP
Cylindrical bore
(with concentric locking collar)
d 20 ~ 60 mm





Variations of tolerance of distance from mounting bottom to center of spherical bore (Δ_{H_S})

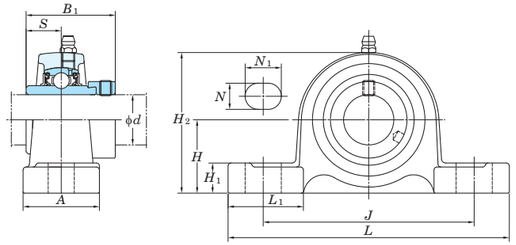
Unit: mm

Housing No.	Δ_{H_S}
P204~P210	±0.15
P211~P212	±0.2

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm												Bolt Size inch	Bolt Size mm	Unit No.	Housing No.	Bearing No.	Mass
d		H	L	A	J	N	N_1	H_1	H_2	L_1	B_1	S	d_1						kg
20	3/4	1 5/16	5	1 1/2	3 3/4	1/2	23/32	5/8	2 9/16	1 13/32	1 9/32	0.500	1 3/4	3/8	M8	NCP204-12	P204	NC204-12	0.8
		33.3	127	38	95	13	18	16	65	36	32.5	12.7	44.5			NCP204		NC204	
25	7/8															NCP205-14	P205	NC205-14	1.0
	15/16	1 7/16	5 1/2	1 1/2	4 1/8	1/2	23/32	5/8	2 3/4	1 1/2	1 7/16	0.563	1 15/16	3/8	M10	NCP205-15		NC205-15	
		36.5	140	38	105	13	18	16	70	38	36.5	14.3	49.2			NCP205		NC205	
	1															NCP205-16		NC205-16	
30	1 1/8															NCP206-18	P206	NC206-18	1.5
		1 11/16	6 1/2	1 7/8	4 3/4	21/32	13/16	21/32	3 5/16	1 7/8	1 19/32	0.626	2 3/16	1/2	M14	NCP206		NC206	
	1 3/16	42.9	165	48	121	17	21	17	84	48	40.1	15.9	55.6			NCP206-19		NC206-19	
	1 1/4															NCP206-20		NC206-20	
35	1 1/4	1 7/8	6 9/16	1 7/8	5	21/32	13/16	23/32	3 3/4	1 27/32	1 3/4	0.689	2 7/16	1/2	M14	NCP207-20	P207	NC207-20	1.9
		47.6	167	48	127	17	21	18	95	47	44.5	17.5	61.9						
	1 3/8	1 7/8	6 9/16	1 7/8	5	21/32	13/16	23/32	3 3/4	1 27/32	1 3/4	0.689	2 9/16	1/2	M14	NCP207-22	P207	NC207-22	1.9
		47.6	167	48	127	17	21	18	95	47	44.5	17.5	65.1			NCP207		NC207	
	1 7/16															NCP207-23		NC207-23	
40	1 1/2	1 15/16	7 1/4	2 1/8	5 13/32	21/32	13/16	23/32	3 27/32	2 3/32	2	0.748	2 11/16	1/2	M14	NCP208-24	P208	NC208-24	2.4
		49.2	184	54	137	17	21	18	98	53	50.8	19	68.3			NCP208		NC208	
45	1 5/8	2 1/8	7 15/32	2 1/8	5 3/4	21/32	13/16	25/32	4 3/16	2 5/32	2	0.748	2 13/16	1/2	M14	NCP209-26	P209	NC209-26	2.6
		54	190	54	146	17	21	20	106	55	50.8	19	71.4						
	1 11/16															NCP209-27	P209	NC209-27	2.6
	1 3/4	2 1/8	7 15/32	2 1/8	5 3/4	21/32	13/16	25/32	4 3/16	2 5/32	2	0.748	2 15/16	1/2	M14	NCP209-28		NC209-28	
		54	190	54	146	17	21	20	106	55	50.8	19	74.6			NCP209		NC209	
50	1 15/16															NCP210-31	P210	NC210-31	3.5
		2 1/4	8 1/8	2 3/8	6 1/4	25/32	7/8	13/16	4 7/16	2 3/8	2 3/32	0.748	3 3/8	5/8	M16	NCP210		NC210	
	2	57.2	206	60	159	20	22	21	113	60	53.1	19	85.7			NCP210-32		NC210-32	
55	2	2 1/2	8 5/8	2 3/8	6 23/32	25/32	7/8	29/32	4 29/32	2 9/16	2 1/4	0.874	3 1/2	5/8	M16	NCP211-32	P211	NC211-32	4.0
		63.5	219	60	171	20	22	23	125	65	57.1	22.2	88.9						
	2 3/16	2 1/2	8 5/8	2 3/8	6 23/32	25/32	7/8	29/32	4 29/32	2 9/16	2 1/4	0.874	3 5/8	5/8	M16	NCP211	P211	NC211	4.0
		63.5	219	60	171	20	22	23	125	65	57.1	22.2	92.1			NCP211-35		NC211-35	
60	2 1/4	2 3/4	9 1/2	2 3/4	7 1/4	25/32	31/32	31/32	5 7/16	2 7/8	2 5/8	1.000	4 1/16	5/8	M16	NCP212-36	P212	NC212-36	5.6
		69.8	241	70	184	20	25	25	138	73	66.8	25.4	103.2						
	2 7/16	2 3/4	9 1/2	2 3/4	7 1/4	25/32	31/32	31/32	5 7/16	2 7/8	2 5/8	1.000	4 1/8	5/8	M16	NCP212	P212	NC212	5.6
		69.8	241	70	184	20	25	25	138	73	66.8	25.4	104.8			NCP212-39		NC212-39	

Remarks
1. In Part No. of unit, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 204~210
   A-R1/8..... 211~212
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
4. Representative examples of the forms of housing are indicated.

NAP
Cylindrical bore
(with eccentric locking collar)
d 12 ~ 75 mm



Variations of tolerance of distance from mounting bottom to center of spherical bore (Δ_{Hs})

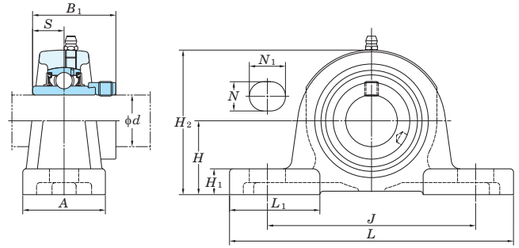
Unit: mm

Housing No.	Δ_{Hs}
P203~P210	±0.15
P211~P215	±0.2

Shaft Dia. mm / inch d	Dimensions inch / mm H	L	A	J	N	N_1	H_1	H_2	L_1	B_1	S	Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Mass kg
12 1/2 15 5/8 17	1 3/16 30.2	5 127	1 1/2 38	3 3/4 95	1/2 13	23/32 18	5/8 16	2 3/8 60	1 13/32 36	1.720 43.7	0.673 17.1	3/8 M10	NAP201 NAP201-8 NAP202 NAP202-10 NAP203	P203	NA201 NA201-8 NA202 NA202-10 NA203	0.71 0.69 0.66
20 3/4	1 5/16 33.3	5 127	1 1/2 38	3 3/4 95	1/2 13	23/32 18	5/8 16	2 9/16 65	1 13/32 36	1.720 43.7	0.673 17.1	3/8 M10	NAP204-12 NAP204	P204	NA204-12 NA204	0.73
25 7/8 15/16 1	1 7/16 36.5	5 1/2 140	1 1/2 38	4 1/8 105	1/2 13	23/32 18	5/8 16	2 3/4 70	1 1/2 38	1.748 44.4	0.689 17.5	3/8 M10	NAP205-14 NAP205-15 NAP205 NAP205-16	P205	NA205-14 NA205-15 NA205 NA205-16	0.87
30 1 1/8 1 3/16 1 1/4	1 11/16 42.9	6 1/2 165	1 7/8 48	4 3/4 121	21/32 17	13/16 21	21/32 17	3 5/16 84	1 7/8 48	1.906 48.4	0.720 18.3	1/2 M14	NAP206-18 NAP206 NAP206-19 NAP206-20	P206	NA206-18 NA206 NA206-19 NA206-20	1.4
35 1 1/4 1 5/16 1 3/8 1 7/16	1 7/8 47.6	6 9/16 167	1 7/8 48	5 127	21/32 17	13/16 21	23/32 18	3 3/4 95	1 27/32 47	2.012 51.1	0.740 18.8	1/2 M14	NAP207-20 NAP207-21 NAP207-22 NAP207 NAP207-23	P207	NA207-20 NA207-21 NA207-22 NA207 NA207-23	1.8
40 1 1/2 1 9/16	1 15/16 49.2	7 1/4 184	2 1/8 54	5 13/32 137	21/32 17	13/16 21	23/32 18	3 27/32 98	2 3/32 53	2.217 56.3	0.843 21.4	1/2 M14	NAP208-24 NAP208-25 NAP208	P208	NA208-24 NA208-25 NA208	2.1
45 1 5/8 1 11/16 1 3/4	2 1/8 54	7 15/32 190	2 1/8 54	5 3/4 146	21/32 17	13/16 21	25/32 20	4 3/16 106	2 5/32 55	2.217 56.3	0.843 21.4	1/2 M14	NAP209-26 NAP209-27 NAP209-28 NAP209	P209	NA209-26 NA209-27 NA209-28 NA209	2.4
50 1 7/8 1 15/16 2	2 1/4 57.2	8 1/8 206	2 3/8 60	6 1/4 159	25/32 20	7/8 22	13/16 21	4 7/16 113	2 3/8 60	2.469 62.7	0.969 24.6	5/8 M16	NAP210-30 NAP210-31 NAP210 NAP210-32	P210	NA210-30 NA210-31 NA210 NA210-32	3.1
55 2 2 1/8 2 3/16	2 1/2 63.5	8 5/8 219	2 3/8 60	6 23/32 171	25/32 20	7/8 22	29/32 23	4 29/32 125	2 9/16 65	2.811 71.4	1.094 27.8	5/8 M16	NAP211-32 NAP211-34 NAP211 NAP211-35	P211	NA211-32 NA211-34 NA211 NA211-35	3.9
60 2 1/4 2 3/8 2 7/16	2 3/4 69.8	9 1/2 241	2 3/4 70	7 1/4 184	25/32 20	31/32 25	31/32 25	5 7/16 138	2 7/8 73	3.063 77.8	1.220 31	5/8 M16	NAP212-36 NAP212 NAP212-38 NAP212-39	P212	NA212-36 NA212 NA212-38 NA212-39	5.2
65 2 1/2	3 76.2	10 7/16 265	2 3/4 70	8 203	31/32 25	1 3/16 30	1 1/16 27	5 29/32 150	3 1/16 78	3.374 85.7	1.343 34.1	3/4 M20	NAP213-40 NAP213	P213	NA213-40 NA213	6.5
70 2 3/4	3 1/8 79.4	10 15/32 266	2 27/32 72	8 9/32 210	31/32 25	1 3/16 30	1 1/16 27	6 3/16 157	2 15/16 75	3.374 85.7	1.343 34.1	3/4 M20	NAP214-44 NAP214	P214	NA214-44 NA214	7.7
75 2 15/16	3 1/4 82.6	10 13/16 275	2 29/32 74	8 17/32 217	31/32 25	1 3/16 30	1 3/32 28	6 3/8 162	3 1/16 78	3.626 92.1	1.469 37.3	3/4 M20	NAP215-47 NAP215	P215	NA215-47 NA215	7.9

Remarks
1. In Part No. of unit, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 201~210
   A-R1/8..... 211~215
3. As for the triple seal type product (from 201 to 205 are the double seal type products), suffix code L3 (or L2) follows the Part No. of unit or bearing.
   (Example of Part No. : NAP206JL3, NA206L3)
4. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
5. Representative examples of the forms of housing are indicated.
6. Housings of nodular graphite cast iron are also available.

NAP-E
Cylindrical bore
(with eccentric locking collar)
d 1 3/16 ~ 2 15/16 inch



Variations of tolerance of distance from mounting bottom to center of spherical bore (Δ_{Hs})

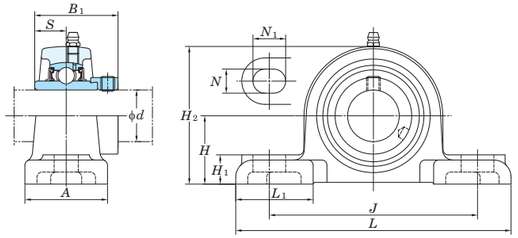
Unit: mm

Housing No.	Δ_{Hs}
P306E~P310E	±0.15
P311E~P315E	±0.2

Shaft Dia. inch d	Dimensions inch / mm H	L	A	J	N	N_1	H_1	H_2	L_1	B_1	S	Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Mass kg
1 3/16	1 7/8 47.6	7 3/32 180	1 31/32 50	5 1/2 140	21/32 17	25/32 20	9/16 14.6	3 21/32 92.6	2 3/32 53	1.988 50.5	0.689 17.5	1/2 M14	NAP306-19E	P306E	NA306-19	2.3
1 7/16	2 1/8 54	8 9/32 210	2 7/32 56	6 5/16 160	21/32 17	31/32 25	21/32 17	4 1/8 105	2 9/16 65	2.051 52.1	0.720 18.3	1/2 M14	NAP307-23E	P307E	NA307-23	3.1
1 1/2	2 3/8 60.3	8 21/32 220	2 3/8 60	6 11/16 170	21/32 17	1 1/16 27	3/4 19.3	4 21/32 118.3	2 9/16 65	2.268 57.6	0.772 19.6	1/2 M14	NAP308-24E	P308E	NA308-24	4.1
1 11/16	2 5/8 66.7	9 21/32 245	2 5/8 67	7 15/32 190	25/32 20	1 3/16 30	13/16 20.7	5 3/16 131.7	2 15/16 75	2.311 58.7	0.780 19.8	5/8 M16	NAP309-27E	P309E	NA309-27	5.1
1 15/16	2 13/16 71.4	10 13/16 275	2 15/16 75	8 11/32 212	25/32 20	1 3/8 35	13/16 20.4	5 19/32 142.4	3 15/32 88	2.622 66.6	0.969 24.6	5/8 M16	NAP310-31E	P310E	NA310-31	7
2 3/16	3 1/16 77.8	12 7/32 310	3 5/32 80	9 9/32 236	25/32 20	1 1/2 38	31/32 24.8	6 1/8 155.3	3 17/32 90	2.874 73	1.094 27.8	5/8 M16	NAP311-35E	P311E	NA311-35	8.5
2 7/16	3 5/16 84.1	13 330	3 11/32 85	9 27/32 250	31/32 25	1 1/2 38	1 3/32 28.1	6 17/32 166.1	4 1/16 103	3.122 79.3	1.220 31	3/4 M20	NAP312-39E	P312E	NA312-39	10.1
2 11/16	3 13/16 96.8	14 3/16 360	3 17/32 90	11 1/32 280	1 1/16 27	1 9/16 40	1 7/16 36.8	7 13/32 187.8	4 11/32 110	3.626 92.1	1.343 34.1	7/8 M22	NAP314-43E	P314E	NA314-43	13.8
2 15/16	4 1/8 104.8	14 31/32 380	3 15/16 100	11 13/32 290	1 1/16 27	1 23/32 44	1 9/16 39.8	7 31/32 202.8	4 7/32 107	3.937 100	1.469 37.3	7/8 M22	NAP315-47E	P315E	NA315-47	16.8

Remarks
1. In Part No. of unit, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 306~308
   A-R1/8..... 309~315
3. As for the triple seal type product (from 201 to 205 are the double seal type products), suffix code L3 (or L2) follows the Part No. of unit or bearing.
   (Example of Part No. : NAP306JEL3, NA306L3)
4. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
5. Representative examples of the forms of housing are indicated.
6. Housings of nodular graphite cast iron are also available.

NAPK
Cylindrical bore
(with eccentric locking collar)
d 12 ~ 75 mm



Variations of tolerance of distance from mounting bottom to center of spherical bore (Δ_{Hs})

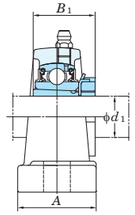
Unit: mm

Housing No.	Δ_{Hs}
PK204~PK210	±0.15
PK211~PK215	±0.2

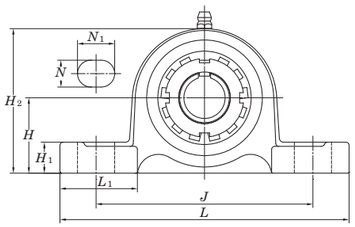
Shaft Dia mm	Shaft Dia inch	Dimensions inch / mm											Bolt Size inch	Unit No.	Housing No.	Bearing No.	Mass
d		H	L	A	J	N	N_1	H_1	H_2	L_1	B_1	S					kg
12														**NAPK201**		NA201	
	1/2													**NAPK201-8**		NA201-8	
15														**NAPK202**		NA202	
	5/8	1 1/4	5 1/4	1 5/8	3 27/32	7/16	9/16	9/16	2 15/32	1 25/32	1.72	0.673	3/8	**NAPK202-10**	PK204	NA202-10	0.82
		31.8	133	41	98	11	14	14	63	45	43.7	17.1					
17														**NAPK203**		NA203	
	3/4													**NAPK204-12**		NA204-12	
20														**NAPK204**		NA204	
	7/8																
25	15/16	1 5/16	5 1/2	1 23/32	4 1/8	7/16	9/16	5/8	2 11/16	1 23/32	1.748	0.689	3/8	**NAPK205-14**	PK205	NA205-14	1
		33.3	140	44	105	11	14	16	68	44	44.4	17.5		**NAPK205-15**		NA205-15	
	1													**NAPK205**		NA205	
														NAPK205-16		NA205-16	
	1 1/8													**NAPK206-18**		NA206-18	
30		1 9/16	6 5/16	1 7/8	4 3/4	9/16	3/4	21/32	3 5/32	1 25/32	1.906	0.72	1/2	**NAPK206**	PK206	NA206	1.4
	1 3/16	39.7	160	48	121	14	19	17	80	45	48.4	18.3		**NAPK206-19**		NA206-19	
	1 1/4													**NAPK206-20**		NA206-20	
	1 1/4													**NAPK207-20**		NA207-20	
	1 5/16													**NAPK207-21**		NA207-21	
35	1 3/8	1 13/16	6 9/16	1 7/8	5	9/16	3/4	3/4	3 5/8	1 13/16	2.012	0.74	1/2	**NAPK207-22**	PK207	NA207-22	2
		46	167	48	127	14	19	19	92	46	51.1	18.8		**NAPK207**		NA207	
	1 7/16													**NAPK207-23**		NA207-23	
	1 1/2													**NAPK208-24**		NA208-24	
40	1 9/16	1 15/16	7 1/8	2 1/8	5 3/8	9/16	1 1/32	3/4	3 15/16	2	2.217	0.843	1/2	**NAPK208-25**	PK208	NA208-25	2.5
		49.2	181	54	136.5	14	26.3	19	100	51	56.3	21.4		**NAPK208**		NA208	
	1 5/8													**NAPK209-26**		NA209-26	
45	1 11/16	2 1/16	7 15/32	2 1/8	5 7/8	9/16	1 1/8	25/32	4 3/16	2 3/32	2.217	0.843	1/2	**NAPK209-27**	PK209	NA209-27	2.7
	1 3/4	52.4	190	54	149.2	14	28.6	20	106	53	56.3	21.4		**NAPK209-28**		NA209-28	
														NAPK209		NA209	
	1 7/8													**NAPK210-30**		NA210-30	
50	1 15/16	2 3/16	8	2 1/4	6 1/4	9/16	3/4	7/8	4 13/32	2 7/32	2.469	0.969	1/2	**NAPK210-31**	PK210	NA210-31	3.2
		55.6	203	57	159	14	19	22	112	56	62.7	24.6		**NAPK210**		NA210	
	2													**NAPK210-32**		NA210-32	
	2													**NAPK211-32**		NA211-32	
55	2 1/8	2 7/16	9 1/8	2 3/8	7 1/8	23/32	15/16	31/32	4 7/8	2 19/32	2.811	1.094	5/8	**NAPK211-34**	PK211	NA211-34	4.6
		61.9	232	60	181	18	24	25	124	66	71.4	27.8		**NAPK211**		NA211	
	2 3/16													**NAPK211-35**		NA211-35	
	2 1/4													**NAPK212-36**		NA212-36	
60		2 11/16	9 1/2	2 17/32	7 17/32	23/32	15/16	1 3/32	5 11/32	2 19/32	3.063	1.22	5/8	**NAPK212**	PK212	NA212	5.2
	2 3/8	68.3	241	64	191	18	24	28	136	66	77.8	31		**NAPK212-38**		NA212-38	
	2 7/16													**NAPK212-39**		NA212-39	
75	2 15/16	3 5/16	11 31/32	3 7/32	9 1/2	7/8	1 1/4	1 1/2	6 1/2	3 7/16	3.626	1.469	3/4	**NAPK215-47**	PK215	NA215-47	9.6
		84.1	304	82	241	22	32	38	165	87	92.1	37.3		**NAPK215**		NA215	

Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 201~210
   A-Rc1/8..... 211~215
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
4. Representative examples of the forms of housing are indicated.
5. Housings of nodular graphite cast iron are also available.

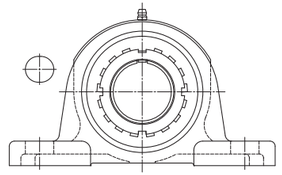
UKP
Tapered bore (with adapter)
d_1 20 ~ 125 mm



UKP2



UKPX, 3



Shaft Dia. mm d_1	Shaft Dia. inch d_1	H	L	A	J	N	N_1	H_1	H_2	L_1	B_1	Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Adapter No.	Mass kg
20	3/4	1 7/16	5 1/2	1 1/2	4 1/8	1/2	23/32	5/8	2 3/4	1 1/2	1 3/8	3/8	UKP205	P205	UK205	HE2305X	0.84
		36.5	140	38	105	13	18	16	70	38	35	M10				H2305X	0.84
	3/4	1 3/4	6 1/4	2	4 11/16	21/32	31/32	5/8	3 3/8	1 27/32	1 3/8	1/2	UKPX05	PX05	UKX05	HE2305X	1.5
		44.4	159	51	119	17	25	16	86	47	35	M14				H2305X	1.5
	3/4	1 49/64	6 7/8	1 25/32	5 3/16	21/32	25/32	5/8	3 3/8	2 5/32	1 3/8	1/2	UKP305	P305	UK305	HE2305X	1.7
		45	175	45	132	17	20	16	86	55	35	M14				H2305X	1.7
25		1 11/16	6 1/2	1 7/8	4 3/4	21/32	13/16	21/32	3 5/16	1 7/8	1 1/2	1/2	UKP206	P206	UK206	H2306X	1.4
	1	42.9	165	48	121	17	21	17	84	48	38	M14				HE2306X	1.4
		1 7/8	6 7/8	2 1/4	5	21/32	31/32	21/32	3 21/32	2 5/32	1 1/2	1/2	UKPX06	PX06	UKX06	H2306X	2.1
	1	47.6	175	57	127	17	25	17	93	55	38	M14				HE2306X	2.1
		1 31/32	7 3/32	1 31/32	5 1/2	21/32	25/32	21/32	3 3/4	2 3/32	1 1/2	1/2	UKP306	P306	UK306	H2306X	2.3
	1	50	180	50	140	17	20	17	95	53	38	M14				HE2306X	2.3
30	1 1/8	1 7/8	6 9/16	1 7/8	5	21/32	13/16	23/32	3 3/4	1 27/32	1 11/16	1/2	UKP207	P207	UK207	HS2307X	1.7
		47.6	167	48	127	17	21	18	95	47	43	M14				H2307X	1.7
	1 1/8	2 1/8	8	2 1/4	5 21/32	21/32	1 3/16	3/4	4 1/8	2 17/32	1 11/16	1/2	UKPX07	PX07	UKX07	HS2307X	2.7
		54	203	57	144	17	30	19	105	64	43	M14				H2307X	2.7
	1 1/8	2 13/64	8 9/32	2 7/32	6 5/16	21/32	31/32	3/4	4 7/32	2 9/16	1 11/16	1/2	UKP307	P307	UK307	HS2307X	3.0
		56	210	56	160	17	25	19	107	65	43	M14				H2307X	3.0
35	1 1/4															HE2308X	2.0
	1 3/8	1 15/16	7 1/4	2 1/8	5 13/32	21/32	13/16	23/32	3 27/32	2 3/32	1 13/16	1/2	UKP208	P208	UK208	HS2308X	2.0
		49.2	184	54	137	17	21	18	98	53	46	M14				H2308X	2.0
	1 1/4															HE2308X	3.5
	1 3/8	2 5/16	8 3/4	2 5/8	6 5/32	25/32	1 1/4	13/16	4 1/2	2 25/32	1 13/16	5/8	UKPX08	PX08	UKX08	HS2308X	3.5
		58.7	222	67	156	20	32	21	114	71	46	M16				H2308X	3.5
	1 1/4															HE2308X	3.8
	1 3/8	2 23/64	8 21/32	2 3/8	6 11/16	21/32	1 1/16	3/4	4 21/32	2 9/16	1 13/16	1/2	UKP308	P308	UK308	HS2308X	3.8
		60	220	60	170	17	27	19	118	65	46	M14				H2308X	3.8
40	1 1/2	2 1/8	7 15/32	2 1/8	5 3/4	21/32	13/16	25/32	4 3/16	2 5/32	1 31/32	1/2	UKP209	P209	UK209	HE2309X	2.3
		54	190	54	146	17	21	20	106	55	50	M14				H2309X	2.3
	1 1/2	2 5/16	8 3/4	2 5/8	6 5/32	25/32	1 5/16	13/16	4 9/16	2 25/32	1 31/32	5/8	UKPX09	PX09	UKX09	HE2309X	3.7
		58.7	222	67	156	20	33	21	116	71	50	M16				H2309X	3.7
	1 1/2	2 41/64	9 21/32	2 5/8	7 15/32	25/32	1 3/16	13/16	5 3/16	2 15/16	1 31/32	5/8	UKP309	P309	UK309	HE2309X	5.0
		67	245	67	190	20	30	21	132	75	50	M16				H2309X	5.0
45	1 3/4	2 1/4	8 1/8	2 3/8	6 1/4	25/32	7/8	13/16	4 7/16	2 3/8	2 5/32	5/8	UKP210	P210	UK210	HE2310X	3.0
		57.2	206	60	159	20	22	21	113	60	55	M16				H2310X	3.0
	1 3/4	2 1/2	9 1/2	2 7/8	6 23/32	25/32	1 13/32	7/8	4 31/32	3	2 5/32	5/8	UKPX10	PX10	UKX10	HE2310X	4.6
		63.5	241	73	171	20	36	22	126	76	55	M16				H2310X	4.6
	1 3/4	2 61/64	10 13/16	2 15/16	8 11/32	25/32	1 3/8	15/16	5 3/4	3 15/32	2 5/32	5/8	UKP310	P310	UK310	HE2310X	6.7
		75	275	75	212	20	35	24	146	88	55	M16				H2310X	6.7

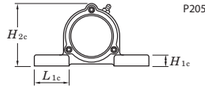
Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 205~210, X05~X09, 305~308
   A-R1/8..... 211~218, X10~X20, 309~328
3. In Part No. of unit with adapters and bearing with adapters, Part No. of applicable adapter follow the Part No. shown in the dimensional tables. (Example of Part No. : UKP206J + H2306X, UK206 + H2306X)
4. As for the triple seal type product (205 is the double seal type product), suffix code L3 (or L2) follows the Part No. of unit or bearing.
5. For the dimensions and forms of applicable bearings and adapters, see the dimensional tables of ball bearing for unit and adapter.
6. Representative examples of the forms of housing are indicated.
7. Housings of nodular graphite cast iron are also available.

Variations of tolerance of distance from mounting bottom to center of spherical bore (Δ_{H_8})

Unit: mm

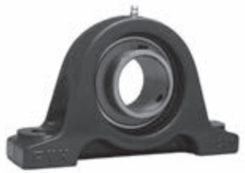
Housing No.			Δ_{H_8}
P205~P210	PX05~PX10	P305~P310	±0.15
P211~P218	PX11~PX18	P311~P318	±0.2
	PX20	P319~P328	±0.3

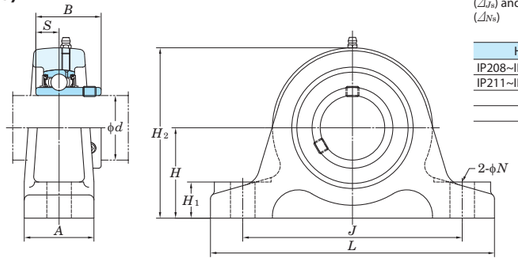
Forms and dimensions of P205FJE3 (housing with cast iron cover) are shown below.



Shaft Dia. mm d_1	Shaft Dia. inch d_1	H	L	A	J	N	N_1	H_1	H_2	L_1	B_1	Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Adapter No.	Mass kg
50	1 7/8	2 1/2	8 5/8	2 3/8	6 23/32	25/32	7/8	29/32	4 29/32	2 9/16	2 5/16	5/8	UKP211	P211	UK211	HS2311X	3.7
	2	63.5	219	60	171	20	22	23	125	65	59	M16				H2311X	3.7
																HE2311X	3.7
	1 7/8	2 3/4	10 1/4	3 1/8	7 1/4	31/32	1 13/32	1 3/32	5 15/32	3 9/32	2 5/16	3/4	UKPX11	PX11	UKX11	HS2311X	6.2
	2	69.8	260	79	184	25	36	28	139	83	59	M20				H2311X	6.2
																HE2311X	6.2
	1 7/8	3 5/32	12 7/32	3 5/32	9 9/32	25/32	1 1/2	1 1/16	6 7/32	3 17/32	2 5/16	5/8	UKP311	P311	UK311	HS2311X	8.1
	2	80	310	80	236	20	38	27	158	90	59	M16				H2311X	8.1
																HE2311X	8.1
55	2 1/8	2 3/4	9 1/2	2 3/4	7 1/4	25/32	31/32	31/32	5 7/16	2 7/8	2 7/16	5/8	UKP212	P212	UK212	HS2312X	4.8
		69.8	241	70	184	20	25	25	138	73	62	M16				H2312X	4.8
	2 1/8	3	11 1/4	3 9/32	8	31/32	1 9/16	1 3/32	5 31/32	3 15/32	2 7/16	3/4	UKPX12	PX12	UKX12	HS2312X	7.5
		76.2	286	83	203	25	40	28	152	88	62	M20				H2312X	7.5
	2 1/8	3 11/32	13	3 11/32	9 27/32	31/32	1 1/2	1 5/32	6 9/16	4 1/16	2 7/16	3/4	UKP312	P312	UK312	HS2312X	9.4
		85	330	85	250	25	38	29	167	103	62	M20				H2312X	9.4
60	2 1/4															HE2313X	5.8
		3	10 7/16	2 3/4	8	31/32	1 3/16	1 1/16	5 29/32	3 1/16	2 9/16	3/4	UKP213	P213	UK213	H2313X	5.8
	2 3/8	76.2	265	70	203	25	30	27	150	78	65	M20				HS2313X	5.8
	2 1/4															HE2313X	7.8
		3	11 1/4	3 9/32	8	31/32	1 9/16	1 3/32	6 3/32	3 15/32	2 9/16	3/4	UKPX13	PX13	UKX13	H2313X	7.8
	2 3/8	76.2	286	83	203	25	40	28	155	88	65	M20				HS2313X	7.8
	2 1/4															HE2313X	10.8
		3 35/64	13 3/8	3 17/32	10 1/4	31/32	1 1/2	1 1/4	6 15/16	4 11/32	2 9/16	3/4	UKP313	P313	UK313	H2313X	10.8
	2 3/8	90	340	90	260	25	38	32	176	110	65	M20				HS2313X	10.8
65	2 1/2	3 1/4	10 13/16	2 29/32	8 17/32	31/32	1 3/16	1 3/32	6 3/8	3 1/16	2 7/8	3/4	UKP215	P215	UK215	HE2315X	7.5
		82.6	275	74	217	25	30	28	162	78	73	M20				H2315X	7.5
	2 1/2	3 1/2	13	3 1/2	9 1/32	1 1/16	1 31/32	1 1/4	6 7/8	3 29/32	2 7/8	7/8	UKPX15	PX15	UKX15	HE2315X	10.5
		88.9	330	89	229	27	50	32	175	99	73	M22				H2315X	10.5
	2 1/2	3 15/16	14 31/32	3 15/16	11 13/32	1 1/16	1 9/16	1 3/8	7 25/32	4 7/32	2 7/8	7/8	UKP315	P315	UK315	HE2315X	14.9
		100	380	100	290	27	40	35	198	107	73	M22				H2315X	14.9
70	2 3/4	3 1/2	11 1/2	3 1/16	9 1/8	31/32	1 3/8	1 3/16	6 27/32	3 9/32	3 1/16	3/4	UKP216	P216	UK216	HE2316X	9.2
		88.9	292	78	232	25	35	30	174	83	78	M20				H2316X	9.2
	2 3/4	4	15	4 1/32	11 5/32	1 1/16	2 9/32	1 11/32	7 11/16	4 9/16	3 1/16	7/8	UKPX16	PX16	UKX16	HE2316X	15.4
		101.6	381	102	283	27	58	34	195	116	78	M22				H2316X	15.4
	2 3/4	4 11/64	15 3/4	4 11/32	11 13/16	1 1/16	1 9/16	1 3/8	8 7/32	4 23/32	3 1/16	7/8	UKP316	P316	UK316	HE2316X	18.6
		106	400	110	300	27	40	35	209	120	78	M22				H2316X	18.6
75	3	3 3/4	12 7/32	3 9/32	9 23/32	31/32	1 9/16	1 1/4	7 9/32	3 7/16	3 7/32	3/4	UKP217	P217	UK217	H2317X	11.0
		95.2	310	83	247	25	40	32	185	87	82	M20				HE2317X	11.0
	3	4	15	4 1/32	11 5/32	1 1/16	2 3/8	1 11/32	7 7/8	4 9/16	3 7/32	7/8	UKPX17	PX17	UKX17	H2317X	15.8
		101.6	381	102	283	27	60	34	200	116	82	M22				HE2317X	15.8
	3	4 13/32	16 17/32	4 11/32	12 19/32	1 5/16	1 25/32	1 9/16	8 21/32	4 23/32	3 7/32	1	UKP317	P317	UK317	H2317X	20.2
		112	420	110	320	33	45	40	220	120	82	M27				HE2317X	20.2
80	–	4	12 7/8	3 15/32	10 5/16	1 1/16	1 25/32	1 5/16	7 25/32	3 11/16	3 3/8	7/8	UKP218	P218	UK218	H2318X	13.8
		101.6	327	88	262	27	45	33	198	94	86	M22					
	–	4	15	4 3/8	11 5/32	1 1/16	2 3/8	1 1/2	8 1/32	4 9/16	3 3/8	7/8	UKPX18	PX18	UKX18	H2318X	18.6
		101.6	381	111	283	27	60	38	204	116	86	M22					
	–	4 41/64	16 15/16	4 11/32	13	1 5/16	1 25/32	1 9/16	9 7/32	4 23/32	3 3/8	1	UKP318	P318	UK318	H2318X	22.8
		118	430	110	330	33	45	40	234	120	86	M27					
85	3 1/4	4 59/64	18 1/2	4 23/32	14 3/16	1 13/32	1 31/32	1 13/16	9 3/4	4 29/32	3 17/32	1 1/8	UKP319	P319	UK319	HE2319X	29.3
		125	470	120	360	36	50	46	248	125	90	M30				H2319X	29.3
90	3 1/2	5	17	4 3/4	13 9/32	1 5/16	2 9/16	1 25/32	9 21/32	4 31/32	3 13/16	1	UKPX20	PX20	UKX20	HE2320X	29.3
		127	432	121	337	33	65	45	245	126	97	M27				H2320X	29.3
	3 1/2	5 33/64	19 9/32	4 23/32	14 31/32	1 13/32	1 31/32	1 13/16	10 3/4	5 1/2	3 13/16	1 1/8	UKP320	P320	UK320	HE2320X	34.8
		140	490	120	380	36	50	46	273	140	97	M30				H2320X	34.8
100	4	5 29/32	20 15/32	5 1/2	15 3/4	1 9/16	2 5/32	1 31/32	11 21/32	5 29/32	4 1/8	1 1/4	UKP322	P322	UK322	H2322X	43.9
		150	520	140	400	40	55	50	296	150	105	M33				HE2322X	43.9
110	–	6 19/64	22 7/16	5 1/2	17 23/32	1 9/16	2 5/32	1 31/32	12 7/16	6 5/16	4 13/32	1 1/4	UKP324	P324	UK324	H2324X	55.7
		160	570	140	450	40	55	50	316	160	112	M33					
115	4 1/2	7 3/32	23 5/8	5 1/2	18 29/32	1 9/16	2 5/32	1 31/32	13 31/32	7 11/16	4 3/4	1 1/4	UKP326	P326	UK326	HE2326X	71.9
		180	600	140	480	40	55	50	355	195	121	M33				H2326X	71.9
125	–	7 7/8	24 13/32	5 1/2	19 11/16	1 9/16	2 5/32	2 3/8	15 15/32	7 9/32	5 5/32	1 1/4	UKP328	P328	UK328	H2328X	92.5
		200	620	140	500	40	55	60	393	185	131	M33					

UCIP
Cylindrical bore (with set screws)
d 40 ~ 140 mm





Variations of tolerance of distance from mounting bottom to center of spherical bore (Δ_{Hs}), variations of tolerance of distance between centers of bolt holes (Δ_{Js}) and variations of tolerance of bolt hole diameter (Δ_{Ns})

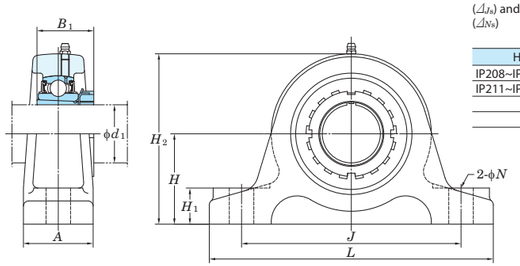
Unit: mm

Housing No.		Δ_{Hs}	Δ_{Js}	Δ_{Ns}
IP208~IP210		±0.15	±0.5	±0.2
IP211~IP213	IP313~IP318	±0.2	±0.7	
	IP319~IP320	±0.3		
	IP322~IP328			±0.3

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm									Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Mass
d		H	L	A	J	N	H_1	H_2	B	S					kg
40	1 1/2	2 23/64	7 7/8	2 3/8	5 29/32	3/4	31/32	4 17/32	1.937	0.748	5/8	UCIP208-24	IP208	UC208-24	3.4
	1 9/16	60	200	60	150	19	25	115	49.2	19	M16	UCIP208-25		UC208-25	3.4
												UCIP208		UC208	3.4
45	1 5/8	2 3/4	8 9/32	2 3/8	6 19/64	3/4	31/32	5 1/32	1.937	0.748	5/8	UCIP209-26	IP209	UC209-26	3.9
	1 11/16	70	210	60	160	19	25	128	49.2	19	M16	UCIP209-27		UC209-27	3.9
	1 3/4											UCIP209-28		UC209-28	3.9
												UCIP209		UC209	3.9
50	1 7/8	2 3/4	8 21/32	2 3/8	6 11/16	3/4	1 3/32	5 3/16	2.031	0.748	5/8	UCIP210-30	IP210	UC210-30	4.8
	1 15/16	70	220	60	170	19	28	132	51.6	19	M16	UCIP210-31		UC210-31	4.8
	2											UCIP210		UC210	4.8
												UCIP210-32		UC210-32	4.8
55	2	3 5/32	9 1/16	2 3/8	7 3/32	3/4	1 3/32	5 13/16	2.189	0.874	5/8	UCIP211-32	IP211	UC211-32	5.3
	2 1/8	80	230	60	180	19	28	148	55.6	22.2	M16	UCIP211-34		UC211-34	5.3
	2 3/16											UCIP211		UC211	5.3
												UCIP211-35		UC211-35	5.3
60	2 1/4	3 5/32	10 1/4	2 3/4	7 7/8	7/8	1 3/16	6 3/32	2.563	1.000	3/4	UCIP212-36	IP212	UC212-36	7.2
	2 3/8	80	260	70	200	22	30	155	65.1	25.4	M20	UCIP212		UC212	7.2
	2 7/16											UCIP212-38		UC212-38	7.2
												UCIP212-39		UC212-39	7.2
65	2 1/2	3 35/64	11 1/32	2 3/4	8 21/32	7/8	1 3/16	6 25/32	2.563	1.000	3/4	UCIP213-40	IP213	UC213-40	8.8
		90	280	70	220	22	30	172	65.1	25.4	M20	UCIP213		UC213	8.8
	2 1/2	4 21/64	12 7/32	2 3/4	9 27/32	7/8	1 3/16	8 3/16	2.953	1.181	3/4	UCIP313-40	IP313	UC313-40	13.4
		110	310	70	250	22	30	208	75	30	M20	UCIP313		UC313	13.4
70	2 3/4	4 21/64	13	2 15/16	10 5/8	63/64	1 3/8	8 15/32	3.071	1.299	7/8	UCIP314-44	IP314	UC314-44	15.3
		110	330	75	270	25	35	215	78	33	M22	UCIP314		UC314	15.3
75	2 15/16	4 23/32	13 3/8	2 15/16	11 1/32	63/64	1 3/8	9 1/16	3.228	1.260	7/8	UCIP315-47	IP315	UC315-47	17.6
		120	340	75	280	25	35	230	82	32	M22	UCIP315		UC315	17.6
	3											UCIP315-48		UC315-48	17.6
80	–	4 23/32	13 25/32	3 11/32	11 27/64	63/64	1 9/16	9 1/4	3.386	1.339	7/8	UCIP316	IP316	UC316	20.3
		120	350	85	290	25	40	235	86	34	M22				
85	–	5 1/8	14 9/16	3 11/32	12 13/64	63/64	1 9/16	10 1/32	3.780	1.575	7/8	UCIP317	IP317	UC317	25.9
		130	370	85	310	25	40	255	96	40	M22				
90	3 1/2	5 1/8	15 3/4	3 11/32	12 63/64	1 9/64	1 25/32	10 1/4	3.780	1.575	1	UCIP318-56	IP318	UC318-56	28.6
		130	400	85	330	29	45	260	96	40	M27	UCIP318		UC318	28.6
95	–	5 29/32	16 5/32	3 11/32	13 25/64	1 9/64	1 25/32	11 7/32	4.055	1.614	1	UCIP319	IP319	UC319	31.7
		150	410	85	340	29	45	285	103	41	M27				
100	3 15/16	5 29/32	16 15/16	3 11/32	14 11/64	1 9/64	1 25/32	11 5/8	4.252	1.654	1	UCIP320	IP320	UC320	36.9
	4	150	430	85	360	29	45	295	108	42	M27	UCIP320-63		UC320-63	36.9
												UCIP320-64		UC320-64	36.9
110	–	6 11/16	19 9/32	3 15/16	16 9/64	1 17/64	1 31/32	13 3/16	4.606	1.811	1 1/8	UCIP322	IP322	UC322	52.4
		170	490	100	410	32	50	335	117	46	M30				
120	–	6 11/16	20 3/32	3 15/16	16 59/64	1 17/64	1 31/32	13 19/32	4.961	2.008	1 1/8	UCIP324	IP324	UC324	58.7
		170	510	100	430	32	50	345	126	51	M30				
130	–	7 7/8	21 21/32	4 11/32	18 1/2	1 17/64	1 31/32	15 11/32	5.315	2.126	1 1/8	UCIP326	IP326	UC326	76.2
		200	550	110	470	32	50	390	135	54	M30				
140	–	7 7/8	23 7/32	4 11/32	19 11/16	1 3/8	2 5/32	15 3/4	5.709	2.323	1 1/4	UCIP328	IP328	UC328	87.0
		200	590	110	500	35	55	400	145	59	M33				

Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 208~210
   A-R1/8..... 211~213, 313~328
3. As for the triple seal type product, suffix code L3 follows the Part No. of unit or bearing. (Example of Part No. : UCIP208JL3, UC208L3)
4. As for the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
5. Housings of nodular graphite cast iron are also available.

UKIP
Tapered bore (with adapter)
d_1 35 ~ 125 mm



Variations of tolerance of distance from mounting bottom to center of spherical bore (Δ_{Hs}), variations of tolerance of distance between centers of bolt holes (Δ_{Js}) and variations of tolerance of bolt hole diameter (Δ_{Ns})

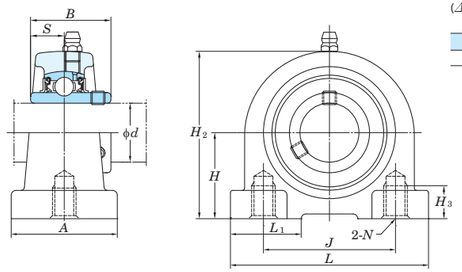
Unit: mm

Housing No.		Δ_{Hs}	Δ_{Js}	Δ_{Ns}
IP208~IP210		±0.15	±0.5	±0.2
IP211~IP213	IP313~IP318	±0.2	±0.7	
	IP319~IP320	±0.3		
	IP322~IP328			±0.3

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm								Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Adapter No.	Mass
d_1		H	L	A	J	N	H_1	H_2	B_1						kg
35	1 1/4	2 23/64	7 7/8	2 3/8	5 29/32	3/4	31/32	4 17/32	1 13/16	5/8	UKIP208	IP208	UK208	HE2308X	3.5
	1 3/8	60	200	60	150	19	25	115	46	M16				HS2308X	3.5
														H2308X	3.5
40	1 1/2	2 3/4	8 9/32	2 3/8	6 19/64	3/4	31/32	5 1/32	1 31/32	5/8	UKIP209	IP209	UK209	HE2309X	4.0
		70	210	60	160	19	25	128	50	M16				H2309X	4.0
45	1 3/4	2 3/4	8 21/32	2 3/8	6 11/16	3/4	1 3/32	5 3/16	2 5/32	5/8	UKIP210	IP210	UK210	HE2310X	4.8
		70	220	60	170	19	28	132	55	M16				H2310X	4.8
50	1 7/8	3 5/32	9 1/16	2 3/8	7 3/32	3/4	1 3/32	5 13/16	2 5/16	5/8	UKIP211	IP211	UK211	HS2311X	5.3
		80	230	60	180	19	28	148	59	M16				H2311X	5.3
	2													HE2311X	5.3
55	2 1/8	3 5/32	10 1/4	2 3/4	7 7/8	7/8	1 3/16	6 3/32	2 7/16	3/4	UKIP212	IP212	UK212	HS2312X	7.1
		80	260	70	200	22	30	155	62	M20				H2312X	7.1
60	2 1/4	3 35/64	11 1/32	2 3/4	8 21/32	7/8	1 3/16	6 25/32	2 9/16	3/4	UKIP213	IP213	UK213	HE2313X	8.7
		90	280	70	220	22	30	172	65	M20				H2313X	8.7
	2 3/8													HS2313X	8.7
	2 1/4	4 21/64	12 7/32	2 3/4	9 27/32	7/8	1 3/16	8 3/16	2 9/16	3/4	UKIP313	IP313	UK313	HE2313X	13.5
		110	310	70	250	22	30	208	65	M20				H2313X	13.5
	2 3/8													HS2313X	13.5
65	2 1/2	4 23/32	13 3/8	2 15/16	11 1/32	63/64	1 3/8	9 1/16	2 7/8	7/8	UKIP315	IP315	UK315	HE2315X	17.7
		120	340	75	280	25	35	230	73	M22				H2315X	17.7
70	2 3/4	4 23/32	13 25/32	3 11/32	11 27/64	63/64	1 9/16	9 1/4	3 1/16	7/8	UKIP316	IP316	UK316	HE2316X	20.4
		120	350	85	290	25	40	235	78	M22				H2316X	20.4
75	3	5 1/8	14 9/16	3 11/32	12 13/64	63/64	1 9/16	10 1/32	3 7/32	7/8	UKIP317	IP317	UK317	H2317X	25.7
		130	370	85	310	25	40	255	82	M22				HE2317X	25.7
80	–	5 1/8	15 3/4	3 11/32	12 63/64	1 9/64	1 25/32	10 1/4	3 3/8	1	UKIP318	IP318	UK318	H2318X	28.7
		130	400	85	330	29	45	260	86	M27					
85	3 1/4	5 29/32	16 5/32	3 11/32	13 25/64	1 9/64	1 25/32	11 7/32	3 17/32	1	UKIP319	IP319	UK319	HE2319X	32.0
		150	410	85	340	29	45	285	90	M27				H2319X	32.0
90	3 1/2	5 29/32	16 15/16	3 11/32	14 11/64	1 9/64	1 25/32	11 5/8	3 13/16	1	UKIP320	IP320	UK320	HE2320X	36.6
		150	430	85	360	29	45	295	97	M27				H2320X	36.6
100	4	6 11/16	19 9/32	3 15/16	16 9/64	1 17/64	1 31/32	13 3/16	4 1/8	1 1/8	UKIP322	IP322	UK322	H2322X	52.2
		170	490	100	410	32	50	335	105	M30				HE2322X	52.2
110	–	6 11/16	20 3/32	3 15/16	16 59/64	1 17/64	1 31/32	13 19/32	4 13/32	1 1/8	UKIP324	IP324	UK324	H2324X	59.0
		170	510	100	430	32	50	345	112	M30					
115	4 1/2	7 7/8	21 21/32	4 11/32	18 1/2	1 17/64	1 31/32	15 11/32	4 3/4	1 1/8	UKIP326	IP326	UK326	HE2326X	76.0
		200	550	110	470	32	50	390	121	M30				H2326X	76.0
125	–	7 7/8	23 7/32	4 11/32	19 11/16	1 3/8	2 5/32	15 3/4	5 5/32	1 1/4	UKIP328	IP328	UK328	H2328X	87.0
		200	590	110	500	35	55	400	131	M33					

Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 208~210
   A-R1/8..... 211~213, 313~328
3. In Part No. of unit with adapters and bearing with adapters, Part No. of applicable adapter follow the Part No. shown in the dimensional tables.
   (Example of Part No. : UKIP208J + H2308X, UK208 + H2308X)
4. As for the triple seal type product, suffix code L3 follows the Part No. of unit or bearing. (Example of Part No. : UKIP208JL3 + H2308X, UK208L3 + H2308X)
5. For the dimensions and forms of applicable bearings and adapters, see the dimensional tables of ball bearing for unit and adapter.
6. Housings of nodular graphite cast iron are also available.

UCPA
Cylindrical bore (with set screws)
d 12 ~ 50 mm



Variations of tolerance of distance from mounting bottom to center of spherical bore (Δ_{Hs}) and variations of tolerance of distance between centers of bolt holes (Δ_{Js})

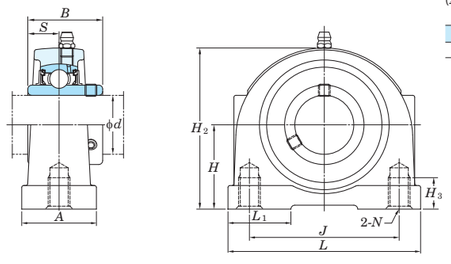
Unit: mm

Housing No.	Δ_{Hs}	Δ_{Js}
PA204~PA210	±0.15	±0.5

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm										Unit No.	Housing No.	Bearing No.	Mass
d		H	L	A	J	N	H_2	H_3	L_1	B	S				kg
12	1/2											**UCPA201**	PA204	UC201	0.64
												UCPA201-8		UC201-8	
15												**UCPA202**		UC202	0.62
	5/8	1 3/16	3	1 9/16	2 3/64		2 3/8	1/2	1 1/16	1.220	0.500	**UCPA202-10**		UC202-10	
17		30.2	76	40	52	M10×1.5	60	13	27	31	12.7	**UCPA203**		UC203	0.61
	3/4											**UCPA204-12**		UC204-12	
20												**UCPA204**		UC204	0.59
25	7/8											**UCPA205-14**	PA205	UC205-14	0.83
	15/16	1 7/16	3 5/16	1 25/32	2 13/64		2 25/32	1/2	1 3/16	1.343	0.563	**UCPA205-15**		UC205-15	
		36.5	84	45	56	M10×1.5	71	13	30	34.1	14.3	**UCPA205**		UC205	
	1											**UCPA205-16**		UC205-16	
30	1 1/8											**UCPA206-18**	PA206	UC206-18	1.2
		1 11/16	3 11/16	1 31/32	2 19/32		3 5/16	23/32	1 13/32	1.500	0.626	**UCPA206**		UC206	
	1 3/16	42.9	94	50	66	M14×2	84	18	36	38.1	15.9	**UCPA206-19**		UC206-19	
	1 1/4											**UCPA206-20**		UC206-20	
35	1 1/4											**UCPA207-20**	PA207	UC207-20	1.7
	1 5/16											**UCPA207-21**		UC207-21	
	1 3/8	1 7/8	4 11/32	2 5/32	3 5/32		3 21/32	25/32	1 5/8	1.689	0.689	**UCPA207-22**		UC207-22	
		47.6	110	55	80	M14×2	93	20	41	42.9	17.5	**UCPA207**		UC207	
	1 7/16											**UCPA207-23**		UC207-23	
40	1 1/2											**UCPA208-24**	PA208	UC208-24	2.0
	1 9/16	1 15/16	4 9/16	2 9/32	3 5/16		3 27/32	25/32	1 5/8	1.937	0.748	**UCPA208-25**		UC208-25	
		49.2	116	58	84	M14×2	98	20	41	49.2	19	**UCPA208**		UC208	
45	1 5/8											**UCPA209-26**	PA209	UC209-26	2.2
	1 11/16	2 9/64	4 23/32	2 3/8	3 35/64		4 3/16	31/32	1 21/32	1.937	0.748	**UCPA209-27**		UC209-27	
	1 3/4	54.2	120	60	90	M14×2	106	25	42	49.2	19	**UCPA209-28**		UC209-28	
												UCPA209		UC209	
50	1 7/8											**UCPA210-30**	PA210	UC210-30	2.8
	1 15/16	2 1/4	5 1/8	2 17/32	3 45/64		4 7/16	31/32	1 27/32	2.031	0.748	**UCPA210-31**		UC210-31	
		57.2	130	64	94	M16×2	113	25	47	51.6	19	**UCPA210**		UC210	
	2											**UCPA210-32**		UC210-32	

Remarks
1. In Part No. of unit, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. Part No. of the applicable grease fitting is A-1/4-28UNF.
3. As for the triple seal type product (from 201 to 205 are the double seal type products), suffix code L3 (or L2) follows Part No. of unit or bearing. (Example of Part No. : UCPA206JL3, UC206L3)
4. As for the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
5. Tapered bore (with adapter) type products are also available. (Example of Part No. : UKPA205J + H2305X, UK205 + H2305X)
6. Housings of nodular graphite cast iron are also available.

UCPAN
Cylindrical bore (with set screws)
d 20 ~ 35 mm



Variations of tolerance of distance from mounting bottom to center of spherical bore (Δ_{Hs}) and variations of tolerance of distance between centers of bolt holes (Δ_{Js})

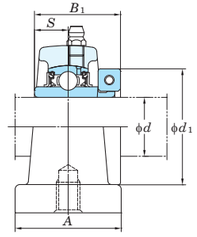
Unit: mm

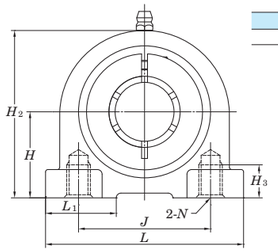
Housing No.	Δ_{Hs}	Δ_{Js}
PAN204~PAN207	±0.15	±0.5

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm										Unit No.	Housing No.	Bearing No.	Mass
d		H	L	A	J	N	H_2	H_3	L_1	B	S				kg
20	3/4	1 5/16	2 9/16	1 1/4	2	3/8-16UNC	2 17/32	1/2	7/8	1.220	0.500	**UCPAN204-12**	PAN204	UC204-12	0.55
		33.3	65	32	50.8		64	12.7	22	31	12.7	**UCPAN204**		UC204	
25	7/8											**UCPAN205-14**	PAN205	UC205-14	0.65
	15/16	1 7/16	2 3/4	1 13/32	2	3/8-16UNC	2 3/4	1/2	29/32	1.343	0.563	**UCPAN205-15**		UC205-15	
		36.5	70	36	50.8		70	13	23	34.1	14.3	**UCPAN205**		UC205	
	1											**UCPAN205-16**		UC205-16	
30	1 1/8											**UCPAN206-18**	PAN206	UC206-18	1.3
		1 11/16	3 27/32	1 1/2	3	7/16-14UNC	3 7/32	5/8	1 1/4	1.500	0.626	**UCPAN206**		UC206	
	1 3/16	42.9	98	38	76.2		82	16	32	38.1	15.9	**UCPAN206-19**		UC206-19	
	1 1/4											**UCPAN206-20**		UC206-20	
35	1 1/4											**UCPAN207-20**	PAN207	UC207-20	1.8
	1 5/16											**UCPAN207-21**		UC207-21	
	1 3/8	1 7/8	4 11/32	1 7/8	3 1/4	1/2-13UNC	3 21/32	3/4	1 5/8	1.689	0.689	**UCPAN207-22**		UC207-22	
		47.6	110	48	82.6		93	19	41	42.9	17.5	**UCPAN207**		UC207	
	1 7/16											**UCPAN207-23**		UC207-23	

Remarks
1. In Part No. of unit, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. Part No. of the applicable grease fitting is A-1/4-28UNF.
3. As for the triple seal type product (from 201 to 205 are the double seal type products), suffix code L3 (or L2) follows Part No. of unit or bearing. (Example of Part No. : UCPAN206JL3, UC206L3)
4. As for the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
5. Tapered bore (with adapter) type products are also available. (Example of Part No. : UKPAN205J + H2305X, UK205 + H2305X)
6. Housings of nodular graphite cast iron are also available.

NCPA
Cylindrical bore
(with concentric locking collar)
d 20 ~ 50 mm





Variations of tolerance of distance from mounting bottom to center of spherical bore (Δ_{Hs}) and variations of tolerance of distance between centers of bolt holes (Δ_{Js})

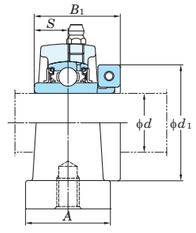
Unit: mm

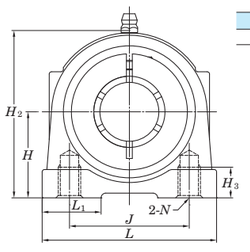
Housing No.	Δ_{Hs}	Δ_{Js}
PA204~PA210	±0.15	±0.5

Shaft Dia. mm / inch d		Dimensions inch / mm H	L	A	J	N	H_2	H_3	L_1	B_1	S	d_1	Unit No.	Housing No.	Bearing No.	Mass kg
20	3/4	1 3/16	3	1 9/16	2 3/64		2 3/8	1/2	1 1/16	1 9/32	0.500	1 3/4	NCPA204-12	PA204	NC204-12	0.73
		30.2	76	40	52	M10×1.5	60	13	27	32.5	12.7	44.5	NCPA204		NC204	
25	7/8												NCPA205-14	PA205	NC205-14	1.0
	15/16	1 7/16	3 5/16	1 25/32	2 13/64		2 25/32	1/2	1 3/16	1 7/16	0.563	1 15/16	NCPA205-15		NC205-15	
		36.5	84	45	56	M10×1.5	71	13	30	36.5	14.3	49.2	NCPA205		NC205	
	1												NCPA205-16		NC205-16	
30	1 1/8												NCPA206-18	PA206	NC206-18	1.4
		1 11/16	3 11/16	1 31/32	2 19/32		3 5/16	23/32	1 13/32	1 19/32	0.626	2 3/16	NCPA206		NC206	
	1 3/16	42.9	94	50	66	M14×2	84	18	36	40.1	15.9	55.6	NCPA206-19		NC206-19	
	1 1/4												NCPA206-20		NC206-20	
35	1 1/4	1 7/8	4 11/32	2 5/32	3 5/32		3 21/32	25/32	1 5/8	1 3/4	0.689	2 7/16	NCPA207-20	PA207	NC207-20	2.0
		47.6	110	55	80	M14×2	93	20	41	44.5	17.5	61.9				
	1 3/8												NCPA207-22	PA207	NC207-22	2.0
		1 7/8	4 11/32	2 5/32	3 5/32		3 21/32	25/32	1 5/8	1 3/4	0.689	2 9/16	NCPA207		NC207	
	1 7/16	47.6	110	55	80	M14×2	93	20	41	44.5	17.5	65.1	NCPA207-23		NC207-23	
40	1 1/2	1 15/16	4 9/16	2 9/32	3 5/16		3 27/32	25/32	1 5/8	2	0.748	2 11/16	NCPA208-24	PA208	NC208-24	2.4
		49.2	116	58	84	M14×2	98	20	41	50.8	19	68.3	NCPA208		NC208	
45	1 5/8	2 9/64	4 23/32	2 3/8	3 35/64		4 3/16	31/32	1 21/32	2	0.748	2 13/16	NCPA209-26	PA209	NC209-26	2.6
		54.2	120	60	90	M14×2	106	25	42	50.8	19	71.4				
	1 11/16												NCPA209-27	PA209	NC209-27	2.6
	1 3/4	2 9/64	4 23/32	2 3/8	3 35/64		4 3/16	31/32	1 21/32	2	0.748	2 15/16	NCPA209-28		NC209-28	
		54.2	120	60	90	M14×2	106	25	42	50.8	19	74.6	NCPA209		NC209	
50	1 15/16												NCPA210-31	PA210	NC210-31	3.4
		2 1/4	5 1/8	2 17/32	3 45/64		4 7/16	31/32	1 27/32	2 3/32	0.748	3 3/8	NCPA210		NC210	
	2	57.2	130	64	94	M16×2	113	25	47	53.1	19	85.7	NCPA210-32		NC210-32	

Remarks 1. In Part No. of unit, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. Part No. of the applicable grease fitting is A-1/4-28UNF.
3. As for the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.

NCPAN
Cylindrical bore
(with concentric locking collar)
d 20 ~ 35 mm





Variations of tolerance of distance from mounting bottom to center of spherical bore (Δ_{Hs}) and variations of tolerance of distance between centers of bolt holes (Δ_{Js})

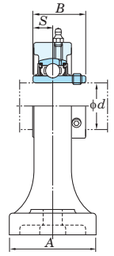
Unit: mm

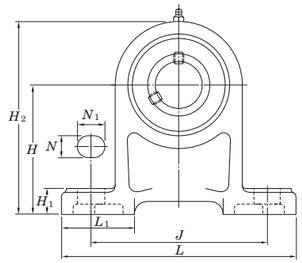
Housing No.	Δ_{Hs}	Δ_{Js}
PAN204~PAN207	±0.15	±0.5

Shaft Dia. mm / inch d		Dimensions inch / mm H	L	A	J	N	H_2	H_3	L_1	B_1	S	d_1	Unit No.	Housing No.	Bearing No.	Mass kg
20	3/4	1 5/16	2 9/16	1 1/4	2	3/8-16UNC	2 17/32	1/2	7/8	1 9/32	0.500	1 3/4	NCPAN204-12	PAN204	NC204-12	0.7
		33.3	65	32	50.8		64	12.7	22	32.5	12.7	44.5	NCPAN204		NC204	
25	7/8												NCPAN205-14	PAN205	NC205-14	0.85
	15/16	1 7/16	2 3/4	1 13/32	2	3/8-16UNC	2 3/4	1/2	29/32	1 7/16	0.563	1 15/16	NCPAN205-15		NC205-15	
		36.5	70	36	50.8		70	13	23	36.5	14.3	49.2	NCPAN205		NC205	
	1												NCPAN205-16		NC205-16	
30	1 1/8												NCPAN206-18	PAN206	NC206-18	1.5
		1 11/16	3 27/32	1 1/2	3	7/16-14UNC	3 7/32	5/8	1 1/4	1 19/32	0.626	2 3/16	NCPAN206		NC206	
	1 3/16	42.9	98	38	76.2		82	16	32	40.1	15.9	55.6	NCPAN206-19		NC206-19	
	1 1/4												NCPAN206-20		NC206-20	
35	1 1/4	1 7/8	4 11/32	1 7/8	3 1/4	1/2-13UNC	3 21/32	3/4	1 5/8	1 3/4	0.689	2 7/16	NCPAN207-20	PAN207	NC207-20	2.1
		47.6	110	48	82.6		93	19	41	44.5	17.5	61.9				
	1 3/8												NCPAN207-22	PAN207	NC207-22	2.1
		1 7/8	4 11/32	1 7/8	3 1/4	1/2-13UNC	3 21/32	3/4	1 5/8	1 3/4	0.689	2 9/16	NCPAN207		NC207	
	1 7/16	47.6	110	48	82.6		93	19	41	44.5	17.5	65.1	NCPAN207-23		NC207-23	

Remarks 1. In Part No. of unit, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. Part No. of the applicable grease fitting is A-1/4-28UNF.
3. As for the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.

UCPH
Cylindrical bore (with set screws)
d 12 ~ 50 mm





Variations of tolerance of distance from mounting bottom to center of spherical bore (Δ_{Hs})

Unit: mm

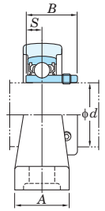
Housing No.	Δ_{Hs}
PH204~PH210	±0.15

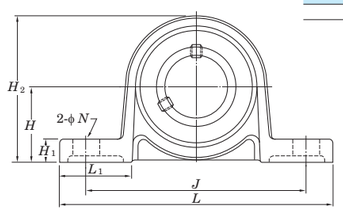
Shaft Dia. mm / inch d	Dimensions inch / mm H	L	A	J	N	N_1	H_1	H_2	L_1	B	S	Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Mass kg
12 1/2													**UCPH201**		UC201	0.96
													UCPH201-8		UC201-8	
15 5/8	2 3/4	5	1 9/16	3 3/4	1/2	3/4	19/32	3 31/32	1 13/16	1.220	0.500	3/8	**UCPH202**		UC202	0.94
	70	127	40	95	13	19	15	101	46	31	12.7	M10	**UCPH202-10**	PH204	UC202-10	
17 3/4													**UCPH203**		UC203	0.93
													UCPH204-12		UC204-12	
20													**UCPH204**		UC204	0.91
25 7/8 15/16 1	3 5/32	5 1/2	1 31/32	4 1/8	1/2	3/4	5/8	4 1/2	1 15/16	1.343	0.563	3/8	**UCPH205-14**		UC205-14	1.2
	80	140	50	105	13	19	16	114	49	34.1	14.3	M10	**UCPH205-15**	PH205	UC205-15	
													UCPH205		UC205	
													UCPH205-16		UC205-16	
30 1 1/8 1 3/16 1 1/4	3 35/64	6 1/2	1 31/32	4 3/4	21/32	13/16	23/32	5 1/8	2 7/32	1.500	0.626	1/2	**UCPH206-18**		UC206-18	1.6
	90	165	50	121	17	21	18	130	56	38.1	15.9	M14	**UCPH206**	PH206	UC206	
													UCPH206-19		UC206-19	
													UCPH206-20		UC206-20	
35 1 1/4 1 5/16 1 3/8 1 7/16	3 47/64	6 9/16	2 3/8	5	21/32	13/16	23/32	5 1/2	2 1/8	1.689	0.689	1/2	**UCPH207-20**		UC207-20	2.0
	95	167	60	127	17	21	18	140	54	42.9	17.5	M14	**UCPH207-21**		UC207-21	
													UCPH207-22	PH207	UC207-22	
													UCPH207		UC207	
													UCPH207-23		UC207-23	
40 1 1/2 1 9/16	3 15/16	7 1/4	2 3/4	5 13/32	21/32	13/16	25/32	5 29/32	2 1/4	1.937	0.748	1/2	**UCPH208-24**		UC208-24	2.7
	100	184	70	137	17	21	20	150	57	49.2	19	M14	**UCPH208-25**	PH208	UC208-25	
													UCPH208		UC208	
45 1 5/8 1 11/16 1 3/4	4 9/64	7 15/32	2 3/4	5 3/4	21/32	13/16	25/32	6 7/32	2 9/32	1.937	0.748	1/2	**UCPH209-26**		UC209-26	3.0
	105	190	70	146	17	21	20	158	58	49.2	19	M14	**UCPH209-27**	PH209	UC209-27	
													UCPH209-28		UC209-28	
													UCPH209		UC209	
50 1 7/8 1 15/16 2	4 21/64	8 1/8	2 3/4	6 1/4	25/32	7/8	7/8	6 1/2	2 9/16	2.031	0.748	5/8	**UCPH210-30**		UC210-30	3.5
	110	206	70	159	20	22	22	165	65	51.6	19	M16	**UCPH210-31**	PH210	UC210-31	
													UCPH210		UC210	
													UCPH210-32		UC210-32	

Remarks
1. In Part No. of unit, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. Part No. of the applicable grease fitting is A-1/4-28UNF.
3. As for the triple seal type product (from 201 to 205 are the double seal type products), suffix code L3 (or L2) follows Part No. of unit or bearing. (Example of Part No. : UCPH206JL3, UC206L3)
4. As for the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
5. Tapered bore (with adapter) type products are also available. (Example of Part No. : UKPH205J + H2305X, UK205 + H2305X)

FYH

UP
Cylindrical bore (with set screws)
d 10 ~ 30 mm





Variations of tolerance of distance from mounting bottom to center of spherical bore (Δ_{Hs}) and variations of tolerance of distance between centers of bolt holes (Δ_{Js})

Unit: mm

Housing No.	Δ_{Hs}	Δ_{Js}
P000~P006	±0.15	±0.3

Shaft Dia. mm d	Dimensions inch / mm H	L	A	J	N	H_1	H_2	L_1	B	S	Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Mass kg
10	45/64	2 5/8	5/8	2 3/32	9/32	1/4	1 3/8	23/32	0.591	0.197	1/4	**UP000**	P000	SU000	0.07
	18	67	16	53	7	6	35	18	15	5	M6				
12	3/4	2 25/32	5/8	2 13/64	9/32	1/4	1 1/2	3/4	0.591	0.197	1/4	**UP001**	P001	SU001	0.07
	19	71	16	56	7	6	38	19	15	5	M6				
15	55/64	3 5/32	5/8	2 31/64	9/32	9/32	1 11/16	13/16	0.650	0.217	1/4	**UP002**	P002	SU002	0.11
	22	80	16	63	7	7	43	21	16.5	5.5	M6				
17	15/16	3 11/32	23/32	2 41/64	9/32	9/32	1 27/32	13/16	0.689	0.236	1/4	**UP003**	P003	SU003	0.15
	24	85	18	67	7	7	47	21	17.5	6	M6				
20	1 7/64	3 15/16	25/32	3 5/32	13/32	11/32	2 5/32	31/32	0.827	0.276	5/16	**UP004**	P004	SU004	0.23
	28	100	20	80	10	9	55	25	21	7	M8				
25	1 17/64	4 13/32	25/32	3 35/64	13/32	13/32	2 7/16	1 3/32	0.866	0.276	5/16	**UP005**	P005	SU005	0.28
	32	112	20	90	10	10	62	28	22	7	M8				
30	1 27/64	5 3/16	1 1/32	4 11/64	1/2	7/16	2 3/4	1 11/32	0.965	0.295	3/8	**UP006**	P006	SU006	0.42
	36	132	26	106	13	11	70	34	24.5	7.5	M10				

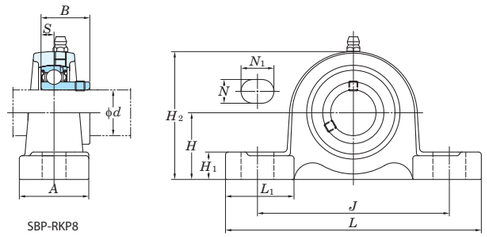
Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.

SBP-RKP8
Cylindrical bore
(with set screws)
d 20 ~ 55 mm

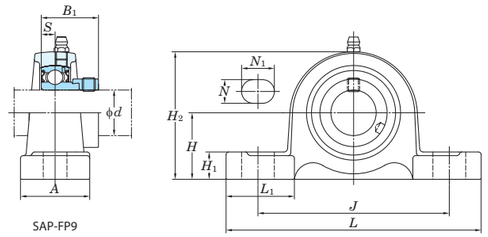
SAP-FP9
Cylindrical bore
(with eccentric locking collar)

SBP-RKP8

SAP-FP9



SBP-RKP8



SAP-FP9

Variations of tolerance of distance from mounting bottom to center of spherical bore (Δ_{Hs})

Unit: mm

Housing No.	Δ_{Hs}
P204~P210	±0.15
P211	±0.2

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm: H	L	A	J	N	N_1	H_1	H_2	L_1	B	B_1	SBP-RKP8 S	SAP-FP9 S	Bolt Size inch / mm	Unit No.	Bearing No.	Unit No.	Bearing No.	Housing No.	Mass kg: SBP-RKP8	Mass kg: SAP-FP9
d																						
20	3/4	1 5/16	5	1 1/2	3 3/4	1/2	23/32	5/8	2 9/16	1 13/32	0.984	1.220	0.276	0.295	3/8	**SBP204-12RKP8**	SB204-12RKP8	**SAP204-12FP9**	SA204-12FP9	P204	0.65	0.69
		33.3	127	38	95	13	18	16	65	36	25	31.0	7	7.5	M10	**SBP204RKP8**	SB204RKP8	**SAP204FP9**	SA204FP9		0.66	0.7
25	7/8															**SBP205-14RKP8**	SB205-14RKP8	**SAP205-14FP9**	SA205-14FP9		0.78	0.82
	15/16	1 7/16	5 1/2	1 1/2	4 1/8	1/2	23/32	5/8	2 3/4	1 1/2	1.063	1.220	0.295	0.295	3/8	**SBP205-15RKP8**	SB205-15RKP8	**SAP205-15FP9**	SA205-15FP9	P205	0.76	0.81
		36.5	140	38	105	13	18	16	70	38	27	31.0	7.5	7.5	M10	**SBP205RKP8**	SB205RKP8	**SAP205FP9**	SA205FP9		0.8	0.85
	1															**SBP205-16RKP8**	SB205-16RKP8	**SAP205-16FP9**	SA205-16FP9		0.8	0.85
30	1 1/8															**SBP206-18RKP8**	SB206-18RKP8	**SAP206-18FP9**	SA206-18FP9		1.24	1.31
		1 11/16	6 1/2	1 7/8	4 3/4	21/32	13/16	21/32	3 5/16	1 7/8	1.181	1.406	0.315	0.354	1/2	**SBP206RKP8**	SB206RKP8	**SAP206FP9**	SA206FP9	P206	1.26	1.33
	1 3/16	42.9	165	48	121	17	21	17	84	48	30	35.7	8	9.0	M14	**SBP206-19RKP8**	SB206-19RKP8	**SAP206-19FP9**	SA206-19FP9		1.26	1.33
	1 1/4															**SBP206-20RKP8**	SB206-20RKP8	**SAP206-20FP9**	SA206-20FP9		1.29	1.36
35	1 1/4															**SBP207-20RKP8**	SB207-20RKP8	**SAP207-20FP9**	SA207-20FP9		1.69	1.76
	1 5/16															–	–	**SAP207-21FP9**	SA207-21FP9		–	1.72
	1 3/8	1 7/8	6 9/16	1 7/8	5	21/32	13/16	23/32	3 3/4	1 27/32	1.260	1.531	0.335	0.374	1/2	**SBP207-22RKP8**	SB207-22RKP8	**SAP207-22FP9**	SA207-22FP9	P207	1.61	1.76
		47.6	167	48	127	17	21	18	95	47	32	38.9	8.5	9.5	M14	**SBP207RKP8**	SB207RKP8	**SAP207FP9**	SA207FP9		1.61	1.76
	1 7/16															**SBP207-23RKP8**	SB207-23RKP8	**SAP207-23FP9**	SA207-23FP9		1.64	1.79
40	1 1/2															**SBP208-24RKP8**	SB208-24RKP8	**SAP208-24FP9**	SA208-24FP9		1.87	2.02
	1 9/16	1 15/16	7 1/4	2 1/8	5 13/32	21/32	13/16	23/32	3 27/32	2 3/32	1.339	1.720	0.354	0.433	1/2	–	–	**SAP208-25FP9**	SA208-25FP9	P208	–	2.06
		49.2	184	54	137	17	21	18	98	53	34	43.7	9	11.0	M14	**SBP208RKP8**	SB208RKP8	**SAP208FP9**	SA208FP9		1.92	2.07
45	1 5/8															–	–	**SAP209-26FP9**	SA209-26FP9		–	2.26
	1 11/16	2 1/8	7 15/32	2 1/8	5 3/4	21/32	13/16	25/32	4 3/16	2 5/32	–	1.720	–	0.433	1/2	–	–	**SAP209-27FP9**	SA209-27FP9	P209	–	2.31
	1 3/4	54	190	54	146	17	21	20	106	55	–	43.7	–	11.0	M14	–	–	**SAP209-28FP9**	SA209-28FP9		–	2.35
																–	–	**SAP209FP9**	SA209FP9		–	2.37
50	1 7/8															–	–	**SAP210-30FP9**	SA210-30FP9		–	2.87
	1 15/16	2 1/4	8 1/8	2 3/8	6 1/4	25/32	7/8	13/16	4 7/16	2 3/8	–	1.720	–	0.433	5/8	–	–	**SAP210-31FP9**	SA210-31FP9	P210	–	2.91
		57.2	206	60	159	20	22	21	113	60	–	43.7	–	11.0	M16	–	–	**SAP210FP9**	SA210FP9		–	2.94
55	2															–	–	**SAP211-32FP9**	SA211-32FP9		–	3.52
	2 1/8	2 1/2	8 5/8	2 3/8	6 23/32	25/32	7/8	29/32	4 29/32	2 9/16	–	1.902	–	0.472	5/8	–	–	**SAP211-34FP9**	SA211-34FP9	P211	–	3.61
		63.5	219	60	171	20	22	23	125	65	–	48.3	–	12.0	M16	–	–	**SAP211FP9**	SA211FP9		–	3.71
	2 3/16															–	–	**SAP211-35FP9**	SA211-35FP9		–	3.74

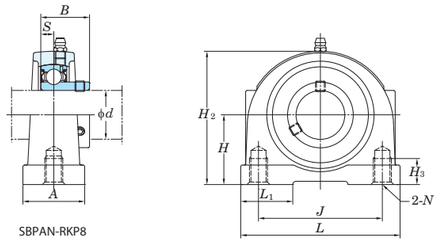
Remarks
1. In Part No. of unit, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 204~210
   A-R1/8..... 211
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
4. Representative examples of the forms of housing are indicated.
5. Housings of nodular graphite cast iron are also available.

SBPAN-RKP8
Cylindrical bore
(with set screws)
d 20 ~ 35 mm

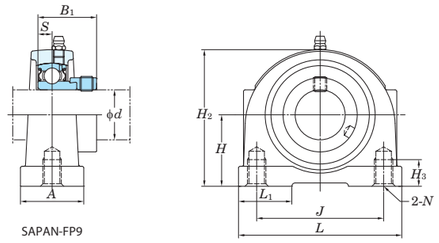
SAPAN-FP9
Cylindrical bore
(with eccentric locking collar)

SBPAN-RKP8

SAPAN-FP9



SBPAN-RKP8



SAPAN-FP9

Variations of tolerance of distance from mounting bottom to center of spherical bore (Δ_{Hs}) and variations of tolerance of distance between centers of bolt holes (Δ_{Js})

Unit: mm

Housing No.	Δ_{Hs}	Δ_{Js}
PAN204~PAN207	±0.15	±0.5

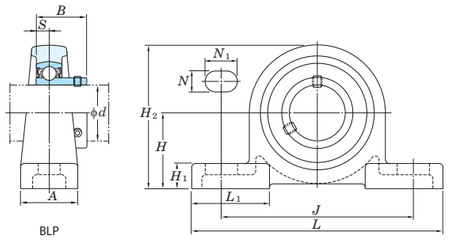
Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm												Unit No.	Bearing No.	Unit No.	Bearing No.	Housing No.	Mass kg	
												SBPAN-RKP8	SAPAN-FP9							
d		H	L	A	J	N	H_2	H_3	L_1	B	B_1	S	S						SBPAN-RKP8	SAPAN-FP9
20	3/4	1 5/16	2 9/16	1 1/4	2	3/8-16UNC	2 17/32	1/2	7/8	0.984	1.220	0.276	0.295	**SBPAN204-12RKP8**	SB204-12RKP8	**SAPAN204-12FP9**	SA204-12FP9	PAN204	0.56	0.56
		33.3	65	32	50.8		64	12.7	22	25	31	7	7.5	**SBPAN204RKP8**	SB204RKP8	**SAPAN204FP9**	SA204FP9		0.56	0.56
25	7/8	1 7/16	2 3/4	1 13/32	2	3/8-16UNC	2 3/4	1/2	29/32	1.063	1.220	0.295	0.295	**SBPAN205-14RKP8**	SB205-14RKP8	**SAPAN205-14FP9**	SA205-14FP9	PAN205	0.63	0.63
	15/16	36.5	70	36	50.8		70	13	23	27	31	7.5	7.5	**SBPAN205RKP8**	SB205RKP8	**SAPAN205FP9**	SA205FP9		0.63	0.63
	1													**SBPAN205-16RKP8**	SB205-16RKP8	**SAPAN205-16FP9**	SA205-16FP9		0.64	0.64
30	1 1/8	1 11/16	3 27/32	1 1/2	3	7/16-14UNC	3 7/32	5/8	1 1/4	1.181	1.406	0.315	0.354	**SBPAN206-18RKP8**	SB206-18RKP8	**SAPAN206-18FP9**	SA206-18FP9	PAN206	1.32	1.32
		42.9	98	38	76.2		82	16	32	30	35.7	8	9	**SBPAN206RKP8**	SB206RKP8	**SAPAN206FP9**	SA206FP9		1.3	1.3
	1 3/16													**SBPAN206-19RKP8**	SB206-19RKP8	**SAPAN206-19FP9**	SA206-19FP9		1.34	1.34
	1 1/4													**SBPAN206-20RKP8**	SB206-20RKP8	**SAPAN206-20FP9**	SA206-20FP9		1.32	1.32
35	1 1/4	1 7/8	4 11/32	1 7/8	3 1/4	1/2-13UNC	3 21/32	3/4	1 5/8	1.260	1.531	0.335	0.374	**SBPAN207-20RKP8**	SB207-20RKP8	**SAPAN207-20FP9**	SA207-20FP9	PAN207	1.78	1.78
	1 5/16													–	–	**SAPAN207-21FP9**	SA207-21FP9		–	1.84
	1 3/8													**SBPAN207-22RKP8**	SB207-22RKP8	**SAPAN207-22FP9**	SA207-22FP9		1.81	1.81
		47.6	110	48	82.6		93	19	41	32	38.9	8.5	9.5	**SBPAN207RKP8**	SB207RKP8	**SAPAN207FP9**	SA207FP9		1.75	1.75
	1 7/16													**SBPAN207-23RKP8**	SB207-23RKP8	**SAPAN207-23FP9**	SA207-23FP9		1.78	1.78

Remarks
1. In Part No. of unit, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. Part No. of the applicable grease fitting is A-1/4-28UNF.
3. As for the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
4. Housings of nodular graphite cast iron are also available.

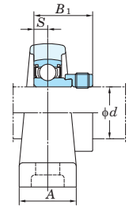
BLP
Cylindrical bore
(with set screws)
d 12 ~ 40 mm

ALP
Cylindrical bore
(with eccentric locking collar)

BLP ALP



BLP



ALP

Variations of tolerance of distance from mounting bottom to center of spherical bore (Δ_{H_0})

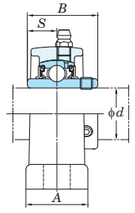
Unit: mm

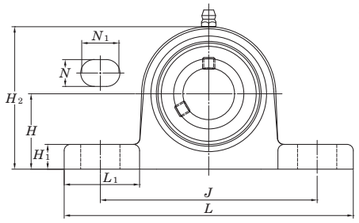
Housing No.	Δ_{H_0}
LP203~LP208	±0.15

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm: H	L	A	J	N	N_1	H_1	H_2	L_1	S	BLP B	ALP B_1	Bolt Size inch / mm	Unit No.	Bearing No.		Unit No.	Bearing No.	Housing No.	Mass kg BLP	Mass kg ALP
12															**BLP201**	SB201		**ALP201**	SA201			
	1/2														**BLP201-8**	SB201-8		**ALP201-8**	SA201-8			
15		1 3/16	4 1/2	31/32	3 7/16	7/16	5/8	15/32	2 1/4	1 3/8	0.236	0.866	1.122	3/8	**BLP202**	SB202		**ALP202**	SA202	LP203	0.36	0.39
	5/8	30.2	114	25	87	11	16	12	57	35	6	22	28.5	M10	**BLP202-10**	SB202-10		**ALP202-10**	SA202-10			
17															**BLP203**	SB203		**ALP203**	SA203			
20	3/4	1 5/16	4 29/32	1 1/16	3 13/16	7/16	5/8	1/2	2 9/16	1 1/2	0.276	0.984	1.161	3/8	**BLP204-12**	SB204-12		**ALP204-12**	SA204-12	LP204	0.51	0.51
		33.3	125	27	97	11	16	13	65	38	7	25	29.5	M10	**BLP204**	SB204		**ALP204**	SA204			
	7/8														**BLP205-14**	SB205-14		**ALP205-14**	SA205-14			
25	15/16	1 7/16	5 1/8	1 5/32	3 15/16	7/16	5/8	1/2	2 25/32	1 17/32	0.295	1.063	1.201	3/8	**BLP205-15**	SB205-15		**ALP205-15**	SA205-15	LP205	0.57	0.61
		36.5	130	29	100	11	16	13	71	39	7.5	27	30.5	M10	**BLP205**	SB205		**ALP205**	SA205			
	1														**BLP205-16**	SB205-16		**ALP205-16**	SA205-16			
	1 1/8														**BLP206-18**	SB206-18		**ALP206-18**	SA206-18			
30		1 11/16	6 5/32	1 5/16	4 23/32	9/16	13/16	9/16	3 9/32	1 27/32	0.315	1.181	1.335	1/2	**BLP206**	SB206		**ALP206**	SA206	LP206	0.69	0.72
	1 3/16	42.9	156	33	120	14	21	14	83	47	8	30	33.9	M12	**BLP206-19**	SB206-19		**ALP206-19**	SA206-19			
	1 1/4														**BLP206-20**	SB206-20		**ALP206-20**	SA206-20			
	1 1/4														**BLP207-20**	SB207-20		**ALP207-20**	SA207-20			
	1 5/16														–	–		**ALP207-21**	SA207-21			
35	1 3/8	1 7/8	6 1/2	1 3/8	5	9/16	13/16	5/8	3 21/32	1 31/32	0.335	1.260	1.437	1/2	**BLP207-22**	SB207-22		**ALP207-22**	SA207-22	LP207	0.94	1.0
		47.6	165	35	127	14	21	16	93	50	8.5	32	36.5	M12	**BLP207**	SB207		**ALP207**	SA207			
	1 7/16														**BLP207-23**	SB207-23		**ALP207-23**	SA207-23			
	1 1/2														**BLP208-24**	SB208-24		**ALP208-24**	SA208-24			
40	1 9/16	2	7 1/4	1 15/32	5 1/2	9/16	7/8	23/32	4 1/32	2 5/32	0.354	1.339	1.595	1/2	–	–		**ALP208-25**	SA208-25	LP208	1.8	1.9
		50.8	184	37	140	14	22	18	102	55	9	34	40.5	M12	**BLP208**	SB208		**ALP208**	SA208			

Remarks 1. In Part No. of unit, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. Allowable load to housing in radial direction is approximately half of basic load rating of bearing, C_r (when safety factor is 4).
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.

UCSP-S6
Cylindrical bore (with set screws)
d 12 ~ 65 mm





Variations of tolerance of distance from mounting bottom to center of spherical bore (Δ_{Hs})

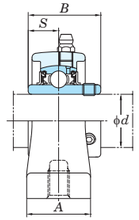
Unit: mm

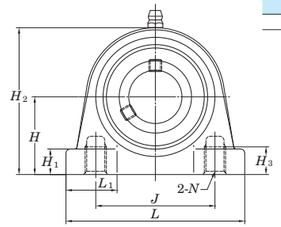
Housing No.	Δ_{Hs}
SP203~SP210	±0.15
SP211~SP213	±0.2

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm: H	L	A	J	N	N1	H1	H2	L1	B	S	Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Mass kg
12														UCSP201XS6		UC201XS6	
	1/2													UCSP201X-8S6		UC201X-8S6	
15		1 3/16	5	1 3/16	3 3/4	1/2	23/32	7/16	2 7/32	1 15/32	1.079	0.453	3/8	UCSP202XS6	SP203	UC202XS6	0.47
		30.2	127	30	95	13	18	11	56	37.5	27.4	11.5		UCSP202X-10S6		UC202X-10S6	
	5/8												M10	UCSP203XS6		UC203XS6	
17																	
20	3/4	1 5/16	5	1 3/16	3 3/4	1/2	23/32	7/16	2 15/32	1 19/64	1.220	0.500	3/8	UCSP204-12S6	SP204	UC204-12S6	0.6
		33.3	127	30	95	13	18	11	63	33	31	12.7	M10	UCSP204S6		UC204S6	
	7/8													UCSP205-14S6		UC205-14S6	
25	15/16	1 7/16	5 1/2	1 3/16	4 1/8	1/2	3/4	15/32	2 23/32	1 7/16	1.343	0.563	3/8	UCSP205-15S6	SP205	UC205-15S6	0.7
		36.5	140	30	105	13	19	12	69	36.5	34.1	14.3	M10	UCSP205S6		UC205S6	
	1													UCSP205-16S6		UC205-16S6	
	1 1/8													UCSP206-18S6		UC206-18S6	
30		1 11/16	6 1/2	1 13/32	4 3/4	21/32	13/16	1/2	3 3/16	1 23/32	1.500	0.626	1/2	UCSP206S6	SP206	UC206S6	1.1
	1 3/16	42.9	165	36	121	17	21	13	81	43.5	38.1	15.9	M14	UCSP206-19S6		UC206-19S6	
	1 1/4													UCSP206-20S6		UC206-20S6	
	1 1/4													UCSP207-20S6		UC207-20S6	
	1 5/16													UCSP207-21S6		UC207-21S6	
35	1 3/8	1 7/8	6 9/16	1 1/2	5	21/32	13/16	9/16	3 19/32	1 17/32	1.689	0.689	1/2	UCSP207-22S6	SP207	UC207-22S6	1.4
		47.6	167	38	127	17	21	14	91	39	42.9	17.5	M14	UCSP207S6		UC207S6	
	1 7/16													UCSP207-23S6		UC207-23S6	
	1 1/2													UCSP208-24S6		UC208-24S6	
40	1 9/16	1 15/16	7 1/4	1 9/16	5 13/32	21/32	13/16	9/16	3 13/16	1 11/16	1.937	0.748	1/2	UCSP208-25S6	SP208	UC208-25S6	1.7
		49.2	184	40	137	17	21	14	97	43	49.2	19	M14	UCSP208S6		UC208S6	
	1 5/8													UCSP209-26S6		UC209-26S6	
45	1 11/16	2 1/8	7 15/32	1 9/16	5 3/4	21/32	13/16	19/32	4 3/32	1 47/64	1.937	0.748	1/2	UCSP209-27S6	SP209	UC209-27S6	2
	1 3/4	54	190	40	146	17	21	15	104	44	49.2	19	M14	UCSP209-28S6		UC209-28S6	
														UCSP209S6		UC209S6	
	1 7/8													UCSP210-30S6		UC210-30S6	
50	1 15/16	2 1/4	8 1/8	1 25/32	6 1/4	25/32	7/8	5/8	4 3/8	1 7/8	2.031	0.748	5/8	UCSP210-31S6	SP210	UC210-31S6	2.5
		57.2	206	45	159	20	22	16	111	48	51.6	19	M16	UCSP210S6		UC210S6	
	2													UCSP210-32S6		UC210-32S6	
	2													UCSP211-32S6		UC211-32S6	
55	2 1/8	2 1/2	8 5/8	1 7/8	6 23/32	25/32	7/8	5/8	4 29/32	1 55/64	2.189	0.874	5/8	UCSP211-34S6	SP211	UC211-34S6	3.4
		63.5	219	48	171	20	22	16	125	47.5	55.6	22.2	M16	UCSP211S6		UC211S6	
	2 3/16													UCSP211-35S6		UC211-35S6	
	2 1/4													UCSP212-36S6		UC212-36S6	
60		2 3/4	9 1/2	2 5/32	7 1/4	25/32	31/32	21/32	5 7/16	2 1/32	2.563	1.000	5/8	UCSP212S6	SP212	UC212S6	4.5
	2 3/8	69.8	241	55	184	20	25	17	138	51.5	65.1	25.4	M16	UCSP212-38S6		UC212-38S6	
	2 7/16													UCSP212-39S6		UC212-39S6	
65	2 1/2	3	10 7/16	2 1/4	8	31/32	1 9/64	13/16	5 29/32	2 9/32	2.563	1.000	5/8	UCSP213-40S6	SP213	UC213-40S6	5.58
		76.2	265	57	203	25	29	21	150	58	65.1	25.4	M16	UCSP213S6		UC213S6	

Remarks
1. In Part No. of unit, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNFN13 ..... 201X~210
   A-R1/8N13 ..... 211~213
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.

UCSPA-S6
Cylindrical bore (with set screws)
d 12 ~ 50 mm





Variations of tolerance of distance from mounting bottom to center of spherical bore (Δ_{Hs}) and variations of tolerance of distance between centers of bolt holes (Δ_{Js})

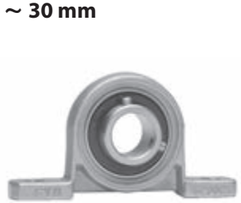
Unit: mm

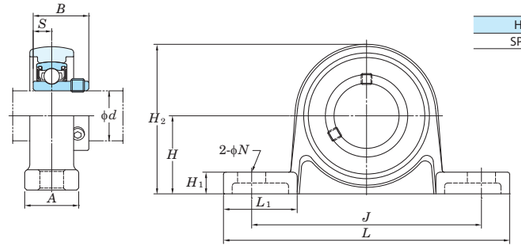
Housing No.	Δ_{Hs}	Δ_{Js}
SPA203~SPA210	±0.15	±0.5

Shaft Dia mm	Shaft Dia inch	Dimensions inch / mm: H	L	A	J	N	H1	H2	H3	L1	B	S	Unit No.	Housing No.	Bearing No.	Mass kg
12													UCSPA201XS6		UC201XS6	
	1/2												UCSPA201X-8S6		UC201X-8S6	
15		1 3/16	3	1 3/16	2 3/64	M10×1.5	13/32	2 1/4	33/64	7/8	1.079	0.453	UCSPA202XS6	SPA203	UC202XS6	0.43
		30.2	76	30	52		10	57	13	22	27.4	11.5	UCSPA202X-10S6		UC202X-10S6	
	5/8												UCSPA203XS6		UC203XS6	
17																
20	3/4	1 3/16	3	1 3/16	2 3/64	M10×1.5	13/32	2 3/8	33/64	7/8	1.220	0.500	UCSPA204-12S6	SPA204	UC204-12S6	0.47
		30.2	76	30	52		10	60	13	22	31	12.7	UCSPA204S6		UC204S6	
	7/8												UCSPA205-14S6		UC205-14S6	
25	15/16	1 7/16	3 5/16	1 3/16	2 13/64	M10×1.5	15/32	2 23/32	33/64	15/16	1.343	0.563	UCSPA205-15S6	SPA205	UC205-15S6	0.63
		36.5	84	30	56		12	69	13	24	34.1	14.3	UCSPA205S6		UC205S6	
	1												UCSPA205-16S6		UC205-16S6	
	1 1/8												UCSPA206-18S6		UC206-18S6	
30		1 11/16	3 11/16	1 13/32	2 19/32	M14×2	15/32	3 3/16	45/64	1 3/32	1.500	0.626	UCSPA206S6	SPA206	UC206S6	0.91
	1 3/16	42.9	94	36	66		12	81	18	28	38.1	15.9	UCSPA206-19S6		UC206-19S6	
	1 1/4												UCSPA206-20S6		UC206-20S6	
	1 1/4												UCSPA207-20S6		UC207-20S6	
	1 5/16												UCSPA207-21S6		UC207-21S6	
35	1 3/8	1 7/8	4 11/32	1 1/2	3 5/32	M14×2	1/2	3 19/32	25/32	1 3/16	1.689	0.689	UCSPA207-22S6	SPA207	UC207-22S6	1.3
		47.6	110	38	80		13	91	20	30	42.9	17.5	UCSPA207S6		UC207S6	
	1 7/16												UCSPA207-23S6		UC207-23S6	
	1 1/2												UCSPA208-24S6		UC208-24S6	
40	1 9/16	1 15/16	4 9/16	1 9/16	3 5/16	M14×2	1/2	3 13/16	25/32	1 1/4	1.937	0.748	UCSPA208-25S6	SPA208	UC208-25S6	1.6
		49.2	116	40	84		13	97	20	32	49.2	19	UCSPA208S6		UC208S6	
	1 5/8												UCSPA209-26S6		UC209-26S6	
45	1 11/16	2 1/8	4 23/32	1 9/16	3 35/64	M14×2	1/2	4 3/32	63/64	1 1/4	1.937	0.748	UCSPA209-27S6	SPA209	UC209-27S6	1.8
	1 3/4	54.2	120	40	90		13	104	25	32	49.2	19	UCSPA209-28S6		UC209-28S6	
													UCSPA209S6		UC209S6	
	1 7/8												UCSPA210-30S6		UC210-30S6	
50	1 15/16	2 1/4	5 1/8	1 25/32	3 45/64	M16×2	9/16	4 3/8	63/64	1 27/64	2.031	0.748	UCSPA210-31S6	SPA210	UC210-31S6	2.2
		57.2	130	45	94		14	111	25	36	51.6	19	UCSPA210S6		UC210S6	
	2												UCSPA210-32S6		UC210-32S6	

Remarks
1. In Part No. of unit, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fitting is A-1/4-28UNFN13.
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.

USP-S6
Cylindrical bore (with set screws)
d 10 ~ 30 mm





Variations of tolerance of distance from mounting bottom to center of spherical bore (Δ_{Hs}) and variations of tolerance of distance between centers of bolt holes (Δ_{Js})

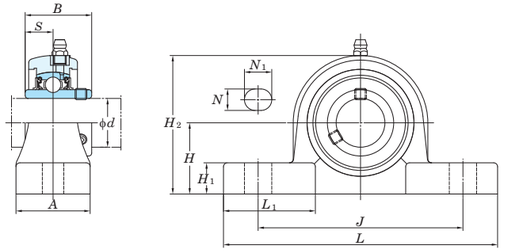
Unit: mm

Housing No.	Δ_{Hs}	Δ_{Js}
SP000~SP006	±0.15	±0.4

Shaft Dia. d	Dimensions H	L	A	J	N	H_1	H_2	L_1	B	S	Bolt Size	Unit No.	Housing No.	Bearing No.	Mass
mm	inch / mm										inch / mm				kg
10	45/64 18	2 5/8 67	5/8 16	2 3/32 53	9/32 7	3/16 5	1 3/8 35	23/32 18	0.591 15	0.197 5	1/4 M6	**USP000S6**	SP000	SU000S6	0.08
12	3/4 19	2 25/32 71	5/8 16	2 7/32 56	9/32 7	3/16 5	1 15/32 37	23/32 18.5	0.591 15	0.197 5	1/4 M6	**USP001S6**	SP001	SU001S6	0.08
15	55/64 22	3 5/32 80	5/8 16	2 15/32 63	9/32 7	1/4 6	1 11/16 42.5	13/16 20.5	0.650 16.5	0.217 5.5	1/4 M6	**USP002S6**	SP002	SU002S6	0.11
17	15/16 24	3 11/32 85	23/32 18	2 5/8 67	9/32 7	1/4 6	1 13/16 46	13/16 21	0.689 17.5	0.236 6	1/4 M6	**USP003S6**	SP003	SU003S6	0.14
20	1 7/64 28	3 15/16 100	25/32 20	3 5/32 80	13/32 10	5/16 8	2 5/32 54.5	31/32 25	0.827 21	0.276 7	5/16 M8	**USP004S6**	SP004	SU004S6	0.23
25	1 17/64 32	4 13/32 112	25/32 20	3 17/32 90	13/32 10	11/32 9	2 13/32 61	1 3/32 27.5	0.866 22	0.276 7	5/16 M8	**USP005S6**	SP005	SU005S6	0.28
30	1 27/64 36	5 3/16 132	1 1/32 26	4 3/16 106	1/2 13	13/32 10	2 23/32 69	1 11/32 34	0.965 24.5	0.295 7.5	3/8 M10	**USP006S6**	SP006	SU006S6	0.43

Remarks 1. In Part No. of unit, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.

UCVP-S6
Cylindrical bore (with set screws)
d 20 ~ 50 mm



Variations of tolerance of distance from mounting bottom to center of spherical bore (Δ_{Hs})

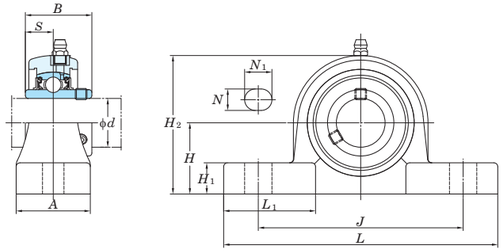
Unit: mm

Housing No.	Δ_{Hs}
VP204~VP210	±0.2

Shaft Dia. d	Dimensions H	L	A	J	N	N_1	H_1	H_2	L_1	B	S	Bolt Size	Unit No.	Housing No.	Bearing No.	Mass
mm / inch	inch / mm											inch / mm				kg
20 3/4	1 5/16 33.3	5 127	1 1/2 38	3 3/4 95	7/16 11	9/16 14	9/16 14	2 19/32 66	1 5/8 41	1.220 31	0.500 12.7	3/8 M10	**UCVP204-12S6** **UCVP204S6**	VP204	UC204-12S6 UC204S6	0.31
25 7/8 15/16 1	1 7/16 36.5	5 9/16 141	1 1/2 38	4 1/8 105	7/16 11	9/16 14	5/8 16	2 25/32 71	1 27/32 47	1.343 34.1	0.563 14.3	3/8 M10	**UCVP205-14S6** **UCVP205-15S6** **UCVP205S6** **UCVP205-16S6**	VP205	UC205-14S6 UC205-15S6 UC205S6 UC205-16S6	0.35
30 1 1/8 1 3/16 1 1/4	1 11/16 42.9	6 13/32 163	1 13/16 46	4 11/16 119	9/16 14	23/32 18	23/32 18	3 5/16 84	2 1/16 52	1.500 38.1	0.626 15.9	1/2 M12	**UCVP206-18S6** **UCVP206S6** **UCVP206-19S6** **UCVP206-20S6**	VP206	UC206-18S6 UC206S6 UC206-19S6 UC206-20S6	0.55
35 1 1/4 1 5/16 1 3/8 1 7/16	1 7/8 47.6	6 5/8 168	1 7/8 48	5 127	9/16 14	23/32 18	23/32 18	3 3/4 95	2 1/16 52	1.689 42.9	0.689 17.5	1/2 M12	**UCVP207-20S6** **UCVP207-21S6** **UCVP207-22S6** **UCVP207S6** **UCVP207-23S6**	VP207	UC207-20S6 UC207-21S6 UC207-22S6 UC207S6 UC207-23S6	0.75
40 1 1/2 1 9/16	1 15/16 49.2	7 1/4 184	2 1/8 54	5 13/32 137	9/16 14	23/32 18	25/32 20	3 31/32 101	2 9/32 58	1.937 49.2	0.748 19	1/2 M12	**UCVP208-24S6** **UCVP208-25S6** **UCVP208S6**	VP208	UC208-24S6 UC208-25S6 UC208S6	0.97
45 1 5/8 1 11/16 1 3/4	2 1/8 54	7 9/16 192	2 1/8 54	5 3/4 146	21/32 17	25/32 20	29/32 23	4 3/16 106	2 9/32 58	1.937 49.2	0.748 19	5/8 M16	**UCVP209-26S6** **UCVP209-27S6** **UCVP209-28S6** **UCVP209S6**	VP209	UC209-26S6 UC209-27S6 UC209-28S6 UC209S6	1.1
50 1 7/8 1 15/16 2	2 1/4 57.2	8 1/8 206	2 3/8 60	6 1/4 159	21/32 17	25/32 20	29/32 23	4 1/2 114	2 15/32 63	2.031 51.6	0.748 19	5/8 M16	**UCVP210-30S6** **UCVP210-31S6** **UCVP210S6** **UCVP210-32S6**	VP210	UC210-30S6 UC210-31S6 UC210S6 UC210-32S6	1.3

Remarks 1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of the applicable grease fitting is A-1/4-28UNFN13.
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.

UCVP-S7
Cylindrical bore (with set screws)
d 20 ~ 50 mm



Variations of tolerance of distance from mounting bottom to center of spherical bore (Δ_{Hs})

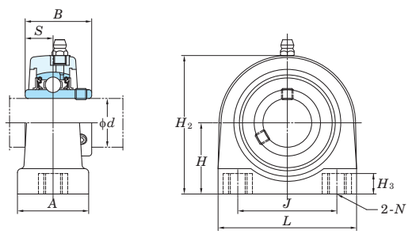
Unit: mm

Housing No.	Δ_{Hs}
VP204~VP210	±0.2

Shaft Dia. mm / inch d		Dimensions inch / mm H	L	A	J	N	N_1	H_1	H_2	L_1	B	S	Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Mass kg
20	3/4	1 5/16	5	1 1/2	3 3/4	7/16	9/16	9/16	2 19/32	1 5/8	1.220	0.500	3/8	**UCVP204-12S7**	VP204	UC204-12S7	0.31
		33.3	127	38	95	11	14	14	66	41	31	12.7	M10	**UCVP204S7**		UC204S7	
25	7/8													**UCVP205-14S7**	VP205	UC205-14S7	0.35
	15/16	1 7/16	5 9/16	1 1/2	4 1/8	7/16	9/16	5/8	2 25/32	1 27/32	1.343	0.563	3/8	**UCVP205-15S7**		UC205-15S7	
		36.5	141	38	105	11	14	16	71	47	34.1	14.3	M10	**UCVP205S7**		UC205S7	
	1													**UCVP205-16S7**		UC205-16S7	
30	1 1/8													**UCVP206-18S7**	VP206	UC206-18S7	0.55
		1 11/16	6 13/32	1 13/16	4 11/16	9/16	23/32	23/32	3 5/16	2 1/16	1.500	0.626	1/2	**UCVP206S7**		UC206S7	
	1 3/16	42.9	163	46	119	14	18	18	84	52	38.1	15.9	M12	**UCVP206-19S7**		UC206-19S7	
	1 1/4													**UCVP206-20S7**		UC206-20S7	
35	1 1/4													**UCVP207-20S7**	VP207	UC207-20S7	0.75
	1 5/16													**UCVP207-21S7**		UC207-21S7	
	1 3/8	1 7/8	6 5/8	1 7/8	5	9/16	23/32	23/32	3 3/4	2 1/16	1.689	0.689	1/2	**UCVP207-22S7**		UC207-22S7	
		47.6	168	48	127	14	18	18	95	52	42.9	17.5	M12	**UCVP207S7**		UC207S7	
	1 7/16													**UCVP207-23S7**		UC207-23S7	
40	1 1/2													**UCVP208-24S7**	VP208	UC208-24S7	0.97
	1 9/16	1 15/16	7 1/4	2 1/8	5 13/32	9/16	23/32	25/32	3 31/32	2 9/32	1.937	0.748	1/2	**UCVP208-25S7**		UC208-25S7	
		49.2	184	54	137	14	18	20	101	58	49.2	19	M12	**UCVP208S7**		UC208S7	
45	1 5/8													**UCVP209-26S7**	VP209	UC209-26S7	1.1
	1 11/16	2 1/8	7 9/16	2 1/8	5 3/4	21/32	25/32	29/32	4 3/16	2 9/32	1.937	0.748	5/8	**UCVP209-27S7**		UC209-27S7	
	1 3/4	54	192	54	146	17	20	23	106	58	49.2	19	M16	**UCVP209-28S7**		UC209-28S7	
														UCVP209S7		UC209S7	
50	1 7/8													**UCVP210-30S7**	VP210	UC210-30S7	1.3
	1 15/16	2 1/4	8 1/8	2 3/8	6 1/4	21/32	25/32	29/32	4 1/2	2 15/32	2.031	0.748	5/8	**UCVP210-31S7**		UC210-31S7	
		57.2	206	60	159	17	20	23	114	63	51.6	19	M16	**UCVP210S7**		UC210S7	
	2													**UCVP210-32S7**		UC210-32S7	

Remarks 1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of the applicable grease fitting is A-1/4-28UNFN13.
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.

UCVPAN-S7
Cylindrical bore (with set screws)
d 20 ~ 35 mm



Variations of tolerance of distance from mounting bottom to center of spherical bore (Δ_{Hs}) and variations of tolerance of distance between centers of bolt holes (Δ_{Js})

Unit: mm

Housing No.	Δ_{Hs}	Δ_{Js}
VPAN204~VPAN207	±0.2	±0.6

Shaft Dia. mm / inch d		Dimensions inch / mm H	L	A	J	N	H_2	H_3	B	S	Unit No.	Housing No.	Bearing No.	Mass kg
20	3/4	1 5/16	2 7/8	1 11/32	2	3/8-16UNC	2 19/32	1/2	1.220	0.500	**UCVPAN204-12S7**	VPAN204	UC204-12S7	0.26
		33.3	73	34.5	50.8		66	13	31	12.7	**UCVPAN204S7**		UC204S7	
25	7/8										**UCVPAN205-14S7**		UC205-14S7	
	15/16	1 7/16	2 25/32	1 7/16	2	3/8-16UNC	2 25/32	1/2	1.343	0.563	**UCVPAN205-15S7**	VPAN205	UC205-15S7	0.36
		36.5	71	36.5	50.8		71	13	34.1	14.3	**UCVPAN205S7**		UC205S7	
	1										**UCVPAN205-16S7**		UC205-16S7	
30	1 1/8										**UCVPAN206-18S7**		UC206-18S7	
		1 11/16	3 31/32	1 11/16	3	7/16-14UNC	3 5/16	5/8	1.500	0.626	**UCVPAN206S7**	VPAN206	UC206S7	0.54
	1 3/16	42.9	101	42.5	76.2		84	16	38.1	15.9	**UCVPAN206-19S7**		UC206-19S7	
	1 1/4										**UCVPAN206-20S7**		UC206-20S7	
35	1 1/4										**UCVPAN207-20S7**		UC207-20S7	
	1 5/16										**UCVPAN207-21S7**		UC207-21S7	
	1 3/8	1 7/8	4 11/32	1 7/8	3 1/4	1/2-13UNC	3 3/4	5/8	1.689	0.689	**UCVPAN207-22S7**	VPAN207	UC207-22S7	0.84
		47.6	110	48	82.6		95	16	42.9	17.5	**UCVPAN207S7**		UC207S7	
	1 7/16										**UCVPAN207-23S7**		UC207-23S7	

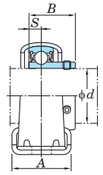
Remarks 1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of the applicable grease fitting is A-1/4-28UNFN13.
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.

SBPP
Cylindrical bore
(with set screws)
d 12 ~ 30 mm

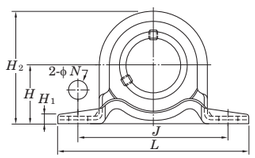
SAPP
Cylindrical bore
(with eccentric locking collar)

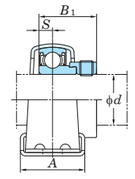
SBPP

SAPP



SBPP





SAPP

Variations of tolerance of distance between centers of bolt holes (Δ_{As}) and variations of tolerance of bolt hole diameter (Δ_{Ns})

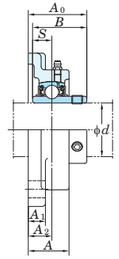
Unit: mm

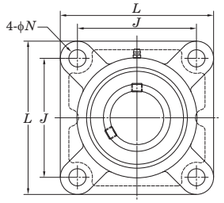
Housing No.	Δ_{As}	Δ_{Ns}
PP203~PP206	±0.4	±0.5

Shaft Dia mm	Shaft Dia inch	Dimensions inch / mm H	L	A	J	N	H_1	H_2	S	SBPP B	SAPP B_1	Bolt Size inch / mm	Unit No.	Bearing No.	Unit No.	Bearing No.	Housing No.	Mass kg SBPP	Mass kg SAPP
12	1/2	7/8 22.2	3 3/8 86	31/32 25	2 43/64 68	3/8 9.5	1/8 3.2	1 23/32 43.8	0.236 6	0.866 22	1.122 28.5	5/16 M8	**SBPP201** **SBPP201-8** **SBPP202** **SBPP202-10** **SBPP203**	SB201 SB201-8 SB202 SB202-10 SB203	**SAPP201** **SAPP201-8** **SAPP202** **SAPP202-10** **SAPP203**	SA201 SA201-8 SA202 SA202-10 SA203	PP203	0.16	0.19
15	5/8																		
17																			
20	3/4	1 25.4	3 27/32 98	1 1/4 32	2 63/64 76	3/8 9.5	1/8 3.2	2 50.5	0.276 7	0.984 25	1.161 29.5	5/16 M8	**SBPP204-12** **SBPP204**	SB204-12 SB204	**SAPP204-12** **SAPP204**	SA204-12 SA204	PP204	0.23	0.23
25	7/8	1 1/8 28.6	4 1/4 108	1 1/4 32	3 25/64 86	29/64 11.5	5/32 4	2 7/32 56.6	0.295 7.5	1.063 27	1.201 30.5	3/8 M10	**SBPP205-14** **SBPP205-15** **SBPP205** **SBPP205-16**	SB205-14 SB205-15 SB205 SB205-16	**SAPP205-14** **SAPP205-15** **SAPP205** **SAPP205-16**	SA205-14 SA205-15 SA205 SA205-16	PP205	0.28	0.32
	15/16																		
	1																		
30	1 1/8	1 5/16 33.3	4 19/32 117	1 1/2 38	3 3/4 95	29/64 11.5	5/32 4	2 5/8 66.3	0.315 8	1.181 30	1.335 33.9	3/8 M10	**SBPP206-18** **SBPP206** **SBPP206-19** **SBPP206-20**	SB206-18 SB206 SB206-19 SB206-20	**SAPP206-18** **SAPP206** **SAPP206-19** **SAPP206-20**	SA206-18 SA206 SA206-19 SA206-20	PP206	0.47	0.50
	1 3/16																		
	1 1/4																		

Remark For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.

UCF
Cylindrical bore (with set screws)
d 12 ~ (75) mm





Shaft Dia. mm	Shaft Dia. inch	Dimensions inch/mm L	A	J	N	A_1	A_2	A_0	B	S	Bolt Size inch/mm	Unit No.	Housing No.	Bearing No.	Mass kg
12	1/2											UCF201	F204	UC201	0.64
												UCF201-8		UC201-8	0.64
15	5/8	3 3/8	1	2 33/64	15/32	7/16	19/32	1 5/16	1.220	0.500	3/8	UCF202		UC202	0.62
		86	25.5	64	12	11	15	33.3	31	12.7	M10	UCF202-10		UC202-10	0.62
17	3/4											UCF203		UC203	0.61
												UCF204-12		UC204-12	0.61
20												UCF204		UC204	0.59
25	7/8											UCF205-14	F205	UC205-14	0.83
	15/16	3 3/4	1 1/16	2 3/4	15/32	1/2	5/8	1 13/32	1.343	0.563	3/8	UCF205-15		UC205-15	0.83
		95	27	70	12	13	16	35.8	34.1	14.3	M10	UCF205		UC205	0.83
	1											UCF205-16		UC205-16	0.83
		4 1/4	1 3/16	3 17/64	15/32	1/2	45/64	1 19/32	1.500	0.626	3/8	UCFX05	FX05	UCX05	1.2
	1	108	30	83	12	13	18	40.2	38.1	15.9	M10	UCFX05-16		UCX05-16	1.2
		4 11/32	1 5/32	3 5/32	5/8	1/2	5/8	1 17/32	1.496	0.591	1/2	UCF305	F305	UC305	1.3
	1	110	29	80	16	13	16	39	38	15	M14	UCF305-16		UC305-16	1.3
30	1 1/8											UCF206-18	F206	UC206-18	1.1
		4 1/4	1 7/32	3 17/64	15/32	1/2	45/64	1 19/32	1.500	0.626	3/8	UCF206		UC206	1.1
	1 3/16	108	31	83	12	13	18	40.2	38.1	15.9	M10	UCF206-19		UC206-19	1.1
	1 1/4											UCF206-20		UC206-20	1.1
		4 19/32	1 11/32	3 5/8	5/8	9/16	3/4	1 3/4	1.689	0.689	1/2	UCFX06	FX06	UCX06	1.6
	1 3/16	117	34	92	16	14	19	44.4	42.9	17.5	M14	UCFX06-19		UCX06-19	1.6
	1 1/4											UCFX06-20		UCX06-20	1.6
	–	4 29/32	1 1/4	3 47/64	5/8	19/32	45/64	1 23/32	1.693	0.669	1/2	UCF306	F306	UC306	1.9
		125	32	95	16	15	18	44	43	17	M14				
35	1 1/4											UCF207-20	F207	UC207-20	1.5
	1 5/16											UCF207-21		UC207-21	1.5
	1 3/8	4 19/32	1 11/32	3 5/8	35/64	19/32	3/4	1 3/4	1.689	0.689	7/16	UCF207-22		UC207-22	1.5
		117	34	92	14	15	19	44.4	42.9	17.5	M12	UCF207		UC207	1.5
	1 7/16											UCF207-23		UC207-23	1.5
	1 3/8											UCFX07-22	FX07	UCX07-22	2.0
		5 1/8	1 1/2	4 1/4	5/8	9/16	53/64	2 1/32	1.937	0.748	1/2	UCFX07		UCX07	2.0
	1 7/16	130	38	102	16	14	21	51.2	49.2	19	M14	UCFX07-23		UCX07-23	2.0
	–	5 5/16	1 13/32	3 15/16	3/4	5/8	25/32	1 15/16	1.890	0.748	5/8	UCF307	F307	UC307	2.3
		135	36	100	19	16	20	49	48	19	M16				
40	1 1/2											UCF208-24	F208	UC208-24	1.9
	1 9/16	5 1/8	1 13/32	4 1/4	5/8	19/32	53/64	2 1/32	1.937	0.748	1/2	UCF208-25		UC208-25	1.9
		130	36	102	16	15	21	51.2	49.2	19	M14	UCF208		UC208	1.9
	1 1/2	5 13/32	1 9/16	4 9/64	3/4	9/16	55/64	2 1/16	1.937	0.748	5/8	UCFX08-24	FX08	UCX08-24	2.4
		137	40	105	19	14	22	52.2	49.2	19	M16	UCFX08		UCX08	2.4
	1 1/2	5 29/32	1 9/16	4 13/32	3/4	21/32	29/32	2 7/32	2.047	0.748	5/8	UCF308-24	F308	UCX08-24	3.1
		150	40	112	19	17	23	56	52	19	M16	UCF308		UC308	3.1
45	1 5/8											UCF209-26	F209	UC209-26	2.2
	1 11/16	5 13/32	1 1/2	4 9/64	5/8	5/8	55/64	2 1/16	1.937	0.748	1/2	UCF209-27		UC209-27	2.2
	1 3/4	137	38	105	16	16	22	52.2	49.2	19	M14	UCF209-28		UC209-28	2.2
												UCF209		UC209	2.2
	1 11/16											UCFX09-27	FX09	UCX09-27	2.7
	1 3/4	5 5/8	1 9/16	4 3/8	3/4	9/16	29/32	2 3/16	2.031	0.748	5/8	UCFX09-28		UCX09-28	2.7
		143	40	111	19	14	23	55.6	51.6	19	M16	UCFX09		UCX09	2.7

Remarks 1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
A-1/4-28UNF..... 201~210, X05~X09, 305~308
A-R1/8..... 211~218, X10~X20, 309~328

Variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s}) and tolerance of position of bolt hole (X)

Unit: mm

Housing No.		Δ_{A2s}	X
F204~F210	FX05~FX10	F305~F310	±0.5	0.7
F211~F218	FX11~FX20	F311~F328	±0.8	1

Variations of tolerance of bolt hole diameter (Δ_{Ns})

Unit: mm

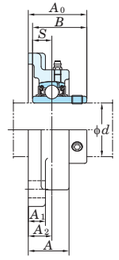
Housing No.			Δ_{Ns}
F204~F218	FX05~FX18	F305~F315	±0.2
	FX20	F316~F328	±0.3

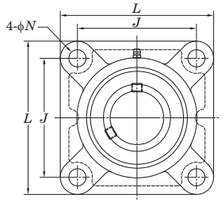
Forms of F204FJE3 and F205FJE3 (housing with cast iron cover) are shown below.

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch/mm L	A	J	N	A_1	A_2	A_0	B	S	Bolt Size inch/mm	Unit No.	Housing No.	Bearing No.	Mass kg
45	1 3/4	6 5/16	1 23/32	4 59/64	3/4	23/32	63/64	2 3/8	2.244	0.866	5/8	UCF309-28	F309	UC309-28	4.0
		160	44	125	19	18	25	60	57	22	M16	UCF309		UC309	4.0
50	1 7/8											UCF210-30	F210	UC210-30	2.5
	1 15/16	5 5/8	1 9/16	4 3/8	5/8	5/8	55/64	2 5/32	2.031	0.748	1/2	UCF210-31		UC210-31	2.5
		143	40	111	16	16	22	54.6	51.6	19	M14	UCF210		UC210	2.5
	2											UCF210-32		UC210-32	2.5
	1 15/16	6 3/8	1 23/32	5 1/8	3/4	25/32	1 1/32	2 11/32	2.189	0.874	5/8	UCFX10-31	FX10	UCX10-31	3.7
		162	44	130	19	20	26	59.4	55.6	22.2	M16	UCFX10		UCX10	3.7
	2											UCFX10-32		UCX10-32	3.7
	–	6 7/8	1 7/8	5 13/64	29/32	3/4	1 7/64	2 5/8	2.402	0.866	3/4	UCF310	F310	UC310	5.1
		175	48	132	23	19	28	67	61	22	M20				
55	2											UCF211-32	F211	UC211-32	3.4
	2 1/8	6 3/8	1 11/16	5 1/8	3/4	23/32	63/64	2 5/16	2.189	0.874	5/8	UCF211-34		UC211-34	3.4
		162	43	130	19	18	25	58.4	55.6	22.2	M16	UCF211		UC211	3.4
	2 3/16											UCF211-35		UC211-35	3.4
	2 3/16	6 7/8	1 15/16	5 5/8	3/4	25/32	1 9/64	2 23/32	2.563	1.000	5/8	UCFX11	FX11	UCX11	4.9
		175	49	143	19	20	29	68.7	65.1	25.4	M16	UCFX11-35		UCX11-35	4.9
	2 1/4											UCFX11-36		UCX11-36	4.9
	2	7 9/32	2 1/16	5 33/64	29/32	25/32	1 3/16	2 25/32	2.598	0.984	3/4	UCF311-32	F311	UC311-32	5.6
		185	52	140	23	20	30	71	66	25	M20	UCF311		UC311	5.6
	2 3/16											UCF311-35		UC311-35	5.6
60	2 1/4											UCF212-36	F212	UC212-36	4.2
		6 7/8	1 7/8	5 5/8	3/4	23/32	1 9/64	2 23/32	2.563	1.000	5/8	UCF212		UC212	4.2
	2 3/8	175	48	143	19	18	29	68.7	65.1	25.4	M16	UCF212-38		UC212-38	4.2
	2 7/16											UCF212-39		UC212-39	4.2
	2 7/16	7 3/8	2 5/16	5 55/64	3/4	13/16	1 11/32	2 29/32	2.563	1.000	5/8	UCFX12	FX12	UCX12	5.7
		187	59	149	19	21	34	73.7	65.1	25.4	M16	UCFX12-39		UCX12-39	5.7
	2 7/16	7 11/16	2 7/32	5 29/32	29/32	7/8	1 19/64	3 1/16	2.795	1.024	3/4	UCF312	F312	UC312	6.9
		195	56	150	23	22	33	78	71	26	M20	UCF312-39		UC312-39	6.9
65	2 1/2	7 3/8	1 31/32	5 55/64	3/4	7/8	1 3/16	2 3/4	2.563	1.000	5/8	UCF213-40	F213	UC213-40	5.2
		187	50	149	19	22	30	69.7	65.1	25.4	M16	UCF213		UC213	5.2
	2 1/2	7 3/8	2 5/16	5 55/64	3/4	13/16	1 11/32	3 3/32	2.937	1.189	5/8	UCFX13-40	FX13	UCX13-40	6.3
		187	59	149	19	21	34	78.4	74.6	30.2	M16	UCFX13		UCX13	6.3
	2 1/2	8 3/16	2 9/32	6 17/32	29/32	7/8	1 19/64	3 1/16	2.953	1.181	3/4	UCF313-40	F313	UC313-40	7.8
		208	58	166	23	22	33	78	75	30	M20	UCF313		UC313	7.8
70	2 3/4	7 19/32	2 1/8	5 63/64	3/4	7/8	1 7/32	2 31/32	2.937	1.189	5/8	UCF214-44	F214	UC214-44	5.9
		193	54	152	19	22	31	75.4	74.6	30.2	M16	UCF214		UC214	5.9
	2 3/4	7 3/4	2 3/8	5 63/64	29/32	7/8	1 29/64	3 7/32	3.063	1.311	3/4	UCFX14-44	FX14	UCX14-44	7.0
		197	60	152	23	22	37	81.5	77.8	33.3	M20	UCFX14		UCX14	7.0
	2 3/4	8 29/32	2 13/32	7 1/64	63/64	31/32	1 27/64	3 3/16	3.071	1.299	7/8	UCF314-44	F314	UC314-44	10.1
		226	61	178	25	25	36	81	78	33	M22	UCF314		UC314	10.1
75	2 15/16	7 7/8	2 7/32	6 17/64	3/4	7/8	1 11/32	3 3/32	3.063	1.311	5/8	UCF215-47	F215	UC215-47	6.4
		200	56	159	19	22	34	78.5	77.8	33.3	M16	UCF215		UC215	6.4
	3											UCF215-48		UC215-48	6.4
	2 15/16	7 3/4	2 11/16	5 63/64	29/32	15/16	1 37/64	3 17/32	3.252	1.311	3/4	UCFX15-47	FX15	UCX15-47	8.4
		197	68	152	23	24	40	89.3	82.6	33.3	M20	UCFX15		UCX15	8.4
	3											UCFX15-48		UCX15-48	8.4

3. As for the triple seal type product (from 201 to 205 are the double seal type products), suffix code L3 (L2) follows the Part No. of unit or bearing.
(Example of Part No. : UCF206JL3, UC206L3)
4. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
5. Housings of nodular graphite cast iron are also available.

UCF
Cylindrical bore (with set screws)
d (75) ~ 140 mm





Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm									Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Mass
d		L	A	J	N	A_1	A_2	A_0	B	S					kg
75	2 15/16	9 9/32	2 19/32	7 1/4	63/64	31/32	1 17/32	3 1/2	3.228	1.260	7/8	**UCF315-47**	F315	UC315-47	11.6
		236	66	184	25	25	39	89	82	32	M22	**UCF315**		UC315	11.6
	3											**UCF315-48**		UC315-48	11.6
80	3 1/8	8 3/16	2 9/32	6 1/2	29/32	7/8	1 11/32	3 9/32	3.252	1.311	3/4	**UCF216-50**	F216	UC216-50	7.3
		208	58	165	23	22	34	83.3	82.6	33.3	M20	**UCF216**		UC216	7.3
	–	8 7/16	2 3/4	6 47/64	29/32	15/16	1 37/64	3 19/32	3.374	1.343	3/4	**UCFX16**	FX16	UCX16	9.4
		214	70	171	23	24	40	91.6	85.7	34.1	M20				
	–	9 27/32	2 11/16	7 23/32	1 7/32	1 1/16	1 1/2	3 17/32	3.386	1.339	1	**UCF316**	F316	UC316	12.8
		250	68	196	31	27	38	90	86	34	M27				
85	3 1/4	8 21/32	2 15/32	6 57/64	29/32	15/16	1 27/64	3 7/16	3.374	1.343	3/4	**UCF217-52**	F217	UC217-52	8.9
		220	63	175	23	24	36	87.6	85.7	34.1	M20	**UCF217**		UC217	8.9
	3 7/16	8 7/16	2 3/4	6 47/64	29/32	15/16	1 37/64	3 25/32	3.780	1.563	3/4	**UCFX17**	FX17	UCX17	10.8
		214	70	171	23	24	40	96.3	96	39.7	M20	**UCFX17-55**		UCX17-55	10.8
	–	10 1/4	2 29/32	8 1/32	1 7/32	1 1/16	1 47/64	3 15/16	3.780	1.575	1	**UCF317**	F317	UC317	15.3
		260	74	204	31	27	44	100	96	40	M27				
90	3 1/2	9 1/4	2 11/16	7 23/64	29/32	31/32	1 37/64	3 25/32	3.780	1.563	3/4	**UCF218-56**	F218	UC218-56	11.4
		235	68	187	23	25	40	96.3	96	39.7	M20	**UCF218**		UC218	11.4
	–	8 7/16	3	6 47/64	29/32	15/16	1 49/64	4 3/16	4.094	1.689	3/4	**UCFX18**	FX18	UCX18	11.9
		214	76	171	23	24	45	106.1	104	42.9	M20				
	3 1/2	11 1/32	3	8 1/2	1 3/8	1 3/16	1 47/64	3 15/16	3.780	1.575	1 1/8	**UCF318-56**	F318	UC318-56	18.9
		280	76	216	35	30	44	100	96	40	M30	**UCF318**		UC318	18.9
95	–	11 13/32	3 11/16	8 31/32	1 3/8	1 3/16	2 21/64	4 3/4	4.055	1.614	1 1/8	**UCF319**	F319	UC319	21.6
		290	94	228	35	30	59	121	103	41	M30				
100	3 15/16	10 9/16	3 13/16	8 5/16	1 7/32	1 3/32	2 21/64	5	4.626	1.937	1	**UCFX20**	FX20	UCX20	19.4
		268	97	211	31	28	59	127.3	117.5	49.2	M27	**UCFX20-63**		UCX20-63	19.4
	4											**UCFX20-64**		UCX20-64	19.4
	3 15/16	12 7/32	3 11/16	9 17/32	1 1/2	1 1/4	2 21/64	4 29/32	4.252	1.654	1 1/4	**UCF320**	F320	UC320	25.8
		310	94	242	38	32	59	125	108	42	M33	**UCF320-63**		UC320-63	25.8
	4											**UCF320-64**		UC320-64	25.8
105	–	12 7/32	3 11/16	9 17/32	1 1/2	1 1/4	2 21/64	5	4.409	1.732	1 1/4	**UCF321**	F321	UC321	30.2
		310	94	242	38	32	59	127	112	44	M33				
110	–	13 3/8	3 25/32	10 15/32	1 39/64	1 3/8	2 23/64	5 5/32	4.606	1.811	1 3/8	**UCF322**	F322	UC322	35.3
		340	96	266	41	35	60	131	117	46	M36				
120	–	14 9/16	4 11/32	11 27/64	1 39/64	1 9/16	2 9/16	5 1/2	4.961	2.008	1 3/8	**UCF324**	F324	UC324	47.3
		370	110	290	41	40	65	140	126	51	M36				
130	–	16 5/32	4 17/32	12 19/32	1 39/64	1 25/32	2 9/16	5 3/4	5.315	2.126	1 3/8	**UCF326**	F326	UC326	65.5
		410	115	320	41	45	65	146	135	54	M36				
140	–	17 23/32	4 29/32	13 25/32	1 39/64	2 5/32	2 61/64	6 11/32	5.709	2.323	1 3/8	**UCF328**	F328	UC328	80.4
		450	125	350	41	55	75	161	145	59	M36				

Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 201~210, X05~X09, 305~308
   A-R1/8..... 211~218, X10~X20, 309~328
3. As for the triple seal type product (from 201 to 205 are the double seal type products), suffix code L3 (L2) follows the Part No. of unit or bearing.
   (Example of Part No. : UCF206JL3, UC206L3)
4. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
5. Housings of nodular graphite cast iron are also available.

Variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s}) and tolerance of position of bolt hole (X)

Unit: mm

Housing No.			Δ_{A2s}	X
F204~F210	FX05~FX10	F305~F310	±0.5	0.7
F211~F218	FX11~FX20	F311~F328	±0.8	1

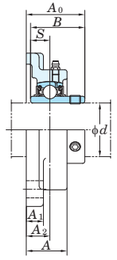
Variations of tolerance of bolt hole diameter (Δ_{Ns})

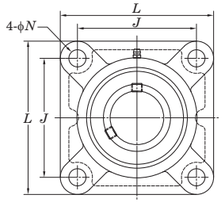
Unit: mm

Housing No.			Δ_{Ns}
F204~F218	FX05~FX18	F305~F315	±0.2
	FX20	F316~F328	±0.3

Forms of F204FJE3 and F205FJE3 (housing with cast iron cover) are shown below.

UCF-E
Cylindrical bore (with set screws)
d 12 ~ 85 mm





Variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s}) and tolerance of position of bolt hole (X)

Unit: mm

Housing No.		Δ_{A2s}	X
F204E~F210	FX05E~FX10E	±0.5	0.7
F211E~F217E	FX11E~FX17E	±0.8	1

Variations of tolerance of bolt hole diameter (Δ_{Ns})

Unit: mm

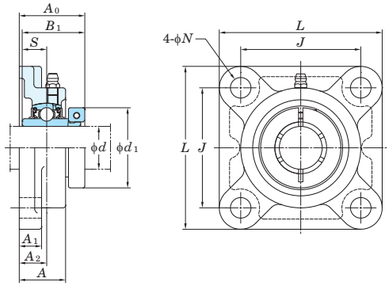
Housing No.		Δ_{Ns}
F204E~F217E	FX05E~FX17E	±0.2

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm L	A	J	N	A_1	A_2	A_0	B	S	Bolt Size inch	Unit No.	Housing No.	Bearing No.	Mass kg
12	1/2										3/8	UCF201E	F204E	UC201	0.64
												UCF201-8E		UC201-8	
15	5/8	3 3/8	1	2 33/64	7/16	7/16	19/32	1 5/16	1.220	0.500		UCF202E		UC202	0.62
		86	25.5	64	11	11	15	33.3	31	12.7		UCF202-10E		UC202-10	
17	3/4											UCF203E		UC203	0.61
												UCF204-12E		UC204-12	
20												UCF204E		UC204	0.59
25	7/8										3/8	UCF205-14E	F205E	UC205-14	0.83
	15/16	3 3/4	1 1/16	2 3/4	29/64	1/2	5/8	1 13/32	1.343	0.563		UCF205-15E		UC205-15	
	1	95	27	70	11.5	13	16	35.8	34.1	14.3		UCF205E		UC205	
												UCF205-16E		UC205-16	
	1	4 1/4	1 3/16	3 17/64	29/64	1/2	45/64	1 19/32	1.500	0.626	3/8	UCFX05E	FX05E	UCX05	1.2
		108	30	83	11.5	13	18	40.2	38.1	15.9		UCFX05-16E		UCX05-16	
30	1 1/8										7/16	UCF206-18E	F206E	UC206-18	1.1
		4 1/4	1 7/32	3 17/64	33/64	1/2	45/64	1 19/32	1.500	0.626		UCF206E		UC206	
	1 3/16	108	31	83	13	13	18	40.2	38.1	15.9		UCF206-19E		UC206-19	
	1 1/4											UCF206-20E		UC206-20	
	1 3/16	4 19/32	1 11/32	3 5/8	33/64	9/16	3/4	1 3/4	1.689	0.689	7/16	UCFX06E	FX06E	UCX06	1.6
		117	34	92	13	14	19	44.4	42.9	17.5		UCFX06-19E		UCX06-19	
	1 1/4											UCFX06-20E		UCX06-20	
35	1 1/4										7/16	UCF207-20E	F207E	UC207-20	1.5
	1 5/16	4 19/32	1 11/32	3 5/8	33/64	19/32	3/4	1 3/4	1.689	0.689		UCF207-21E		UC207-21	
	1 3/8	117	34	92	13	15	19	44.4	42.9	17.5		UCF207-22E		UC207-22	
												UCF207E		UC207	
	1 7/16											UCF207-23E		UC207-23	
	1 3/8	5 1/8	1 1/2	4 1/64	33/64	9/16	53/64	2 1/32	1.937	0.748	7/16	UCFX07-22E	FX07E	UCX07-22	2.0
		130	38	102	13	14	21	51.2	49.2	19		UCFX07E		UCX07	
	1 7/16											UCFX07-23E		UCX07-23	
40	1 1/2	5 1/8	1 13/32	4 1/64	35/64	19/32	53/64	2 1/32	1.937	0.748	1/2	UCF208-24E	F208E	UC208-24	1.9
	1 9/16	130	36	102	14	15	21	51.2	49.2	19		UCF208-25E		UC208-25	
												UCF208E		UC208	
	1 1/2	5 13/32	1 9/16	4 9/64	19/32	9/16	55/64	2 1/16	1.937	0.748	1/2	UCFX08-24E	FX08E	UCX08-24	2.4
		137	40	105	15	14	22	52.2	49.2	19		UCFX08E		UCX08	
45	1 5/8										1/2	UCF209-26	F209[6)]	UC209-26	2.2
	1 11/16	5 13/32	1 1/2	4 9/64	5/8	5/8	55/64	2 1/16	1.937	0.748		UCF209-27		UC209-27	
	1 3/4	137	38	105	16	16	22	52.2	49.2	19		UCF209-28		UC209-28	
												UCF209		UC209	
	1 11/16	5 5/8	1 9/16	4 3/8	19/32	9/16	29/32	2 3/16	2.031	0.748	1/2	UCFX09-27E	FX09E	UCX09-27	2.7
	1 3/4	143	40	111	15	14	23	55.6	51.6	19		UCFX09-28E		UCX09-28	
												UCFX09E		UCX09	
50	1 7/8										1/2	UCF210-30	F210[6)]	UC210-30	2.5
	1 15/16	5 5/8	1 9/16	4 3/8	5/8	5/8	55/64	2 5/32	2.031	0.748		UCF210-31		UC210-31	
	2	143	40	111	16	16	22	54.6	51.6	19		UCF210		UC210	
												UCF210-32		UC210-32	

Remarks
1. In Part No. of unit, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 201~210, X05~X09
   A-R1/8..... 211~217, X10~X17
3. As for the triple seal type product (from 201 to 205 are the double seal type products), suffix code L3 (L2) follows the Part No. of unit or bearing.
   (Example of Part No. : UCF206EJL3, UC206L3)
4. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
5. Housings of nodular graphite cast iron are also available.
6. E-type designations F209E, F210E, F214E, and F215E are not available; these models are identical to the standard F209, F210, F214, and F215.

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm L	A	J	N	A_1	A_2	A_0	B	S	Bolt Size inch	Unit No.	Housing No.	Bearing No.	Mass kg
50	1 15/16	6 3/8	1 23/32	5 1/8	21/32	25/32	1 1/32	2 11/32	2.189	0.874	9/16	UCFX10-31E	FX10E	UCX10-31	3.7
	2	162	44	130	16.5	20	26	59.4	55.6	22.2		UCFX10E		UCX10	
												UCFX10-32E		UCX10-32	
55	2										5/8	UCF211-32E	F211E	UC211-32	3.4
	2 1/8	6 3/8	1 11/16	5 1/8	43/64	23/32	63/64	2 5/16	2.189	0.874		UCF211-34E		UC211-34	
	2 3/16	162	43	130	17	18	25	58.4	55.6	22.2		UCF211E		UC211	
												UCF211-35E		UC211-35	
	2 3/16	6 7/8	1 15/16	5 5/8	21/32	25/32	1 9/64	2 23/32	2.563	1.000	9/16	UCFX11E	FX11E	UCX11	4.9
	2 1/4	175	49	143	16.5	20	29	68.7	65.1	25.4		UCFX11-35E		UCX11-35	
												UCFX11-36E		UCX11-36	
60	2 1/4										5/8	UCF212-36E	F212E	UCX12-36	4.2
		6 7/8	1 7/8	5 5/8	43/64	23/32	1 9/64	2 23/32	2.563	1.000		UCF212E		UCX12	
	2 3/8	175	48	143	17	18	29	68.7	65.1	25.4		UCF212-38E		UCX12-38	
	2 7/16											UCF212-39E		UCX12-39	
	2 7/16	7 3/8	2 5/16	5 55/64	21/32	13/16	1 11/32	2 29/32	2.563	1.000	9/16	UCFX12E	FX12E	UCX12	5.7
		187	59	149	16.5	21	34	73.7	65.1	25.4		UCFX12-39E		UCX12-39	
65	2 1/2	7 3/8	1 31/32	5 55/64	43/64	7/8	1 3/16	2 3/4	2.563	1.000	5/8	UCF213-40E	F213E	UC213-40	5.2
		187	50	149	17	22	30	69.7	65.1	25.4		UCF213E		UC213	
	2 1/2	7 3/8	2 5/16	5 55/64	21/32	13/16	1 11/32	3 3/32	2.937	1.189	9/16	UCFX13-40E	FX13E	UCX13-40	6.3
		187	59	149	16.5	21	34	78.4	74.6	30.2		UCFX13E		UCX13	
70	2 3/4	7 19/32	2 1/8	5 63/64	3/4	7/8	1 7/32	2 31/32	2.937	1.189	5/8	UCF214-44	F214[6)]	UC214-44	5.9
		193	54	152	19	22	31	75.4	74.6	30.2		UCF214		UC214	
	2 3/4	7 3/4	2 3/8	5 63/64	25/32	7/8	1 29/64	3 7/32	3.063	1.331	11/16	UCFX14-44E	FX14E	UCX14-44	7.0
		197	60	152	20	22	37	81.5	77.8	33.3		UCFX14E		UCX14	
75	2 15/16	7 7/8	2 7/32	6 17/64	3/4	7/8	1 11/32	3 3/32	3.063	1.311	5/8	UCF215-47	F215[6)]	UC215-47	6.4
	3	200	56	159	19	22	34	78.5	77.8	33.3		UCF215		UC215	
												UCF215-48		UC215-48	
	2 15/16	7 3/4	2 11/16	5 63/64	25/32	15/16	1 37/64	3 17/32	3.252	1.311	11/16	UCFX15-47E	FX15E	UCX15-47	8.4
	3	197	68	152	20	24	40	89.3	82.6	33.3		UCFX15E		UCX15	
												UCFX15-48E		UCX15-48	
80	3 1/8	8 3/16	2 9/32	6 1/2	3/4	7/8	1 11/32	3 9/32	3.252	1.311	11/16	UCF216-50E	F216E	UC216-50	7.3
		208	58	165	19	22	34	83.3	82.6	33.3		UCF216E		UC216	
	–	8 7/16	2 3/4	6 47/64	25/32	15/16	1 37/64	3 19/32	3.374	1.343	11/16	UCFX16E	FX16E	UCX16	9.4
		214	70	171	20	24	40	91.6	85.7	34.1					
85	3 1/4	8 21/32	2 15/32	6 57/64	3/4	15/16	1 27/64	3 7/16	3.374	1.343	11/16	UCF217-52E	F217E	UC217-52	8.9
		220	63	175	19	24	36	87.6	85.7	34.1		UCF217E		UC217	
	3 7/16	8 7/16	2 3/4	6 47/64	25/32	15/16	1 37/64	3 25/32	3.780	1.563	11/16	UCFX17E	FX17E	UCX17	10.8
		214	70	171	20	24	40	96.3	96	39.7		UCFX17-55E		UCX17-55	

NCF
Cylindrical bore
(with concentric locking collar)
d 20 ~ 60 mm



Variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s}) and tolerance of position of bolt hole (X)

Unit: mm

Housing No.	Δ_{A2s}	X
F204~F210	±0.5	0.7
F211~F212	±0.8	1

Variations of tolerance of bolt hole diameter (Δ_{Ns})

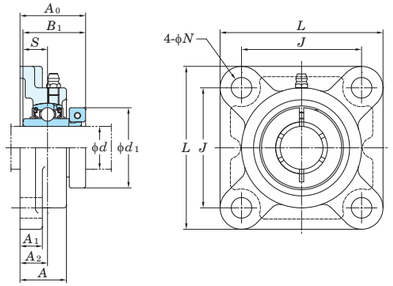
Unit: mm

Housing No.	Δ_{Ns}
F204~F212	±0.2

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm L	A	J	N	A_1	A_2	A_0	B_1	S	d_1	Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Mass kg
20	3/4	3 3/8	1	2 33/64	15/32	7/16	19/32	1 3/8	1 9/32	0.500	1 3/4	3/8	**NCF204-12**	F204	NC204-12	0.73
		86	25.5	64	12	11	15	34.8	32.5	12.7	44.5	M10	**NCF204**		NC204	
25	7/8												**NCF205-14**	F205	NC205-14	1.0
	15/16	3 3/4	1 1/16	2 3/4	15/32	1/2	5/8	1 1/2	1 7/16	0.563	1 15/16	3/8	**NCF205-15**		NC205-15	
		95	27	70	12	13	16	38.2	36.5	14.3	49.2	M10	**NCF205**		NC205	
	1												**NCF205-16**		NC205-16	
30	1 1/8												**NCF206-18**	F206	NC206-18	1.3
		4 1/4	1 7/32	3 17/64	15/32	1/2	45/64	1 21/32	1 19/32	0.626	2 3/16	3/8	**NCF206**		NC206	
	1 3/16	108	31	83	12	13	18	42.2	40.1	15.9	55.6	M10	**NCF206-19**		NC206-19	
	1 1/4												**NCF206-20**		NC206-20	
35	1 1/4	4 19/32	1 11/32	3 5/8	35/64	19/32	3/4	1 13/16	1 3/4	0.689	2 7/16	7/16	**NCF207-20**	F207	NC207-20	1.8
		117	34	92	14	15	19	46	44.5	17.5	61.9	M12				
	1 3/8												**NCF207-22**	F207	NC207-22	1.8
		4 19/32	1 11/32	3 5/8	35/64	19/32	3/4	1 13/16	1 3/4	0.689	2 9/16	7/16	**NCF207**		NC207	
	1 7/16	117	34	92	14	15	19	46	44.5	17.5	65.1	M12	**NCF207-23**		NC207-23	
40	1 1/2	5 1/8	1 13/32	4 1/64	5/8	19/32	53/64	2 3/32	2	0.748	2 11/16	1/2	**NCF208-24**	F208	NC208-24	2.3
		130	36	102	16	15	21	52.8	50.8	19	68.3	M14	**NCF208**		NC208	
45	1 5/8	5 13/32	1 1/2	4 9/64	5/8	5/8	55/64	2 1/8	2	0.748	2 13/16	1/2	**NCF209-26**	F209	NC209-26	2.6
		137	38	105	16	16	22	53.8	50.8	19	71.4	M14				
	1 11/16												**NCF209-27**	F209	NC209-27	2.6
	1 3/4	5 13/32	1 1/2	4 9/64	5/8	5/8	55/64	2 1/8	2	0.748	2 15/16	1/2	**NCF209-28**		NC209-28	
		137	38	105	16	16	22	53.8	50.8	19	74.6	M14	**NCF209**		NC209	
50	1 15/16												**NCF210-31**	F210	NC210-31	3.1
		5 5/8	1 9/16	4 3/8	5/8	5/8	55/64	2 7/32	2 3/32	0.748	3 3/8	1/2	**NCF210**		NC210	
	2	143	40	111	16	16	22	56.1	53.1	19	85.7	M14	**NCF210-32**		NC210-32	
55	2	6 3/8	1 11/16	5 1/8	3/4	23/32	63/64	2 11/32	2 1/4	0.874	3 1/2	5/8	**NCF211-32**	F211	NC211-32	3.8
		162	43	130	19	18	25	59.9	57.1	22.2	88.9	M16				
	2 3/16	6 3/8	1 11/16	5 1/8	3/4	23/32	63/64	2 11/32	2 1/4	0.874	3 5/8	5/8	**NCF211**	F211	NC211	3.8
		162	43	130	19	18	25	59.9	57.1	22.2	92.1	M16	**NCF211-35**		NC211-35	
60	2 1/4	6 7/8	1 7/8	5 5/8	3/4	23/32	1 9/64	2 25/32	2 5/8	1.000	4 1/16	5/8	**NCF212-36**	F212	NC212-36	4.9
		175	48	143	19	18	29	70.4	66.8	25.4	103.2	M16				
	2 7/16	6 7/8	1 7/8	5 5/8	3/4	23/32	1 9/64	2 25/32	2 5/8	1.000	4 1/8	5/8	**NCF212**	F212	NC212	4.9
		175	48	143	19	18	29	70.4	66.8	25.4	104.8	M16	**NCF212-39**		NC212-39	

Remarks
1. In Part No. of unit, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 204~210
   A-R1/8..... 211~212
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
4. Representative examples of the forms of housing are indicated.

NCF-E
Cylindrical bore
(with concentric locking collar)
d 20 ~ 60 mm



Variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s}) and tolerance of position of bolt hole (X)

Unit: mm

Housing No.	Δ_{A2s}	X
F204E~F208E	±0.5	0.7
F211E~F212E	±0.8	1

Variations of tolerance of bolt hole diameter (Δ_{Ns})

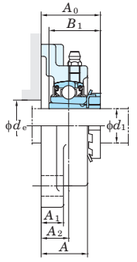
Unit: mm

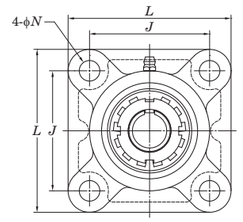
Housing No.	Δ_{Ns}
F204E~F212E	±0.2

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm L	A	J	N	A_1	A_2	A_0	B_1	S	d_1	Bolt Size inch	Unit No.	Housing No.	Bearing No.	Mass kg
20	3/4	3 3/8	1	2 33/64	7/16	7/16	19/32	1 3/8	1 9/32	0.500	1 3/4	3/8	**NCF204-12E**	F204E	NC204-12	0.73
		86	25.5	64	11	11	15	34.8	32.5	12.7	44.5		**NCF204E**		NC204	
25	7/8												**NCF205-14E**	F205E	NC205-14	1.0
	15/16	3 3/4	1 1/16	2 3/4	29/64	1/2	5/8	1 1/2	1 7/16	0.563	1 15/16	3/8	**NCF205-15E**		NC205-15	
		95	27	70	11.5	13	16	38.2	36.5	14.3	49.2		**NCF205E**		NC205	
	1												**NCF205-16E**		NC205-16	
30	1 1/8												**NCF206-18E**	F206E	NC206-18	1.3
		4 1/4	1 7/32	3 17/64	33/64	1/2	45/64	1 21/32	1 19/32	0.626	2 3/16	7/16	**NCF206E**		NC206	
	1 3/16	108	31	83	13	13	18	42.2	40.1	15.9	55.6		**NCF206-19E**		NC206-19	
	1 1/4												**NCF206-20E**		NC206-20	
35	1 1/4	4 19/32	1 11/32	3 5/8	33/64	19/32	3/4	1 13/16	1 3/4	0.689	2 7/16	7/16	**NCF207-20E**	F207E	NC207-20	1.8
		117	34	92	13	15	19	46	44.5	17.5	61.9					
	1 3/8												**NCF207-22E**	F207E	NC207-22	1.8
		4 19/32	1 11/32	3 5/8	33/64	19/32	3/4	1 13/16	1 3/4	0.689	2 9/16	7/16	**NCF207E**		NC207	
	1 7/16	117	34	92	13	15	19	46	44.5	17.5	65.1		**NCF207-23E**		NC207-23	
40	1 1/2	5 1/8	1 13/32	4 1/64	35/64	19/32	53/64	2 3/32	2	0.748	2 11/16	1/2	**NCF208-24E**	F208E	NC208-24	2.3
		130	36	102	14	15	21	52.8	50.8	19	68.3		**NCF208E**		NC208	
45	1 5/8	5 13/32	1 1/2	4 9/64	5/8	5/8	55/64	2 1/8	2	0.748	2 13/16	1/2	**NCF209-26**	F209[5)]	NC209-26	2.6
		137	38	105	16	16	22	53.8	50.8	19	71.4					
	1 11/16												**NCF209-27**	F209[5)]	NC209-27	2.6
	1 3/4	5 13/32	1 1/2	4 9/64	5/8	5/8	55/64	2 1/8	2	0.748	2 15/16	1/2	**NCF209-28**		NC209-28	
		137	38	105	16	16	22	53.8	50.8	19	74.6		**NCF209**		NC209	
50	1 15/16												**NCF210-31**	F210[5)]	NC210-31	3.1
		5 5/8	1 9/16	4 3/8	5/8	5/8	55/64	2 7/32	2 3/32	0.748	3 3/8	1/2	**NCF210**		NC210	
	2	143	40	111	16	16	22	56.1	53.1	19	85.7		**NCF210-32**		NC210-32	
55	2	6 3/8	1 11/16	5 1/8	43/64	23/32	63/64	2 11/32	2 1/4	0.874	3 1/2	5/8	**NCF211-32E**	F211E	NC211-32	3.8
		162	43	130	17	18	25	59.9	57.1	22.2	88.9					
	2 3/16	6 3/8	1 11/16	5 1/8	43/64	23/32	63/64	2 11/32	2 1/4	0.874	3 5/8	5/8	**NCF211E**	F211E	NC211	3.8
		162	43	130	17	18	25	59.9	57.1	22.2	92.1		**NCF211-35E**		NC211-35	
60	2 1/4	6 7/8	1 7/8	5 5/8	43/64	23/32	1 9/64	2 25/32	2 5/8	1.000	4 1/16	5/8	**NCF212-36E**	F212E	NC212-36	4.9
		175	48	143	17	18	29	70.4	66.8	25.4	103.2					
	2 7/16	6 7/8	1 7/8	5 5/8	43/64	23/32	1 9/64	2 25/32	2 5/8	1.000	4 1/8	5/8	**NCF212E**	F212E	NC212	4.9
		175	48	143	17	18	29	70.4	66.8	25.4	104.8		**NCF212-39E**		NC212-39	

Remarks
1. In Part No. of unit, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 204~208
   A-R1/8..... 211~212
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
4. Representative examples of the forms of housing are indicated.
5. E-type designations F209E and F210E are not available; these models are identical to the standard F209 and F210.

UKF
Tapered bore (with adapter)
d_1 20 ~ 125 mm





Variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s}) and tolerance of position of bolt hole (X)

Unit: mm

Housing No.			Δ_{A2s}	X
F205~F210	FX05~FX10	F305~F310	±0.5	0.7
F211~F218	FX11~FX20	F311~F328	±0.8	1

Variations of tolerance of bolt hole diameter (Δ_{Ns})

Unit: mm

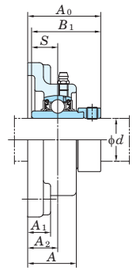
Housing No.			Δ_{Ns}
F205~F218	FX05~FX18	F305~F315	±0.2
	FX20	F316~F328	±0.3

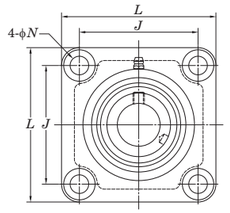
Form of F205FJE3 (housing with cast iron cover) is shown below.

Shaft Dia. mm d_1	Shaft Dia. inch d_1	Dimensions inch / mm L	A	J	N	A_1	A_2	A_0	B_1	d_e (min.)	Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Adapter No.	Mass kg
20	3/4	3 3/4	1 1/16	2 3/4	15/32	1/2	5/8	1 13/32	1 3/8	1 3/16	3/8	UKF205	F205	UK205	HE2305X	0.87
		95	27	70	12	13	16	36	35	30	M10				H2305X	0.87
	3/4	4 1/4	1 3/16	3 17/64	15/32	1/2	45/64	1 9/16	1 3/8	1 3/16	3/8	UKFX05	FX05	UKX05	HE2305X	1.2
		108	30	83	12	13	18	39.5	35	30	M10				H2305X	1.2
	3/4	4 11/32	1 5/32	3 5/32	5/8	1/2	5/8	1 15/32	1 3/8	–	1/2	UKF305	F305	UK305	HE2305X	1.4
		110	29	80	16	13	16	37.5	35	–	M14				H2305X	1.4
25		4 1/4	1 7/32	3 17/64	15/32	1/2	45/64	1 9/16	1 1/2	1 13/32	3/8	UKF206	F206	UK206	H2306X	1.3
	1	108	31	83	12	13	18	39.5	38	36	M10				HE2306X	1.3
		4 19/32	1 11/32	3 5/8	5/8	9/16	3/4	1 21/32	1 1/2	1 13/32	1/2	UKFX06	FX06	UKX06	H2306X	1.6
	1	117	34	92	16	14	19	42	38	36	M14				HE2306X	1.6
		4 29/32	1 1/4	3 47/64	5/8	19/32	45/64	1 5/8	1 1/2	–	1/2	UKF306	F306	UK306	H2306X	1.9
	1	125	32	95	16	15	18	41	38	–	M14				HE2306X	1.9
30	1 1/8	4 19/32	1 11/32	3 5/8	35/64	19/32	3/4	1 11/16	1 11/16	1 5/8	7/16	UKF207	F207	UK207	HS2307X	1.6
		117	34	92	14	15	19	43	43	41	M12				H2307X	1.6
	1 1/8	5 1/8	1 1/2	4 1/64	5/8	9/16	53/64	1 27/32	1 11/16	1 5/8	1/2	UKFX07	FX07	UKX07	HS2307X	2.0
		130	38	102	16	14	21	47	43	41	M14				H2307X	2.0
	1 1/8	5 5/16	1 13/32	3 15/16	3/4	5/8	25/32	1 25/32	1 11/16	–	5/8	UKF307	F307	UK307	HS2307X	2.3
		135	36	100	19	16	20	45.5	43	–	M16				H2307X	2.3
35	1 1/4														HE2308X	1.9
	1 3/8	5 1/8	1 13/32	4 1/64	5/8	19/32	53/64	1 7/8	1 13/16	1 13/16	1/2	UKF208	F208	UK208	HS2308X	1.9
		130	36	102	16	15	21	48	46	46	M14				H2308X	1.9
	1 1/4														HE2308X	2.3
	1 3/8	5 13/32	1 9/16	4 9/64	3/4	9/16	55/64	1 31/32	1 13/16	1 13/16	5/8	UKFX08	FX08	UKX08	HS2308X	2.3
		137	40	105	19	14	22	50	46	46	M16				H2308X	2.3
	1 1/4														HE2308X	3.1
	1 3/8	5 29/32	1 9/16	4 13/32	3/4	21/32	29/32	2	1 13/16	–	5/8	UKF308	F308	UK308	HS2308X	3.1
		150	40	112	19	17	23	50.5	46	–	M16				H2308X	3.1
40	1 1/2	5 13/32	1 1/2	4 9/64	5/8	5/8	55/64	2	1 31/32	2 1/16	1/2	UKF209	F209	UK209	HE2309X	2.3
		137	38	105	16	16	22	51	50	52	M14				H2309X	2.3
	1 1/2	5 5/8	1 9/16	4 3/8	3/4	9/16	29/32	2 1/16	1 31/32	2 1/16	5/8	UKFX09	FX09	UKX09	HE2309X	2.7
		143	40	111	19	14	23	52	50	52	M16				H2309X	2.7
	1 1/2	6 5/16	1 23/32	4 59/64	3/4	23/32	63/64	2 5/32	1 31/32	–	5/8	UKF309	F309	UK309	HE2309X	4.1
		160	44	125	19	18	25	55	50	–	M16				H2309X	4.1
45	1 3/4	5 5/8	1 9/16	4 3/8	5/8	5/8	55/64	2 1/16	2 5/32	2 9/32	1/2	UKF210	F210	UK210	HE2310X	2.6
		143	40	111	16	16	22	52	55	58	M14				H2310X	2.6
	1 3/4	6 3/8	1 23/32	5 1/8	3/4	25/32	1 1/32	2 9/32	2 5/32	2 9/32	5/8	UKFX10	FX10	UKX10	HE2310X	3.6
		162	44	130	19	20	26	58	55	58	M16				H2310X	3.6
	1 3/4	6 7/8	1 7/8	5 13/64	29/32	3/4	1 7/64	2 3/8	2 5/32	–	3/4	UKF310	F310	UK310	HE2310X	5.1
		175	48	132	23	19	28	60	55	–	M20				H2310X	5.1
50	1 7/8														HS2311X	3.5
	2	6 3/8	1 11/16	5 1/8	3/4	23/32	63/64	2 1/4	2 5/16	2 17/32	5/8	UKF211	F211	UK211	H2311X	3.5
		162	43	130	19	18	25	57	59	64	M16				HE2311X	3.5
50	1 7/8	6 7/8	1 15/16	5 5/8	3/4	25/32	1 9/64	2 17/32	2 5/16	2 17/32	5/8	UKFX11	FX11	UKX11	HS2311X	4.6
		175	49	143	19	20	29	64.5	59	64	M16				H2311X	4.6
	2														HE2311X	4.6
50	1 7/8	7 9/32	2 1/16	5 33/64	29/32	25/32	1 3/16	2 1/2	2 5/16	–	3/4	UKF311	F311	UK311	HS2311X	5.9
		185	52	140	23	20	30	63.5	59	–	M20				H2311X	5.9
	2														HE2311X	5.9
55	2 1/8	6 7/8	1 7/8	5 5/8	3/4	23/32	1 9/64	2 19/32	2 7/16	2 23/32	5/8	UKF212	F212	UK212	HS2312X	4.1
		175	48	143	19	18	29	65.5	62	69	M16				H2312X	4.1
	2 1/8	7 3/8	2 5/16	5 55/64	3/4	13/16	1 11/32	2 25/32	2 7/16	2 23/32	5/8	UKFX12	FX12	UKX12	HS2312X	5.5
		187	59	149	19	21	34	70.5	62	69	M16				H2312X	5.5
	2 1/8	7 11/16	2 7/32	5 29/32	29/32	7/8	1 19/64	2 3/4	2 7/16	–	3/4	UKF312	F312	UK312	HS2312X	6.8
		195	56	150	23	22	33	69.5	62	–	M20				H2312X	6.8
60	2 1/4	7 3/8	1 31/32	5 55/64	3/4	7/8	1 3/16	2 21/32	2 9/16	2 29/32	5/8	UKF213	F213	UK213	HE2313X	5.1
		187	50	149	19	22	30	67.5	65	74	M16				H2313X	5.1
	2 3/8														HS2313X	5.1
	2 1/4	7 3/8	2 5/16	5 55/64	3/4	13/16	1 11/32	2 29/32	2 9/16	2 29/32	5/8	UKFX13	FX13	UKX13	HE2313X	6.0
		187	59	149	19	21	34	73.5	65	74	M16				H2313X	6.0
	2 3/8														HS2313X	6.0
	2 1/4	8 3/16	2 9/32	6 17/32	29/32	7/8	1 19/64	2 13/16	2 9/16	–	3/4	UKF313	F313	UK313	HE2313X	7.9
		208	58	166	23	22	33	71.5	65	–	M20				H2313X	7.9
	2 3/8														HS2313X	7.9
65	2 1/2	7 7/8	2 7/32	6 17/64	3/4	7/8	1 11/32	2 15/16	2 7/8	3 11/32	5/8	UKF215	F215	UK215	HE2315X	6.5
		200	56	159	19	22	34	74.5	73	85	M16				H2315X	6.5
	2 1/2	7 3/4	2 11/16	5 63/64	29/32	15/16	1 37/64	3 1/4	2 7/8	3 11/32	3/4	UKFX15	FX15	UKX15	HE2315X	8.1
		197	68	152	23	24	40	82.5	73	85	M20				H2315X	8.1
	2 1/2	9 9/32	2 19/32	7 1/4	63/64	31/32	1 17/32	3 7/32	2 7/8	–	7/8	UKF315	F315	UK315	HE2315X	11.7
		236	66	184	25	25	39	81.5	73	–	M22				H2315X	11.7
70	2 3/4	8 3/16	2 9/32	6 1/2	29/32	7/8	1 11/32	3 3/32	3 1/16	3 17/32	3/4	UKF216	F216	UK216	HE2316X	7.6
		208	58	165	23	22	34	78.5	78	90	M20				H2316X	7.6
	2 3/4	8 7/16	2 3/4	6 47/64	29/32	15/16	1 37/64	3 3/8	3 1/16	3 17/32	3/4	UKFX16	FX16	UKX16	HE2316X	9.5
		214	70	171	23	24	40	85.5	78	90	M20				H2316X	9.5
	2 3/4	9 27/32	2 11/16	7 23/32	1 7/32	1 1/16	1 1/2	3 1/4	3 1/16	–	1	UKF316	F316	UK316	HE2316X	12.9
		250	68	196	31	27	38	82.5	78	–	M27				H2316X	12.9
75	3	8 21/32	2 15/32	6 57/64	29/32	15/16	1 27/64	3 1/4	3 7/32	3 25/32	3/4	UKF217	F217	UK217	H2317X	9.0
		220	63	175	23	24	36	82.5	82	96	M20				HE2317X	9.0
	3	8 7/16	2 3/4	6 47/64	29/32	15/16	1 37/64	3 17/32	3 7/32	3 25/32	3/4	UKFX17	FX17	UKX17	H2317X	10.4
		214	70	171	23	24	40	89.5	82	96	M20				HE2317X	10.4
	3	10 1/4	2 29/32	8 1/32	1 7/32	1 1/16	1 47/64	3 5/8	3 7/32	–	1	UKF317	F317	UK317	H2317X	15.2
		260	74	204	31	27	44	92	82	–	M27				HE2317X	15.2
80	–	9 1/4	2 11/16	7 23/64	29/32	31/32	1 37/64	3 17/32	3 3/8	4 1/32	3/4	UKF218	F218	UK218	H2318X	11.4
		235	68	187	23	25	40	89.5	86	102	M20					
	–	8 7/16	3	6 47/64	29/32	15/16	1 49/64	3 3/4	3 3/8	4 1/32	3/4	UKFX18	FX18	UKX18	H2318X	11.4
		214	76	171	23	24	45	95.5	86	102	M20					
	–	11 1/32	3	8 1/2	1 3/8	1 3/16	1 47/64	3 5/8	3 3/8	–	1 1/8	UKF318	F318	UK318	H2318X	19.0
		280	76	216	35	30	44	92	86	–	M30					
85	3 1/4	11 13/32	3 11/16	8 31/32	1 3/8	1 3/16	2 21/64	4 3/8	3 17/32	–	1 1/8	UKF319	F319	UK319	HE2319X	21.9
		290	94	228	35	30	59	111	90	–	M30				H2319X	21.9
90	3 1/2	10 9/16	3 13/16	8 5/16	1 7/32	1 3/32	2 21/64	4 15/32	3 13/16	4 13/32	1	UKFX20	FX20	UKX20	HE2320X	18.4
		268	97	211	31	28	59	113.5	97	112	M27				H2320X	18.4
	3 1/2	12 7/32	3 11/16	9 17/32	1 1/2	1 1/4	2 21/64	4 7/16	3 13/16	–	1 1/4	UKF320	F320	UK320	HE2320X	25.4
		310	94	242	38	32	59	113	97	–	M33				H2320X	25.4
100	4	13 3/8	3 25/32	10 15/32	1 39/64	1 3/8	2 23/64	4 23/32	4 1/8	–	1 3/8	UKF322	F322	UK322	H2322X	35.2
		340	96	266	41	35	60	120	105	–	M36				HE2322X	35.2
110	–	14 9/16	4 11/32	11 27/64	1 39/64	1 9/16	2 9/16	5 1/8	4 13/32	–	1 3/8	UKF324	F324	UK324	H2324X	47.6
		370	110	290	41	40	65	130.5	112	–	M36					
115	4 1/2	16 5/32	4 17/32	12 19/32	1 39/64	1 25/32	2 9/16	5 3/16	4 3/4	–	1 3/8	UKF326	F326	UK326	HE2326X	65.3
		410	115	320	41	45	65	131.5	121	–	M36				H2326X	65.3
125	–	17 23/32	4 29/32	13 25/32	1 39/64	2 5/32	2 61/64	5 13/16	5 5/32	–	1 3/8	UKF328	F328	UK328	H2328X	74.9
		450	125	350	41	55	75	147.5	131	–	M36					

Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 205~210, X05~X09, 305~308
   A-R1/8..... 211~218, X10~X20, 309~328
3. In Part No. of unit with adapters and bearing with adapters, Part No. of applicable adapter follow the Part No. shown in the dimensional tables.
   (Example of Part No. : UKF206J + H2306X, UK206 + H2306X)
4. As for the triple seal type product (205 is the double seal type product), suffix code L3 (L2) follows the Part No. of unit or bearing.
   (Example of Part No. : UKF206JL3 + H2306X, UK206L3 + H2306X)
5. For the dimensions and forms of applicable bearings and adapters, see the dimensional tables of ball bearing for unit and adapter.
6. Housings of nodular graphite cast iron are also available.

NANF
Cylindrical bore
(with eccentric locking collar)
d 12 ~ 60 mm





Variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s}) and tolerance of position of bolt hole (X)

Unit: mm

Housing No.	Δ_{A2s}	X
NF204~NF210	±0.5	0.7
NF211~NF212	±0.8	1

Variations of tolerance of bolt hole diameter (Δ_{Ns})

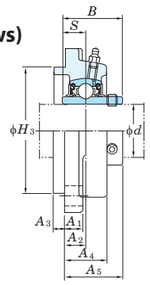
Unit: mm

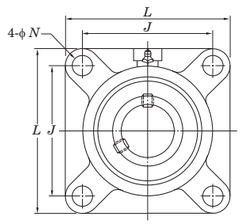
Housing No.	Δ_{Ns}
NF204~NF212	±0.2

Shaft Dia mm	Shaft Dia inch	Dimensions inch / mm L	A	J	N	A_1	A_2	A_0	B_1	S	Bolt Size inch	Unit No.	Housing No.	Bearing No.	Mass kg
12	1/2											NANF201		NA201	
												NANF201-8		NA201-8	
15	5/8	3 3/8	1 5/32	2 33/64	7/16	19/32	3/4	1 25/32	1.720	0.673	3/8	NANF202	NF204	NA202	0.73
		86	29.5	64	11	15	19	45.6	43.7	17.1		NANF202-10		NA202-10	
17												NANF203		NA203	
	3/4											NANF204-12		NA204-12	
20												NANF204		NA204	
25	7/8											NANF205-14		NA205-14	
	15/16	3 3/4	1 7/32	2 3/4	15/32	19/32	25/32	1 27/32	1.748	0.689	7/16	NANF205-15	NF205	NA205-15	0.95
		95	31	70	12	15	20	46.9	44.4	17.5		NANF205		NA205	
	1											NANF205-16		NA205-16	
30	1 1/8											NANF206-18		NA206-18	
		4 1/4	1 11/32	3 17/64	33/64	5/8	53/64	2	1.906	0.720	7/16	NANF206	NF206	NA206	1.4
	1 3/16	108	34	83	13	16	21	51.1	48.4	18.3		NANF206-19		NA206-19	
	1 1/4											NANF206-20		NA206-20	
35	1 1/4											NANF207-20		NA207-20	
	1 5/16											NANF207-21		NA207-21	
	1 3/8	4 19/32	1 7/16	3 5/8	33/64	21/32	27/32	2 1/8	2.012	0.740	7/16	NANF207-22	NF207	NA207-22	1.8
		117	36.5	92	13	17	21.5	53.8	51.1	18.8		NANF207		NA207	
	1 7/16											NANF207-23		NA207-23	
40	1 1/2											NANF208-24		NA208-24	
	1 9/16	5 1/8	1 17/32	4 1/64	35/64	21/32	15/16	2 5/16	2.217	0.843	1/2	NANF208-25	NF208	NA208-25	2.2
		130	39	102	14	17	24	58.9	56.3	21.4		NANF208		NA208	
45	1 5/8											NANF209-26		NA209-26	
	1 11/16	5 13/32	1 9/16	4 9/64	5/8	23/32	15/16	2 5/16	2.217	0.843	9/16	NANF209-27	NF209	NA209-27	2.6
	1 3/4	137	40	105	16	18	24	58.9	56.3	21.4		NANF209-28		NA209-28	
												NANF209		NA209	
50	1 7/8											NANF210-30		NA210-30	
	1 15/16	5 5/8	1 27/32	4 3/8	43/64	25/32	1 1/8	2 5/8	2.469	0.969	5/8	NANF210-31	NF210	NA210-31	3.0
		143	46.5	111	17	20	28.5	66.6	62.7	24.6		NANF210		NA210	
	2											NANF210-32		NA210-32	
55	2											NANF211-32		NA211-32	
	2 1/8	6 3/8	1 31/32	5 1/8	43/64	13/16	1 17/64	2 31/32	2.811	1.094	5/8	NANF211-34	NF211	NA211-34	4.1
		162	50	130	17	21	32	75.6	71.4	27.8		NANF211		NA211	
	2 3/16											NANF211-35		NA211-35	
60	2 1/4											NANF212-36		NA212-36	
		6 7/8	2 5/32	5 5/8	43/64	13/16	1 27/64	3 1/4	3.063	1.220	5/8	NANF212	NF212	NA212	4.9
	2 3/8	175	55	143	17	21	36	82.8	77.8	31		NANF212-38		NA212-38	
	2 7/16											NANF212-39		NA212-39	

Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 201~210
   A-R1/8..... 211~212
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
4. Housings of nodular graphite cast iron are also available.

UCFS
Cylindrical bore (with set screws)
d 25 ~ 140 mm





Variations of tolerance of spigot joint outside diameter (Δ_{H3a}), variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2a}), tolerance of position of bolt hole (X), and tolerance of circumferential runout of spigot joint (Y)

Unit: mm

Housing No.	Δ_{H3a}	Δ_{A2a}	X	Y
FS305	0 −0.046	±0.5	0.7	0.2
FS306~FS308	0 −0.054			
FS309~FS310	0 −0.063	±0.8	1	0.3
FS311~FS313				~FS318
FS314~FS319	0 −0.072			FS319~
FS320~FS322	0 −0.081			0.4
FS324~FS328	0 −0.089			

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm L	H_3	J	N	A_1	A_2	A_3	A_4	A_5	B	S	Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Mass kg
25		4 11/32	3.1496	3 5/32	5/8	1/2	23/64	9/32	7/8	1 1/4	1.496	0.591	1/2	**UCFS305**	FS305	UC305	1.4
	1	110	80	80	16	13	9	7	22	32	38	15	M14	**UCFS305-16**		UC305-16	1.4
30		4 29/32	3.5433	3 47/64	5/8	19/32	25/64	5/16	15/16	1 13/32	1.693	0.669	1/2	**UCFS306**	FS306	UC306	1.9
	–	125	90	95	16	15	10	8	24	36	43	17	M14				
35		5 5/16	3.9370	3 15/16	3/4	5/8	7/16	23/64	1 1/16	1 9/16	1.890	0.748	5/8	**UCFS307**	FS307	UC307	2.3
	–	135	100	100	19	16	11	9	27	40	48	19	M16				
40		5 29/32	4.5276	4 13/32	3/4	21/32	33/64	25/64	1 3/16	1 13/16	2.047	0.748	5/8	**UCFS308-24**	FS308	UC308-24	3.4
	1 1/2	150	115	112	19	17	13	10	30	46	52	19	M16	**UCFS308**		UC308	3.4
45		6 5/16	4.9213	4 59/64	3/4	23/32	35/64	7/16	1 5/16	1 15/16	2.244	0.866	5/8	**UCFS309-28**	FS309	UC309-28	4.4
	1 3/4	160	125	125	19	18	14	11	33	49	57	22	M16	**UCFS309**		UC309	4.4
50		6 7/8	5.5118	5 13/64	29/32	3/4	5/8	15/32	1 13/32	2 5/32	2.402	0.866	3/4	**UCFS310**	FS310	UC310	5.3
	–	175	140	132	23	19	16	12	36	55	61	22	M20				
55		7 9/32	5.9055	5 33/64	29/32	25/32	43/64	33/64	1 17/32	2 9/32	2.598	0.984	3/4	**UCFS311-32**	FS311	UC311-32	6.1
	2	185	150	140	23	20	17	13	39	58	66	25	M20	**UCFS311**		UC311	6.1
	2 3/16													**UCFS311-35**		UC311-35	6.1
60		7 11/16	6.2992	5 29/32	29/32	7/8	3/4	35/64	1 21/32	2 17/32	2.795	1.024	3/4	**UCFS312**	FS312	UC312	7.4
	2 7/16	195	160	150	23	22	19	14	42	64	71	26	M20	**UCFS312-39**		UC312-39	7.4
65	2 1/2	8 3/16	6.8898	6 17/32	29/32	7/8	19/32	45/64	1 9/16	2 3/8	2.953	1.181	3/4	**UCFS313-40**	FS313	UC313-40	8.8
		208	175	166	23	22	15	18	40	60	75	30	M20	**UCFS313**		UC313	8.8
70	2 3/4	8 29/32	7.2835	7 1/64	63/64	31/32	45/64	45/64	1 11/16	2 15/32	3.071	1.299	7/8	**UCFS314-44**	FS314	UC314-44	11.2
		226	185	178	25	25	18	18	43	63	78	33	M22	**UCFS314**		UC314	11.2
75	2 15/16	9 9/32	7.8740	7 1/4	63/64	31/32	53/64	45/64	1 7/8	2 25/32	3.228	1.260	7/8	**UCFS315-47**	FS315	UC315-47	13.7
	3	236	200	184	25	25	21	18	48	71	82	32	M22	**UCFS315**		UC315	13.7
														UCFS315-48		UC315-48	13.7
80		9 27/32	8.2677	7 23/32	1 7/32	1 1/16	45/64	25/32	1 7/8	2 3/4	3.386	1.339	1	**UCFS316**	FS316	UC316	15.1
	–	250	210	196	31	27	18	20	48	70	86	34	M27				
85		10 1/4	8.6614	8 1/32	1 7/32	1 1/16	15/16	25/32	2 1/8	3 5/32	3.780	1.575	1	**UCFS317**	FS317	UC317	17.3
	–	260	220	204	31	27	24	20	54	80	96	40	M27				
90	3 1/2	11 1/32	9.4488	8 1/2	1 3/8	1 3/16	15/16	25/32	2 7/32	3 5/32	3.780	1.575	1 1/8	**UCFS318-56**	FS318	UC318-56	21.3
		280	240	216	35	30	24	20	56	80	96	40	M30	**UCFS318**		UC318	21.3
95	–	11 13/32	9.8425	8 31/32	1 3/8	1 3/16	1 17/32	25/32	2 29/32	3 31/32	4.055	1.614	1 1/8	**UCFS319**	FS319	UC319	24.5
		290	250	228	35	30	39	20	74	101	103	41	M30				
100	3 15/16	12 7/32	10.2362	9 17/32	1 1/2	1 1/4	1 17/32	25/32	2 29/32	4 1/8	4.252	1.654	1 1/4	**UCFS320**	FS320	UC320	29.5
	4	310	260	242	38	32	39	20	74	105	108	42	M33	**UCFS320-63**		UC320-63	29.5
														UCFS320-64		UC320-64	29.5
105	–	12 7/32	10.2362	9 17/32	1 1/2	1 1/4	1 17/32	25/32	2 29/32	4 7/32	4.409	1.732	1 1/4	**UCFS321**	FS321	UC321	32.7
		310	260	242	38	32	39	20	74	107	112	44	M33				
110	–	13 3/8	11.8110	10 15/32	1 39/64	1 3/8	1 3/8	63/64	2 25/32	4 3/16	4.606	1.811	1 3/8	**UCFS322**	FS322	UC322	39.0
		340	300	266	41	35	35	25	71	106	117	46	M36				
120	–	14 9/16	12.9921	11 27/64	1 39/64	1 9/16	1 3/8	1 3/16	3 5/32	4 11/32	4.961	2.008	1 3/8	**UCFS324**	FS324	UC324	50.6
		370	330	290	41	40	35	30	80	110	126	51	M36				
130	–	16 5/32	14.1732	12 19/32	1 39/64	1 25/32	1 3/8	1 3/16	3 11/32	4 9/16	5.315	2.126	1 3/8	**UCFS326**	FS326	UC326	67.7
		410	360	320	41	45	35	30	85	116	135	54	M36				
140	–	17 23/32	15.7480	13 25/32	1 39/64	2 5/32	1 49/64	1 3/16	3 3/4	5 5/32	5.709	2.323	1 3/8	**UCFS328**	FS328	UC328	94.0
		450	400	350	41	55	45	30	95	131	145	59	M36				

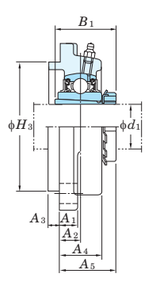
Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 305~308
   A-R1/8..... 309~328
3. As for the triple seal type product, suffix code L3 follows the Part No. of unit or bearing.
   (Example of Part No. : UCFS307JL3, UC307L3)
4. The dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
5. Housings of nodular graphite cast iron are also available.

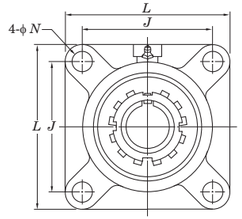
Variations of tolerance of bolt hole diameter (Δ_{Ns})

Unit: mm

Housing No.	Δ_{Ns}
FS305~315	±0.2
FS316~328	±0.3

UKFS
Tapered bore (with adapter)
d_1 20 ~ 125 mm





Variations of tolerance of spigot joint outside diameter (Δ_{H3a}), variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2a}), tolerance of position of bolt hole (X), and tolerance of circumferential runout of spigot joint (Y)

Unit: mm

Housing No.	Δ_{H3a}	Δ_{A2a}	X	Y
FS305	0 −0.046	±0.5	0.7	0.2
FS306~FS308	0 −0.054			
FS309~FS310	0 −0.063	±0.8	1	0.3
FS311~FS313				~FS318
FS315~FS319	0 −0.072			FS319~
FS320~FS322	0 −0.081			0.4
FS324~FS328	0 −0.089			

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm L	H_3	J	N	A_1	A_2	A_3	A_4	A_5	B_1	Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Adapter No.	Mass kg
20	3/4	4 11/32	3.1496	3 5/32	5/8	1/2	23/64	9/32	7/8	1 3/16	1 3/8	1/2	**UKFS305**	FS305	UK305	HE2305X	1.4
		110	80	80	16	13	9	7	22	30.5	35	M14				H2305X	1.4
25	1	4 29/32	3.5433	3 47/64	5/8	19/32	25/64	5/16	15/16	1 5/16	1 1/2	1/2	**UKFS306**	FS306	UK306	H2306X	1.9
		125	90	95	16	15	10	8	24	33	38	M14				H2306X	1.9
30	1 1/8	5 5/16	3.9370	3 15/16	3/4	5/8	7/16	23/64	1 1/16	1 7/16	1 11/16	5/8	**UKFS307**	FS307	UK307	HS2307X	2.4
		135	100	100	19	16	11	9	27	36.5	43	M16				H2307X	2.4
35	1 1/4 1 3/8	5 29/32	4.5276	4 13/32	3/4	21/32	33/64	25/64	1 3/16	1 19/32	1 13/16	5/8	**UKFS308**	FS308	UK308	HE2308X	3.4
		150	115	112	19	17	13	10	30	40.5	46	M16				HS2308X	3.4
																H2308X	3.4
40	1 1/2	6 5/16	4.9213	4 59/64	3/4	23/32	35/64	7/16	1 5/16	1 23/32	1 31/32	5/8	**UKFS309**	FS309	UK309	HE2309X	4.4
		160	125	125	19	18	14	11	33	44	50	M16				H2309X	4.4
45	1 3/4	6 7/8	5.5118	5 13/64	29/32	3/4	5/8	15/32	1 13/32	1 7/8	2 5/32	3/4	**UKFS310**	FS310	UK310	HE2310X	5.3
		175	140	132	23	19	16	12	36	48	55	M20				H2310X	5.3
50	1 7/8 2	7 9/32	5.9055	5 33/64	29/32	25/32	43/64	33/64	1 17/32	2	2 5/16	3/4	**UKFS311**	FS311	UK311	HS2311X	6.3
		185	150	140	23	20	17	13	39	50.5	59	M20				H2311X	6.3
																HE2311X	6.3
55	2 1/8	7 11/16	6.2992	5 29/32	29/32	7/8	3/4	35/64	1 21/32	2 3/16	2 7/16	3/4	**UKFS312**	FS312	UK312	HS2312X	7.3
		195	160	150	23	22	19	14	42	55.5	62	M20				H2312X	7.3
60	2 1/4 2 3/8	8 3/16	6.8898	6 17/32	29/32	7/8	19/32	45/64	1 9/16	2 3/32	2 9/16	3/4	**UKFS313**	FS313	UK313	HE2313X	8.9
		208	175	166	23	22	15	18	40	53.5	65	M20				H2313X	8.9
																HS2313X	8.9
65	2 1/2	9 9/32	7.8740	7 1/4	63/64	31/32	53/64	45/64	1 7/8	2 1/2	2 7/8	7/8	**UKFS315**	FS315	UK315	HE2315X	13.4
		236	200	184	25	25	21	18	48	63.5	73	M22				H2315X	13.4
70	2 3/4	9 27/32	8.2677	7 23/32	1 7/32	1 1/16	45/64	25/32	1 7/8	2 15/32	3 1/16	1	**UKFS316**	FS316	UK316	HE2316X	15.1
		250	210	196	31	27	18	20	48	62.5	78	M27				H2316X	15.1
75	3	10 1/4	8.6614	8 1/32	1 7/32	1 1/16	15/16	25/32	2 1/8	2 27/32	3 7/32	1	**UKFS317**	FS317	UK317	H2317X	17.1
		260	220	204	31	27	24	20	54	72	82	M27				HE2317X	17.1
80	–	11 1/32	9.4488	8 1/2	1 3/8	1 3/16	15/16	25/32	2 7/32	2 27/32	3 3/8	1 1/8	**UKFS318**	FS318	UK318	H2318X	21.4
		280	240	216	35	30	24	20	56	72	86	M30					
85	3 1/4	11 13/32	9.8425	8 31/32	1 3/8	1 3/16	1 17/32	25/32	2 29/32	3 19/32	3 17/32	1 1/8	**UKFS319**	FS319	UK319	HE2319X	24.8
		290	250	228	35	30	39	20	74	91	90	M30				H2319X	24.8
90	3 1/2	12 7/32	10.2362	9 17/32	1 1/2	1 1/4	1 17/32	25/32	2 29/32	3 21/32	3 13/16	1 1/4	**UKFS320**	FS320	UK320	HE2320X	29.1
		310	260	242	38	32	39	20	74	93	97	M33				H2320X	29.1
100	4	13 3/8	11.8110	10 15/32	1 39/64	1 3/8	1 3/8	63/64	2 25/32	3 3/4	4 1/8	1 3/8	**UKFS322**	FS322	UK322	H2322X	38.6
		340	300	266	41	35	35	25	71	95	105	M36				HE2322X	38.6
110	–	14 9/16	12.9921	11 27/64	1 39/64	1 9/16	1 3/8	1 3/16	3 5/32	3 31/32	4 13/32	1 3/8	**UKFS324**	FS324	UK324	H2324X	50.9
		370	330	290	41	40	35	30	80	100.5	112	M36					
115	4 1/2	16 5/32	14.1732	12 19/32	1 39/64	1 25/32	1 3/8	1 3/16	3 11/32	4	4 3/4	1 3/8	**UKFS326**	FS326	UK326	HE2326X	67.5
		410	360	320	41	45	35	30	85	101.5	121	M36				H2326X	67.5
125	–	17 23/32	15.7480	13 25/32	1 39/64	2 5/32	1 49/64	1 3/16	3 3/4	4 5/8	5 5/32	1 3/8	**UKFS328**	FS328	UK328	H2328X	94.0
		450	400	350	41	55	45	30	95	117.5	131	M36					

Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 305~308
   A-R1/8..... 309~328
3. In Part No. of unit with adapters and bearing with adapters, Part No. of applicable adapter follow the Part No. shown in the dimensional tables. (Example of Part No. : UKFS307J + H2307X, UK307 + H2307X)
4. As for the triple seal type product, suffix code L3 follows the Part No. of unit or bearing.
   (Example of Part No. : UKFS307JL3 + H2307X, UK307L3 + H2307X)
5. For the dimensions and forms of applicable bearings and adapters, see the dimensional tables of ball bearing for unit and adapter.
6. Housings of nodular graphite cast iron are also available.

Variations of tolerance of bolt hole diameter (Δ_{Ns})

Unit: mm

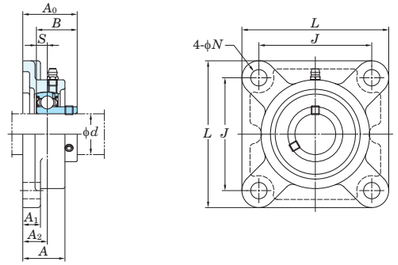
Housing No.	Δ_{Ns}
FS305~315	±0.2
FS316~328	±0.3

SBF-RKP8
Cylindrical bore
(with set screws)
d 20 ~ 55 mm

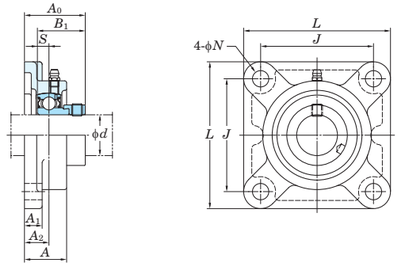
SAF-FP9
Cylindrical bore
(with eccentric locking collar)

SBF-RKP8

SAF-FP9



SBF-RKP8



SAF-FP9

Variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s}) and tolerance of position of bolt hole (X)

Unit: mm

Housing No.	Δ_{A2s}	X
F204~F210	±0.5	0.7
F211	±0.8	1

Variations of tolerance of bolt hole diameter (Δ_{Ns})

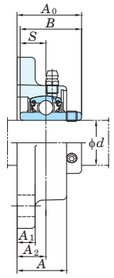
Unit: mm

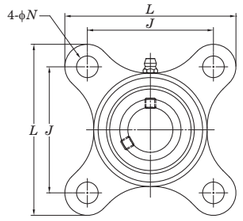
Housing No.	Δ_{Ns}
F204~F211	±0.2

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm: L	A	J	N	A_1	A_2	SBF-RKP8 A_0	SAF-FP9 A_0	B	B_1	SBF-RKP8 S	SAF-FP9 S	Bolt Size inch / mm	Unit No.	Bearing No.	Unit No.	Bearing No.	Housing No.	Mass kg: SBF-RKP8	Mass kg: SAF-FP9
d																					
20	3/4	3 3/8	1	2 33/64	15/32	7/16	19/32	1 5/16	1 17/32	0.984	1.220	0.276	0.295	3/8	**SBF204-12RKP8**	SB204-12RKP8	**SAF204-12FP9**	SA204-12FP9	F204	0.58	0.62
		86	25.5	64	12	11	15	33	38.5	25	31	7	7.5	M10	**SBF204RKP8**	SB204RKP8	**SAF204FP9**	SA204FP9			
25	7/8														**SBF205-14RKP8**	SB205-14RKP8	**SAF205-14FP9**	SA205-14FP9	F205	0.81	0.85
	15/16	3 3/4	1 1/16	2 3/4	15/32	1/2	5/8	1 13/32	1 9/16	1.063	1.220	0.295	0.295	3/8	**SBF205-15RKP8**	SB205-15RKP8	**SAF205-15FP9**	SA205-15FP9			0.86
		95	27	70	12	13	16	35.5	39.5	27	31	7.5	7.5	M10	**SBF205RKP8**	SB205RKP8	**SAF205FP9**	SA205FP9			0.86
	1														**SBF205-16RKP8**	SB205-16RKP8	**SAF205-16FP9**	SA205-16FP9			0.86
30	1 1/8														**SBF206-18RKP8**	SB206-18RKP8	**SAF206-18FP9**	SA206-18FP9	F206	1.05	1.12
		4 1/4	1 7/32	3 17/64	15/32	1/2	45/64	1 9/16	1 3/4	1.181	1.406	0.315	0.354	3/8	**SBF206RKP8**	SB206RKP8	**SAF206FP9**	SA206FP9			
	1 3/16	108	31	83	12	13	18	40	44.7	30	35.7	8	9	M10	**SBF206-19RKP8**	SB206-19RKP8	**SAF206-19FP9**	SA206-19FP9			
	1 1/4														**SBF206-20RKP8**	SB206-20RKP8	**SAF206-20FP9**	SA206-20FP9			
35	1 1/4														**SBF207-20RKP8**	SB207-20RKP8	**SAF207-20FP9**	SA207-20FP9	F207	1.44	1.59
	1 5/16														–	–	**SAF207-21FP9**	SA207-21FP9		–	
	1 3/8	4 19/32	1 11/32	3 5/8	35/64	19/32	3/4	1 11/16	1 29/32	1.260	1.531	0.335	0.374	7/16	**SBF207-22RKP8**	SB207-22RKP8	**SAF207-22FP9**	SA207-22FP9		1.44	
		117	34	92	14	15	19	42.5	48.4	32	38.9	8.5	9.5	M12	**SBF207RKP8**	SB207RKP8	**SAF207FP9**	SA207FP9		1.44	
	1 7/16														**SBF207-23RKP8**	SB207-23RKP8	**SAF207-23FP9**	SA207-23FP9		1.44	
40	1 1/2														**SBF208-24RKP8**	SB208-24RKP8	**SAF208-24FP9**	SA208-24FP9	F208	1.86	2.01
	1 9/16	5 1/8	1 13/32	4 1/64	5/8	19/32	53/64	1 13/16	2 1/8	1.339	1.720	0.354	0.433	1/2	–	–	**SAF208-25FP9**	SA208-25FP9		–	2.01
		130	36	102	16	15	21	46	53.7	34	43.7	9	11	M14	**SBF208RKP8**	SB208RKP8	**SAF208FP9**	SA208FP9		1.85	
45	1 5/8														–	–	**SAF209-26FP9**	SA209-26FP9	F209	–	2.34
	1 11/16	5 13/32	1 1/2	4 9/64	5/8	5/8	55/64	–	2 5/32	–	1.720	–	0.433	1/2	–	–	**SAF209-27FP9**	SA209-27FP9			
	1 3/4	137	38	105	16	16	22	–	54.7	–	43.7	–	11	M14	–	–	**SAF209-28FP9**	SA209-28FP9			
															–	–	**SAF209FP9**	SA209FP9			
50	1 7/8														–	–	**SAF210-30FP9**	SA210-30FP9	F210	–	2.55
	1 15/16	5 5/8	1 9/16	4 3/8	5/8	5/8	55/64	–	2 5/32	–	1.720	–	0.433	1/2	–	–	**SAF210-31FP9**	SA210-31FP9			
		143	40	111	16	16	22	–	54.7	–	43.7	–	11	M14	–	–	**SAF210FP9**	SA210FP9			
55	2														–	–	**SAF211-32FP9**	SA211-32FP9	F211	–	3.49
	2 1/8	6 3/8	1 11/16	5 1/8	3/4	23/32	63/64	–	2 13/32	–	1.902	–	0.472	5/8	–	–	**SAF211-34FP9**	SA211-34FP9			
		162	43	130	19	18	25	–	61.3	–	48.3	–	12	M16	–	–	**SAF211FP9**	SA211FP9			
	2 3/16														–	–	**SAF211-35FP9**	SA211-35FP9			

Remarks
1. In Part No. of unit, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 204~210
   A-R1/8..... 211
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
4. Housings of nodular graphite cast iron are also available.

UCSF-S6
Cylindrical bore (with set screws)
d 20 ~ 65 mm





Variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s}) and tolerance of position of bolt hole (X)

Unit: mm

Housing No.	Δ_{A2s}	X
SF204~SF210	±0.5	0.7
SF211~SF213	±0.8	1

Variations of tolerance of bolt hole diameter (Δ_{Ns})

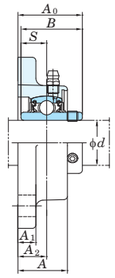
Unit: mm

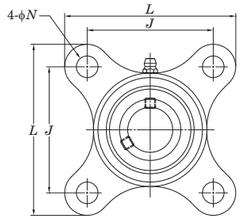
Housing No.	Δ_{Ns}
SF204~SF213	±0.2

Shaft Dia mm	Shaft Dia inch	Dimensions inch / mm L	A	J	N	A_1	A_2	A_0	B	S	Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Mass kg
20	3/4	3 3/8	1 1/32	2 33/64	15/32	13/32	19/32	1 5/16	1.220	0.500	3/8	**UCSF204-12S6**	SF204	UC204-12S6	0.53
		86	26	64	12	10	15	33.3	31	12.7	M10	**UCSF204S6**		UC204S6	
25	7/8											**UCSF205-14S6**	SF205	UC205-14S6	0.68
	15/16	3 3/4	1 3/32	2 3/4	15/32	13/32	5/8	1 13/32	1.343	0.563	3/8	**UCSF205-15S6**		UC205-15S6	
		95	27.5	70	12	10	16	35.8	34.1	14.3	M10	**UCSF205S6**		UC205S6	
	1											**UCSF205-16S6**		UC205-16S6	
30	1 1/8											**UCSF206-18S6**	SF206	UC206-18S6	1.02
		4 1/4	1 7/32	3 17/64	15/32	13/32	45/64	1 19/32	1.500	0.626	3/8	**UCSF206S6**		UC206S6	
	1 3/16	108	31	83	12	10	18	40.2	38.1	15.9	M10	**UCSF206-19S6**		UC206-19S6	
	1 1/4											**UCSF206-20S6**		UC206-20S6	
35	1 1/4											**UCSF207-20S6**	SF207	UC207-20S6	1.3
	1 5/16											**UCSF207-21S6**		UC207-21S6	
	1 3/8	4 19/32	1 11/32	3 5/8	35/64	7/16	3/4	1 3/4	1.689	0.689	7/16	**UCSF207-22S6**		UC207-22S6	
		117	34	92	14	11	19	44.4	42.9	17.5	M12	**UCSF207S6**		UC207S6	
	1 7/16											**UCSF207-23S6**		UC207-23S6	
40	1 1/2											**UCSF208-24S6**	SF208	UC208-24S6	1.63
	1 9/16	5 1/8	1 13/32	4 1/64	5/8	15/32	53/64	2 1/32	1.937	0.748	1/2	**UCSF208-25S6**		UC208-25S6	
		130	36	102	16	12	21	51.2	49.2	19	M14	**UCSF208S6**		UC208S6	
45	1 5/8											**UCSF209-26S6**	SF209	UC209-26S6	1.92
	1 11/16	5 13/32	1 1/2	4 9/64	5/8	1/2	55/64	2 1/16	1.937	0.748	1/2	**UCSF209-27S6**		UC209-27S6	
	1 3/4	137	38	105	16	13	22	52.2	49.2	19	M14	**UCSF209-28S6**		UC209-28S6	
												UCSF209S6		UC209S6	
50	1 7/8											**UCSF210-30S6**	SF210	UC210-30S6	2.18
	1 15/16	5 5/8	1 9/16	4 3/8	5/8	1/2	55/64	2 5/32	2.031	0.748	1/2	**UCSF210-31S6**		UC210-31S6	
		143	40	111	16	13	22	54.6	51.6	19	M14	**UCSF210S6**		UC210S6	
	2											**UCSF210-32S6**		UC210-32S6	
55	2											**UCSF211-32S6**	SF211	UC211-32S6	3.01
	2 1/8	6 3/8	1 11/16	5 1/8	3/4	19/32	63/64	2 5/16	2.189	0.874	5/8	**UCSF211-34S6**		UC211-34S6	
		162	43	130	19	15	25	58.4	55.6	22.2	M16	**UCSF211S6**		UC211S6	
	2 3/16											**UCSF211-35S6**		UC211-35S6	
60	2 1/4											**UCSF212-36S6**	SF212	UC212-36S6	3.82
		6 7/8	1 7/8	5 5/8	3/4	19/32	1 9/64	2 23/32	2.563	1.000	5/8	**UCSF212S6**		UC212S6	
	2 3/8	175	48	143	19	15	29	68.7	65.1	25.4	M16	**UCSF212-38S6**		UC212-38S6	
	2 7/16											**UCSF212-39S6**		UC212-39S6	
65	2 1/2	7 23/64	1 31/32	5 7/8	3/4	45/64	1 3/16	2 3/4	2.563	1.000	5/8	**UCSF213-40S6**	SF213	UC213-40S6	5.02
		187	50	149	19	18	30	69.7	65.1	25.4	M16	**UCSF213S6**		UC213S6	

Remarks
1. In Part No. of unit, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNFN13 ..... 204~210
   A-R1/8N13 ..... 211~213
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.

UCSF-ES6
Cylindrical bore (with set screws)
d 20 ~ 65 mm





Variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s}) and tolerance of position of bolt hole (X)

Unit: mm

Housing No.	Δ_{A2s}	X
SF204E~SF208E	±0.5	0.7
SF211E~SF213E	±0.8	1

Variations of tolerance of bolt hole diameter (Δ_{Ns})

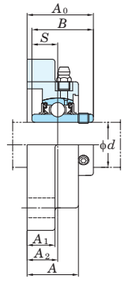
Unit: mm

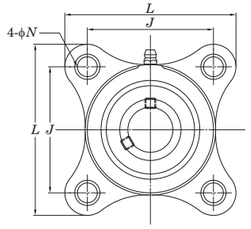
Housing No.	Δ_{Ns}
SF204E~SF213E	±0.2

Shaft Dia mm	Shaft Dia inch	Dimensions inch / mm L	A	J	N	A_1	A_2	A_0	B	S	Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Mass kg
20	3/4	3 3/8	1 1/32	2 33/64	7/16	13/32	19/32	1 5/16	1.220	0.500	3/8	**UCSF204-12ES6**	SF204E	UC204-12S6	0.53
		86	26	64	11	10	15	33.3	31	12.7	M10	**UCSF204ES6**		UC204S6	
25	7/8											**UCSF205-14ES6**	SF205E	UC205-14S6	0.68
	15/16	3 3/4	1 3/32	2 3/4	29/64	13/32	5/8	1 13/32	1.343	0.563	3/8	**UCSF205-15ES6**		UC205-15S6	
		95	27.5	70	11.5	10	16	35.8	34.1	14.3	M10	**UCSF205ES6**		UC205S6	
	1											**UCSF205-16ES6**		UC205-16S6	
30	1 1/8											**UCSF206-18ES6**	SF206E	UC206-18S6	1.02
		4 1/4	1 7/32	3 17/64	33/64	13/32	45/64	1 19/32	1.500	0.626	3/8	**UCSF206ES6**		UC206S6	
	1 3/16	108	31	83	13	10	18	40.2	38.1	15.9	M10	**UCSF206-19ES6**		UC206-19S6	
	1 1/4											**UCSF206-20ES6**		UC206-20S6	
35	1 1/4											**UCSF207-20ES6**	SF207E	UC207-20S6	1.3
	1 5/16											**UCSF207-21ES6**		UC207-21S6	
	1 3/8	4 19/32	1 11/32	3 5/8	33/64	7/16	3/4	1 3/4	1.689	0.689	7/16	**UCSF207-22ES6**		UC207-22S6	
		117	34	92	13	11	19	44.4	42.9	17.5	M12	**UCSF207ES6**		UC207S6	
	1 7/16											**UCSF207-23ES6**		UC207-23S6	
40	1 1/2											**UCSF208-24ES6**	SF208E	UC208-24S6	1.63
	1 9/16	5 1/8	1 13/32	4 1/64	35/64	15/32	53/64	2 1/32	1.937	0.748	1/2	**UCSF208-25ES6**		UC208-25S6	
		130	36	102	14	12	21	51.2	49.2	19	M14	**UCSF208ES6**		UC208S6	
55	2											**UCSF211-32ES6**	SF211E	UC211-32S6	3.01
	2 1/8	6 3/8	1 11/16	5 1/8	43/64	19/32	63/64	2 5/16	2.189	0.874	5/8	**UCSF211-34ES6**		UC211-34S6	
		162	43	130	17	15	25	58.4	55.6	22.2	M16	**UCSF211ES6**		UC211S6	
	2 3/16											**UCSF211-35ES6**		UC211-35S6	
60	2 1/4											**UCSF212-36ES6**	SF212E	UC212-36S6	3.82
		6 7/8	1 7/8	5 5/8	43/64	19/32	1 9/64	2 23/32	2.563	1.000	5/8	**UCSF212ES6**		UC212S6	
	2 3/8	175	48	143	17	15	29	68.7	65.1	25.4	M16	**UCSF212-38ES6**		UC212-38S6	
	2 7/16											**UCSF212-39ES6**		UC212-39S6	
65	2 1/2	7 23/64	1 31/32	5 7/8	43/64	45/64	1 3/16	2 3/4	2.563	1.000	5/8	**UCSF213-40ES6**	SF213E	UC213-40S6	5.02
		187	50	149	17	18	30	69.7	65.1	25.4	M16	**UCSF213ES6**		UC213S6	

Remarks
1. In Part No. of unit, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNFN13 ..... 204~210
   A-R1/8N13 ..... 211~213
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.

UCVF-S6
Cylindrical bore (with set screws)
d 20 ~ 50 mm





Variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s}) and variations of tolerance of distance between centers of bolt holes (Δ_{Js})

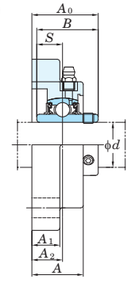
Unit: mm

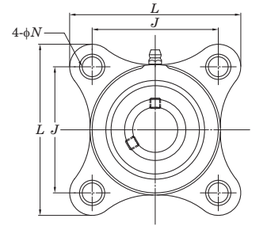
Housing No.	Δ_{A2s}	Δ_{Js}
VF204~VF210	±0.5	±0.7

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm									Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Mass kg
d		L	A	J	N	A_1	A_2	A_0	B	S					
20	3/4	3 3/8	1 1/8	2 1/2	7/16	17/32	45/64	1 7/16	1.220	0.500	3/8	**UCVF204-12S6**	VF204	UC204-12S6	0.27
		86	28.5	63.5	11	13.5	18	36.3	31	12.7	M10	**UCVF204S6**		UC204S6	
25	7/8											**UCVF205-14S6**	VF205	UC205-14S6	0.39
	15/16	3 3/4	1 5/32	2 3/4	7/16	5/8	43/64	1 7/16	1.343	0.563	3/8	**UCVF205-15S6**		UC205-15S6	
		95	29.2	70	11	15.5	17	36.8	34.1	14.3	M10	**UCVF205S6**		UC205S6	
	1											**UCVF205-16S6**		UC205-16S6	
30	1 1/8											**UCVF206-18S6**	VF206	UC206-18S6	0.53
		4 7/32	1 9/32	3 17/64	7/16	9/16	3/4	1 5/8	1.500	0.626	3/8	**UCVF206S6**		UC206S6	
	1 3/16	107	32.2	83	11	14.5	19.2	41.4	38.1	15.9	M10	**UCVF206-19S6**		UC206-19S6	
	1 1/4											**UCVF206-20S6**		UC206-20S6	
35	1 1/4											**UCVF207-20S6**	VF207	UC207-20S6	0.73
	1 5/16											**UCVF207-21S6**		UC207-21S6	
	1 3/8	4 21/32	1 3/8	3 5/8	33/64	5/8	27/32	1 27/32	1.689	0.689	1/2	**UCVF207-22S6**		UC207-22S6	
		118	35.2	92	13	15.5	21.5	46.9	42.9	17.5	M12	**UCVF207S6**		UC207S6	
	1 7/16											**UCVF207-23S6**		UC207-23S6	
40	1 1/2											**UCVF208-24S6**	VF208	UC208-24S6	0.96
	1 9/16	5 1/8	1 15/32	4 1/64	35/64	21/32	29/32	2 3/32	1.937	0.748	1/2	**UCVF208-25S6**		UC208-25S6	
		130	37.2	102	14	17	23	53.2	49.2	19	M12	**UCVF208S6**		UC208S6	
45	1 5/8											**UCVF209-26S6**	VF209	UC209-26S6	1.13
	1 11/10	5 13/32	1 39/64	4 9/64	43/64	3/4	15/16	2 9/64	1.937	0.748	1/2	**UCVF209-27S6**		UC209-27S6	
	1 3/4	137	41	105	17	19	24	54.2	49.2	19	M16	**UCVF209-28S6**		UC209-28S6	
												UCVF209S6		UC209S6	
50	1 7/8											**UCVF210-30S6**	VF210	UC210-30S6	1.31
	1 15/16	5 5/8	1 11/16	4 3/8	43/64	53/64	63/64	2 17/64	2.031	0.748	1/2	**UCVF210-31S6**		UC210-31S6	
		143	43	111	17	21	25	57.6	51.6	19	M16	**UCVF210S6**		UC210S6	
	2											**UCVF210-32S6**		UC210-32S6	

Remarks 1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of the applicable grease fitting is A-1/4-28UNFN13.
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.

UCVF-S7
Cylindrical bore (with set screws)
d 20 ~ 50 mm





Variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s}) and variations of tolerance of distance between centers of bolt holes (Δ_{Js})

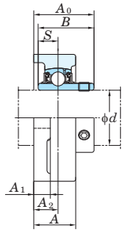
Unit: mm

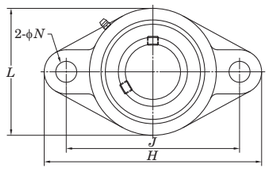
Housing No.	Δ_{A2s}	Δ_{Js}
VF204~VF210	±0.5	±0.7

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm									Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Mass kg
d		L	A	J	N	A_1	A_2	A_0	B	S					
20	3/4	3 3/8	1 3/32	2 1/2	7/16	17/32	45/64	1 7/16	1.220	0.500	3/8	**UCVF204-12S7**	VF204	UC204-12S7	0.27
		86	29	63.5	11	13.5	18	36.3	31	12.7	M10	**UCVF204S7**		UC204S7	
25	7/8											**UCVF205-14S7**	VF205	UC205-14S7	0.39
	15/16	3 3/4	1 1/8	2 3/4	7/16	5/8	43/64	1 7/16	1.343	0.563	3/8	**UCVF205-15S7**		UC205-15S7	
		95	29	70	11	15.5	17	36.8	34.1	14.3	M10	**UCVF205S7**		UC205S7	
	1											**UCVF205-16S7**		UC205-16S7	
30	1 1/8											**UCVF206-18S7**	VF206	UC206-18S7	0.53
		4 7/32	1 1/4	3 17/64	7/16	9/16	3/4	1 5/8	1.500	0.626	3/8	**UCVF206S7**		UC206S7	
	1 3/16	107	32	83	11	14.5	19.2	41.4	38.1	15.9	M10	**UCVF206-19S7**		UC206-19S7	
	1 1/4											**UCVF206-20S7**		UC206-20S7	
35	1 1/4											**UCVF207-20S7**	VF207	UC207-20S7	0.73
	1 5/16											**UCVF207-21S7**		UC207-21S7	
	1 3/8	4 21/32	1 11/32	3 5/8	33/64	5/8	27/32	1 27/32	1.689	0.689	1/2	**UCVF207-22S7**		UC207-22S7	
		118	35	92	13	15.5	21.5	46.9	42.9	17.5	M12	**UCVF207S7**		UC207S7	
	1 7/16											**UCVF207-23S7**		UC207-23S7	
40	1 1/2											**UCVF208-24S7**	VF208	UC208-24S7	0.96
	1 9/16	5 1/8	1 7/16	4 1/64	35/64	21/32	29/32	2 3/32	1.937	0.748	1/2	**UCVF208-25S7**		UC208-25S7	
		130	37	102	14	17	23	53.2	49.2	19	M12	**UCVF208S7**		UC208S7	
45	1 5/8											**UCVF209-26S7**	VF209	UC209-26S7	1.13
	1 11/10	5 13/32	1 39/64	4 9/64	43/64	3/4	15/16	2 9/64	1.937	0.748	1/2	**UCVF209-27S7**		UC209-27S7	
	1 3/4	137	41	105	17	19	24	54.2	49.2	19	M16	**UCVF209-28S7**		UC209-28S7	
												UCVF209S7		UC209S7	
50	1 7/8											**UCVF210-30S7**	VF210	UC210-30S7	1.31
	1 15/16	5 5/8	1 11/16	4 3/8	43/64	53/64	63/64	2 17/64	2.031	0.748	1/2	**UCVF210-31S7**		UC210-31S7	
		143	43	111	17	21	25	57.6	51.6	19	M16	**UCVF210S7**		UC210S7	
	2											**UCVF210-32S7**		UC210-32S7	

Remarks 1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of the applicable grease fitting is A-1/4-28UNFN13.
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.

UCFL
Cylindrical bore (with set screws)
d 12 ~ 120 mm





Variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s}) and tolerance of position of bolt hole (X)

Unit: mm

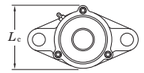
Housing No.			Δ_{A2s}	X
FL204~FL210	FLX05~FLX10	FL305~FL310	±0.5	0.7
FL211~FL218		FL311~FL324	±0.8	1

Variations of tolerance of bolt hole diameter (Δ_{Ns})

Unit: mm

Housing No.			Δ_{Ns}
FL204~FL218	FLX05~FLX10	FL305~FL311	±0.2
		FL312~FL324	±0.3

Forms and dimensions of L_e of FL204FJE3 and FL205FJE3 (housing with cast iron cover) are shown below.



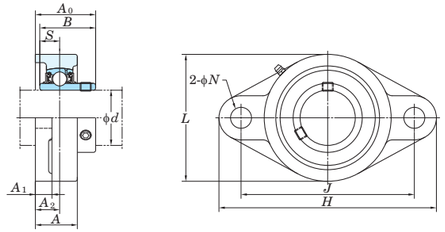
FL204FJE3 L_e = 65 mm
FL205FJE3 L_e = 73 mm

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch/mm H	L	A	J	N	A1	A2	A0	B	S	Bolt Size inch	Bolt Size mm	Unit No.	Housing No.	Bearing No.	Mass kg
12	1/2													UCFL201		UC201	0.50
														UCFL201-8		UC201-8	0.50
15	5/8	4 7/16	2 3/8	1	3 35/64	15/32	7/16	19/32	1 5/16	1.220	0.500	3/8	M10	UCFL202	FL204	UC202	0.48
		113	60	25.5	90	12	11	15	33.3	31	12.7			UCFL202-10		UC202-10	0.48
17	3/4													UCFL203		UC203	0.47
														UCFL204-12		UC204-12	0.47
20														UCFL204		UC204	0.45
25	7/8													UCFL205-14		UC205-14	0.64
	15/16	5 1/8	2 11/16	1 1/16	3 57/64	5/8	1/2	5/8	1 13/32	1.343	0.563	1/2	M14	UCFL205-15	FL205	UC205-15	0.64
		130	68	27	99	16	13	16	35.8	34.1	14.3			UCFL205		UC205	0.64
	1													UCFL205-16		UC205-16	0.64
	1	5 9/16	3 9/32	1 3/16	4 39/64	15/32	1/2	45/64	1 19/32	1.500	0.626	3/8	M10	UCFLX05	FLX05	UCX05	1.1
		141	83	30	117	12	13	18	40.2	38.1	15.9			UCFLX05-16		UCX05-16	1.1
	1	5 29/32	3 5/32	1 5/32	4 29/64	3/4	1/2	5/8	1 17/32	1.496	0.591	5/8	M16	UCFL305	FL305	UC305	1.1
		150	80	29	113	19	13	16	39	38	15			UCFL305-16		UC305-16	1.1
30	1 1/8													UCFL206-18		UC206-18	0.93
	5 13/16	3 5/32	1 7/32	4 39/64	5/8	1/2	45/64	1 19/32	1.500	0.626	1/2	M14	UCFL206	FL206	UC206	0.93	
	1 3/16	148	80	31	117	16	13	18	40.2	38.1	15.9			UCFL206-19		UC206-19	0.93
	1 1/4													UCFL206-20		UC206-20	0.93
	1 3/16	6 5/32	3 3/4	1 11/32	5 1/8	5/8	9/16	3/4	1 3/4	1.689	0.689	1/2	M14	UCFLX06	FLX06	UCX06	1.5
		156	95	34	130	16	14	19	44.4	42.9	17.5			UCFLX06-19		UCX06-19	1.5
	1 1/4													UCFLX06-20		UCX06-20	1.5
	–	7 3/32	3 17/32	1 1/4	5 9/32	29/32	19/32	45/64	1 23/32	1.693	0.669	3/4	M20	UCFL306	FL306	UC306	1.5
		180	90	32	134	23	15	18	44	43	17						
35	1 1/4													UCFL207-20		UC207-20	1.2
	1 5/16													UCFL207-21		UC207-21	1.2
	1 3/8	6 11/32	3 17/32	1 11/32	5 1/8	5/8	9/16	3/4	1 3/4	1.689	0.689	1/2	M14	UCFL207-22	FL207	UC207-22	1.2
		161	90	34	130	16	14	19	44.4	42.9	17.5			UCFL207		UC207	1.2
	1 7/16													UCFL207-23		UC207-23	1.2
	1 3/8	6 23/32	4 1/8	1 1/2	5 43/64	5/8	9/16	53/64	2 1/32	1.937	0.748	1/2	M14	UCFLX07-22	FLX07	UCX07-22	1.9
		171	105	38	144	16	14	21	51.2	49.2	19			UCFLX07		UCX07	1.9
	1 7/16													UCFLX07-23		UCX07-23	1.9
	–	7 9/32	3 15/16	1 13/32	5 35/64	29/32	5/8	25/32	1 15/16	1.890	0.748	3/4	M20	UCFL307	FL307	UC307	1.8
		185	100	36	141	23	16	20	49	48	19						
40	1 1/2													UCFL208-24		UC208-24	1.6
	1 9/16	6 7/8	3 15/16	1 13/32	5 43/64	5/8	9/16	53/64	2 1/32	1.937	0.748	1/2	M14	UCFL208-25	FL208	UC208-25	1.6
		175	100	36	144	16	14	21	51.2	49.2	19			UCFL208		UC208	1.6
	1 1/2	7 1/16	4 3/8	1 9/16	5 53/64	5/8	9/16	55/64	2 1/16	1.937	0.748	1/2	M14	UCFLX08-24	FLX08	UCX08-24	2.1
		179	111	40	148	16	14	22	52.2	49.2	19			UCFLX08		UCX08	2.1
	1 1/2	7 7/8	4 13/32	1 9/16	6 7/32	29/32	21/32	29/32	2 7/32	2.047	0.748	3/4	M20	UCFL308-24	FL308	UC308-24	2.5
		200	112	40	158	23	17	23	56	52	19			UCFL308		UC308	2.5

Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 201~210, X05~X09, 305~308
   A-R1/8..... 211~218, X10, 309~324
3. As for the triple seal type product (from 201 to 205 are the double seal type products), suffix code L3 (or L2) follows the Part No. of unit or bearing.
   (Example of Part No. : UCFL206JL3, UC206L3)
4. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
5. Housings of nodular graphite cast iron are also available.

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch/mm H	L	A	J	N	A1	A2	A0	B	S	Bolt Size inch	Bolt Size mm	Unit No.	Housing No.	Bearing No.	Mass kg
45	1 5/8													UCFL209-26	FL209	UC209-26	1.9
	1 11/16	7 13/32	4 1/4	1 1/2	5 53/64	3/4	19/32	55/64	2 1/16	1.937	0.748	5/8	M16	UCFL209-27		UC209-27	1.9
	1 3/4	188	108	38	148	19	15	22	52.2	49.2	19			UCFL209-28		UC209-28	1.9
														UCFL209		UC209	1.9
	1 11/16	7 7/16	4 9/16	1 9/16	6 3/16	5/8	9/16	29/32	2 3/16	2.031	0.748	1/2	M14	UCFLX09-27	FLX09	UCX09-27	2.4
	1 3/4	189	116	40	157	16	14	23	55.6	51.6	19			UCFLX09-28		UCX09-28	2.4
														UCFLX09		UCX09	2.4
	1 3/4	9 1/16	4 29/32	1 23/32	6 31/32	63/64	23/32	63/64	2 3/8	2.244	0.866	7/8	M22	UCFL309-28	FL309	UC309-28	3.5
		230	125	44	177	25	18	25	60	57	22			UCFL309		UC309	3.5
50	1 7/8													UCFL210-30	FL210	UC210-30	2.2
	1 15/16	7 3/4	4 17/32	1 9/16	6 3/16	3/4	19/32	55/64	2 5/32	2.031	0.748	5/8	M16	UCFL210-31		UC210-31	2.2
		197	115	40	157	19	15	22	54.6	51.6	19			UCFL210		UC210	2.2
	2													UCFL210-32		UC210-32	2.2
	1 15/16	8 1/2	5 1/4	1 23/32	7 1/4	3/4	25/32	1 1/32	2 11/32	2.189	0.874	5/8	M16	UCFLX10-31	FLX10	UCX10-31	3.8
		216	133	44	184	19	20	26	59.4	55.6	22.2			UCFLX10		UCX10	3.8
	2													UCFLX10-32		UCX10-32	3.8
	–	9 7/16	5 1/2	1 7/8	7 23/64	63/64	3/4	1 7/64	2 5/8	2.402	0.866	7/8	M22	UCFL310	FL310	UC310	4.4
		240	140	48	187	25	19	28	67	61	22						
55	2													UCFL211-32	FL211	UC211-32	3.3
	2 1/8	8 13/16	5 1/8	1 11/16	7 1/4	3/4	23/32	63/64	2 5/16	2.189	0.874	5/8	M16	UCFL211-34		UC211-34	3.3
		224	130	43	184	19	18	25	58.4	55.6	22.2			UCFL211		UC211	3.3
	2 3/16													UCFL211-35		UC211-35	3.3
	2	9 27/32	5 29/32	2 1/16	7 51/64	63/64	25/32	1 3/16	2 25/32	2.598	0.984	7/8	M22	UCFL311-32	FL311	UC311-32	5.3
		250	150	52	198	25	20	30	71	66	25			UCFL311		UC311	5.3
	2 3/16													UCFL311-35		UC311-35	5.3
60	2 1/4													UCFL212-36	FL212	UC212-36	4.2
		9 27/32	5 1/2	1 7/8	7 61/64	29/32	23/32	1 9/64	2 23/32	2.563	1.000	3/4	M20	UCFL212		UC212	4.2
	2 3/8	250	140	48	202	23	18	29	68.7	65.1	25.4			UCFL212-38		UC212-38	4.2
	2 7/16													UCFL212-39		UC212-39	4.2
	2 7/16	10 5/8	6 5/16	2 7/32	8 11/32	1 7/32	7/8	1 19/64	3 1/16	2.795	1.024	1	M27	UCFL312	FL312	UC312	6.5
		270	160	56	212	31	22	33	78	71	26			UCFL312-39		UC312-39	6.5
65	2 1/2	10 5/32	6 3/32	1 31/32	8 17/64	29/32	25/32	1 3/16	2 3/4	2.563	1.000	3/4	M20	UCFL213-40	FL213	UC213-40	5.1
		258	155	50	210	23	20	30	69.7	65.1	25.4			UCFL213		UC213	5.1
	2 1/2	11 5/8	6 7/8	2 9/32	9 29/64	1 7/32	31/32	1 19/64	3 1/16	2.953	1.181	1	M27	UCFL313-40	FL313	UC313-40	8.5
		295	175	58	240	31	25	33	78	75	30			UCFL313		UC313	8.5
70	2 3/4	10 7/16	6 5/16	2 1/8	8 1/2	29/32	25/32	1 7/32	2 31/32	2.937	1.189	3/4	M20	UCFL214-44	FL214	UC214-44	5.7
		265	160	54	216	23	20	31	75.4	74.6	30.2			UCFL214		UC214	5.7
	2 3/4	12 13/32	7 9/32	2 13/32	9 27/32	1 3/8	1 3/32	1 27/64	3 3/16	3.071	1.299	1 1/8	M30	UCFL314-44	FL314	UC314-44	9.7
		315	185	61	250	35	28	36	81	78	33			UCFL314		UC314	9.7
75	2 15/16	10 13/16	6 1/2	2 7/32	8 55/64	29/32	25/32	1 11/32	3 3/32	3.063	1.311	3/4	M20	UCFL215-47	FL215	UC215-47	6.4
		275	165	56	225	23	20	34	78.5	77.8	33.3			UCFL215		UC215	6.4
	3													UCFL215-48		UC215-48	6.4
	2 15/16	12 19/32	7 11/16	2 19/32	10 15/64	1 3/8	1 3/16	1 17/32	3 1/2	3.228	1.260	1 1/8	M30	UCFL315-47	FL315	UC315-47	11.3
		320	195	66	260	35	30	39	89	82	32			UCFL315		UC315	11.3
	3													UCFL315-48		UC315-48	11.3
80	3 1/8	11 13/32	7 3/32	2 9/32	9 11/64	63/64	25/32	1 11/32	3 9/32	3.252	1.311	7/8	M22	UCFL216-50	FL216	UC216-50	7.8
		290	180	58	233	25	20	34	83.3	82.6	33.3			UCFL216		UC216	7.8
	–	13 31/32	8 9/32	2 11/16	11 7/32	1 1/2	1 1/4	1 1/2	3 17/32	3.386	1.339	1 1/4	M33	UCFL316	FL316	UC316	14.4
		355	210	68	285	38	32	38	90	86	34						
85	3 1/4	12	7 15/32	2 15/32	9 49/64	63/64	7/8	1 27/64	3 7/16	3.374	1.343	7/8	M22	UCFL217-52	FL217	UC217-52	9.8
		305	190	63	248	25	22	36	87.6	85.7	34.1			UCFL217		UC217	9.8
	–	14 9/16	8 21/32	2 29/32	11 13/16	1 1/2	1 1/4	1 47/64	3 15/16	3.780	1.575	1 1/4	M33	UCFL317	FL317	UC317	16.0
		370	220	74	300	38	32	44	100	96	40						
90	3 1/2	12 19/32	8 1/16	2 11/16	10 7/16	63/64	29/32	1 37/64	3 25/32	3.780	1.563	7/8	M22	UCFL218-56	FL218	UC218-56	12.3
		320	205	68	265	25	23	40	96.3	96	39.7			UCFL218		UC218	12.3
	3 1/2	15 5/32	9 1/4	3	12 13/32	1 1/2	1 13/32	1 47/64	3 15/16	3.780	1.575	1 1/4	M33	UCFL318-56	FL318	UC318-56	19.0
		385	235	76	315	38	36	44	100	96	40			UCFL318		UC318	19.0
95	–	15 15/16	9 27/32	3 11/16	12 63/64	1 39/64	1 9/16	2 21/64	4 3/4	4.055	1.614	1 3/8	M36	UCFL319	FL319	UC319	24.6
		405	250	94	330	41	40	59	121	103	41						
100	3 15/16	17 5/16	10 5/8	3 11/16	14 11/64	1 47/64	1 9/16	2 21/64	4 29/32	4.252	1.654	1 1/2	M39	UCFL320	FL320	UC320	29.4
		440	270	94	360	44	40	59	125	108	42			UCFL320-63		UC320-63	29.4
	4													UCFL320-64		UC320-64	29.4
110	–	18 1/2	11 13/16	3 25/32	15 23/64	1 47/64	1 21/32	2 23/64	5 5/32	4.606	1.811	1 1/2	M39	UCFL322	FL322	UC322	36.2
		470	300	96	390	44	42	60	131	117	46						
120	–	20 15/32	13	4 11/32	16 59/64	1 27/32	1 7/8	2 9/16	5 1/2	4.961	2.008	1 5/8	M42	UCFL324	FL324	UC324	51.6
		520	330	110	430	47	48	65	140	126	51						

UCFL-E
Cylindrical bore (with set screws)
d 12 ~ 85 mm



Variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s}) and tolerance of position of bolt hole (X)

Unit: mm

Housing No.	Δ_{A2s}	X
FL203E~FL210E	±0.5	0.7
FL211E~FL217E	±0.8	1

Variations of tolerance of bolt hole diameter (Δ_{Ns})

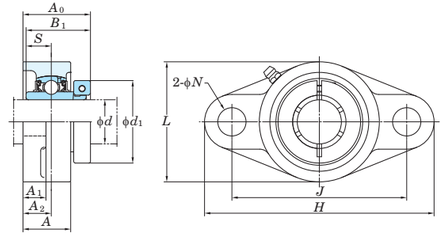
Unit: mm

Housing No.	Δ_{Ns}
FL203E~FL217E	±0.2

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm H	L	A	J	N	A_1	A_2	A_0	B	S	Bolt Size inch	Unit No.	Housing No.	Bearing No.	Mass kg
12	1/2												UCFL201E		UC201	0.42
													UCFL201-8E		UC201-8	
15		3 27/32	2 7/32	1	3	25/64	7/16	19/32	1 5/16	1.220	0.500	5/16	UCFL202E	FL203E	UC202	0.4
	5/8	98	56	25.5	76.2	10	11	15	33.3	31	12.7		UCFL202-10E		UC202-10	
17													UCFL203E		UC203	0.39
20	3/4	4 7/16	2 3/8	1	3 17/32	25/64	7/16	19/32	1 5/16	1.220	0.500	5/16	UCFL204-12E	FL204E	UC204-12	0.48
		113	60	25.5	89.7	10	11	15	33.3	31	12.7		UCFL204E		UC204	
	7/8												UCFL205-14E		UC205-14	
25	15/16	5 1/8	2 11/16	1 1/16	3 57/64	15/32	1/2	5/8	1 13/32	1.343	0.563	3/8	UCFL205-15E	FL205E	UC205-15	0.64
	1	130	68	27	98.8	12	13	16	35.8	34.1	14.3		UCFL205E		UC205	
													UCFL205-16E		UC205-16	
	1 1/8												UCFL206-18E		UC206-18	
30		5 13/16	3 5/32	1 7/32	4 19/32	15/32	1/2	45/64	1 19/32	1.500	0.626	3/8	UCFL206E	FL206E	UC206	0.93
	1 3/16	148	80	31	116.7	12	13	18	40.2	38.1	15.9		UCFL206-19E		UC206-19	
	1 1/4												UCFL206-20E		UC206-20	
	1 1/4												UCFL207-20E		UC207-20	
	1 5/16												UCFL207-21E		UC207-21	
35	1 3/8	6 11/32	3 17/32	1 11/32	5 1/8	33/64	9/16	3/4	1 3/4	1.689	0.689	7/16	UCFL207-22E	FL207E	UC207-22	1.2
		161	90	34	130.2	13	14	19	44.4	42.9	17.5		UCFL207E		UC207	
	1 7/16												UCFL207-23E		UC207-23	
	1 1/2												UCFL208-24E		UC208-24	
40	1 9/16	6 7/8	3 15/16	1 13/32	5 21/32	33/64	9/16	53/64	2 1/32	1.937	0.748	7/16	UCFL208-25E	FL208E	UC208-25	1.6
		175	100	36	143.7	13	14	21	51.2	49.2	19		UCFL208E		UC208	
	1 5/8												UCFL209-26E		UC209-26	
45	1 11/16	7 13/32	4 1/4	1 1/2	5 27/32	19/32	19/32	55/64	2 1/16	1.937	0.748	1/2	UCFL209-27E	FL209E	UC209-27	1.9
	1 3/4	188	108	38	148.4	15	15	22	52.2	49.2	19		UCFL209-28E		UC209-28	
													UCFL209E		UC209	
	1 7/8												UCFL210-30E		UC210-30	
50	1 15/16	7 3/4	4 17/32	1 9/16	6 3/16	19/32	19/32	55/64	2 5/32	2.031	0.748	1/2	UCFL210-31E	FL210E	UC210-31	2.2
	2	197	115	40	157	15	15	22	54.6	51.6	19		UCFL210E		UC210	
													UCFL210-32E		UC210-32	
	2												UCFL211-32E		UC211-32	
55	2 1/8	8 13/16	5 1/8	1 11/16	7 1/4	21/32	23/32	63/64	2 5/16	2.189	0.874	9/16	UCFL211-34E	FL211E	UC211-34	3.3
		224	130	43	184	16.5	18	25	58.4	55.6	22.2		UCFL211E		UC211	
	2 3/16												UCFL211-35E		UC211-35	
	2 1/4												UCFL212-36E		UC212-36	
60		9 27/32	5 1/2	1 7/8	7 61/64	21/32	23/32	1 9/64	2 23/32	2.563	1.000	9/16	UCFL212E	FL212E	UC212	4.2
	2 3/8	250	140	48	202	16.5	18	29	68.7	65.1	25.4		UCFL212-38E		UC212-38	
	2 7/16												UCFL212-39E		UC212-39	
65	2 1/2	10 5/32	6 3/32	1 31/32	8 17/64	21/32	25/32	1 3/16	2 3/4	2.563	1.000	9/16	UCFL213-40E	FL213E	UC213-40	5.2
		258	155	50	210	16.5	20	30	69.7	65.1	25.4		UCFL213E		UC213	
70	2 3/4	10 7/16	6 5/16	2 1/8	8 1/2	21/32	25/32	1 7/32	2 31/32	2.937	1.189	9/16	UCFL214-44E	FL214E	UC214-44	5.7
		265	160	54	216	16.5	20	31	75.4	74.6	30.2		UCFL214E		UC214	
75	2 15/16	10 13/16	6 1/2	2 7/32	8 55/64	3/4	25/32	1 11/32	3 3/32	3.063	1.311	11/16	UCFL215-47E	FL215E	UC215-47	6.4
		275	165	56	225	19	20	34	78.5	77.8	33.3		UCFL215E		UC215	
	3												UCFL215-48E		UC215-48	
80	3 1/8	11 13/32	7 3/32	2 9/32	9 11/64	3/4	25/32	1 11/32	3 9/32	3.252	1.311	11/16	UCFL216-50E	FL216E	UC216-50	7.8
		290	180	58	233	19	20	34	83.3	82.6	33.3		UCFL216E		UC216	
85	3 1/4	12	7 15/32	2 15/32	9 49/64	3/4	7/8	1 27/64	3 7/16	3.374	1.343	11/16	UCFL217-52E	FL217E	UC217-52	9.8
		305	190	63	248	19	22	36	87.6	85.7	34.1		UCFL217E		UC217	

Remarks
1. In Part No. of unit, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 201~210
   A-R1/8..... 211~217
3. As for the triple seal type product (from 201 to 205 are the double seal type products), suffix code L3 (or L2) follows the Part No. of unit or bearing.
   (Example of Part No. : UCFL206EJL3, UC206L3)
4. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
5. Housings of nodular graphite cast iron are also available.

NCFL
Cylindrical bore
(with concentric locking collar)
d 20 ~ 60 mm



Variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s}) and tolerance of position of bolt hole (X)

Unit: mm

Housing No.	Δ_{A2s}	X
FL204~FL210	±0.5	0.7
FL211~FL212	±0.8	1

Variations of tolerance of bolt hole diameter (Δ_{Ns})

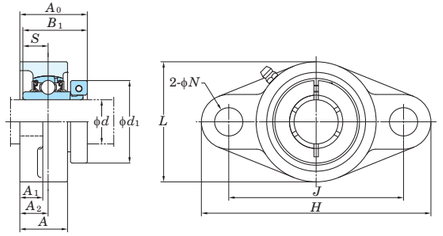
Unit: mm

Housing No.	Δ_{Ns}
FL204~FL212	±0.2

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm H	L	A	J	N	A_1	A_2	A_0	B_1	S	d_1	Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Mass kg
20	3/4	4 7/16	2 3/8	1	3 35/64	15/32	7/16	19/32	1 3/8	1 9/32	0.500	1 3/4	3/8	**NCFL204-12**	FL204	NC204-12	0.62
		113	60	25.5	90	12	11	15	34.8	32.5	12.7	44.5	M10	**NCFL204**		NC204	
25	7/8													**NCFL205-14**	FL205	NC205-14	0.84
	15/16	5 1/8	2 11/16	1 1/16	3 57/64	5/8	1/2	5/8	1 1/2	1 7/16	0.563	1 15/16	1/2	**NCFL205-15**		NC205-15	
		130	68	27	99	16	13	16	38.2	36.5	14.3	49.2	M14	**NCFL205**		NC205	
	1													**NCFL205-16**		NC205-16	
30	1 1/8													**NCFL206-18**	FL206	NC206-18	1.1
		5 13/16	3 5/32	1 7/32	4 39/64	5/8	1/2	45/64	1 21/32	1 9/16	0.626	2 3/16	1/2	**NCFL206**		NC206	
	1 3/16	148	80	31	117	16	13	18	41.8	39.7	15.9	55.6	M14	**NCFL206-19**		NC206-19	
	1 1/4													**NCFL206-20**		NC206-20	
35	1 1/4	6 11/32	3 17/32	1 11/32	5 1/8	5/8	9/16	3/4	1 13/16	1 3/4	0.689	2 7/16	1/2	**NCFL207-20**	FL207	NC207-20	1.5
		161	90	34	130	16	14	19	46	44.5	17.5	61.9	M14				
	1 3/8													**NCFL207-22**	FL207	NC207-22	1.5
		6 11/32	3 17/32	1 11/32	5 1/8	5/8	9/16	3/4	1 13/16	1 3/4	0.689	2 9/16	1/2	**NCFL207**		NC207	
	1 7/16	161	90	34	130	16	14	19	46	44.5	17.5	65.1	M14	**NCFL207-23**		NC207-23	
40	1 1/2	6 7/8	3 15/16	1 13/32	5 43/64	5/8	9/16	53/64	2 3/32	2	0.748	2 11/16	1/2	**NCFL208-24**	FL208	NC208-24	2.0
		175	100	36	144	16	14	21	52.8	50.8	19	68.3	M14	**NCFL208**		NC208	
45	1 5/8	7 13/32	4 1/4	1 1/2	5 53/64	3/4	19/32	55/64	2 1/8	2	0.748	2 13/16	5/8	**NCFL209-26**	FL209	NC209-26	2.3
		188	108	38	148	19	15	22	53.8	50.8	19	71.4	M16				
	1 11/16													**NCFL209-27**	FL209	NC209-27	2.3
	1 3/4	7 13/32	4 1/4	1 1/2	5 53/64	3/4	19/32	55/64	2 1/8	2	0.748	2 15/16	5/8	**NCFL209-28**		NC209-28	
		188	108	38	148	19	15	22	53.8	50.8	19	74.6	M16	**NCFL209**		NC209	
50	1 15/16													**NCFL210-31**	FL210	NC210-31	2.8
		7 3/4	4 17/32	1 9/16	6 3/16	3/4	19/32	55/64	2 7/32	2 3/32	0.748	3 3/8	5/8	**NCFL210**		NC210	
	2	197	115	40	157	19	15	22	56.1	53.1	19	85.7	M16	**NCFL210-32**		NC210-32	
55	2	8 13/16	5 1/8	1 11/16	7 1/4	3/4	23/32	63/64	2 11/32	2 1/4	0.874	3 1/2	5/8	**NCFL211-32**	FL211	NC211-32	3.7
		224	130	43	184	19	18	25	59.9	57.1	22.2	88.9	M16				
	2 3/16	8 13/16	5 1/8	1 11/16	7 1/4	3/4	23/32	63/64	2 11/32	2 1/4	0.874	3 5/8	5/8	**NCFL211**	FL211	NC211	3.7
		224	130	43	184	19	18	25	59.9	57.1	22.2	92.1	M16	**NCFL211-35**		NC211-35	
60	2 1/4	9 27/32	5 1/2	1 7/8	7 61/64	29/32	23/32	1 9/64	2 25/32	2 5/8	1.000	4 1/16	3/4	**NCFL212-36**	FL212	NC212-36	4.9
		250	140	48	202	23	18	29	70.3	66.7	25.4	103.2	M20				
	2 7/16	9 27/32	5 1/2	1 7/8	7 61/64	29/32	23/32	1 9/64	2 25/32	2 5/8	1.000	4 1/8	3/4	**NCFL212**	FL212	NC212	4.9
		250	140	48	202	23	18	29	70.3	66.7	25.4	104.8	M20	**NCFL212-39**		NC212-39	

Remarks
1. In Part No. of unit, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 204~210
   A-R1/8..... 211~212
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
4. Representative examples of the forms of housing are indicated.

NCFL-E
Cylindrical bore
(with concentric locking collar)
d 20 ~ 60 mm



Variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s}) and tolerance of position of bolt hole (X)

Unit: mm

Housing No.	Δ_{A2s}	X
FL204E~FL210E	±0.5	0.7
FL211E~FL212E	±0.8	1

Variations of tolerance of bolt hole diameter (Δ_{Ns})

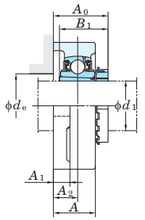
Unit: mm

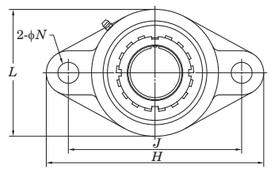
Housing No.	Δ_{Ns}
FL204E~FL212E	±0.2

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm H	L	A	J	N	A_1	A_2	A_0	B_1	S	d_1	Bolt Size inch	Unit No.	Housing No.	Bearing No.	Mass kg
20	3/4	4 7/16	2 3/8	1	3 17/32	25/64	7/16	19/32	1 3/8	1 9/32	0.500	1 3/4	5/16	**NCFL204-12E**	FL204E	NC204-12	0.62
		113	60	25.5	89.7	10	11	15	34.8	32.5	12.7	44.5		**NCFL204E**		NC204	
25	7/8													**NCFL205-14E**	FL205E	NC205-14	0.84
	15/16	5 1/8	2 11/16	1 1/16	3 57/64	15/32	1/2	5/8	1 1/2	1 7/16	0.563	1 15/16	3/8	**NCFL205-15E**		NC205-15	
		130	68	27	98.8	12	13	16	38.2	36.5	14.3	49.2		**NCFL205E**		NC205	
	1													**NCFL205-16E**		NC205-16	
30	1 1/8													**NCFL206-18E**	FL206E	NC206-18	1.1
		5 13/16	3 5/32	1 7/32	4 19/32	15/32	1/2	45/64	1 21/32	1 9/16	0.626	2 3/16	3/8	**NCFL206E**		NC206	
	1 3/16	148	80	31	116.7	12	13	18	41.8	39.7	15.9	55.6		**NCFL206-19E**		NC206-19	
	1 1/4													**NCFL206-20E**		NC206-20	
35	1 1/4	6 11/32	3 17/32	1 11/32	5 1/8	33/64	9/16	3/4	1 13/16	1 3/4	0.689	2 7/16	7/16	**NCFL207-20E**	FL207E	NC207-20	1.5
		161	90	34	130.2	13	14	19	46	44.5	17.5	61.9					
	1 3/8													**NCFL207-22E**	FL207E	NC207-22	1.5
		6 11/32	3 17/32	1 11/32	5 1/8	33/64	9/16	3/4	1 13/16	1 3/4	0.689	2 9/16	7/16	**NCFL207E**		NC207	
	1 7/16	161	90	34	130.2	13	14	19	46	44.5	17.5	65.1		**NCFL207-23E**		NC207-23	
40	1 1/2	6 7/8	3 15/16	1 13/32	5 21/32	33/64	9/16	53/64	2 3/32	2	0.748	2 11/16	7/16	**NCFL208-24E**	FL208E	NC208-24	2.0
		175	100	36	143.7	13	14	21	52.8	50.8	19	68.3		**NCFL208E**		NC208	
45	1 5/8	7 13/32	4 1/4	1 1/2	5 27/32	19/32	19/32	55/64	2 1/8	2	0.748	2 13/16	1/2	**NCFL209-26E**	FL209E	NC209-26	2.3
		188	108	38	148.4	15	15	22	53.8	50.8	19	71.4					
	1 11/16													**NCFL209-27E**	FL209E	NC209-27	2.3
	1 3/4	7 13/32	4 1/4	1 1/2	5 27/32	19/32	19/32	55/64	2 1/8	2	0.748	2 15/16	1/2	**NCFL209-28E**		NC209-28	
		188	108	38	148.4	15	15	22	53.8	50.8	19	74.6		**NCFL209E**		NC209	
50	1 15/16													**NCFL210-31E**	FL210E	NC210-31	2.8
		7 3/4	4 17/32	1 9/16	6 3/16	19/32	19/32	55/64	2 7/32	2 3/32	0.748	3 3/8	1/2	**NCFL210E**		NC210	
	2	197	115	40	157	15	15	22	56.1	53.1	19	85.7		**NCFL210-32E**		NC210-32	
55	2	8 13/16	5 1/8	1 11/16	7 1/4	21/32	23/32	63/64	2 11/32	2 1/4	0.874	3 1/2	9/16	**NCFL211-32E**	FL211E	NC211-32	3.7
		224	130	43	184	16.5	18	25	59.9	57.1	22.2	88.9					
	2 3/16	8 13/16	5 1/8	1 11/16	7 1/4	21/32	23/32	63/64	2 11/32	2 1/4	0.874	3 5/8	9/16	**NCFL211E**	FL211E	NC211	3.7
		224	130	43	184	16.5	18	25	59.9	57.1	22.2	92.1		**NCFL211-35E**		NC211-35	
60	2 1/4	9 27/32	5 1/2	1 7/8	7 61/64	21/32	23/32	1 9/64	2 25/32	2 5/8	1.000	4 1/16	9/16	**NCFL212-36E**	FL212E	NC212-36	4.9
		250	140	48	202	16.5	18	29	70.3	66.7	25.4	103.2					
	2 7/16	9 27/32	5 1/2	1 7/8	7 61/64	21/32	23/32	1 9/64	2 25/32	2 5/8	1.000	4 1/8	9/16	**NCFL212E**	FL212E	NC212	4.9
		250	140	48	202	16.5	18	29	70.3	66.7	25.4	104.8		**NCFL212-39E**		NC212-39	

Remarks
1. In Part No. of unit, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 204~210
   A-R1/8..... 211~212
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
4. Representative examples of the forms of housing are indicated.

UKFL
Tapered bore (with adapter)
d_1 20 ~ 110 mm





Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm H	L	A	J	N	A_1	A_2	A_0	B_1	d_e (min.)	Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Adapter No.	Mass kg
d_1																	
20	3/4	5 1/8	2 11/16	1 1/16	3 57/64	5/8	1/2	5/8	1 13/32	1 3/8	1 3/16	1/2	UKFL205	FL205	UK205	HE2305X	0.68
		130	68	27	99	16	13	16	36	35	30	M14				H2305X	0.68
	3/4	5 9/16	3 9/32	1 3/16	4 39/64	15/32	1/2	45/64	1 9/16	1 3/8	1 3/16	3/8	UKFLX05	FLX05	UKX05	HE2305X	1.0
		141	83	30	117	12	13	18	39.5	35	30	M10				H2305X	1.0
	3/4	5 29/32	3 5/32	1 5/32	4 29/64	3/4	1/2	5/8	1 13/32	1 3/8	–	5/8	UKFL305	FL305	UK305	HE2305X	1.1
		150	80	29	113	19	13	16	37.5	35	–	M16				H2305X	1.1
25		5 13/16	3 5/32	1 7/32	4 39/64	5/8	1/2	45/64	1 9/16	1 1/2	1 13/32	1/2	UKFL206	FL206	UK206	H2306X	0.97
	1	148	80	31	117	16	13	18	39.5	38	36	M14				HE2306X	0.97
		6 5/32	3 3/4	1 11/32	5 1/8	5/8	9/16	3/4	1 21/32	1 1/2	1 13/32	1/2	UKFLX06	FLX06	UKX06	H2306X	1.5
	1	156	95	34	130	16	14	19	42	38	36	M14				HE2306X	1.5
		7 3/32	3 17/32	1 1/4	5 9/32	29/32	19/32	45/64	1 5/8	1 1/2	–	3/4	UKFL306	FL306	UK306	H2306X	1.5
	1	180	90	32	134	23	15	18	41	38	–	M20				HE2306X	1.5
30	1 1/8	6 11/32	3 17/32	1 11/32	5 1/8	5/8	9/16	3/4	1 11/16	1 11/16	1 5/8	1/2	UKFL207	FL207	UK207	HS2307X	1.3
		161	90	34	130	16	14	19	43	43	41	M14				H2307X	1.3
	1 1/8	6 23/32	4 1/8	1 1/2	5 43/64	5/8	9/16	53/64	1 27/32	1 11/16	1 5/8	1/2	UKFLX07	FLX07	UKX07	HS2307X	1.8
		171	105	38	144	16	14	21	47	43	41	M14				H2307X	1.8
	1 1/8	7 9/32	3 15/16	1 13/32	5 35/64	29/32	5/8	25/32	1 25/32	1 11/16	–	3/4	UKFL307	FL307	UK307	HS2307X	1.9
		185	100	36	141	23	16	20	45.5	43	–	M20				H2307X	1.9
35	1 1/4															HE2308X	1.6
	1 3/8	6 7/8	3 15/16	1 13/32	5 43/64	5/8	9/16	53/64	1 7/8	1 13/16	1 13/16	1/2	UKFL208	FL208	UK208	HS2308X	1.6
		175	100	36	144	16	14	21	48	46	46	M14				H2308X	1.6
	1 1/4															HE2308X	2.1
	1 3/8	7 1/16	4 3/8	1 9/16	5 53/64	5/8	9/16	55/64	1 31/32	1 13/16	1 13/16	1/2	UKFLX08	FLX08	UKX08	HS2308X	2.1
		179	111	40	148	16	14	22	50	46	46	M14				H2308X	2.1
	1 1/4															HE2308X	2.5
	1 3/8	7 7/8	4 13/32	1 9/16	6 7/32	29/32	21/32	29/32	2	1 13/16	–	3/4	UKFL308	FL308	UK308	HS2308X	2.5
		200	112	40	158	23	17	23	50.5	46	–	M20				H2308X	2.5
40	1 1/2	7 13/32	4 1/4	1 1/2	5 53/64	3/4	19/32	55/64	2	1 31/32	2 1/16	5/8	UKFL209	FL209	UK209	HE2309X	2.0
		188	108	38	148	19	15	22	51	50	52	M16				H2309X	2.0
	1 1/2	7 7/16	4 9/16	1 9/16	6 3/16	5/8	9/16	29/32	2 1/16	1 31/32	2 1/16	1/2	UKFLX09	FLX09	UKX09	HE2309X	2.5
		189	116	40	157	16	14	23	52	50	52	M14				H2309X	2.5
	1 1/2	9 1/16	4 29/32	1 23/32	6 31/32	63/64	23/32	63/64	2 5/32	1 31/32	–	7/8	UKFL309	FL309	UK309	HE2309X	3.6
		230	125	44	177	25	18	25	55	50	–	M22				H2309X	3.6
45	1 3/4	7 3/4	4 17/32	1 9/16	6 3/16	3/4	19/32	55/64	2 1/16	2 5/32	2 9/32	5/8	UKFL210	FL210	UK210	HE2310X	2.3
		197	115	40	157	19	15	22	52	55	58	M16				H2310X	2.3
	1 3/4	8 1/2	5 1/4	1 23/32	7 1/4	3/4	25/32	1 1/32	2 9/32	2 5/32	2 9/32	5/8	UKFLX10	FLX10	UKX10	HE2310X	3.7
		216	133	44	184	19	20	26	58	55	58	M16				H2310X	3.7
	1 3/4	9 7/16	5 1/2	1 7/8	7 23/64	63/64	3/4	1 7/64	2 3/8	2 5/32	–	7/8	UKFL310	FL310	UK310	HE2310X	4.4
		240	140	48	187	25	19	28	60	55	–	M22				H2310X	4.4
50	1 7/8															HS2311X	3.3
	2	8 13/16	5 1/8	1 11/16	7 1/4	3/4	23/32	63/64	2 1/4	2 5/16	2 17/32	5/8	UKFL211	FL211	UK211	H2311X	3.3
		224	130	43	184	19	18	25	57	59	64	M16				HE2311X	3.3

Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 205~210, X05~X09, 305~308
   A-R1/8..... 211~218, X10, 309~324
3. In Part No. of unit with adapters and bearing with adapters, Part No. of applicable adapter follow the Part No. shown in the dimensional tables.
   (Example of Part No. : UKFL206J + H2306X, UK206 + H2306X)
4. As for the triple seal type product (205 is the double seal type product), suffix code L3 (or L2) follows the Part No. of unit or bearing.
   (Example of Part No. : UKFL206JL3 + H2306X, UK206L3 + H2306X)
5. For the dimensions and forms of applicable bearings and adapters, see the dimensional tables of ball bearing for unit and adapter.
6. Housings of nodular graphite cast iron are also available.

Variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s}) and tolerance of position of bolt hole (X)

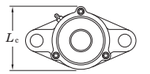
Unit: mm

Housing No.			Δ_{A2s}	X
FL205~FL210	FLX05~FLX10	FL305~FL310	±0.5	0.7
FL211~FL218		FL311~FL324	±0.8	1

Variations of tolerance of bolt hole diameter (Δ_{Ns}) Unit: mm

Housing No.			Δ_{Ns}
FL205~FL218	FLX05~FLX10	FL305~FL311	±0.2
		FL312~FL324	±0.3

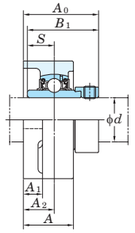
Forms and dimensions of L_e of FL205FJE3 (housing with cast iron cover) are shown below.

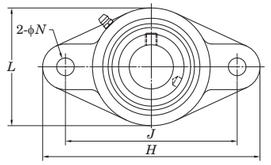


FL205FJE3 L_e = 73 mm

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm H	L	A	J	N	A_1	A_2	A_0	B_1	d_e (min.)	Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Adapter No.	Mass kg
d_1																	
50	1 7/8	9 27/32	5 29/32	2 1/16	7 51/64	63/64	25/32	1 3/16	2 1/2	2 5/16	–	7/8	UKFL311	FL311	UK311	HS2311X	5.6
	2	250	150	52	198	25	20	30	63.5	59	–	M22				H2311X	5.6
																HE2311X	5.6
55	2 1/8	9 27/32	5 1/2	1 7/8	7 61/64	29/32	23/32	1 9/64	2 19/32	2 7/16	2 23/32	3/4	UKFL212	FL212	UK212	HS2312X	4.1
		250	140	48	202	23	18	29	65.5	62	69	M20				H2312X	4.1
	2 1/8	10 5/8	6 5/16	2 7/32	8 11/32	1 7/32	7/8	1 19/64	2 3/4	2 7/16	–	1	UKFL312	FL312	UK312	HS2312X	6.9
		270	160	56	212	31	22	33	69.5	62	–	M27				H2312X	6.9
60	2 1/4															HE2313X	5.0
		10 5/32	6 3/32	1 31/32	8 17/64	29/32	25/32	1 3/16	2 21/32	2 9/16	2 29/32	3/4	UKFL213	FL213	UK213	H2313X	5.0
	2 3/8	258	155	50	210	23	20	30	67.5	65	74	M20				HS2313X	5.0
	2 1/4															HE2313X	8.6
		11 5/8	6 7/8	2 9/32	9 29/64	1 7/32	31/32	1 19/64	2 13/16	2 9/16	–	1	UKFL313	FL313	UK313	H2313X	8.6
	2 3/8	295	175	58	240	31	25	33	71.5	65	–	M27				HS2313X	8.6
65	2 1/2	10 13/16	6 1/2	2 7/32	8 55/64	29/32	25/32	1 11/32	2 15/16	2 7/8	3 11/32	3/4	UKFL215	FL215	UK215	HE2315X	6.6
		275	165	56	225	23	20	34	74.5	73	85	M20				H2315X	6.6
	2 1/2	12 19/32	7 11/16	2 19/32	10 15/64	1 3/8	1 3/16	1 17/32	3 7/32	2 7/8	–	1 1/8	UKFL315	FL315	UK315	HE2315X	11.4
		320	195	66	260	35	30	39	81.5	73	–	M30				H2315X	11.4
70	2 3/4	11 13/32	7 3/32	2 9/32	9 11/64	63/64	25/32	1 11/32	3 3/32	3 1/16	3 17/32	7/8	UKFL216	FL216	UK216	HE2316X	8.1
		290	180	58	233	25	20	34	78.5	78	90	M22				H2316X	8.1
	2 3/4	13 31/32	8 9/32	2 11/16	11 7/32	1 1/2	1 1/4	1 1/2	3 1/4	3 1/16	–	1 1/4	UKFL316	FL316	UK316	HE2316X	13.9
		355	210	68	285	38	32	38	82.5	78	–	M33				H2316X	13.9
75	3	12	7 15/32	2 15/32	9 49/64	63/64	7/8	1 27/64	3 1/4	3 7/32	3 25/32	7/8	UKFL217	FL217	UK217	H2317X	9.9
		305	190	63	248	25	22	36	82.5	82	96	M22				HE2317X	9.9
	3	14 9/16	8 21/32	2 29/32	11 13/16	1 1/2	1 1/4	1 47/64	3 5/8	3 7/32	–	1 1/4	UKFL317	FL317	UK317	H2317X	15.8
		370	220	74	300	38	32	44	92	82	–	M33				HE2317X	15.8
80	–	12 19/32	8 1/16	2 11/16	10 7/16	63/64	29/32	1 37/64	3 17/32	3 3/8	4 1/32	7/8	UKFL218	FL218	UK218	H2318X	12.2
		320	205	68	265	25	23	40	89.5	86	102	M22					
	–	15 5/32	9 1/4	3	12 13/32	1 1/2	1 13/32	1 47/64	3 5/8	3 3/8	–	1 1/4	UKFL318	FL318	UK318	H2318X	19.1
		385	235	76	315	38	36	44	92	86	–	M33					
85	3 1/4	15 15/16	9 27/32	3 11/16	12 63/64	1 39/64	1 9/16	2 21/64	4 3/8	3 17/32	–	1 3/8	UKFL319	FL319	UK319	HE2319X	24.9
		405	250	94	330	41	40	59	111	90	–	M36				H2319X	24.9
90	3 1/2	17 5/16	10 5/8	3 11/16	14 11/64	1 47/64	1 9/16	2 21/64	4 7/16	3 13/16	–	1 1/2	UKFL320	FL320	UK320	HE2320X	29.0
		440	270	94	360	44	40	59	113	97	–	M39				H2320X	29.0
100	4	18 1/2	11 13/16	3 25/32	15 23/64	1 47/64	1 21/32	2 23/64	4 23/32	4 1/8	–	1 1/2	UKFL322	FL322	UK322	H2322X	36.1
		470	300	96	390	44	42	60	120	105	–	M39				HE2322X	36.1
110	–	20 15/32	13	4 11/32	16 59/64	1 27/32	1 7/8	2 9/16	5 1/8	4 13/32	–	1 5/8	UKFL324	FL324	UK324	H2324X	51.9
		520	330	110	430	47	48	65	130.5	112	–	M42					

NANFL
Cylindrical bore
(with eccentric locking collar)
d 12 ~ 55 mm





Variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s}) and tolerance of position of bolt hole (X)

Unit: mm

Housing No.	Δ_{A2s}	X
NFL204~NFL210	±0.5	0.7
NFL211	±0.8	1

Variations of tolerance of bolt hole diameter (Δ_{Ns})

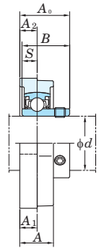
Unit: mm

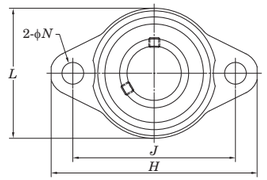
Housing No.	Δ_{Ns}
NFL204~NFL211	±0.2

Shaft Dia mm	Shaft Dia inch	Dimensions inch / mm H	L	A	J	N	A_1	A_2	A_0	B_1	S	Bolt Size inch	Unit No.	Housing No.	Bearing No.	Mass kg
12	1/2												NANFL201		NA201	
													NANFL201-8		NA201-8	
15													NANFL202		NA202	
	5/8	4 7/16	2 3/8	1 5/32	3 17/32	25/64	7/16	3/4	1 25/32	1.720	0.673	5/16	NANFL202-10	NFL204	NA202-10	0.59
17		113	60	29.5	89.7	10	11	19	45.6	43.7	17.1		NANFL203		NA203	
	3/4												NANFL204-12		NA204-12	
20													NANFL204		NA204	
25	7/8												NANFL205-14		NA205-14	
	15/16	5 1/8	2 11/16	1 7/32	3 57/64	15/32	1/2	25/32	1 27/32	1.748	0.689	3/8	NANFL205-15	NFL205	NA205-15	0.9
	1	130	68	31	98.8	12	13	20	46.9	44.4	17.5		NANFL205		NA205	
													NANFL205-16		NA205-16	
30	1 1/8												NANFL206-18		NA206-18	
		5 13/16	3 5/32	1 11/32	4 19/32	15/32	1/2	53/64	2	1.906	0.720	3/8	NANFL206	NFL206	NA206	1.1
	1 3/16	148	80	34	116.7	12	13	21	51.1	48.4	18.3		NANFL206-19		NA206-19	
	1 1/4												NANFL206-20		NA206-20	
35	1 1/4												NANFL207-20		NA207-20	
	1 5/16												NANFL207-21		NA207-21	
	1 3/8	6 11/32	3 17/32	1 7/16	5 1/8	33/64	9/16	27/32	2 1/8	2.012	0.740	7/16	NANFL207-22	NFL207	NA207-22	1.6
		161	90	36.5	130.2	13	14	21.5	53.8	51.1	18.8		NANFL207		NA207	
	1 7/16												NANFL207-23		NA207-23	
40	1 1/2												NANFL208-24		NA208-24	
	1 9/16	6 7/8	3 15/16	1 17/32	5 21/32	33/64	9/16	15/16	2 5/16	2.217	0.843	7/16	NANFL208-25	NFL208	NA208-25	2.0
		175	100	39	143.7	13	14	24	58.9	56.3	21.4		NANFL208		NA208	
45	1 5/8												NANFL209-26		NA209-26	
	1 11/16	7 13/32	4 1/4	1 9/16	5 27/32	19/32	9/16	15/16	2 5/16	2.217	0.843	1/2	NANFL209-27	NFL209	NA209-27	2.3
	1 3/4	188	108	40	148.4	15	14	24	58.9	56.3	21.4		NANFL209-28		NA209-28	
													NANFL209		NA209	
50	1 7/8												NANFL210-30		NA210-30	
	1 15/16	7 3/4	4 17/32	1 27/32	6 3/16	19/32	9/16	1 1/8	2 5/8	2.469	0.969	1/2	NANFL210-31	NFL210	NA210-31	2.7
	2	197	115	46.5	157	15	14	28.5	66.6	62.7	24.6		NANFL210		NA210	
													NANFL210-32		NA210-32	
55	2												NANFL211-32		NA211-32	
	2 1/8	8 13/16	5 1/8	1 31/32	7 1/4	21/32	25/32	1 17/64	2 31/32	2.811	1.094	9/16	NANFL211-34	NFL211	NA211-34	4.1
		224	130	50	184	16.5	20	32	75.6	71.4	27.8		NANFL211		NA211	
	2 3/16												NANFL211-35		NA211-35	

Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 201~210
   A-R1/8..... 211
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
4. Housings of nodular graphite cast iron are also available.

UFL
Cylindrical bore (with set screws)
d 8 ~ 30 mm





Variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s}) and variations of tolerance of distance between centers of bolt holes (Δ_{Js})

Unit: mm

Housing No.	Δ_{A2s}	Δ_{Js}
FL08	±0.5	±0.3
FL000~FL006		

Variations of tolerance of bolt hole diameter (Δ_{Ns})

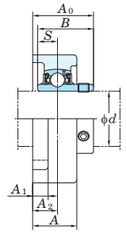
Unit: mm

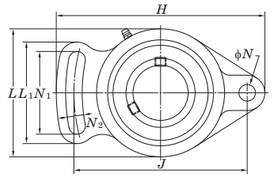
Housing No.	Δ_{Ns}
FL08	±0.2
FL000~FL006	

Shaft Dia. mm	Dimensions inch / mm H	L	A	J	N	A_1	A_2	A_0	B	S	Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Mass kg
8	1 7/8	1 1/16	11/32	1 29/64	3/16	5/32	5/32	1/2	0.472	0.1378	No.8	UFL08	FL08	SU08	0.030
	48	27	8.5	37	4.8	4	4	12.5	12	3.5	M4				
10	2 3/8	1 13/32	15/32	1 49/64	9/32	1/4	15/64	5/8	0.591	0.197	1/4	UFL000	FL000	SU000	0.050
	60	36	12	45	7	6	6	16	15	5	M6				
12	2 15/32	1 1/2	15/32	1 57/64	9/32	1/4	15/64	5/8	0.591	0.197	1/4	UFL001	FL001	SU001	0.065
	63	38	12	48	7	6	6	16	15	5	M6				
15	2 5/8	1 21/32	1/2	2 3/32	9/32	1/4	1/4	11/16	0.650	0.217	1/4	UFL002	FL002	SU002	0.085
	67	42	13	53	7	6.5	6.5	17.5	16.5	5.5	M6				
17	2 25/32	1 13/16	9/16	2 13/64	9/32	9/32	9/32	23/32	0.689	0.236	1/4	UFL003	FL003	SU003	0.11
	71	46	14	56	7	7	7	18.5	17.5	6	M6				
20	3 17/32	2 5/32	5/8	2 51/64	25/64	5/16	5/16	7/8	0.827	0.276	5/16	UFL004	FL004	SU004	0.18
	90	55	16	71	10	8	8	22	21	7	M8				
25	3 3/4	2 3/8	5/8	2 61/64	25/64	5/16	5/16	29/32	0.866	0.276	5/16	UFL005	FL005	SU005	0.23
	95	60	16	75	10	8	8	23	22	7	M8				
30	4 13/32	2 3/4	23/32	3 11/32	33/64	11/32	23/64	1 1/32	0.965	0.295	3/8	UFL006	FL006	SU006	0.31
	112	70	18	85	13	9	9	26	24.5	7.5	M10				

Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.

UCFA
Cylindrical bore (with set screws)
d 12 ~ 55 mm





Variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s})

Unit: mm

Housing No.	Δ_{A2s}
FA204~FA210	±0.5
FA211	±0.8

Variations of tolerance of bolt hole diameter (Δ_{Ns})

Unit: mm

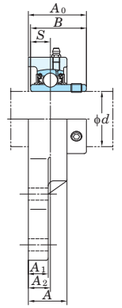
Housing No.	Δ_{Ns}
FA204~FA211	±0.2

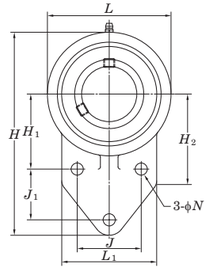
Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm												Bolt Size inch	Bolt Size mm	Unit No.	Housing No.	Bearing No.	Mass
d		H	L	A	J	N	N_1	N_2	L_1	A_1	A_2	A_0	B	S					kg
12	1/2															UCFA201		UC201	0.47
																UCFA201-8		UC201-8	
15																UCFA202		UC202	0.45
	5/8	3 27/32	2 5/16	15/16	3 1/16	25/64	1 9/16	13/32	1 31/32	7/16	35/64	1 1/4	1.220	0.500	5/16	UCFA202-10	FA204	UC202-10	
		98	59	24	78	10	40	10	50	11	13.8	32.1	31	12.7	M8				
17																UCFA203		UC203	0.44
	3/4															UCFA204-12		UC204-12	
20																UCFA204		UC204	0.42
	7/8															UCFA205-14		UC205-14	
25	15/16	4 7/8	2 3/4	1 1/16	3 27/32	7/16	1 15/16	7/16	2 17/32	1/2	5/8	1 13/32	1.343	0.563	3/8	UCFA205-15	FA205	UC205-15	0.68
		124	70	27	98	11	49	11	64	13	16	35.8	34.1	14.3	M10	UCFA205		UC205	
	1															UCFA205-16		UC205-16	
	1 1/8															UCFA206-18		UC206-18	
30		5 9/16	3 9/32	1 3/16	4 19/32	7/16	2 7/32	15/32	2 11/16	1/2	45/64	1 9/16	1.500	0.626	3/8	UCFA206	FA206	UC206	1.0
	1 3/16	141	83	30	117	11	56	12	68	13	17.8	40	38.1	15.9	M10	UCFA206-19		UC206-19	
	1 1/4															UCFA206-20		UC206-20	
	1 1/4															UCFA207-20		UC207-20	
	1 5/16															UCFA207-21		UC207-21	
35		6 3/32	3 25/32	1 11/32	5 1/8	33/64	2 15/32	1/2	2 15/16	9/16	47/64	1 23/32	1.689	0.689	7/16	UCFA207-22	FA207	UC207-22	1.5
	1 3/8	155	96	34	130	13	63	13	75	14	18.6	44	42.9	17.5	M12	UCFA207		UC207	
	1 7/16															UCFA207-23		UC207-23	
	1 1/2															UCFA208-24		UC208-24	
40	1 9/16	6 23/32	4 1/8	1 1/2	5 21/32	33/64	2 3/4	1/2	3 5/16	9/16	13/16	2	1.937	0.748	7/16	UCFA208-25	FA208	UC208-25	1.9
		171	105	38	144	13	70	13	84	14	20.8	51	49.2	19	M12	UCFA208		UC208	
	1 5/8															UCFA209-26		UC209-26	
45	1 11/16	7 1/16	4 3/8	1 9/16	5 13/16	19/32	2 27/32	19/32	3 15/32	9/16	55/64	2 1/16	1.937	0.748	1/2	UCFA209-27	FA209	UC209-27	1.7
	1 3/4	179	111	40	148	15	72	15	88	14	21.8	52	49.2	19	M14	UCFA209-28		UC209-28	
																UCFA209		UC209	
	1 7/8															UCFA210-30		UC210-30	
50	1 15/16	7 7/16	4 9/16	1 9/16	6 3/16	19/32	2 15/16	19/32	3 5/8	9/16	57/64	2 5/32	2.031	0.748	1/2	UCFA210-31	FA210	UC210-31	2.0
		189	116	40	157	15	75	15	92	14	22.5	55.1	51.6	19	M14	UCFA210		UC210	
	2															UCFA210-32		UC210-32	
	2															UCFA211-32		UC211-32	
55	2 1/8	8 1/2	5 1/4	1 23/32	7 1/4	5/8	3 3/8	5/8	4 1/32	25/32	1 1/64	2 5/16	2.189	0.874	1/2	UCFA211-34	FA211	UC211-34	3.6
		216	133	44	184	16	86	16	102	20	25.7	59.1	55.6	22.2	M14	UCFA211		UC211	
	2 3/16															UCFA211-35		UC211-35	

Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 201~210
   A-R1/8..... 211
3. As for triple seal type product (from 201 to 205 are the double seal type products), suffix code L3 (or L2) follows Part No. of unit or bearing.
   (Example of Part No. : UCFA206JL3, UC206L3)
4. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
5. Tapered bore (with adapter) type products are also available. (Example of Part No. : UKFA205J + H2305X, UK205 + H2305X)

FYH

UCFB
Cylindrical bore (with set screws)
d 12 ~ 50 mm





Variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s}), variations of tolerance of distance between centers of bolt holes (Δ_{Js}, Δ_{J1s}), variations of tolerance of distance between both grooves (Δ_{H1s})

Unit: mm

Housing No.	Δ_{A2s}	Δ_{Js}	Δ_{J1s}	Δ_{H1s}
FB204~FB210	±0.5			

Variations of tolerance of bolt hole diameter (Δ_{Ns})

Unit: mm

Housing No.	Δ_{Ns}
FB204~FB210	±0.2

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm														Bolt Size inch	Bolt Size mm	Unit No.	Housing No.	Bearing No.	Mass
d		H	L	A	J	J_1	N	H_1	H_2	L_1	A_1	A_2	A_0	B	S						kg
12	1/2																	UCFB201		UC201	0.64
																		UCFB201-8		UC201-8	
15																		UCFB202		UC202	0.62
	5/8	4 11/32	2 7/16	31/32	1 17/64	1 1/16	3/8	1 21/32	2 1/16	2 1/16	1/2	17/32	1 1/4	1.220	0.500	5/16	M8	UCFB202-10	FB204	UC202-10	
		110	62	24.5	32	27	9.5	42	52	52	13	13.5	31.8	31	12.7						
17																		UCFB203		UC203	0.61
	3/4																	UCFB204-12		UC204-12	
20																		UCFB204		UC204	0.59
	7/8																	UCFB205-14		UC205-14	
25	15/16	4 9/16	2 11/16	1 1/16	1 11/32	1 1/16	3/8	1 49/64	2 1/16	2 7/32	1/2	19/32	1 3/8	1.343	0.563	5/16	M8	UCFB205-15	FB205	UC205-15	0.68
		116	68	27	34	27	9.5	45	52	56	13	15	34.8	34.1	14.3			UCFB205		UC205	
	1																	UCFB205-16		UC205-16	
	1 1/8																	UCFB206-18		UC206-18	
30		5 1/8	3 1/16	1 3/16	1 37/64	1 9/64	3/8	1 31/32	2 5/32	2 9/16	1/2	43/64	1 17/32	1.500	0.626	5/16	M8	UCFB206	FB206	UC206	0.92
	1 3/16	130	78	30	40	29	9.5	50	55	65	13	17	39.2	38.1	15.9			UCFB206-19		UC206-19	
	1 1/4																	UCFB206-20		UC206-20	
	1 1/4																	UCFB207-20		UC207-20	
	1 5/16																	UCFB207-21		UC207-21	
35		5 21/32	3 17/32	1 5/16	1 13/16	1 17/64	3/8	2 11/64	2 7/16	2 3/4	19/32	3/4	1 3/4	1.689	0.689	5/16	M8	UCFB207-22	FB207	UC207-22	1.3
	1 3/8	144	90	33.5	46	32	9.5	55	62	70	15	19	44.4	42.9	17.5			UCFB207		UC207	
	1 7/16																	UCFB207-23		UC207-23	
	1 1/2																	UCFB208-24		UC208-24	
40	1 9/16	6 15/32	3 15/16	1 3/8	1 31/32	1 39/64	7/16	2 23/64	2 27/32	3 1/16	5/8	25/32	1 31/32	1.937	0.748	3/8	M10	UCFB208-25	FB208	UC208-25	1.8
		164	100	35	50	41	11	60	72	78	16	20	50.2	49.2	19			UCFB208		UC208	
	1 5/8																	UCFB209-26		UC209-26	
45	1 11/16	6 27/32	4 3/16	1 13/32	2 1/8	1 11/16	7/16	2 9/16	3	3 5/32	23/32	25/32	1 31/32	1.937	0.748	3/8	M10	UCFB209-27	FB209	UC209-27	2.0
	1 3/4	174	106	35.5	54	43	11	65	76	80	18	20	50.2	49.2	19			UCFB209-28		UC209-28	
																		UCFB209		UC209	
	1 7/8																	UCFB210-30		UC210-30	
50	1 15/16	7 1/4	4 13/32	1 13/32	2 9/32	1 13/16	7/16	2 43/64	3 7/32	3 3/8	23/32	25/32	2 1/16	2.031	0.748	3/8	M10	UCFB210-31	FB210	UC210-31	2.3
		184	112	36	58	46	11	68	82	86	18	20	52.6	51.6	19			UCFB210		UC210	
	2																	UCFB210-32		UC210-32	

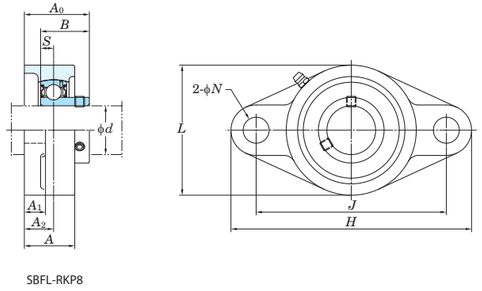
Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fitting is A-1/4-28UNF.
3. As for the triple seal type product (from 201 to 205 are the double seal type products), suffix code L3 (or L2) follows Part No. of unit or bearing.
   (Example of Part No. : UCFB206JL3, UC206L3)
4. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
5. Tapered bore (with adapter) type products are also available. (Example of Part No. : UKFB205J + H2305X, UK205 + H2305X)

SBFL-RKP8
Cylindrical bore
(with set screws)
d 20 ~ 55 mm

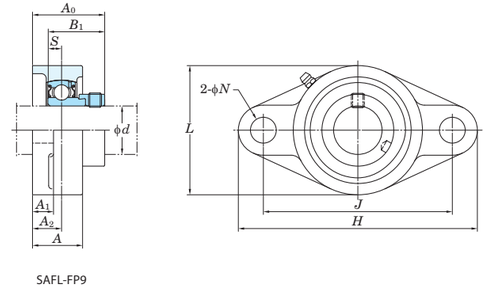
SAFL-FP9
Cylindrical bore
(with eccentric locking collar)

SBFL-RKP8

SAFL-FP9



SBFL-RKP8



SAFL-FP9

Variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s}) and tolerance of position of bolt hole (X)

Unit: mm

Housing No.	Δ_{A2s}	X
FL204~FL210	±0.5	0.7
FL211	±0.8	1

Variations of tolerance of bolt hole diameter (Δ_{Ns})

Unit: mm

Housing No.	Δ_{Ns}
FL204~FL211	±0.2

Shaft Dia. d (mm)	Shaft Dia. d (inch)	Dimensions (inch) H	L	A	J	N	A_1	A_2	SBFL-RKP8 A_0	SAFL-FP9 A_0	B	B_1	SBFL-RKP8 S	SAFL-FP9 S	Bolt Size (inch / mm)	Unit No.	Bearing No.	Unit No.	Bearing No.	Housing No.	Mass (kg) SBFL-RKP8	Mass (kg) SAFL-FP9
20	3/4	4 7/16 113	2 3/8 60	1 25.5	3 35/64 90	15/32 12	7/16 11	19/32 15	1 5/16 33	1 17/32 38.5	0.984 25	1.220 31	0.276 7	0.295 7.5	3/8 M10	**SBFL204-12RKP8** **SBFL204RKP8**	SB204-12RKP8 SB204RKP8	**SAFL204-12FP9** **SAFL204FP9**	SA204-12FP9 SA204FP9	FL204	0.44	0.48
25	7/8 15/16 1	5 1/8 130	2 11/16 68	1 1/16 27	3 57/64 99	5/8 16	1/2 13	5/8 16	1 13/32 35.5	1 9/16 39.5	1.063 27	1.220 31	0.295 7.5	0.295 7.5	1/2 M14	**SBFL205-14RKP8** **SBFL205-15RKP8** **SBFL205RKP8** **SBFL205-16RKP8**	SB205-14RKP8 SB205-15RKP8 SB205RKP8 SB205-16RKP8	**SAFL205-14FP9** **SAFL205-15FP9** **SAFL205FP9** **SAFL205-16FP9**	SA205-14FP9 SA205-15FP9 SA205FP9 SA205-16FP9	FL205	0.62	0.67
30	1 1/8 1 3/16 1 1/4	5 13/16 148	3 5/32 80	1 7/32 31	4 39/64 117	5/8 16	1/2 13	45/64 18	1 9/16 40	1 3/4 44.7	1.181 30	1.406 35.7	0.315 8	0.354 9	1/2 M14	**SBFL206-18RKP8** **SBFL206RKP8** **SBFL206-19RKP8** **SBFL206-20RKP8**	SB206-18RKP8 SB206RKP8 SB206-19RKP8 SB206-20RKP8	**SAFL206-18FP9** **SAFL206FP9** **SAFL206-19FP9** **SAFL206-20FP9**	SA206-18FP9 SA206FP9 SA206-19FP9 SA206-20FP9	FL206	0.88	0.95
35	1 1/4 1 5/16 1 3/8 1 7/16	6 11/32 161	3 17/32 90	1 11/32 34	5 1/8 130	5/8 16	9/16 14	3/4 19	1 11/16 42.5	1 29/32 48.4	1.260 32	1.531 38.9	0.335 8.5	0.374 9.5	1/2 M14	**SBFL207-20RKP8** – **SBFL207-22RKP8** **SBFL207RKP8** **SBFL207-23RKP8**	SB207-20RKP8 – SB207-22RKP8 SB207RKP8 SB207-23RKP8	**SAFL207-20FP9** **SAFL207-21FP9** **SAFL207-22FP9** **SAFL207FP9** **SAFL207-23FP9**	SA207-20FP9 SA207-21FP9 SA207-22FP9 SA207FP9 SA207-23FP9	FL207	1.14 – 1.14 1.14 1.14	1.29
40	1 1/2 1 9/16	6 7/8 175	3 15/16 100	1 13/32 36	5 43/64 144	5/8 16	9/16 14	53/64 21	1 13/16 46	2 1/8 53.7	1.339 34	1.720 43.7	0.354 9	0.433 11	1/2 M14	**SBFL208-24RKP8** – **SBFL208RKP8**	SB208-24RKP8 – SB208RKP8	**SAFL208-24FP9** **SAFL208-25FP9** **SAFL208FP9**	SA208-24FP9 SA208-25FP9 SA208FP9	FL208	1.56 – 1.56	1.71
45	1 5/8 1 11/16 1 3/4	7 13/32 188	4 1/4 108	1 1/2 38	5 53/64 148	3/4 19	19/32 15	55/64 22	– –	2 5/32 54.7	– –	1.720 43.7	– –	0.433 11	5/8 M16	– – – –	– – – –	**SAFL209-26FP9** **SAFL209-27FP9** **SAFL209-28FP9** **SAFL209FP9**	SA209-26FP9 SA209-27FP9 SA209-28FP9 SA209FP9	FL209	–	2.04
50	1 7/8 1 15/16	7 3/4 197	4 17/32 115	1 9/16 40	6 3/16 157	3/4 19	19/32 15	55/64 22	– –	2 5/32 54.7	– –	1.720 43.7	– –	0.433 11	5/8 M16	– – –	– – –	**SAFL210-30FP9** **SAFL210-31FP9** **SAFL210FP9**	SA210-30FP9 SA210-31FP9 SA210FP9	FL210	–	2.25
55	2 2 1/8 2 3/16	8 13/16 224	5 1/8 130	1 11/16 43	7 1/4 184	3/4 19	23/32 18	63/64 25	– –	2 13/32 61.3	– –	1.902 48.3	– –	0.472 12	5/8 M16	– – –	– – –	**SAFL211-32FP9** **SAFL211-34FP9** **SAFL211FP9** **SAFL211-35FP9**	SA211-32FP9 SA211-34FP9 SA211FP9 SA211-35FP9	FL211	–	3.39

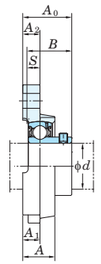
Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 204~210
   A-R1/8..... 211
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
4. Housings of nodular graphite cast iron are also available.

SBTFD-H4RKP8
Cylindrical bore
(with set screws)
d **12 ~ 35 mm**

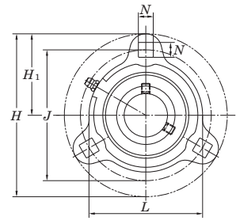
SATFD-FH4P9
Cylindrical bore
(with eccentric locking collar)

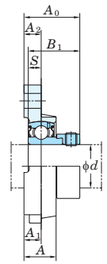
SBTFD-H4RKP8

SATFD-FH4P9

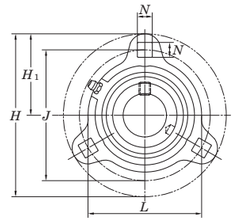


SBTFD-H4RKP8





SATFD-FH4P9



Shaft Dia. d mm	Shaft Dia. d inch	Dimensions H	L	A	J	N	H1	SBTFD A0	SATFD A0	A1	A2	B	B1	SBTFD S	SATFD S	Bolt Size mm	Unit No.	Bearing No.	Unit No.	Bearing No.	Housing No.	Mass kg SBTFD	Mass kg SATFD
		inch						inch	inch							inch							
		mm						mm	mm							mm							
12	1/2	3 3/16	2 3/32	11/16	2 1/2	9/32	1 19/32	1	1 1/4	3/8	3/8	0.866	1.126	0.236	0.256	1/4	**SBTFD201H4RKP8**	SB201RKP8	**SATFD201FH4P9**	SA201FP9			
																	SBTFD201-8H4RKP8	SB201-8RKP8	**SATFD201-8FH4P9**	SA201-8FP9			
15		81	53.2	17.5	63.5	7.1	40.5	25.5	31.6	9.5	9.5	22	28.6	6	6.5		**SBTFD202H4RKP8**	SB202RKP8	**SATFD202FH4P9**	SA202FP9	TFD203H4	0.23	0.26
	5/8																**SBTFD202-10H4RKP8**	SB202-10RKP8	**SATFD202-10FH4P9**	SA202-10FP9			
17																	**SBTFD203H4RKP8**	SB203RKP8	**SATFD203FH4P9**	SA203FP9			
20	3/4	3 9/16	2 3/8	25/32	2 13/16	11/32	1 25/32	1 1/8	1 11/32	13/32	27/64	0.984	1.220	0.276	0.295	5/16	**SBTFD204-12H4RKP8**	SB204-12RKP8	**SATFD204-12FH4P9**	SA204-12FP9	TFD204H4	0.30	0.34
		90.5	60.3	19.8	71.4	8.7	45.3	28.7	34.2	10.7	10.7	25	31	7	7.5		**SBTFD204H4RKP8**	SB204RKP8	**SATFD204FH4P9**	SA204FP9			
	7/8																**SBTFD205-14H4RKP8**	SB205-14RKP8	**SATFD205-14FH4P9**	SA205-14FP9			
25	15/16	3 3/4	2 5/8	25/32	3	11/32	1 7/8	1 3/16	1 11/32	13/32	27/64	1.063	1.220	0.295	0.295	5/16	**SBTFD205-15H4RKP8**	SB205-15RKP8	**SATFD205-15FH4P9**	SA205-15FP9	TFD205H4	0.35	0.39
		95.2	66.7	19.8	76.2	8.7	47.6	30.2	34.2	10.7	10.7	27	31	7.5	7.5		**SBTFD205H4RKP8**	SB205RKP8	**SATFD205FH4P9**	SA205FP9			
	1																**SBTFD205-16H4RKP8**	SB205-16RKP8	**SATFD205-16FH4P9**	SA205-16FP9			
	1 1/8																**SBTFD206-18H4RKP8**	SB206-18RKP8	**SATFD206-18FH4P9**	SA206-18FP9			
30		4 7/16	3 3/32	7/8	3 9/16	13/32	2 7/32	1 11/32	1 17/32	15/32	15/32	1.181	1.406	0.315	0.354	3/8	**SBTFD206H4RKP8**	SB206RKP8	**SATFD206FH4P9**	SA206FP9	TFD206H4	0.54	0.61
	1 3/16	112.7	78.6	22.2	90.5	10.3	56.4	33.9	38.6	11.9	11.9	30	35.7	8	9		**SBTFD206-19H4RKP8**	SB206-19RKP8	**SATFD206-19FH4P9**	SA206-19FP9			
	1 1/4																**SBTFD206-20H4RKP8**	SB206-20RKP8	**SATFD206-20FH4P9**	SA206-20FP9			
	1 1/4																**SBTFD207-20H4RKP8**	SB207-20RKP8	**SATFD207-20FH4P9**	SA207-20FP9			
	1 5/16																–	–	**SATFD207-21FH4P9**	SA207-21FP9			
35	1 3/8	4 13/16	3 1/2	15/16	3 15/16	13/32	2 13/32	1 7/16	1 21/32	1/2	1/2	1.260	1.531	0.335	0.374	3/8	**SBTFD207-22H4RKP8**	SB207-22RKP8	**SATFD207-22FH4P9**	SA207-22FP9	TFD207H4	0.67	0.82
		122.2	88.9	23.8	100	10.3	61.1	36.2	42.1	12.7	12.7	32	38.9	8.5	9.5		**SBTFD207H4RKP8**	SB207RKP8	**SATFD207FH4P9**	SA207FP9			
	1 7/16																**SBTFD207-23H4RKP8**	SB207-23RKP8	**SATFD207-23FH4P9**	SA207-23FP9			

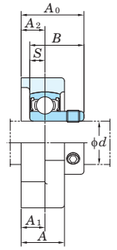
Remarks 1. In Part No. of unit and units with covers, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fitting is A-1/4-28UNF.
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.

BLF
Cylindrical bore
(with set screws)
d **12 ~ 35 mm**

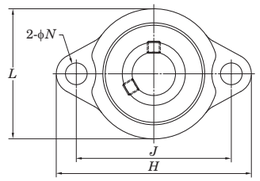
ALF
Cylindrical bore
(with eccentric locking collar)

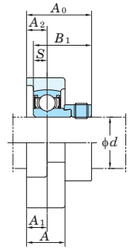
BLF

ALF



BLF





ALF

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm: H	L	A	J	N	A1	A2	S	BLF A0	BLF B	ALF A0	ALF B1	Bolt Size inch / mm	Unit No.	Bearing No.	Unit No.	Bearing No.	Housing No.	Mass kg: BLF	Mass kg: ALF
12															**BLF201**	SB201	**ALF201**	SA201			
	1/2	3 3/16	2 1/16	23/32	2 1/2	5/16	3/8	3/8	0.236	1	0.866	1 1/4	1.122	1/4	**BLF201-8**	SB201-8	**ALF201-8**	SA201-8			
15		81	52	18	63.5	8	9.5	9.5	6	25.5	22	32	28.5	M6	**BLF202**	SB202	**ALF202**	SA202	LF203	0.25	0.28
	5/8														**BLF202-10**	SB202-10	**ALF202-10**	SA202-10			
17															**BLF203**	SB203	**ALF203**	SA203			
20	3/4	3 17/32	2 3/8	25/32	2 13/16	25/64	7/16	7/16	0.276	1 5/32	0.984	1 5/16	1.161	5/16	**BLF204-12**	SB204-12	**ALF204-12**	SA204-12	LF204	0.33	0.33
		90	60	20	71.5	10	11	11	7	29	25	33.5	29.5	M8	**BLF204**	SB204	**ALF204**	SA204			
	7/8														**BLF205-14**	SB205-14	**ALF205-14**	SA205-14			
25	15/16	3 3/4	2 17/32	25/32	2 63/64	25/64	7/16	7/16	0.295	1 3/16	1.063	1 11/32	1.201	5/16	**BLF205-15**	SB205-15	**ALF205-15**	SA205-15	LF205	0.38	0.42
		95	64	20	76	10	11	11	7.5	30.5	27	34	30.5	M8	**BLF205**	SB205	**ALF205**	SA205			
	1														**BLF205-16**	SB205-16	**ALF205-16**	SA205-16			
	1 1/8														**BLF206-18**	SB206-18	**ALF206-18**	SA206-18			
30		4 7/16	3	7/8	3 9/16	15/32	15/32	15/32	0.315	1 11/32	1.181	1 1/2	1.335	3/8	**BLF206**	SB206	**ALF206**	SA206	LF206	0.57	0.60
	1 3/16	113	76	22.5	90.5	12	12	12	8	34	30	37.9	33.9	M10	**BLF206-19**	SB206-19	**ALF206-19**	SA206-19			
	1 1/4														**BLF206-20**	SB206-20	**ALF206-20**	SA206-20			
	1 1/4														**BLF207-20**	SB207-20	**ALF207-20**	SA207-20			
	1 5/16														–	–	**ALF207-21**	SA207-21			
35	1 3/8	4 13/16	3 1/2	15/16	3 15/16	15/32	1/2	33/64	0.335	1 7/16	1.260	1 5/8	1.437	3/8	**BLF207-22**	SB207-22	**ALF207-22**	SA207-22	LF207	0.77	0.85
		122	89	24	100	12	13	13	8.5	36.5	32	41	36.5	M10	**BLF207**	SB207	**ALF207**	SA207			
	1 7/16														**BLF207-23**	SB207-23	**ALF207-23**	SA207-23			

Remarks 1. In Part No. of unit and units with covers, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. Allowable load to housing in radial direction is approximately half of basic load rating of bearing, C_r (when safety factor is 4).
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.

Variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s}) and variations of tolerance of distance between centers of bolt holes (Δ_{Js})

Unit: mm

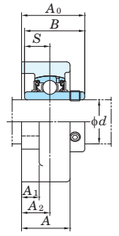
Housing No.	Δ_{A2s}	Δ_{Js}
LF203~LF207	±0.5	±0.7

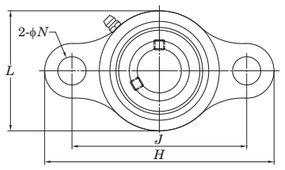
Variations of tolerance of bolt hole diameter (Δ_{Ns})

Unit: mm

Housing No.	Δ_{Ns}
LF203~LF207	±0.2

UCSFL-S6
Cylindrical bore (with set screws)
d 12 ~ 50 mm





Variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s}) and variations of tolerance of distance between centers of bolt holes (Δ_{Js})

Unit: mm

Housing No.	Δ_{A2s}	Δ_{Js}
SFL203~SFL210	±0.5	±0.5

Variations of tolerance of bolt hole diameter (Δ_{Ns})

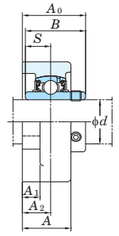
Unit: mm

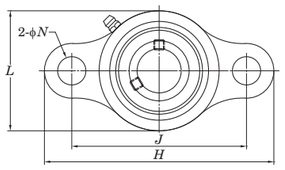
Housing No.	Δ_{Ns}
SFL203~SFL210	±0.2

Shaft Dia mm	Shaft Dia inch	Dimensions inch / mm H	L	A	J	N	A_1	A_2	A_0	B	S	Bolt Size inch	Bolt Size mm	Unit No.	Housing No.	Bearing No.	Mass kg
12														UCSFL201XS6		UC201XS6	
	1/2													UCSFL201X-8S6		UC201X-8S6	
15		3 27/32	2 1/16	15/16	3 1/16	15/32	13/32	35/64	1 3/16	1.079	0.453	3/8		UCSFL202XS6	SFL203	UC202XS6	0.33
	5/8	98	52	24	76.5	12	10	14	29.9	27.4	11.5		M10	UCSFL202X-10S6		UC202X-10S6	
17														UCSFL203XS6		UC203XS6	
20	3/4	4 7/16	2 13/32	1 1/32	3 35/64	15/32	13/32	19/32	1 5/16	1.220	0.500	3/8		UCSFL204-12S6	SFL204	UC204-12S6	0.47
		113	61	26	90	12	10	15	33.3	31	12.7		M10	UCSFL204S6		UC204S6	
	7/8													UCSFL205-14S6		UC205-14S6	
25	15/16	5 1/8	2 11/16	1 3/32	3 57/64	5/8	13/32	5/8	1 13/32	1.343	0.563	1/2		UCSFL205-15S6	SFL205	UC205-15S6	0.61
		130	68	27.5	99	16	10	16	35.8	34.1	14.3		M14	UCSFL205S6		UC205S6	
	1													UCSFL205-16S6		UC205-16S6	
	1 1/8													UCSFL206-18S6		UC206-18S6	
30		5 13/16	3 5/32	1 7/32	4 19/32	5/8	13/32	45/64	1 19/32	1.500	0.626	1/2		UCSFL206S6	SFL206	UC206S6	0.9
	1 3/16	148	80	31	117	16	10	18	40.2	38.1	15.9		M14	UCSFL206-19S6		UC206-19S6	
	1 1/4													UCSFL206-20S6		UC206-20S6	
	1 1/4													UCSFL207-20S6		UC207-20S6	
	1 5/16													UCSFL207-21S6		UC207-21S6	
35	1 3/8	6 11/32	3 11/32	1 11/32	5 1/8	5/8	7/16	3/4	1 3/4	1.689	0.689	1/2		UCSFL207-22S6	SFL207	UC207-22S6	1.1
		161	85	34	130	16	11	19	44.4	42.9	17.5		M14	UCSFL207S6		UC207S6	
	1 7/16													UCSFL207-23S6		UC207-23S6	
	1 1/2													UCSFL208-24S6		UC208-24S6	
40	1 9/16	6 7/8	3 11/16	1 13/32	5 43/64	5/8	15/32	53/64	2 1/32	1.937	0.748	1/2		UCSFL208-25S6	SFL208	UC208-25S6	1.4
		175	94	36	144	16	12	21	51.2	49.2	19		M14	UCSFL208S6		UC208S6	
	1 5/8													UCSFL209-26S6		UC209-26S6	
45	1 11/16	7 13/32	3 15/16	1 1/2	5 53/64	3/4	1/2	55/64	2 1/16	1.937	0.748	5/8		UCSFL209-27S6	SFL209	UC209-27S6	1.6
	1 3/4	188	100	38	148	19	13	22	52.2	49.2	19		M16	UCSFL209-28S6		UC209-28S6	
														UCSFL209S6		UC209S6	
	1 7/8													UCSFL210-30S6		UC210-30S6	
50	1 15/16	7 3/4	4 3/16	1 9/16	6 3/16	3/4	1/2	55/64	2 5/32	2.031	0.748	5/8		UCSFL210-31S6	SFL210	UC210-31S6	1.9
		197	106	40	157	19	13	22	54.6	51.6	19		M16	UCSFL210S6		UC210S6	
	2													UCSFL210-32S6		UC210-32S6	

Remarks 1. In Part No. of unit, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fitting is A-1/4-28UNFN13.
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.

UCSFL-ES6
Cylindrical bore (with set screws)
d 12 ~ 50 mm





Variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s}) and variations of tolerance of distance between centers of bolt holes (Δ_{Js})

Unit: mm

Housing No.	Δ_{A2s}	Δ_{Js}
SFL203E~SFL210E	±0.5	±0.5

Variations of tolerance of bolt hole diameter (Δ_{Ns})

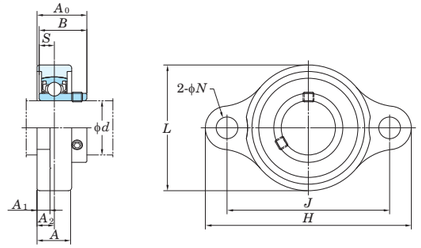
Unit: mm

Housing No.	Δ_{Ns}
SFL203E~SFL210E	±0.2

Shaft Dia mm	Shaft Dia inch	Dimensions inch / mm H	L	A	J	N	A_1	A_2	A_0	B	S	Bolt Size inch	Bolt Size mm	Unit No.	Housing No.	Bearing No.	Mass kg
12														UCSFL201XES6		UC201XS6	
	1/2													UCSFL201X-8S6		UC201X-8S6	
15		3 27/32	2 1/16	15/16	3	25/64	13/32	35/64	1 3/16	1.079	0.453	3/8		UCSFL202XES6	SFL203E	UC202XS6	0.33
	5/8	98	52	24	76.2	10	10	14	29.9	27.4	11.5		M10	UCSFL202X-10S6		UC202X-10S6	
17														UCSFL203XES6		UC203XS6	
20	3/4	4 7/16	2 13/32	1 1/32	3 35/64	25/64	13/32	19/32	1 5/16	1.220	0.500	3/8		UCSFL204-12ES6	SFL204E	UC204-12S6	0.47
		113	61	26	89.7	10	10	15	33.3	31	12.7		M10	UCSFL204ES6		UC204S6	
	7/8													UCSFL205-14ES6		UC205-14S6	
25	15/16	5 1/8	2 19/32	1 3/32	3 57/64	15/32	13/32	5/8	1 13/32	1.343	0.563	1/2		UCSFL205-15ES6	SFL205E	UC205-15S6	0.61
		130	66	27.5	98.8	12	10	16	35.8	34.1	14.3		M14	UCSFL205ES6		UC205S6	
	1													UCSFL205-16ES6		UC205-16S6	
	1 1/8													UCSFL206-18ES6		UC206-18S6	
30		5 13/16	3 1/16	1 7/32	4 19/32	15/32	13/32	45/64	1 19/32	1.500	0.626	1/2		UCSFL206ES6	SFL206E	UC206S6	0.9
	1 3/16	148	78	31	116.7	12	10	18	40.2	38.1	15.9		M14	UCSFL206-19ES6		UC206-19S6	
	1 1/4													UCSFL206-20ES6		UC206-20S6	
	1 1/4													UCSFL207-20ES6		UC207-20S6	
	1 5/16													UCSFL207-21ES6		UC207-21S6	
35	1 3/8	6 11/32	3 11/32	1 11/32	5 1/8	33/64	7/16	3/4	1 3/4	1.689	0.689	1/2		UCSFL207-22ES6	SFL207E	UC207-22S6	1.1
		161	85	34	130.2	13	11	19	44.4	42.9	17.5		M14	UCSFL207ES6		UC207S6	
	1 7/16													UCSFL207-23ES6		UC207-23S6	
	1 1/2													UCSFL208-24ES6		UC208-24S6	
40	1 9/16	6 7/8	3 11/16	1 13/32	5 43/64	33/64	15/32	53/64	2 1/32	1.937	0.748	1/2		UCSFL208-25ES6	SFL208E	UC208-25S6	1.4
		175	94	36	143.7	13	12	21	51.2	49.2	19		M14	UCSFL208ES6		UC208S6	
	1 5/8													UCSFL209-26ES6		UC209-26S6	
45	1 11/16	7 13/32	3 15/16	1 1/2	5 53/64	19/32	1/2	55/64	2 1/16	1.937	0.748	5/8		UCSFL209-27ES6	SFL209E	UC209-27S6	1.6
	1 3/4	188	100	38	148.4	15	13	22	52.2	49.2	19		M16	UCSFL209-28ES6		UC209-28S6	
														UCSFL209ES6		UC209S6	
	1 7/8													UCSFL210-30ES6		UC210-30S6	
50	1 15/16	7 3/4	4 3/16	1 9/16	6 3/16	19/32	1/2	55/64	2 5/32	2.031	0.748	5/8		UCSFL210-31ES6	SFL210E	UC210-31S6	1.9
		197	106	40	157	15	13	22	54.6	51.6	19		M16	UCSFL210ES6		UC210S6	
	2													UCSFL210-32ES6		UC210-32S6	

Remarks 1. In Part No. of unit, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fitting is A-1/4-28UNFN13.
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.

USFL-S6
Cylindrical bore (with set screws)
d 10 ~ 30 mm



Variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s}) and variations of tolerance of distance between centers of bolt holes (Δ_{Js})

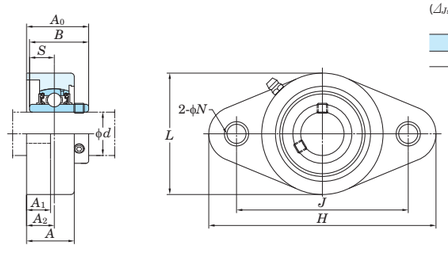
Unit: mm

Housing No.	Δ_{A2s}	Δ_{Js}
SFL000~SFL006	±0.5	±0.4

Shaft Dia. mm / inch d	Dimensions inch / mm H	L	A	J	N	A_1	A_2	A_0	B	S	Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Mass kg
10	2 3/8	1 11/32	15/32	1 49/64	9/32	3/16	15/64	5/8	0.591	0.197	1/4	**USFL000S6**	SFL000	SU000S6	0.076
	60	34	12	45	7	5	6	16	15	5	M6				
12	2 15/32	1 13/32	15/32	1 57/64	9/32	3/16	15/64	5/8	0.591	0.197	1/4	**USFL001S6**	SFL001	SU001S6	0.080
	63	36	12	48	7	5	6	16	15	5	M6				
15	2 5/8	1 5/8	1/2	2 3/32	9/32	1/4	1/4	11/16	0.650	0.217	1/4	**USFL002S6**	SFL002	SU002S6	0.1
	67	41	13	53	7	6	6.5	17.5	16.5	5.5	M6				
17	2 25/32	1 23/32	9/16	2 13/64	9/32	1/4	9/32	23/32	0.689	0.236	1/4	**USFL003S6**	SFL003	SU003S6	0.13
	71	44	14	56	7	6	7	18.5	17.5	6	M6				
20	3 19/32	2 3/32	5/8	2 51/64	25/64	1/4	5/16	7/8	0.827	0.276	5/16	**USFL004S6**	SFL004	SU004S6	0.21
	91	53	16	71	10	6	8	22	21	7	M8				
25	3 3/4	2 9/32	5/8	2 61/64	25/64	1/4	5/16	29/32	0.866	0.276	5/16	**USFL005S6**	SFL005	SU005S6	0.23
	95	58	16	75	10	6	8	23	22	7	M8				
30	4 11/32	2 19/32	23/32	3 11/32	33/64	9/32	23/64	1 1/32	0.965	0.295	3/8	**USFL006S6**	SFL006	SU006S6	0.33
	110	66	18	85	13	7	9	26	24.5	7.5	M10				

Remarks 1. In Part No. of unit and units with covers, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.

UCVFL-S6
Cylindrical bore (with set screws)
d 20 ~ 50 mm



Variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s}) and variations of tolerance of distance between centers of bolt holes (Δ_{Js})

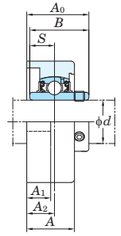
Unit: mm

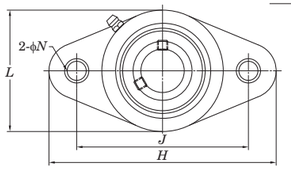
Housing No.	Δ_{A2s}	Δ_{Js}
VFL204~VFL210	±0.5	±0.7

Shaft Dia. mm / inch d	Dimensions inch / mm H	L	A	J	N	A_1	A_2	A_0	B	S	Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Mass kg
20	3/4	4 7/16	2 9/16	1 1/16	3 35/64	7/16	17/32	19/32	1 5/16	1.220	0.500	3/8	**UCVFL204-12S6**	VFL204	UC204-12S6	0.26
		113	65	27	90	11	13.5	15	33.3	31	12.7	M10	**UCVFL204S6**		UC204S6	
25	7/8												**UCVFL205-14S6**	VFL205	UC205-14S6	0.32
	15/16	5 5/32	2 3/4	1 3/32	3 57/64	7/16	9/16	5/8	1 13/32	1.343	0.563	3/8	**UCVFL205-15S6**		UC205-15S6	
		131	70	28	99	11	14	16	35.8	34.1	14.3	M10	**UCVFL205S6**		UC205S6	
	1												**UCVFL205-16S6**		UC205-16S6	
30	1 1/8												**UCVFL206-18S6**	VFL206	UC206-18S6	0.47
		5 13/16	3 5/32	1 7/32	4 39/64	7/16	9/16	45/64	1 19/32	1.500	0.626	3/8	**UCVFL206S6**		UC206S6	
	1 3/16	148	80	31	117	11	14.5	18	40.2	38.1	15.9	M10	**UCVFL206-19S6**		UC206-19S6	
	1 1/4												**UCVFL206-20S6**		UC206-20S6	
35	1 1/4												**UCVFL207-20S6**	VFL207	UC207-20S6	0.66
	1 5/16												**UCVFL207-21S6**		UC207-21S6	
	1 3/8	6 15/32	3 17/32	1 5/16	5 1/8	33/64	5/8	3/4	1 3/4	1.689	0.689	7/16	**UCVFL207-22S6**		UC207-22S6	
		164	90	33	130	13	15.5	19	44.4	42.9	17.5	M12	**UCVFL207S6**		UC207S6	
	1 7/16												**UCVFL207-23S6**		UC207-23S6	
40	1 1/2												**UCVFL208-24S6**	VFL208	UC208-24S6	0.85
	1 9/16	6 15/16	3 15/16	1 3/8	5 43/64	35/64	21/32	53/64	2 1/32	1.937	0.748	7/16	**UCVFL208-25S6**		UC208-25S6	
		176	100	35	144	14	16.5	21	51.2	49.2	19	M12	**UCVFL208S6**		UC208S6	
45	1 5/8												**UCVFL209-26S6**	VFL209	UC209-26S6	0.98
	1 11/16	7 7/16	4 1/4	1 5/8	5 27/32	11/16	13/16	15/16	2 1/8	1.937	0.748	1/2	**UCVFL209-27S6**		UC209-27S6	
	1 3/4	189	108	41	148.5	17	21	24	54.2	49.2	19	M16	**UCVFL209-28S6**		UC209-28S6	
													UCVFL209S6		UC209S6	
50	1 7/8												**UCVFL210-30S6**	VFL210	UC210-30S6	1.21
	1 15/16	7 3/4	4 17/32	1 11/16	6 3/16	11/16	13/16	31/32	2 9/32	2.031	0.748	1/2	**UCVFL210-31S6**		UC210-31S6	
		197	115	43	157	17	21	25	57.6	51.6	19	M16	**UCVFL210S6**		UC210S6	
	2												**UCVFL210-32S6**		UC210-32S6	

Remarks 1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of the applicable grease fitting is A-1/4-28UNFN13.
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.

UCVFL-S7
Cylindrical bore (with set screws)
d 20 ~ 50 mm





Variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s}) and variations of tolerance of distance between centers of bolt holes (Δ_{Js})

Unit: mm

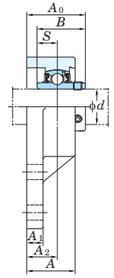
Housing No.	Δ_{A2s}	Δ_{Js}
VFL204~VFL210	±0.5	±0.7

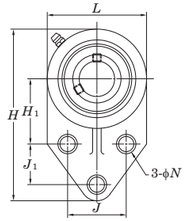
Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm H	L	A	J	N	A_1	A_2	A_0	B	S	Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Mass kg
20	3/4	4 7/16	2 9/16	1 1/16	3 35/64	7/16	17/32	19/32	1 5/16	1.220	0.500	3/8	**UCVFL204-12S7**	VFL204	UC204-12S7	0.26
		113	65	27	90	11	13.5	15	33.3	31	12.7	M10	**UCVFL204S7**		UC204S7	
25	7/8												**UCVFL205-14S7**	VFL205	UC205-14S7	0.32
	15/16	5 5/32	2 3/4	1 3/32	3 57/64	7/16	9/16	5/8	1 13/32	1.343	0.563	3/8	**UCVFL205-15S7**		UC205-15S7	
		131	70	28	99	11	14	16	35.8	34.1	14.3	M10	**UCVFL205S7**		UC205S7	
	1												**UCVFL205-16S7**		UC205-16S7	
30	1 1/8												**UCVFL206-18S7**	VFL206	UC206-18S7	0.47
		5 13/16	3 5/32	1 7/32	4 39/64	7/16	9/16	45/64	1 19/32	1.500	0.626	3/8	**UCVFL206S7**		UC206S7	
	1 3/16	148	80	31	117	11	14.5	18	40.2	38.1	15.9	M10	**UCVFL206-19S7**		UC206-19S7	
	1 1/4												**UCVFL206-20S7**		UC206-20S7	
35	1 1/4												**UCVFL207-20S7**	VFL207	UC207-20S7	0.66
	1 5/16												**UCVFL207-21S7**		UC207-21S7	
	1 3/8	6 15/32	3 17/32	1 5/16	5 1/8	33/64	5/8	3/4	1 3/4	1.689	0.689	7/16	**UCVFL207-22S7**		UC207-22S7	
		164	90	33	130	13	15.5	19	44.4	42.9	17.5	M12	**UCVFL207S7**		UC207S7	
	1 7/16												**UCVFL207-23S7**		UC207-23S7	
40	1 1/2												**UCVFL208-24S7**	VFL208	UC208-24S7	0.85
	1 9/16	6 15/16	3 15/16	1 3/8	5 43/64	35/64	21/32	53/64	2 1/32	1.937	0.748	7/16	**UCVFL208-25S7**		UC208-25S7	
		176	100	35	144	14	16.5	21	51.2	49.2	19	M12	**UCVFL208S7**		UC208S7	
45	1 5/8												**UCVFL209-26S7**	VFL209	UC209-26S7	0.98
	1 11/16	7 7/16	4 1/4	1 5/8	5 27/32	11/16	13/16	15/16	2 1/8	1.937	0.748	1/2	**UCVFL209-27S7**		UC209-27S7	
	1 3/4	189	108	41	148.5	17	21	24	54.2	49.2	19	M16	**UCVFL209-28S7**		UC209-28S7	
													UCVFL209S7		UC209S7	
50	1 7/8												**UCVFL210-30S7**	VFL210	UC210-30S7	1.21
	1 15/16	7 3/4	4 17/32	1 11/16	6 3/16	11/16	13/16	31/32	2 9/32	2.031	0.748	1/2	**UCVFL210-31S7**		UC210-31S7	
		197	115	43	157	17	21	25	57.6	51.6	19	M16	**UCVFL210S7**		UC210S7	
	2												**UCVFL210-32S7**		UC210-32S7	

Remarks 1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of the applicable grease fitting is A-1/4-28UNFN13.
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.

FYH

UCVFB-S7
Cylindrical bore (with set screws)
d 20 ~ 35 mm





Variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s}) , variations of tolerance of distance between centers of bolt holes (Δ_{Js}, Δ_{J1s}), and variations of tolerance of distance between both grooves (Δ_{H1s})

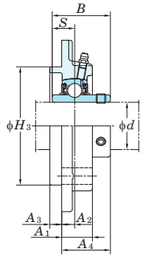
Unit: mm

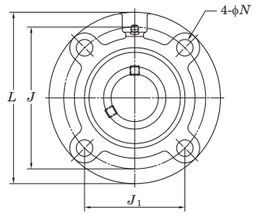
Housing No.	Δ_{A2s}	Δ_{Js}	Δ_{J1s}	Δ_{H1s}
VFB204~VFB207	±0.5	±0.6		

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm H	L	A	J	J_1	N	H_1	A_1	A_2	A_0	B	S	Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Mass kg
20	3/4	4 1/4	2 17/32	1 1/32	1 1/2	7/8	7/16	1 11/16	7/16	39/64	1 5/16	1.220	0.500	3/8	**UCVFB204-12S7**	VFB204	UC204-12S7	0.25
		108	64	26	38.1	22.2	11	42.9	11.5	15.4	33.7	31	12.7	M10	**UCVFB204S7**		UC204S7	
25	7/8														**UCVFB205-14S7**	VFB205	UC205-14S7	0.31
	15/16	4 3/4	2 3/4	1 11/32	1 5/8	1 1/8	7/16	1 13/16	7/16	27/32	1 5/8	1.343	0.563	3/8	**UCVFB205-15S7**		UC205-15S7	
		121	70	34	41.3	28.6	11	46	11.5	21.5	41.3	34.1	14.3	M10	**UCVFB205S7**		UC205S7	
	1														**UCVFB205-16S7**		UC205-16S7	
30	1 1/8														**UCVFB206-18S7**	VFB206	UC206-18S7	0.47
		5 15/32	3 9/32	1 1/4	1 7/8	1 1/4	7/16	2 1/16	17/32	49/64	1 5/8	1.500	0.626	3/8	**UCVFB206S7**		UC206S7	
	1 3/16	139	83	32	47.6	31.8	11	52.4	13.5	19.3	41.5	38.1	15.9	M10	**UCVFB206-19S7**		UC206-19S7	
	1 1/4														**UCVFB206-20S7**		UC206-20S7	
35	1 1/4														**UCVFB207-20S7**	VFB207	UC207-20S7	0.66
	1 5/16														**UCVFB207-21S7**		UC207-21S7	
	1 3/8	6 3/16	3 3/4	1 7/16	2	1 1/4	33/64	2 3/8	5/8	55/64	1 27/32	1.689	0.689	1/2	**UCVFB207-22S7**		UC207-22S7	
		157	95	37	50.8	31.8	13	60.3	16	21.7	47.1	42.9	17.5	M12	**UCVFB207S7**		UC207S7	
	1 7/16														**UCVFB207-23S7**		UC207-23S7	

Remarks 1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of the applicable grease fitting is A-1/4-28UNFN13.
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.

UCFC
Cylindrical bore (with set screws)
d 12 ~ 100 mm





Variations of tolerance of spigot joint outside diameter (Δ_{H3s}), variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s}), tolerance of position of bolt hole (X), and tolerance of circumferential runout of spigot joint (Y)

Unit: mm

Housing No.		Δ_{H3s}	Δ_{A2s}	X	Y
FC204~FC206	FCX05	0 −0.046	±0.5	0.7	0.2
FC207~FC210	FCX06~FCX10	0 −0.054			
FC211~FC217	FCX11~FCX15	0 −0.063	±0.8	1	0.3
FC218	FCX16~FCX18	0 −0.072			0.4
	FCX20				

Variations of tolerance of bolt hole diameter (Δ_{Ns})

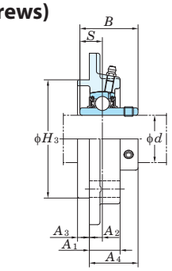
Unit: mm

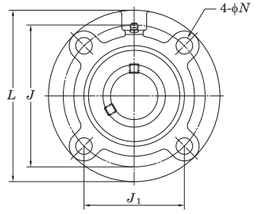
Housing No.		Δ_{Ns}
FC204~FC218	FCX05~FCX20	±0.2

Shaft Dia. mm	Shaft Dia. inch	d	Dimensions inch	L	H_3	J	J_1	N	A_1	A_2	A_3	A_4	B	S	Bolt Size inch	Unit No.	Housing No.	Bearing No.	Mass kg
			mm												mm				
12																UCFC201		UC201	0.78
	1/2															UCFC201-8		UC201-8	0.78
15																UCFC202		UC202	0.76
	5/8		3 15/16	2.441	3 5/64	2 11/64	15/32	13/16	25/64	13/64	1 1/8	1.220	0.500	3/8	UCFC202-10	FC204	UC202-10	0.76
17			100	62	78	55.1	12	20.5	10	5	28.3	31	12.7	M10	UCFC203		UC203	0.75
	3/4															UCFC204-12		UC204-12	0.75
20																UCFC204		UC204	0.73
	7/8															UCFC205-14		UC205-14	0.95
	15/16		4 17/32	2.756	3 35/64	2 1/2	15/32	13/16	25/64	15/64	1 3/16	1.343	0.563	3/8	UCFC205-15	FC205	UC205-15	0.95
25			115	70	90	63.6	12	21	10	6	29.8	34.1	14.3	M10	UCFC205		UC205	0.95
	1															UCFC205-16		UC205-16	0.95
			4 3/8	2.992	3 5/8	2 9/16	3/8	15/16	25/64	15/64	1 9/32	1.500	0.626	5/16	UCFCX05	FCX05	UCX05	1.2
	1		111	76	92	65	9.5	24	10	6	32.2	38.1	15.9	M8	UCFCX05-16		UCX05-16	1.2
	1 1/8															UCFC206-18		UC206-18	1.3
			4 29/32	3.150	3 15/16	2 25/32	15/32	29/32	25/64	5/16	1 9/32	1.500	0.626	3/8	UCFC206	FC206	UC206	1.3
	1 3/16		125	80	100	70.7	12	23	10	8	32.2	38.1	15.9	M10	UCFC206-19		UC206-19	1.3
30	1 1/4															UCFC206-20		UC206-20	1.3
			5	3.347	4 9/64	2 59/64	15/32	7/8	5/16	3/8	1 5/16	1.689	0.689	3/8	UCFCX06	FCX06	UCX06	1.5
	1 3/16		127	85	105	74.2	12	22.5	8	9.5	33.4	42.9	17.5	M10	UCFCX06-19		UCX06-19	1.5
	1 1/4															UCFCX06-20		UCX06-20	1.5
	1 1/4															UCFC207-20		UC207-20	1.7
	1 5/16															UCFC207-21		UC207-21	1.7
	1 3/8		5 5/16	3.543	4 21/64	3 1/16	35/64	1 1/32	7/16	5/16	1 7/16	1.689	0.689	7/16	UCFC207-22	FC207	UC207-22	1.7
			135	90	110	77.8	14	26	11	8	36.4	42.9	17.5	M12	UCFC207		UC207	1.7
35	1 7/16															UCFC207-23		UC207-23	1.7
	1 3/8															UCFCX07-22		UCX07-22	1.9
			5 1/4	3.622	4 3/8	3 3/32	15/32	1 1/32	23/64	7/16	1 17/32	1.937	0.748	3/8	UCFCX07	FCX07	UCX07	1.9
	1 7/16		133	92	111	78.5	12	26	9	11	39.2	49.2	19	M10	UCFCX07-23		UCX07-23	1.9
	1 1/2															UCFC208-24		UC208-24	2.0
	1 9/16		5 23/32	3.937	4 23/32	3 11/32	35/64	1 1/32	7/16	25/64	1 5/8	1.937	0.748	7/16	UCFC208-25	FC208	UC208-25	2.0
40			145	100	120	84.8	14	26	11	10	41.2	49.2	19	M12	UCFC208		UC208	2.0
	1 1/2		5 1/4	3.622	4 3/8	3 3/32	15/32	1 1/32	23/64	7/16	1 17/32	1.937	0.748	3/8	UCFCX08-24	FCX08	UCX08-24	2.0
			133	92	111	78.5	12	26	9	11	39.2	49.2	19	M10	UCFCX08		UCX08	2.0
	1 5/8															UCFC209-26		UC209-26	2.6
	1 11/16		6 5/16	4.134	5 13/64	3 43/64	5/8	1 1/32	25/64	15/32	1 19/32	1.937	0.748	1/2	UCFC209-27	FC209	UC209-27	2.6
	1 3/4		160	105	132	93.3	16	26	10	12	40.2	49.2	19	M14	UCFC209-28		UC209-28	2.6
45																UCFC209		UC209	2.6
	1 11/16															UCFCX09-27		UCX09-27	2.6
	1 3/4		6 3/32	4.252	5 1/8	3 5/8	35/64	31/32	5/16	15/32	1 19/32	2.031	0.748	7/16	UCFCX09-28	FCX09	UCX09-28	2.6
			155	108	130	91.9	14	25	8	12	40.6	51.6	19	M12	UCFCX09		UCX09	2.6
	1 7/8															UCFC210-30		UC210-30	2.9
50	1 15/16		6 1/2	4.331	5 7/16	3 27/32	5/8	1 3/32	25/64	15/32	1 11/16	2.031	0.748	1/2	UCFC210-31	FC210	UC210-31	2.9
			165	110	138	97.6	16	28	10	12	42.6	51.6	19	M14	UCFC210		UC210	2.9
	2															UCFC210-32		UC210-32	2.9
	1 15/16		6 3/8	4.646	5 23/64	3 25/32	35/64	31/32	9/32	5/8	1 19/32	2.189	0.874	7/16	UCFCX10-31	FCX10	UCX10-31	3.2
50			162	118	136	96.2	14	25	7	16	40.4	55.6	22.2	M12	UCFCX10		UCX10	3.2
	2															UCFCX10-32		UCX10-32	3.2
	2															UCFC211-32		UC211-32	4.2
	2 1/8		7 9/32	4.921	5 29/32	4 11/64	3/4	1 7/32	33/64	15/32	1 13/16	2.189	0.874	5/8	UCFC211-34	FC211	UC211-34	4.2
55			185	125	150	106.1	19	31	13	12	46.4	55.6	22.2	M16	UCFC211		UC211	4.2
	2 3/16															UCFC211-35		UC211-35	4.2
	2 3/16		7 3/32	5.000	5 63/64	4 15/64	5/8	1 1/32	5/32	55/64	1 23/32	2.563	1.000	1/2	UCFCX11	FCX11	UCX11	4.3
			180	127	152	107.5	16	26	4	22	43.7	65.1	25.4	M14	UCFCX11-35		UCX11-35	4.3
	2 1/4															UCFCX11-36		UCX11-36	4.3
	2 1/4															UCFC212-36		UC212-36	5.0
			7 11/16	5.315	6 19/64	4 29/64	3/4	1 13/32	43/64	15/32	2 7/32	2.563	1.000	5/8	UCFC212	FC212	UC212	5.0
60	2 3/8		195	135	160	113.1	19	36	17	12	56.7	65.1	25.4	M16	UCFC212-38		UC212-38	5.0
	2 7/16															UCFC212-39		UC212-39	5.0
	2 7/16		7 5/8	5.512	6 1/2	4 19/32	5/8	1 5/16	7/16	25/32	2	2.563	1.000	1/2	UCFCX12	FCX12	UCX12	5.3
			194	140	165	116.7	16	33	11	20	50.7	65.1	25.4	M14	UCFCX12-39		UCX12-39	5.3
	2 1/2		8 1/16	5.709	6 11/16	4 47/64	3/4	1 13/32	5/8	35/64	2 3/16	2.563	1.000	5/8	UCFC213-40	FC213	UC213-40	5.6
65			205	145	170	120.2	19	36	16	14	55.7	65.1	25.4	M16	UCFC213		UC213	5.6
	2 1/2		7 5/8	5.512	6 1/2	4 19/32	5/8	1 5/16	7/16	25/32	2 3/16	2.937	1.189	1/2	UCFCX13-40	FCX13	UCX13-40	5.7
			194	140	165	116.7	16	33	11	20	55.4	74.6	30.2	M14	UCFCX13		UCX13	5.7
	2 3/4		8 15/32	5.906	6 31/32	4 59/64	3/4	1 9/16	43/64	35/64	2 13/32	2.937	1.189	5/8	UCFC214-44	FC214	UC214-44	6.8
70			215	150	177	125.1	19	40	17	14	61.4	74.6	30.2	M16	UCFC214		UC214	6.8
	2 3/4		8 3/4	6.457	7 31/64	5 9/32	3/4	1 13/32	35/64	25/32	2 5/16	3.063	1.331	5/8	UCFCX14-44	FCX14	UCX14-44	7.3
			222	164	190	134.3	19	36	14	20	58.5	77.8	33.3	M16	UCFCX14		UCX14	7.3
	2 15/16		8 21/32	6.299	7 1/4	5 1/8	3/4	1 9/16	45/64	5/8	2 15/32	3.063	1.331	5/8	UCFC215-47	FC215	UC215-47	7.2
			220	160	184	130.1	19	40	18	16	62.5	77.8	33.3	M16	UCFC215		UC215	7.2
75	3															UCFC215-48		UC215-48	7.2
	2 15/16		8 3/4	6.457	7 31/64	5 9/32	3/4	1 3/8	15/32	55/64	2 13/32	3.252	1.311	5/8	UCFCX15-47	FCX15	UCX15-47	8.0
			222	164	190	134.3	19	35	12	22	61.3	82.6	33.3	M16	UCFCX15		UCX15	8.0
	3															UCFCX15-48		UCX15-48	8.0
	3 1/8		9 7/16	6.693	7 7/8	5 9/16	29/32	1 21/32	45/64	5/8	2 21/32	3.252	1.311	3/4	UCFC216-50	FC216	UC216-50	8.7
80			240	170	200	141.4	23	42	18	16	67.3	82.6	33.3	M20	UCFC216		UC216	8.7
	–		10 1/4	7.323	8 5/8	6 3/32	29/32	1 13/32	25/64	63/64	2 7/16	3.374	1.343	3/4	UCFCX16	FCX16	UCX16	11.3
			260	186	219	154.8	23	36	10	25	61.6	85.7	34.1	M20				
	3 1/4		9 27/32	7.087	8 3/16	5 51/64	29/32	1 25/32	45/64	45/64	2 3/4	3.374	1.343	3/4	UCFC217-52	FC217	UC217-52	10.3
85			250	180	208	147.1	23	45	18	18	69.6	85.7	34.1	M20	UCFC217		UC217	10.3
			10 1/4	7.323	8 5/8	6 3/32	29/32	1 13/32	25/64	63/64	2 5/8	3.780	1.563	3/4	UCFCX17	FCX17	UCX17	12.9
	3 7/16		260	186	219	154.8	23	36	10	25	66.3	96	39.7	M20	UCFCX17-55		UCX17-55	12.9
	3 1/2		10 7/16	7.480	8 21/32	6 1/8	29/32	1 31/32	55/64	45/64	3 3/32	3.780	1.563	3/4	UCFC218-56	FC218	UC218-56	13.3
90			265	190	220	155.5	23	50	22	18	78.3	96	39.7	M20	UCFC218		UC218	13.3
	–		10 1/4	7.323	8 5/8	6 3/32	29/32	1 11/16	15/32	1 7/64	2 7/8	4.094	1.689	3/4	UCFCX18	FCX18	UCX18	13.5
			260	186	219	154.8	23	43	12	28	73.1	104	42.9	M20				
	3 15/16		10 7/8	8.110	9 3/8	6 5/8	29/32	2 19/32	55/64	1 7/64	3 9/16	4.626	1.937	3/4	UCFCX20	FCX20	UCX20	18.2
100	4		276	206	238	168.3	23	66	22	28	90.3	117.5	49.2	M20	UCFCX20-63		UCX20-63	18.2
															UCFCX20-64		UCX20-64	18.2

Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 201~210, X05~X09
   A-R1/8..... 211~218, X10~X20
3. As for the triple seal type product (from 201 to 205 are the double seal type products), suffix code L3 (L2) follows the Part No. of unit or bearing.
   (Example of Part No. : UCFC206JL3, UC206L3)
4. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
5. Housings of nodular graphite cast iron are also available.

UCFCX-E
Cylindrical bore (with set screws)
d 25 ~ 100 mm





Variations of tolerance of spigot joint outside diameter (Δ_{H3a}), variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2a}), tolerance of position of bolt hole (X), and tolerance of circumferential runout of spigot joint (Y)

Unit: mm

Housing No.	Δ_{H3a}	Δ_{A2a}	X	Y
FCX05E	0 −0.046	±0.5	0.7	0.2
FCX06E~FCX10E	0 −0.054			
FCX12E~FCX15E	0 −0.063	±0.8	1	0.3
FCX16E~FCX18E	0 −0.072			
FCX20E				0.4

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm											Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Mass kg
d		L	H_3	J	J_1	N	A_1	A_2	A_3	A_4	B	S					
25	1	4 3/8 111	3.000 76.2	3 5/8 92	2 9/16 65	3/8 9.5	15/16 24	25/64 10	15/64 6	1 9/32 32.2	1.500 38.1	0.626 15.9	5/16 M8	**UCFCX05E** **UCFCX05-16E**	FCX05E	UCX05 UCX05-16	1.2
30	1 3/16 1 1/4	5 127	3.375 85.725	4 9/64 105	2 59/64 74.2	15/32 12	7/8 22.5	5/16 8	3/8 9.5	1 5/16 33.4	1.689 42.9	0.689 17.5	3/8 M10	**UCFCX06E** **UCFCX06-19E** **UCFCX06-20E**	FCX06E	UCX06 UCX06-19 UCX06-20	1.5
35	1 3/8 1 7/16	5 1/4 133	3.625 92.075	4 3/8 111	3 3/32 78.5	15/32 12	1 1/32 26	23/64 9	7/16 11	1 17/32 39.2	1.937 49.2	0.748 19	3/8 M10	**UCFCX07-22E** **UCFCX07E** **UCFCX07-23E**	FCX07E	UCX07-22 UCX07 UCX07-23	1.9
40	1 1/2	5 1/4 133	3.625 92.075	4 3/8 111	3 3/32 78.5	15/32 12	1 1/32 26	23/64 9	7/16 11	1 17/32 39.2	1.937 49.2	0.748 19	3/8 M10	**UCFCX08-24E** **UCFCX08E**	FCX08E	UCX08-24 UCX08	2.0
45	1 11/16 1 3/4	6 3/32 155	4.250 107.95	5 1/8 130	3 5/8 91.9	35/64 14	31/32 25	5/16 8	15/32 12	1 19/32 40.6	2.031 51.6	0.748 19	7/16 M12	**UCFCX09-27E** **UCFCX09-28E** **UCFCX09E**	FCX09E	UCX09-27 UCX09-28 UCX09	2.6
50	1 15/16 2	6 3/8 162	4.500 114.3	5 23/64 136	3 25/32 96.2	35/64 14	31/32 25	9/32 7	5/8 16	1 19/32 40.4	2.189 55.6	0.874 22.2	7/16 M12	**UCFCX10-31E** **UCFCX10E** **UCFCX10-32E**	FCX10E	UCX10-31 UCX10 UCX10-32	3.2
60	2 7/16	7 5/8 194	5.500 139.7	6 1/2 165	4 19/32 116.7	5/8 16	1 5/16 33	7/16 11	25/32 20	2 50.7	2.563 65.1	1.000 25.4	1/2 M14	**UCFCX12E** **UCFCX12-39E**	FCX12E	UCX12 UCX12-39	5.3
65	2 1/2	7 5/8 194	5.500 139.7	6 1/2 165	4 19/32 116.7	5/8 16	1 5/16 33	7/16 11	25/32 20	2 3/16 55.4	2.937 74.6	1.189 30.2	1/2 M14	**UCFCX13-40E** **UCFCX13E**	FCX13E	UCX13-40 UCX13	5.7
70	2 3/4	8 3/4 222	6.375 161.925	7 31/64 190	5 9/32 134.3	3/4 19	1 13/32 36	35/64 14	25/32 20	2 5/16 58.5	3.063 77.8	1.311 33.3	5/8 M16	**UCFCX14-44E** **UCFCX14E**	FCX14E	UCX14-44 UCX14	7.3
75	2 15/16 3	8 3/4 222	6.375 161.925	7 31/64 190	5 9/32 134.3	3/4 19	1 3/8 35	15/32 12	55/64 22	2 13/32 61.3	3.252 82.6	1.311 33.3	5/8 M16	**UCFCX15-47E** **UCFCX15E** **UCFCX15-48E**	FCX15E	UCX15-47 UCX15 UCX15-48	8.0
80	–	10 1/4 260	7.375 187.325	8 5/8 219	6 3/32 154.8	29/32 23	1 13/32 36	25/64 10	63/64 25	2 7/16 61.6	3.374 85.7	1.343 34.1	3/4 M20	**UCFCX16E**	FCX16E	UCX16	11.3
85	3 7/16	10 1/4 260	7.375 187.325	8 5/8 219	6 3/32 154.8	29/32 23	1 13/32 36	25/64 10	63/64 25	2 5/8 66.3	3.780 96	1.563 39.7	3/4 M20	**UCFCX17E** **UCFCX17-55E**	FCX17E	UCX17 UCX17-55	12.9
90	–	10 1/4 260	7.375 187.325	8 5/8 219	6 3/32 154.8	29/32 23	1 11/16 43	15/32 12	1 7/64 28	2 7/8 73.1	4.094 104	1.689 42.9	3/4 M20	**UCFCX18E**	FCX18E	UCX18	13.5
100	3 15/16 4	10 7/8 276	8.125 206.375	9 3/8 238	6 5/8 168.3	29/32 23	2 19/32 66	55/64 22	1 7/64 28	3 9/16 90.3	4.626 117.5	1.937 49.2	3/4 M20	**UCFCX20E** **UCFCX20-63E** **UCFCX20-64E**	FCX20E	UCX20 UCX20-63 UCX20-64	18.2

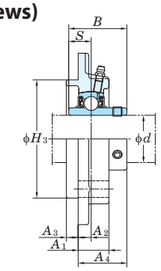
Remarks
1. In Part No. of unit, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... X05~X09
   A-R1/8..... X10~X20
3. As for the triple seal type product, suffix code L3 follows the Part No. of unit or bearing.
   (Example of Part No. : UCFCX06EL3, UCX06L3)
4. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
5. Housings of nodular graphite cast iron are also available.

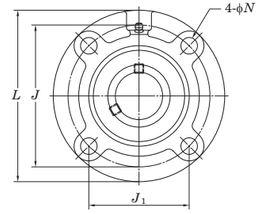
Variations of tolerance of bolt hole diameter (Δ_{Ns})

Unit: mm

Housing No.	Δ_{Ns}
FCX05E~FCX20E	±0.2

UCFCF
Cylindrical bore (with set screws)
d 25 ~ 55 mm





Variations of tolerance of spigot joint outside diameter (Δ_{H3a}), variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2a}), tolerance of position of bolt hole (X), and tolerance of circumferential runout of spigot joint (Y)

Unit: mm

Housing No.	Δ_{H3a}	Δ_{A2a}	X	Y
FCF205~FCF206	0 −0.046	±0.5	0.7	0.2
FCF207~FCF210	0 −0.054			
FCF211	0 −0.063	±0.8	1	0.3

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm											Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Mass kg
d		L	H_3	J	J_1	N	A_1	A_2	A_3	A_4	B	S					
25	7/8 15/16 1	4 3/8 111	3.000 76.2	3 5/8 92.1	2 9/16 65.1	13/32 10.5	7/8 22.1	7/16 11.1	1/4 6.4	1 7/32 30.9	1.343 34.1	0.563 14.3	5/16 M8	**UCFCF205-14** **UCFCF205-15** **UCFCF205** **UCFCF205-16**	FCF205	UC205-14 UC205-15 UC205 UC205-16	1.2
30	1 1/8 1 3/16 1 1/4	5 127	3.375 85.725	4 1/8 104.8	2 59/64 74.1	15/32 12	25/32 20	19/64 7.5	13/32 10.5	1 5/32 29.7	1.500 38.1	0.626 15.9	3/8 M10	**UCFCF206-18** **UCFCF206** **UCFCF206-19** **UCFCF206-20**	FCF206	UC206-18 UC206 UC206-19 UC206-20	1.8
35	1 1/4 1 5/16 1 3/8 1 7/16	5 1/4 133	3.625 92.075	4 3/8 111.1	3 3/32 78.6	15/32 12	7/8 22.2	9/32 7.1	15/32 11.9	1 9/32 32.5	1.689 42.9	0.689 17.5	3/8 M10	**UCFCF207-20** **UCFCF207-21** **UCFCF207-22** **UCFCF207** **UCFCF207-23**	FCF207	UC207-20 UC207-21 UC207-22 UC207 UC207-23	1.8
40	1 1/2 1 9/16	5 1/4 133	3.625 92.075	4 3/8 111.1	3 3/32 78.6	15/32 12	1 1/32 26.1	3/8 9.5	15/32 11.9	1 9/16 39.7	1.937 49.2	0.748 19	3/8 M10	**UCFCF208-24** **UCFCF208-25** **UCFCF208**	FCF208	UC208-24 UC208-25 UC208	2.1
45	1 5/8 1 11/16 1 3/4	6 3/32 156	4.25 107.95	5 1/8 130.2	3 5/8 92.05	17/32 13.5	7/8 22	7/32 5.5	15/32 12	1 13/32 35.7	1.937 49.2	0.748 19	7/16 M12	**UCFCF209-26** **UCFCF209-27** **UCFCF209-28** **UCFCF209**	FCF209	UC209-26 UC209-27 UC209-28 UC209	2.8
50	1 7/8 1 15/16 2	6 3/8 162	4.5 114.3	5 3/8 136.5	3 51/64 96.5	17/32 13.5	1 1/16 27.1	11/32 8.7	5/8 15.9	1 5/8 41.3	2.031 51.6	0.748 19	7/16 M12	**UCFCF210-30** **UCFCF210-31** **UCFCF210** **UCFCF210-32**	FCF210	UC210-30 UC210-31 UC210 UC210-32	3.2
55	2 2 1/8 2 3/16	7 1/8 181	5 127	6 152.4	4 1/4 107.8	19/32 15	7/8 22.2	7/32 5.5	7/8 22.2	1 17/32 38.9	2.189 55.6	0.874 22.2	1/2 M14	**UCFCF211-32** **UCFCF211-34** **UCFCF211** **UCFCF211-35**	FCF211	UC211-32 UC211-34 UC211 UC211-35	4.2

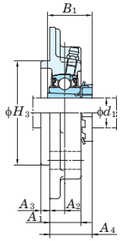
Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 205~210
   A-R1/8..... 211
3. As for the triple seal type product (from 201 to 205 are the double seal type products), suffix code L3 (L2) follows the Part No. of unit or bearing. (Example of Part No. : UCFCF206JL3, UC206L3)
4. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
5. Housings of nodular graphite cast iron are also available.

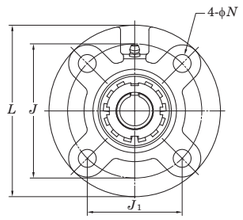
Variations of tolerance of bolt hole diameter (Δ_{Ns})

Unit: mm

Housing No.	Δ_{Ns}
FCF205~FCF211	±0.2

UKFC
Tapered bore (with adapter)
d_1 20 ~ 90 mm





Variations of tolerance of spigot joint outside diameter (Δ_{H3a}), variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2a}), tolerance of position of bolt hole (X), and tolerance of circumferential runout of spigot joint (Y)

Unit: mm

Housing No.		Δ_{H3a}	Δ_{A2a}	X	Y
FC205~FC206	FCX05	0 −0.046	±0.5	0.7	0.2
FC207~FC210	FCX06~FCX10	0 −0.054			
FC211~FC217	FCX11~FCX15	0 −0.063	±0.8	1	0.3
FC218	FCX16~FCX18	0 −0.072			
	FCX20				0.4

Variations of tolerance of bolt hole diameter (Δ_{N_a})

Unit: mm

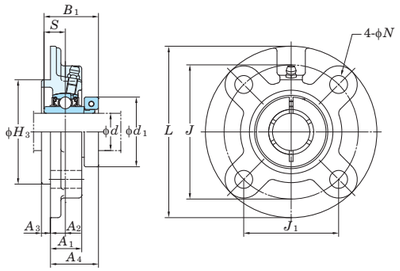
Housing No.		Δ_{N_a}
FC205~FC218	FCX05~FCX20	±0.2

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm L	H_3	J	J_1	N	A_1	A_2	A_3	A_4	B_1	Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Adapter No.	Mass kg
20	3/4	4 17/32	2.756	3 35/64	2 1/2	15/32	13/16	25/64	15/64	1 3/16	1 3/8	3/8	UKFC205	FC205	UK205	HE2305X	0.99
		115	70	90	63.6	12	21	10	6	30	35	M10				H2305X	0.99
	3/4	4 3/8	2.992	3 5/8	2 9/16	3/8	15/16	25/64	15/64	1 1/4	1 3/8	5/16	UKFCX05	FCX05	UKX05	HE2305X	1.2
		111	76	92	65	9.5	24	10	6	31.5	35	M8				H2305X	1.2
25		4 29/32	3.150	3 15/16	2 25/32	15/32	29/32	25/64	5/16	1 1/4	1 1/2	3/8	UKFC206	FC206	UK206	H2306X	1.3
	1	125	80	100	70.7	12	23	10	8	31.5	38	M10				HE2306X	1.3
		5	3.347	4 9/64	2 59/64	15/32	7/8	5/16	3/8	1 7/32	1 1/2	3/8	UKFCX06	FCX06	UKX06	H2306X	1.5
	1	127	85	105	74.2	12	22.5	8	9.5	31	38	M10				HE2306X	1.5
30	1 1/8	5 5/16	3.543	4 21/64	3 1/16	35/64	1 1/32	7/16	5/16	1 3/8	1 11/16	7/16	UKFC207	FC207	UK207	HS2307X	1.7
		135	90	110	77.8	14	26	11	8	35	43	M12				H2307X	1.7
	1 1/8	5 1/4	3.622	4 3/8	3 3/32	15/32	1 1/32	23/64	7/16	1 3/8	1 11/16	3/8	UKFCX07	FCX07	UKX07	HS2307X	1.9
		133	92	111	78.5	12	26	9	11	35	43	M10				H2307X	1.9
35	1 1/4	5 23/32	3.937	4 23/32	3 11/32	35/64	1 1/32	7/16	25/64	1 1/2	1 13/16	7/16	UKFC208	FC208	UK208	HE2308X	2.0
	1 3/8	145	100	120	84.8	14	26	11	10	38	46	M12				HS2308X	2.0
																H2308X	2.0
	1 1/4	5 1/4	3.622	4 3/8	3 3/32	15/32	1 1/32	23/64	7/16	1 15/32	1 13/16	3/8	UKFCX08	FCX08	UKX08	HE2308X	1.9
	1 3/8	133	92	111	78.5	12	26	9	11	37	46	M10				HS2308X	1.9
																H2308X	1.9
40	1 1/2	6 5/16	4.134	5 13/64	3 43/64	5/8	1 1/32	25/64	15/32	1 17/32	1 31/32	1/2	UKFC209	FC209	UK209	HE2309X	2.7
		160	105	132	93.3	16	26	10	12	39	50	M14				H2309X	2.7
	1 1/2	6 3/32	4.252	5 1/8	3 5/8	35/64	31/32	5/16	15/32	1 15/32	1 31/32	7/16	UKFCX09	FCX09	UKX09	HE2309X	2.6
		155	108	130	91.9	14	25	8	12	37	50	M12				H2309X	2.6
45	1 3/4	6 1/2	4.331	5 7/16	3 27/32	5/8	1 3/32	25/64	15/32	1 9/16	2 5/32	1/2	UKFC210	FC210	UK210	HE2310X	3.0
		165	110	138	97.6	16	28	10	12	40	55	M14				H2310X	3.0
	1 3/4	6 3/8	4.646	5 23/64	3 25/32	35/64	31/32	9/32	5/8	1 17/32	2 5/32	7/16	UKFCX10	FCX10	UKX10	HE2310X	3.1
		162	118	136	96.2	14	25	7	16	39	55	M12				H2310X	3.1
50	1 7/8	7 9/32	4.921	5 29/32	4 11/64	3/4	1 7/32	33/64	15/32	1 25/32	2 5/16	5/8	UKFC211	FC211	UK211	HS2311X	4.3
	2	185	125	150	106.1	19	31	13	12	45	59	M16				H2311X	4.3
																HE2311X	4.3
	1 7/8	7 3/32	5.000	5 63/64	4 15/64	5/8	1 1/32	5/32	55/64	1 9/16	2 5/16	1/2	UKFCX11	FCX11	UKX11	HS2311X	4.0
	2	180	127	152	107.5	16	26	4	22	39.5	59	M14				H2311X	4.0
																HE2311X	4.0
55	2 1/8	7 11/16	5.315	6 19/64	4 29/64	3/4	1 13/32	43/64	15/32	2 3/32	2 7/16	5/8	UKFC212	FC212	UK212	HS2312X	4.9
		195	135	160	113.1	19	36	17	12	53.5	62	M16				H2312X	4.9
	2 1/8	7 5/8	5.512	6 1/2	4 19/32	5/8	1 5/16	7/16	25/32	1 7/8	2 7/16	1/2	UKFCX12	FCX12	UKX12	HS2312X	5.1
		194	140	165	116.7	16	33	11	20	47.5	62	M14				H2312X	5.1
60	2 1/4	8 1/16	5.709	6 11/16	4 47/64	3/4	1 13/32	5/8	35/64	2 3/32	2 9/16	5/8	UKFC213	FC213	UK213	HE2313X	5.5
	2 3/8	205	145	170	120.2	19	36	16	14	53.5	65	M16				H2313X	5.5
																HS2313X	5.5
	2 1/4	7 5/8	5.512	6 1/2	4 19/32	5/8	1 5/16	7/16	25/32	2	2 9/16	1/2	UKFCX13	FCX13	UKX13	HE2313X	5.3
	2 3/8	194	140	165	116.7	16	33	11	20	50.5	65	M14				H2313X	5.3
																HS2313X	5.3
65	2 1/2	8 21/32	6.299	7 1/4	5 1/8	3/4	1 9/16	45/64	5/8	2 5/16	2 7/8	5/8	UKFC215	FC215	UK215	HE2315X	7.4
		220	160	184	130.1	19	40	18	16	58.5	73	M16				H2315X	7.4

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm L	H_3	J	J_1	N	A_1	A_2	A_3	A_4	B_1	Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Adapter No.	Mass kg
65	2 1/2	8 3/4	6.457	7 31/64	5 9/32	3/4	1 3/8	15/32	55/64	2 5/32	2 7/8	5/8	UKFCX15	FCX15	UKX15	HE2315X	7.7
		222	164	190	134.3	19	35	12	22	54.5	73	M16				H2315X	7.7
70	2 3/4	9 7/16	6.693	7 7/8	5 9/16	29/32	1 31/32	45/64	5/8	2 15/32	3 1/16	3/4	UKFC216	FC216	UK216	HE2316X	9.0
		240	170	200	141.4	23	42	18	16	62.5	78	M20				H2316X	9.0
	2 3/4	10 1/4	7.323	8 5/8	6 3/32	29/32	1 13/32	25/64	63/64	2 3/16	3 1/16	3/4	UKFCX16	FCX16	UKX16	HE2316X	11.4
		260	186	219	154.8	23	36	10	25	55.5	78	M20				H2316X	11.4
75		9 27/32	7.087	8 3/16	5 51/64	29/32	1 25/32	45/64	45/64	3 17/32	3 7/32	3/4	UKFC217	FC217	UK217	H2317X	10.4
	3	250	180	208	147.1	23	45	18	18	64.5	82	M20				HE2317X	10.4
		10 1/4	7.323	8 5/8	6 3/32	29/32	1 13/32	25/64	63/64	2 11/32	3 7/32	3/4	UKFCX17	FCX17	UKX17	H2317X	12.6
	3	260	186	219	154.8	23	36	10	25	59.5	82	M20				HE2317X	12.6
80	–	10 7/16	7.480	8 21/32	6 1/8	29/32	1 31/32	55/64	45/64	2 13/16	3 3/8	3/4	UKFC218	FC218	UK218	H2318X	13.3
		265	190	220	155.5	23	50	22	18	71.5	86	M20					
	–	10 1/4	7.323	8 5/8	6 3/32	29/32	1 11/16	15/32	1 7/64	2 15/32	3 3/8	3/4	UKFCX18	FCX18	UKX18	H2318X	13.0
		260	186	219	154.8	23	43	12	28	62.5	86	M20					
90	3 1/2	10 7/8	8.110	9 3/8	6 5/8	29/32	2 19/32	55/64	1 7/64	3	3 13/16	3/4	UKFCX20	FCX20	UKX20	HE2320X	17.1
		276	206	238	168.3	23	66	22	28	76.5	97	M20				H2320X	17.1

Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 205~210, X05~X09
   A-R1/8..... 211~218, X10~X20
3. In Part No. of unit with adapters and bearing with adapters, Part No. of applicable adapter follow the Part No. shown in the dimensional tables.
   (Example of Part No. : UKFC206J + H2306X, UK206 + H2306X)
4. As for the triple seal type product (205 is the double seal type product), suffix code L3 (or L2) follows the Part No. of unit or bearing.
   (Example of Part No. : UKFC206JL3 + H2306X, UK206L3 + H2306X)
5. For the dimensions and forms of applicable bearings and adapters, see the dimensional tables of ball bearing for unit and adapter.
6. Housings of nodular graphite cast iron are also available.

NCFC
Cylindrical bore
(with concentric locking collar)
d 20 ~ 60 mm



Variations of tolerance of spigot joint outside diameter (Δ_{H3s}), variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s}), tolerance of position of bolt hole (X), and tolerance of circumferential runout of spigot joint (Y)

Unit: mm

Housing No.	Δ_{H3s}	Δ_{A2s}	X	Y
FC204~FC206	0 −0.046	±0.5	0.7	0.2
FC207~FC210	0 −0.054			
FC211~FC212	0 −0.063	±0.8	1	0.3

Variations of tolerance of bolt hole diameter (Δ_{Ns})

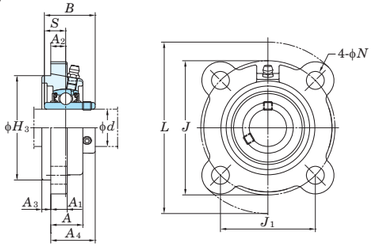
Unit: mm

Housing No.	Δ_{Ns}
FC204~FC212	±0.2

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm L	H_3	J	J_1	N	A_1	A_2	A_3	A_4	B_1	S	d_1	Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Mass kg
20	3/4	3 15/16	2.441	3 5/64	2 11/64	15/32	13/16	25/64	13/64	1 3/16	1 9/32	0.500	1 3/4	3/8	**NCFC204-12**	FC204	NC204-12	0.87
		100	62	78	55.1	12	20.5	10	5	29.8	32.5	12.7	44.5	M10	**NCFC204**		NC204	
25	7/8														**NCFC205-14**	FC205	NC205-14	1.15
	15/16	4 17/32	2.756	3 35/64	2 1/2	15/32	13/16	25/64	15/64	1 9/32	1 7/16	0.563	1 15/16	3/8	**NCFC205-15**		NC205-15	
		115	70	90	63.6	12	21	10	6	32.2	36.5	14.3	49.2	M10	**NCFC205**		NC205	
	1														**NCFC205-16**		NC205-16	
30	1 1/8														**NCFC206-18**	FC206	NC206-18	1.5
		4 29/32	3.150	3 15/16	2 25/32	15/32	29/32	25/64	5/16	1 11/32	1 19/32	0.626	2 3/16	3/8	**NCFC206**		NC206	
	1 3/16	125	80	100	70.7	12	23	10	8	34.2	40.1	15.9	55.6	M10	**NCFC206-19**		NC206-19	
	1 1/4														**NCFC206-20**		NC206-20	
35	1 1/4	5 5/16	3.543	4 21/64	3 1/16	35/64	1 1/32	7/16	5/16	1 1/2	1 3/4	0.689	2 7/16	7/16	**NCFC207-20**	FC207	NC207-20	2.0
		135	90	110	77.8	14	26	11	8	38	44.5	17.5	61.9	M12				
	1 3/8														**NCFC207-22**	FC207	NC207-22	2.0
		5 5/16	3.543	4 21/64	3 1/16	35/64	1 1/32	7/16	5/16	1 1/2	1 3/4	0.689	2 9/16	7/16	**NCFC207**		NC207	
	1 7/16	135	90	110	77.8	14	26	11	8	38	44.5	17.5	65.1	M12	**NCFC207-23**		NC207-23	
40	1 1/2	5 23/32	3.937	4 23/32	3 11/32	35/64	1 1/32	7/16	25/64	1 11/16	2	0.748	2 11/16	7/16	**NCFC208-24**	FC208	NC208-24	2.4
		145	100	120	84.8	14	26	11	10	42.8	50.8	19	68.3	M12	**NCFC208**		NC208	
45	1 5/8	6 5/16	4.134	5 13/64	3 43/64	5/8	1 1/32	25/64	15/32	1 21/32	2	0.748	2 13/16	1/2	**NCFC209-26**	FC209	NC209-26	3.0
		160	105	132	93.3	16	26	10	12	41.8	50.8	19	71.4	M14				
	1 11/16														**NCFC209-27**	FC209	NC209-27	3.0
	1 3/4	6 5/16	4.134	5 13/64	3 43/64	5/8	1 1/32	25/64	15/32	1 21/32	2	0.748	2 15/16	1/2	**NCFC209-28**		NC209-28	
		160	105	132	93.3	16	26	10	12	41.8	50.8	19	74.6	M14	**NCFC209**		NC209	
50	1 15/16														**NCFC210-31**	FC210	NC210-31	3.5
		6 1/2	4.331	5 7/16	3 27/32	5/8	1 3/32	25/64	15/32	1 3/4	2 3/32	0.748	3 3/8	1/2	**NCFC210**		NC210	
	2	165	110	138	97.6	16	28	10	12	44.1	53.1	19	85.7	M14	**NCFC210-32**		NC210-32	
55	2	7 9/32	4.921	5 29/32	4 11/64	3/4	1 7/32	33/64	15/32	1 7/8	2 1/4	0.874	3 1/2	5/8	**NCFC211-32**	FC211	NC211-32	4.6
		185	125	150	106.1	19	31	13	12	47.9	57.1	22.2	88.9	M16				
	2 3/16	7 9/32	4.921	5 29/32	4 11/64	3/4	1 7/32	33/64	15/32	1 7/8	2 1/4	0.874	3 5/8	5/8	**NCFC211**	FC211	NC211	4.6
		185	125	150	106.1	19	31	13	12	47.9	57.1	22.2	92.1	M16	**NCFC211-35**		NC211-35	
60	2 1/4	7 11/16	5.315	6 19/64	4 29/64	3/4	1 13/32	43/64	15/32	2 5/16	2 5/8	1.000	4 1/16	5/8	**NCFC212-36**	FC212	NC212-36	5.7
		195	135	160	113.1	19	36	17	12	58.4	66.8	25.4	103.2	M16				
	2 7/16	7 11/16	5.315	6 19/64	4 29/64	3/4	1 13/32	43/64	15/32	2 5/16	2 5/8	1.000	4 1/8	5/8	**NCFC212**	FC212	NC212	5.7
		195	135	160	113.1	19	36	17	12	58.4	66.8	25.4	104.8	M16	**NCFC212-39**		NC212-39	

Remarks
1. In Part No. of unit, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 204~210
   A-R1/8..... 211~212
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
4. Representative examples of the forms of housing are indicated.

UCSFC-S6
Cylindrical bore (with set screws)
d 20 ~ 50 mm



Variations of tolerance of spigot joint outside diameter (Δ_{H3s}), variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s}) and tolerance of position of bolt hole (X), and tolerance of circumferential runout of spigot joint (Y)

Unit: mm

Housing No.	Δ_{H3s}	Δ_{A2s}	X	Y
SFC204~SFC206	0 −0.046	±0.5	0.7	0.2
SFC207~SFC210	0 −0.054			

Variations of tolerance of bolt hole diameter (Δ_{Ns})

Unit: mm

Housing No.	Δ_{Ns}
SFC204~SFC210	±0.2

Shaft Dia mm	Shaft Dia inch	Dimensions inch / mm L	H_3	J	J_1	N	A	A_1	A_2	A_3	A_4	B	S	Bolt Size inch / mm	Unit No.	Housing No.	Bearing No.	Mass kg
20	3/4	3 15/16	2.441	3 5/64	2 11/64	15/32	13/16	25/64	25/64	13/64	1 1/8	1.220	0.500	3/8	**UCSFC204-12S6**	SFC204	UC204-12S6	0.54
		100	62	78	55.1	12	21	10	10	5	28.3	31	12.7	M10	**UCSFC204S6**		UC204S6	
25	7/8														**UCSFC205-14S6**	SFC205	UC205-14S6	0.72
	15/16	4 17/32	2.756	3 35/64	2 1/2	15/32	27/32	25/64	25/64	15/64	1 3/16	1.343	0.563	3/8	**UCSFC205-15S6**		UC205-15S6	
		115	70	90	63.6	12	21.5	10	10	6	29.8	34.1	14.3	M10	**UCSFC205S6**		UC205S6	
	1														**UCSFC205-16S6**		UC205-16S6	
30	1 1/8														**UCSFC206-18S6**	SFC206	UC206-18S6	0.92
		4 29/32	3.150	3 15/16	2 25/32	15/32	29/32	25/64	25/64	5/16	1 9/32	1.500	0.626	3/8	**UCSFC206S6**		UC206S6	
	1 3/16	125	80	100	70.7	12	23	10	10	8	32.2	38.1	15.9	M10	**UCSFC206-19S6**		UC206-19S6	
	1 1/4														**UCSFC206-20S6**		UC206-20S6	
35	1 1/4														**UCSFC207-20S6**	SFC207	UC207-20S6	1.24
	1 5/16														**UCSFC207-21S6**		UC207-21S6	
	1 3/8	5 5/16	3.543	4 21/64	3 1/16	35/64	1 1/32	15/32	7/16	5/16	1 7/16	1.689	0.689	7/16	**UCSFC207-22S6**		UC207-22S6	
		135	90	110	77.8	14	26	12	11	8	36.4	42.9	17.5	M12	**UCSFC207S6**		UC207S6	
	1 7/16														**UCSFC207-23S6**		UC207-23S6	
40	1 1/2														**UCSFC208-24S6**	SFC208	UC208-24S6	1.56
	1 9/16	5 23/32	3.937	4 23/32	3 11/32	35/64	1 1/32	15/32	7/16	25/64	1 5/8	1.937	0.748	7/16	**UCSFC208-25S6**		UC208-25S6	
		145	100	120	84.8	14	26	12	11	10	41.2	49.2	19	M12	**UCSFC208S6**		UC208S6	
45	1 5/8														**UCSFC209-26S6**	SFC209	UC209-26S6	1.87
	1 11/16	6 5/16	4.1339	5 13/64	3 43/64	5/8	1 1/32	15/32	25/64	15/32	1 19/32	1.937	0.748	1/2	**UCSFC209-27S6**		UC209-27S6	
	1 3/4	160	105	132	93.3	16	26	12	10	12	40.2	49.2	19	M14	**UCSFC209-28S6**		UC209-28S6	
															UCSFC209S6		UC209S6	
50	1 7/8														**UCSFC210-30S6**	SFC210	UC210-30S6	2.22
	1 15/16	6 17/32	4.3307	5 7/16	3 27/32	5/8	1 3/32	35/64	25/64	15/32	1 11/16	2.031	0.748	1/2	**UCSFC210-31S6**		UC210-31S6	
	2	166	110	138	97.6	16	28	14	10	12	42.6	51.6	19	M14	**UCSFC210S6**		UC210S6	
															UCSFC210-32S6		UC210-32S6	

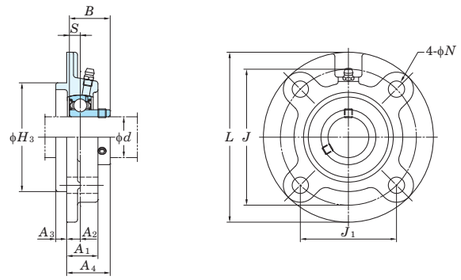
Remarks
1. In Part No. of unit, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fitting is A-1/4-28UNFN13.
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.

SBFC-RKP8
Cylindrical bore
(with set screws)
d 20 ~ 55 mm

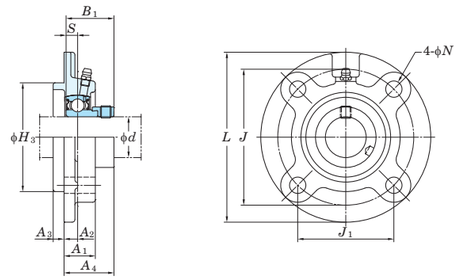
SAFC-FP9
Cylindrical bore
(with eccentric locking collar)

SBFC-RKP8

SAFC-FP9



SBFC-RKP8



SAFC-FP9

Variations of tolerance of spigot joint outside diameter (Δ_{H3s}), variations of tolerance of distance from mounting surface to center of spherical bore (Δ_{A2s}), tolerance of position of bolt hole (X), and tolerance of circumferential runout of spigot joint (Y)

Unit: mm

Housing No.	Δ_{H3s}	Δ_{A2s}	X	Y
FC204~FC206	0 −0.046	±0.5	0.7	0.2
FC207~FC210	0 −0.054			
FC211	0 −0.063	±0.8	1	0.3

Variations of tolerance of bolt hole diameter (Δ_{Ns})

Unit: mm

Housing No.	Δ_{Ns}
FC204~FC211	±0.2

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm: d	L	H_3	J	J_1	N	A_1	A_2	A_3	SBFC-RKP8 A_4	SAFC-FP9 A_4	B	B_1	SBFC-RKP8 S	SAFC-FP9 S	Bolt Size inch / mm	Unit No.	Bearing No.	Unit No.	Bearing No.	Housing No.	Mass kg: SBFC-RKP8	Mass kg: SAFC-FP9
20	3/4	3 15/16	2.441	3 5/64	2 11/64	15/32	13/16	25/64	13/64	1 3/32	1 5/16	0.984	1.220	0.276	0.295	3/8	**SBFC204-12RKP8**	SB204-12RKP8	**SAFC204-12FP9**	SA204-12FP9	FC204	0.72	0.76
		100	62	78	55.1	12	20.5	10	5	28	33.5	25	31	7	7.5	M10	**SBFC204RKP8**	SB204RKP8	**SAFC204FP9**	SA204FP9			
25	7/8																**SBFC205-14RKP8**	SB205-14RKP8	**SAFC205-14FP9**	SA205-14FP9	FC205	0.93	0.98
	15/16	4 17/32	2.756	3 35/64	2 1/2	15/32	13/16	25/64	15/64	1 5/32	1 5/16	1.063	1.220	0.295	0.295	3/8	**SBFC205-15RKP8**	SB205-15RKP8	**SAFC205-15FP9**	SA205-15FP9			
		115	70	90	63.6	12	21	10	6	29.5	33.5	27	31	7.5	7.5	M10	**SBFC205RKP8**	SB205RKP8	**SAFC205FP9**	SA205FP9			
	1																**SBFC205-16RKP8**	SB205-16RKP8	**SAFC205-16FP9**	SA205-16FP9			
30	1 1/8																**SBFC206-18RKP8**	SB206-18RKP8	**SAFC206-18FP9**	SA206-18FP9	FC206	1.25	1.32
		4 29/32	3.150	3 15/16	2 25/32	15/32	29/32	25/64	5/16	1 1/4	1 7/16	1.181	1.406	0.315	0.354	3/8	**SBFC206RKP8**	SB206RKP8	**SAFC206FP9**	SA206FP9			
	1 3/16	125	80	100	70.7	12	23	10	8	32	36.7	30	35.7	8	9	M10	**SBFC206-19RKP8**	SB206-19RKP8	**SAFC206-19FP9**	SA206-19FP9			
	1 1/4																**SBFC206-20RKP8**	SB206-20RKP8	**SAFC206-20FP9**	SA206-20FP9			
35	1 1/4																**SBFC207-20RKP8**	SB207-20RKP8	**SAFC207-20FP9**	SA207-20FP9	FC207	1.64	1.79
	1 5/16																–	–	**SAFC207-21FP9**	SA207-21FP9		–	
	1 3/8	5 5/16	3.543	4 21/64	3 1/16	35/64	1 1/32	7/16	5/16	1 11/32	1 19/32	1.260	1.531	0.335	0.374	7/16	**SBFC207-22RKP8**	SB207-22RKP8	**SAFC207-22FP9**	SA207-22FP9		1.64	
		135	90	110	77.8	14	26	11	8	34.5	40.4	32	38.9	8.5	9.5	M12	**SBFC207RKP8**	SB207RKP8	**SAFC207FP9**	SA207FP9		1.64	
	1 7/16																**SBFC207-23RKP8**	SB207-23RKP8	**SAFC207-23FP9**	SA207-23FP9		1.64	
40	1 1/2	5 23/32	3.937	4 23/32	3 11/32	35/64	1 1/32	7/16	25/64	1 13/32	1 23/32	1.339	1.720	0.354	0.433	7/16	**SBFC208-24RKP8**	SB208-24RKP8	**SAFC208-24FP9**	SA208-24FP9	FC208	1.96	2.11
	1 9/16																–	–	**SAFC208-25FP9**	SA208-25FP9		–	
		145	100	120	84.8	14	26	11	10	36	43.7	34	43.7	9	11	M12	**SBFC208RKP8**	SB208RKP8	**SAFC208FP9**	SA208FP9		1.96	
45	1 5/8																–	–	**SAFC209-26FP9**	SA209-26FP9	FC209	–	2.74
	1 11/16	6 5/16	4.134	5 13/64	3 43/64	5/8	1 1/32	15/32	25/64	–	1 11/16	–	1.720	–	0.433	1/2	–	–	**SAFC209-27FP9**	SA209-27FP9			
	1 3/4	160	105	132	93.3	16	26	12	10	–	42.7	–	43.7	–	11	M14	–	–	**SAFC209-28FP9**	SA209-28FP9			
																	–	–	**SAFC209FP9**	SA209FP9			
50	1 7/8																–	–	**SAFC210-30FP9**	SA210-30FP9	FC210	–	2.95
	1 15/16	6 1/2	4.331	5 7/16	3 27/32	5/8	1 3/32	15/32	25/64	–	1 11/16	–	1.720	–	0.433	1/2	–	–	**SAFC210-31FP9**	SA210-31FP9			
		165	110	138	97.6	16	28	12	10	–	42.7	–	43.7	–	11	M14	–	–	**SAFC210FP9**	SA210FP9			
55	2																–	–	**SAFC211-32FP9**	SA211-32FP9	FC211	–	4.29
	2 1/8	7 9/32	4.921	5 29/32	4 11/64	3/4	1 7/32	33/64	15/32	–	1 15/16	–	1.902	–	0.472	5/8	–	–	**SAFC211-34FP9**	SA211-34FP9			
		185	125	150	106.1	19	31	13	12	–	49.3	–	48.3	–	12	M16	–	–	**SAFC211FP9**	SA211FP9			
	2 3/16																–	–	**SAFC211-35FP9**	SA211-35FP9			

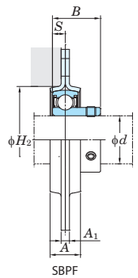
Remarks
1. In Part No. of unit, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 204~210
   A-R1/8..... 211
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
4. Representative examples of the forms of housing are indicated.

SBPF
Cylindrical bore
(with set screws)
d 12 ~ 35 mm

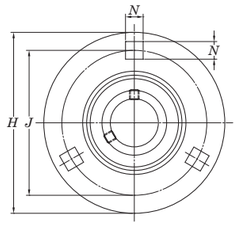
SAPF
Cylindrical bore
(with eccentric locking collar)

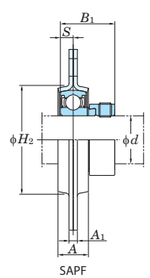
SBPF

SAPF



SBPF





SAPF

Variations of tolerance of distance between centers of bolt holes (Δ_{J_S})

Unit: mm

Housing No.	Δ_{J_S}
PF203~PF207	±0.4

Variations of tolerance of bolt hole diameter (Δ_{N_S})

Unit: mm

Housing No.	Δ_{N_S}
PF203~PF207	±0.25

Shaft Dia mm	Shaft Dia inch	Dimensions inch / mm									Bolt Size inch / mm	Unit No.	Bearing No.		Unit No.	Bearing No.	Housing No.	Mass kg	
d		H	A	A_1	J	N	H_2	S	SBPF B	SAPF B_1								SBPF	SAPF
12	1/2	3 3/16 81	9/16 14	5/32 4	2 1/2 63.5	9/32 7.1	1 15/16 49	0.236 6	0.866 22	1.122 28.5	1/4 M6	**SBPF201** **SBPF201-8** **SBPF202** **SBPF202-10** **SBPF203**	SB201 SB201-8 SB202 SB202-10 SB203		**SAPF201** **SAPF201-8** **SAPF202** **SAPF202-10** **SAPF203**	SA201 SA201-8 SA202 SA202-10 SA203	PF203	0.27	0.3
15	5/8																		
17																			
20	3/4	3 17/32 90	5/8 16	5/32 4	2 13/16 71.5	23/64 9	2 5/32 55	0.276 7	0.984 25	1.161 29.5	5/16 M8	**SBPF204-12** **SBPF204**	SB204-12 SB204		**SAPF204-12** **SAPF204**	SA204-12 SA204	PF204	0.33	0.33
25	7/8 15/16 1	3 3/4 95	23/32 18	5/32 4	2 63/64 76	23/64 9	2 3/8 60	0.295 7.5	1.063 27	1.201 30.5	5/16 M8	**SBPF205-14** **SBPF205-15** **SBPF205** **SBPF205-16**	SB205-14 SB205-15 SB205 SB205-16		**SAPF205-14** **SAPF205-15** **SAPF205** **SAPF205-16**	SA205-14 SA205-15 SA205 SA205-16	PF205	0.38	0.42
30	1 1/8 1 3/16 1 1/4	4 7/16 113	3/4 19	7/32 5.2	3 9/16 90.5	7/16 11	2 25/32 71	0.315 8	1.181 30	1.335 33.9	3/8 M10	**SBPF206-18** **SBPF206** **SBPF206-19** **SBPF206-20**	SB206-18 SB206 SB206-19 SB206-20		**SAPF206-18** **SAPF206** **SAPF206-19** **SAPF206-20**	SA206-18 SA206 SA206-19 SA206-20	PF206	0.62	0.65
35	1 1/4 1 5/16 1 3/8 1 7/16	4 13/16 122	7/8 22	7/32 5.2	3 15/16 100	7/16 11	3 3/16 81	0.335 8.5	1.260 32	1.437 36.5	3/8 M10	**SBPF207-20** – **SBPF207-22** **SBPF207** **SBPF207-23**	SB207-20 – SB207-22 SB207 SB207-23		**SAPF207-20** **SAPF207-21** **SAPF207-22** **SAPF207**	SA207-20 SA207-21 SA207-22 SA207 SA207-23	PF207	0.82	0.9

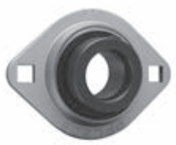
Note 1) H_2 is the minimum size of the mounting hole.

Remark For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.

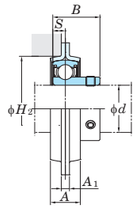
SBPFL
Cylindrical bore
(with set screws)
d 12 ~ 35 mm

SAPFL
Cylindrical bore
(with eccentric locking collar)

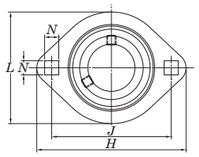
SBPFL

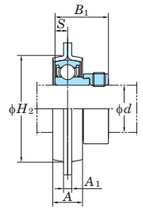


SAPFL



SBPFL





SAPFL

Shaft Dia mm	Shaft Dia inch	Dimensions inch / mm: H	L	A	A1	J	N	H2	S	SBPFL B	SAPFL B1	Bolt Size inch / mm	SBPFL Unit No.	SBPFL Bearing No.	SAPFL Unit No.	SAPFL Bearing No.	Housing No.	Mass kg: SBPFL	SAPFL
12													**SBPFL201**	SB201	**SAPFL201**	SA201			
	1/2												**SBPFL201-8**	SB201-8	**SAPFL201-8**	SA201-8			
15		3 3/16	2 5/16	9/16	5/32	2 1/2	9/32	1 15/16	0.236	0.866	1.122	1/4	**SBPFL202**	SB202	**SAPFL202**	SA202	PFL203	0.19	0.22
	5/8	81	59	14	4	63.5	7.1	49	6	22	28.5	M6	**SBPFL202-10**	SB202-10	**SAPFL202-10**	SA202-10			
17													**SBPFL203**	SB203	**SAPFL203**	SA203			
20	3/4	3 17/32	2 5/8	5/8	5/32	2 13/16	23/64	2 5/32	0.276	0.984	1.161	5/16	**SBPFL204-12**	SB204-12	**SAPFL204-12**	SA204-12	PFL204	0.24	0.24
		90	67	16	4	71.5	9	55	7	25	29.5	M8	**SBPFL204**	SB204	**SAPFL204**	SA204			
	7/8												**SBPFL205-14**	SB205-14	**SAPFL205-14**	SA205-14			
25	15/16	3 3/4	2 25/32	23/32	5/32	2 63/64	23/64	2 3/8	0.295	1.063	1.201	5/16	**SBPFL205-15**	SB205-15	**SAPFL205-15**	SA205-15	PFL205	0.28	0.32
		95	71	18	4	76	9	60	7.5	27	30.5	M8	**SBPFL205**	SB205	**SAPFL205**	SA205			
	1												**SBPFL205-16**	SB205-16	**SAPFL205-16**	SA205-16			
	1 1/8												**SBPFL206-18**	SB206-18	**SAPFL206-18**	SA206-18			
30		4 7/16	3 5/16	3/4	7/32	3 9/16	7/16	2 25/32	0.315	1.181	1.335	3/8	**SBPFL206**	SB206	**SAPFL206**	SA206	PFL206	0.38	0.41
	1 3/16	113	84	19	5.2	90.5	11	71	8	30	33.9	M10	**SBPFL206-19**	SB206-19	**SAPFL206-19**	SA206-19			
	1 1/4												**SBPFL206-20**	SB206-20	**SAPFL206-20**	SA206-20			
	1 1/4												**SBPFL207-20**	SB207-20	**SAPFL207-20**	SA207-20			
	1 5/16												–	–	**SAPFL207-21**	SA207-21			
35	1 3/8	4 13/16	3 11/16	7/8	7/32	3 15/16	7/16	3 3/16	0.335	1.260	1.437	3/8	**SBPFL207-22**	SB207-22	**SAPFL207-22**	SA207-22	PFL207	0.66	0.74
		122	94	22	5.2	100	11	81	8.5	32	36.5	M10	**SBPFL207**	SB207	**SAPFL207**	SA207			
	1 7/16												**SBPFL207-23**	SB207-23	**SAPFL207-23**	SA207-23			

Note 1) H_2 is the minimum size of the mounting hole.

Remark For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.

Variations of tolerance of distance between centers of bolt holes (Δ_{J_S})

Unit: mm

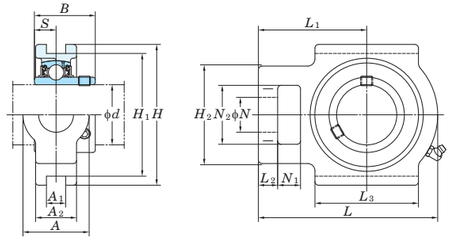
Housing No.	Δ_{J_S}
PFL203~PFL207	±0.4

Variations of tolerance of bolt hole diameter (Δ_{N_S})

Unit: mm

Housing No.	Δ_{N_S}
PFL203~PFL207	±0.25

UCT
Cylindrical bore (with set screws)
d 12 ~ (75) mm



Variations of tolerance of groove width (Δ_{A1s}), variations of tolerance of distance between both grooves (Δ_{H1s}), and tolerance of symmetry of both groove sides (X)

Unit: mm

Housing No.			Δ_{A1s}	Δ_{H1s}	X
T204~T210	TX05~TX10	T305~T310	+0.2 0	0 −0.5	0.5
T211~T217	TX11~TX17	T311~T318	+0.3 0	0 −0.8	0.6
		T319~T322			0.7
		T324~T328			0.8

Form and dimensions of L_c of T204FJE3 and T205FJE3 (housing with cast iron cover) are shown below.

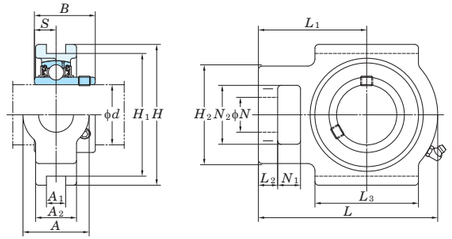
T204FJE3 L_c = 97 mm
T205FJE3 L_c = 102 mm

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm d	A	A_1	A_2	H	H_1	H_2	L	L_1	L_2	L_3	N	N_1	N_2	B	S	Unit No.	Housing No.	Bearing No.	Mass kg
12																		UCT201	T204	UC201	0.81
	1/2																	UCT201-8		UC201-8	0.81
15																		UCT202		UC202	0.79
	5/8		1 1/4	15/32	13/16	3 1/2	2 63/64	2	3 11/16	2 13/32	13/32	2	3/4	5/8	1 1/4	1.220	0.500	UCT202-10		UC202-10	0.79
			32	12	21	89	76	51	94	61	10	51	19	16	32	31	12.7				
17																		UCT203		UC203	0.78
	3/4																	UCT204-12		UC204-12	0.78
20																		UCT204		UC204	0.76
	7/8																	UCT205-14	T205	UC205-14	0.84
	15/16		1 1/4	15/32	15/16	3 1/2	2 63/64	2	3 13/16	2 7/16	13/32	2	3/4	5/8	1 1/4	1.343	0.563	UCT205-15		UC205-15	0.84
			32	12	24	89	76	51	97	62	10	51	19	16	32	34.1	14.3	UCT205		UC205	0.84
	1																	UCT205-16		UC205-16	0.84
25			1 15/32	15/32	1 3/32	4 1/32	3 1/2	2 7/32	4 7/16	2 3/4	13/32	2 1/4	7/8	5/8	1 15/32	1.500	0.626	UCTX05	TX05	UCX05	1.4
	1		37	12	28	102	89	56	113	70	10	57	22	16	37	38.1	15.9	UCTX05-16		UCX05-16	1.4
			1 13/32	15/32	1 1/32	3 1/2	3 5/32	2 7/16	4 13/16	3	15/32	2 9/16	1 1/32	5/8	1 13/32	1.496	0.591	UCT305	T305	UC305	1.4
	1		36	12	26	89	80	62	122	76	12	65	26	16	36	38	15	UCT305-16		UC305-16	1.4
	1 1/8																	UCT206-18	T206	UC206-18	1.3
			1 15/32	15/32	1 3/32	4 1/32	3 1/2	2 7/32	4 7/16	2 3/4	13/32	2 1/4	7/8	5/8	1 15/32	1.500	0.626	UCT206		UC206	1.3
	1 3/16		37	12	28	102	89	56	113	70	10	57	22	16	37	38.1	15.9	UCT206-19		UC206-19	1.3
	1 1/4																	UCT206-20		UC206-20	1.3
30																		UCTX06	TX06	UCX06	1.7
	1 3/16		1 15/32	15/32	1 3/16	4 1/32	3 1/2	2 17/32	5 3/32	3 1/16	1/2	2 17/32	7/8	5/8	1 15/32	1.689	0.689	UCTX06-19		UCX06-19	1.7
	1 1/4		37	12	30	102	89	64	129	78	13	64	22	16	37	42.9	17.5	UCTX06-20		UCX06-20	1.7
	–		1 5/8	5/8	1 3/32	3 15/16	3 35/64	2 3/4	5 13/32	3 11/32	9/16	2 29/32	1 3/32	23/32	1 5/8	1.693	0.669	UCT306	T306	UC306	1.8
			41	16	28	100	90	70	137	85	14	74	28	18	41	43	17				
	1 1/4																	UCT207-20	T207	UC207-20	1.6
	1 5/16																	UCT207-21		UC207-21	1.6
	1 3/8		1 15/32	15/32	1 3/16	4 1/32	3 1/2	2 17/32	5 3/32	3 1/16	1/2	2 17/32	7/8	5/8	1 15/32	1.689	0.689	UCT207-22		UC207-22	1.6
			37	12	30	102	89	64	129	78	13	64	22	16	37	42.9	17.5	UCT207		UC207	1.6
35	1 7/16																	UCT207-23		UC207-23	1.6
	1 3/8																	UCTX07-22	TX07	UCX07-22	2.7
			1 15/16	5/8	1 13/32	4 1/2	4 1/64	3 9/32	5 21/32	3 15/32	19/32	3 9/32	1 5/32	3/4	1 15/16	1.937	0.748	UCTX07		UCX07	2.7
	1 7/16		49	16	36	114	102	83	144	88	15	83	29	19	49	49.2	19	UCTX07-23		UCX07-23	2.7
	–		1 25/32	5/8	1 1/4	4 3/8	3 15/16	2 15/16	5 29/32	3 11/16	19/32	3 5/32	1 3/16	25/32	1 25/32	1.890	0.748	UCT307	T307	UC307	2.3
			45	16	32	111	100	75	150	94	15	80	30	20	45	48	19				
	1 1/2																	UCT208-24	T208	UC208-24	2.5
	1 9/16		1 15/16	5/8	1 5/16	4 1/2	4 1/64	3 9/32	5 21/32	3 15/32	5/8	3 9/32	1 5/32	3/4	1 15/16	1.937	0.748	UCT208-25		UC208-25	2.5
			49	16	33	114	102	83	144	88	16	83	29	19	49	49.2	19	UCT208		UC208	2.5
40	1 1/2		1 15/16	5/8	1 13/32	4 19/32	4 1/64	3 9/32	5 21/32	3 7/16	19/32	3 9/32	1 5/32	3/4	1 15/16	1.937	0.748	UCTX08-24	TX08	UCX08-24	2.6
			49	16	36	117	102	83	144	87	15	83	29	19	49	49.2	19	UCT308		UCX08	2.6
	1 1/2		1 31/32	45/64	1 11/32	4 7/8	4 13/32	3 9/32	6 3/8	3 15/16	21/32	3 1/2	1 1/4	7/8	1 31/32	2.047	0.748	UCT308-24	T308	UC308-24	3.0
			50	18	34	124	112	83	162	100	17	89	32	22	50	52	19	UCT308		UC308	3.0
	1 5/8																	UCT209-26	T209	UC209-26	2.4
	1 11/16		1 15/16	5/8	1 3/8	4 19/32	4 1/64	3 9/32	5 21/32	3 7/16	5/8	3 9/32	1 5/32	3/4	1 15/16	1.937	0.748	UCT209-27		UC209-27	2.4
	1 3/4		49	16	35	117	102	83	144	87	16	83	29	19	49	49.2	19	UCT209-28		UC209-28	2.4
45																		UCT209		UC209	2.4
	1 11/16																	UCTX09-27	TX09	UCX09-27	2.9
	1 3/4		1 15/16	5/8	1 1/2	4 19/32	4 1/64	3 9/32	5 7/8	3 17/32	5/8	3 3/8	1 5/32	3/4	1 15/16	2.031	0.748	UCTX09-28		UCX09-28	2.9
			49	16	38	117	102	83	149	90	16	86	29	19	49	51.6	19	UCTX09		UCX09	2.9

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm d	A	A_1	A_2	H	H_1	H_2	L	L_1	L_2	L_3	N	N_1	N_2	B	S	Unit No.	Housing No.	Bearing No.	Mass kg
45	1 3/4		2 5/32	45/64	1 1/2	5 7/16	4 59/64	3 17/32	7	4 11/32	23/32	3 13/16	1 11/32	15/16	2 5/32	2.244	0.866	UCT309-28	T309	UC309-28	4.1
			55	18	38	138	125	90	178	110	18	97	34	24	55	57	22	UCT309		UC309	4.1
	1 7/8																	UCT210-30	T210	UC210-30	2.6
	1 15/16		1 15/16	5/8	1 15/32	4 19/32	4 1/64	3 9/32	5 7/8	3 17/32	5/8	3 3/8	1 5/32	3/4	1 15/16	2.031	0.748	UCT210-31		UC210-31	2.6
			49	16	37	117	102	83	149	90	16	86	29	19	49	51.6	19	UCT210		UC210	2.6
50	2																	UCT210-32		UC210-32	2.6
	1 15/16		2 17/32	55/64	1 21/32	5 3/4	5 1/8	4 1/32	6 23/32	4 3/16	3/4	3 3/4	1 3/8	31/32	2 17/32	2.189	0.874	UCTX10-31	TX10	UCX10-31	4.4
			64	22	42	146	130	102	171	106	19	95	35	25	64	55.6	22.2	UCTX10		UCX10	4.4
	2																	UCTX10-32		UCX10-32	4.4
	–		2 13/32	25/32	1 9/16	5 15/16	5 33/64	3 27/32	7 17/32	4 19/32	25/32	4 3/16	1 15/32	1 1/16	2 13/32	2.402	0.866	UCT310	T310	UC310	4.9
			61	20	40	151	140	98	191	117	20	106	37	27	61	61	22				
	2																	UCT211-32	T211	UC211-32	4.0
	2 1/8		2 17/32	55/64	1 1/2	5 3/4	5 1/8	4 1/32	6 23/32	4 3/16	3/4	3 3/4	1 3/8	31/32	2 17/32	2.189	0.874	UCTX11-34		UCX11-34	4.0
			64	22	38	146	130	102	171	106	19	95	35	25	64	55.6	22.2	UCT211		UC211	4.0
	2 3/16																	UCT211-35		UC211-35	4.0
55			2 17/32	55/64	1 23/32	5 3/4	5 1/8	4 1/32	7 5/8	4 11/16	3/4	4 1/32	1 3/8	1 1/4	2 17/32	2.563	1.000	UCTX11	TX11	UCX11	5.3
	2 3/16																	UCTX11-35		UCX11-35	5.3
			64	22	44	146	130	102	194	119	19	102	35	32	64	65.1	25.4				
	2 1/4																	UCTX11-36		UCX11-36	5.3
	2																	UCT311-32	T311	UC311-32	6.1
			2 19/32	55/64	1 23/32	6 13/32	5 29/32	4 1/8	8 5/32	5	13/16	4 17/32	1 17/32	1 5/32	2 19/32	2.598	0.984	UCT311		UC311	6.1
	2 3/16		66	22	44	163	150	105	207	127	21	115	39	29	66	66	25				
																		UCT311-35		UC311-35	6.1
60	2 1/4																	UCT212-36	T212	UC212-36	4.9
			2 17/32	55/64	1 21/32	5 3/4	5 1/8	4 1/32	7 5/8	4 11/16	3/4	4 1/32	1 3/8	1 1/4	2 17/32	2.563	1.000	UCT212		UC212	4.9
	2 3/8		64	22	42	146	130	102	194	119	19	102	35	32	64	65.1	25.4	UCT212-38		UC212-38	4.9
	2 7/16																	UCT212-39		UC212-39	4.9
	2 7/16		2 3/4	1 1/32	1 7/8	6 9/16	5 15/16	4 3/8	8 13/16	5 13/32	13/16	4 3/4	1 5/8	1 1/4	2 3/4	2.563	1.000	UCTX12	TX12	UCX12	7.4
			70	26	48	167	151	111	224	137	21	121	41	32	70	65.1	25.4	UCTX12-39		UCX12-39	7.4
	2 7/16		2 25/32	55/64	1 13/16	7	6 19/64	4 7/16	8 21/32	5 5/16	29/32	4 27/32	1 5/8	1 7/32	2 25/32	2.795	1.024	UCT312	T312	UC312	7.6
			71	22	46	178	160	113	220	135	23	123	41	31	71	71	26	UCT312-39		UC312-39	7.6
65	2 1/2		2 3/4	1 1/32	1 23/32	6 9/16	5 15/16	4 3/8	8 13/16	5 13/32	13/16	4 3/4	1 5/8	1 1/4	2 3/4	2.563	1.000	UCT213-40	T213	UC213-40	6.9
			70	26	44	167	151	111	224	137	21	121	41	32	70	65.1	25.4	UCT213		UC213	6.9
	2 1/2		2 3/4	1 1/32	1 7/8	6 9/16	5 15/16	4 3/8	8 13/16	5 13/32	13/16	4 3/4	1 5/8	1 1/4	2 3/4	2.937	1.189	UCT313-40	TX13	UCX13-40	7.6
			70	26	48	167	151	111	224	137	21	121	41	32	70	74.6	30.2	UCTX13		UCX13	7.6
	2 1/2		3 5/32	1 1/32	1 31/32	7 15/32	6 11/16	4 9/16	9 3/8	5 3/4	31/32	5 9/32	1 11/16	1 1/4	2 3/4	2.953	1.181	UCT313-40	T313	UC313-40	9.3
			80	26	50	190	170	116	238	146	25	134	43	32	70	75	30	UCT313		UC313	9.3
	2 3/4		2 3/4	1 1/32	1 13/16	6 9/16	5 15/16	4 3/8	8 13/16	5 13/32	13/16	4 3/4	1 5/8	1 1/4	2 3/4	2.937	1.189	UCT214-44	T214	UC214-44	7.0
			70	26	46	167	151	111	224	137	21	121	41	32	70	74.6	30.2	UCT214		UC214	7.0
70	2 3/4		2 3/4	1 1/32	1 7/8	6 9/16	5 15/16	4 3/8	9 1/8	5 1/2	13/16	4 3/4	1 5/8	1 1/4	2 3/4	3.063	1.311	UCTX14-44	TX14	UCX14-44	7.9
			70	26	48	167	151	111	232	140	21	121	41	32	70	77.8	33.3	UCTX14		UCX14	7.9
	2 3/4		3 17/32	1 1/32	2 1/16	7 15/16	7 3/32	5 1/8	9 29/32	6 3/32	31/32	5 1/2	1 13/16	1 13/32	3 11/32	3.071	1.299	UCT314-44	T314	UC314-44	11.1
			90	26	52	202	180	130	252	155	25	140	46	36	85	78	33	UCT314		UC314	11.1
	2 15/16																	UCT215-47	T215	UC215-47	7.3
			2 3/4	1 1/32	1 7/8	6 9/16	5 15/16	4 3/8	9 1/8	5 1/2	13/16	4 3/4	1 5/8	1 1/4	2 3/4	3.063	1.311	UCT215		UC215	7.3
	3		70	26	48	167	151	111	232	140	21	121	41	32	70	77.8	33.3	UCT215-48		UC215-48	7.3
75	2 15/16																	UCTX15-47	TX15	UCX15-47	8.7
			2 3/4	1 7/64	1 7/8	7 1/4	6 1/2	4 3/8	9 1/4	5 1/2	13/16	4 3/4	1 5/8	1 1/4	2 3/4	3.252	1.311	UCTX15		UCX15	8.7
	3		70	28	48	184	165	111	235	140	21	121	41	32	70	82.6	33.3	UCTX15-48		UCX15-48	8.7

Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   B-1/4-28UNF ..... 201~210, X05~X09, 305~308
   B-R1/8 ..... 211~217, X10~X17, 309~328
3. As for the triple seal type product (from 201 to 205 are the double seal type products), suffix code L3 (L2) follows the Part No. of unit or bearing.
   (Example of Part No. : UCT206JL3, UC206L3)
4. As for the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
5. Housings of nodular graphite cast iron are also available.

UCT
Cylindrical bore (with set screws)
d (75) ~ 140 mm



Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm														Unit No.	Housing No.	Bearing No.	Mass
d		A	A_1	A_2	H	H_1	H_2	L	L_1	L_2	L_3	N	N_1	N_2	B	S				kg
75	2 15/16	3 17/32	1 1/32	2 5/32	8 1/2	7 9/16	5 3/16	10 5/16	6 5/16	31/32	5 29/32	1 13/16	1 13/32	3 11/32	3.228	1.260	UCT315-47	T315	UC315-47	13.0
		90	26	55	216	192	132	262	160	25	150	46	36	85	82	32	UCT315		UC315	13.0
	3																UCT315-48		UC315-48	13.0
80	3 1/8	2 3/4	1 1/32	2	7 1/4	6 1/2	4 3/8	9 1/4	5 1/2	13/16	4 3/4	1 5/8	1 1/4	2 3/4	3.252	1.311	UCT216-50	T216	UC216-50	8.2
		70	26	51	184	165	111	235	140	21	121	41	32	70	82.6	33.3	UCT216		UC216	8.2
	–	2 7/8	1 7/64	2 1/8	7 25/32	6 13/16	4 7/8	10 1/4	6 3/8	1 3/32	6 3/16	1 7/8	1 1/2	2 7/8	3.374	1.343	UCTX16	TX16	UCX16	11.7
		73	28	54	198	173	124	260	162	28	157	48	38	73	85.7	34.1				
	–	4 1/32	1 3/16	2 3/8	9 1/16	8 1/32	5 29/32	11 3/32	6 27/32	1 3/32	6 5/16	2 3/32	1 21/32	3 27/32	3.386	1.339	UCT316	T316	UC316	16.2
		102	30	60	230	204	150	282	174	28	160	53	42	98	86	34				
85	3 1/4	2 7/8	1 3/16	2 1/8	7 25/32	6 13/16	4 7/8	10 1/4	6 3/8	1 5/32	6 3/16	1 7/8	1 1/2	2 7/8	3.374	1.343	UCT217-52	T217	UC217-52	11.0
		73	30	54	198	173	124	260	162	29	157	48	38	73	85.7	34.1	UCT217		UC217	11.0
		2 7/8	1 7/64	2 1/8	7 25/32	6 13/16	4 7/8	10 1/4	6 3/8	1 3/32	6 3/16	1 7/8	1 1/2	2 7/8	3.780	1.563	UCTX17	TX17	UCX17	11.7
	3 7/16	73	28	54	198	173	124	260	162	28	157	48	38	73	96	39.7	UCTX17-55		UCX17-55	11.7
	–	4 1/32	1 17/64	2 17/32	9 7/16	8 27/64	5 31/32	11 23/32	7 7/32	1 3/16	6 11/16	2 3/32	1 21/32	3 27/32	3.780	1.575	UCT317	T317	UC317	19.0
		102	32	64	240	214	152	298	183	30	170	53	42	98	96	40				
90	3 1/2	4 11/32	1 17/64	2 19/32	10 1/32	8 31/32	6 5/16	12 9/32	7 9/16	1 3/16	6 7/8	2 1/4	1 13/16	4 3/16	3.780	1.575	UCT318-56	T318	UC318-56	21.6
		110	32	66	255	228	160	312	192	30	175	57	46	106	96	40	UCT318		UC318	21.6
95	–	4 11/32	1 3/8	2 27/32	10 5/8	9 29/64	6 1/2	12 11/16	7 3/4	1 7/32	7 3/32	2 1/4	1 13/16	4 3/16	4.055	1.614	UCT319	T319	UC319	24.9
		110	35	72	270	240	165	322	197	31	180	57	46	106	103	41				
100	3 15/16	4 23/32	1 3/8	2 15/16	11 13/32	10 15/64	6 7/8	13 19/32	8 9/32	1 1/4	7 7/8	2 5/16	1 7/8	4 17/32	4.252	1.654	UCT320	T320	UC320	30.7
	4	120	35	75	290	260	175	345	210	32	200	59	48	115	108	42	UCT320-63		UC320-63	30.7
																	UCT320-64		UC320-64	30.7
105	–	4 23/32	1 3/8	2 15/16	11 13/32	10 15/64	6 7/8	13 19/32	8 9/32	1 1/4	7 7/8	2 5/16	1 7/8	4 17/32	4.409	1.732	UCT321	T321	UC321	36.7
		120	35	75	290	260	175	345	210	32	200	59	48	115	112	44				
110	–	5 1/8	1 1/2	3 5/32	12 19/32	11 7/32	7 9/32	15 5/32	9 1/4	1 1/2	8 15/32	2 9/16	2 1/16	4 29/32	4.606	1.811	UCT322	T322	UC322	39.7
		130	38	80	320	285	185	385	235	38	215	65	52	125	117	46				
120	–	5 1/2	1 49/64	3 17/32	13 31/32	12 19/32	8 9/32	17	10 1/2	1 21/32	9 1/16	2 3/4	2 3/8	5 1/2	4.961	2.008	UCT324	T324	UC324	54.4
		140	45	90	355	320	210	432	267	42	230	70	60	140	126	51				
130	–	5 29/32	1 31/32	3 15/16	15 5/32	13 25/32	8 21/32	18 5/16	11 7/32	1 25/32	9 7/16	2 15/16	2 9/16	5 29/32	5.315	2.126	UCT326	T326	UC326	69.3
		150	50	100	385	350	220	465	285	45	240	75	65	150	135	54				
140	–	6 3/32	1 31/32	3 15/16	16 11/32	14 61/64	9 1/16	20 9/32	12 13/32	1 31/32	10 1/32	3 5/32	2 3/4	6 5/16	5.709	2.323	UCT328	T328	UC328	85.1
		155	50	100	415	380	230	515	315	50	255	80	70	160	145	59				

Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   B-1/4-28UNF ..... 201~210, X05~X09, 305~308
   B-R1/8 ..... 211~217, X10~X17, 309~328
3. As for the triple seal type product (from 201 to 205 are the double seal type products), suffix code L3 (L2) follows the Part No. of unit or bearing. (Example of Part No. : UCT206JL3, UC206L3)
4. As for the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
5. Housings of nodular graphite cast iron are also available.

Variations of tolerance of groove width (Δ_{A1s}), variations of tolerance of distance between both grooves (Δ_{H1s}), and tolerance of symmetry of both groove sides (X)

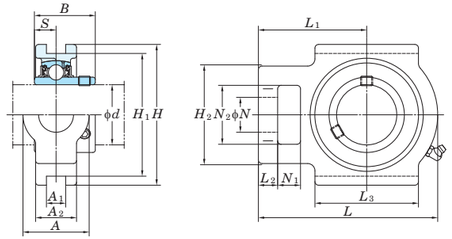
Unit: mm

Housing No.			Δ_{A1s}	Δ_{H1s}	X
T204~T210	TX05~TX10	T305~T310	+0.2 0	0 −0.5	0.5
T211~T217	TX11~TX17	T311~T318	+0.3 0	0 −0.8	0.6
		T319~T322			0.7
		T324~T328			0.8

Form and dimensions of L_c of T204FJE3 and T205FJE3 (housing with cast iron cover) are shown below.

T204FJE3 L_c = 97 mm
T205FJE3 L_c = 102 mm

UCT-E
Cylindrical bore (with set screws)
d 12 ~ 50 mm



Shaft Dia. mm / inch d	Dimensions inch / mm A	A_1	A_2	H	H_1	H_2	L	L_1	L_2	L_3	N	N_1	N_2	B	S	Unit No.		Housing No.	Bearing No.	Mass kg
12																UCT201E			UC201	0.81
	1/2															UCT201-8E			UC201-8	
15																UCT202E			UC202	0.79
	5/8	1 1/4	17/32	13/16	3 1/2	3	2	3 11/16	2 13/32	13/32	2	3/4	5/8	1 1/4	1.220	0.500	UCT202-10E	T204E	UC202-10	
17		32	13.5	21	89	76.2	51	94	61	10	51	19	16	32	31	12.7	UCT203E		UC203	0.78
	3/4																UCT204-12E		UC204-12	
20																	UCT204E		UC204	0.76
	7/8																UCT205-14E		UC205-14	
	15/16	1 1/4	17/32	15/16	3 1/2	3	2	3 13/16	2 7/16	13/32	2	3/4	5/8	1 1/4	1.343	0.563	UCT205-15E	T205E	UC205-15	0.84
25		32	13.5	24	89	76.2	51	97	62	10	51	19	16	32	34.1	14.3	UCT205E		UC205	
	1																UCT205-16E		UC205-16	
		1 15/32	17/32	1 3/32	4 1/32	3 1/2	2 7/32	4 7/16	2 3/4	13/32	2 1/4	7/8	5/8	1 15/32	1.500	0.626	UCTX05E	TX05E	UCX05	1.4
	1	37	13.5	28	102	88.9	56	113	70	10	57	22	16	37	38.1	15.9	UCTX05-16E		UCX05-16	
	1 1/8																UCT206-18E		UC206-18	
		1 15/32	17/32	1 3/32	4 1/32	3 1/2	2 7/32	4 7/16	2 3/4	13/32	2 1/4	7/8	5/8	1 15/32	1.500	0.626	UCT206E	T206E	UC206	1.3
	1 3/16	37	13.5	28	102	88.9	56	113	70	10	57	22	16	37	38.1	15.9	UCT206-19E		UC206-19	
30	1 1/4																UCT206-20E		UC206-20	
		1 15/32	17/32	1 3/16	4 1/32	3 1/2	2 17/32	5 3/32	3 1/16	1/2	2 17/32	7/8	5/8	1 15/32	1.689	0.689	UCTX06E		UCX06	
	1 3/16	37	13.5	30	102	88.9	64	129	78	13	64	22	16	37	42.9	17.5	UCTX06-19E	TX06E	UCX06-19	1.7
	1 1/4																UCTX06-20E		UCX06-20	
	1 1/4																UCT207-20E		UC207-20	
	1 5/16																UCT207-21E		UC207-21	
	1 3/8	1 15/32	17/32	1 3/16	4 1/32	3 1/2	2 17/32	5 3/32	3 1/16	1/2	2 17/32	7/8	5/8	1 15/32	1.689	0.689	UCT207-22E		UC207-22	
35		37	13.5	30	102	88.9	64	129	78	13	64	22	16	37	42.9	17.5	UCT207E	T207E	UC207	1.6
	1 7/16																UCT207-23E		UC207-23	
	1 3/8																UCTX07-22E		UCX07-22	
		1 15/32	11/16	1 13/32	4 1/2	4	3 9/32	5 21/32	3 15/32	19/32	3 9/32	1 5/32	3/4	1 15/32	1.937	0.748	UCTX07E	TX07E	UCX07	2.7
	1 7/16	49	17.5	36	114	101.6	83	144	88	15	83	29	19	49	49.2	19	UCTX07-23E		UCX07-23	
	1 1/2																UCT208-24E		UC208-24	
		1 15/32	11/16	1 5/16	4 1/2	4	3 9/32	5 21/32	3 15/32	5/8	3 9/32	1 5/32	3/4	1 15/32	1.937	0.748	UCT208-25E	T208E	UC208-25	2.5
40	1 9/16	49	17.5	33	114	101.6	83	144	88	16	83	29	19	49	49.2	19	UCT208E		UC208	
	1 1/2	1 15/32	11/16	1 13/32	4 19/32	4	3 9/32	5 21/32	3 7/16	19/32	3 9/32	1 5/32	3/4	1 15/32	1.937	0.748	UCTX08-24E	TX08E	UCX08-24	2.6
		49	17.5	36	117	101.6	83	144	87	15	83	29	19	49	49.2	19	UCTX08E		UCX08	
	1 5/8																UCT209-26E		UC209-26	
	1 11/16	1 15/16	11/16	1 3/8	4 19/32	4	3 9/32	5 21/32	3 7/16	5/8	3 9/32	1 5/32	3/4	1 15/16	1.937	0.748	UCT209-27E	T209E	UC209-27	2.4
	1 3/4	49	17.5	35	117	101.6	83	144	87	16	83	29	19	49	49.2	19	UCT209-28E		UC209-28	
45																	UCT209E		UC209	
	1 11/16																UCTX09-27E		UCX09-27	
	1 3/4	1 15/16	11/16	1 1/2	4 19/32	4	3 9/32	5 7/8	3 17/32	5/8	3 3/8	1 5/32	3/4	1 15/16	2.031	0.748	UCTX09-28E	TX09E	UCX09-28	2.9
		49	17.5	38	117	101.6	83	149	90	16	86	29	19	49	51.6	19	UCTX09E		UCX09	
	1 7/8																UCT210-30E		UC210-30	
	1 15/16	1 15/16	11/16	1 15/32	4 19/32	4	3 9/32	5 7/8	3 17/32	5/8	3 3/8	1 5/32	3/4	1 15/16	2.031	0.748	UCT210-31E		UC210-31	
		49	17.5	37	117	101.6	83	149	90	16	86	29	19	49	51.6	19	UCT210E	T210E	UC210	2.6
50	2																UCT210-32E		UC210-32	
	1 15/16																UCTX10-31E		UCX10-31	
		2 17/32	1 1/16	1 21/32	5 3/4	5 1/8	4 1/64	6 23/32	4 3/16	3/4	3 3/4	1 3/8	31/32	2 17/32	2.189	0.874	UCTX10E	TX10E	UCX10	4.4
	2	64	27	42	146	130.17	102	171	106	19	95	35	25	64	55.6	22.2	UCTX10-32E		UCX10-32	

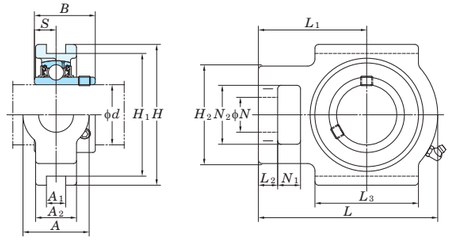
Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   B-1/4-28UNF..... 201~210, X05~X09, 305~308
   B-R1/8 ..... 211~217, X10~X17, 309~328
3. As for the triple seal type product (from 201 to 205 are the double seal type products), suffix code L3 (L2) follows the Part No. of unit or bearing. (Example of Part No. : UCT206EL3, UC206L3)
4. As for the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
5. Housings of nodular graphite cast iron are also available.

Variations of tolerance of groove width (Δ_{A1s}), variations of tolerance of distance between both grooves (Δ_{H1s}), and tolerance of symmetry of both groove sides (X)

Unit: mm

Housing No.		Δ_{A1s}	Δ_{H1s}	X
T204E~T210E	TX05E~TX10E	+0.2 0	0 −0.5	0.5
T211E~T217E	TX11E~TX17E	+0.3 0	0 −0.8	0.6

UCT-E
Cylindrical bore (with set screws)
d 55 ~ 85 mm



Shaft Dia. mm / inch d		Dimensions inch / mm A	A_1	A_2	H	H_1	H_2	L	L_1	L_2	L_3	N	N_1	N_2	B	S	Unit No.		Housing No.	Bearing No.	Mass kg
55	2																UCT211-32E		T211E	UC211-32	4.0
	2 1/8	2 17/32	1 1/16	1 1/2	5 3/4	5 1/8	4 1/32	6 23/32	4 3/16	3/4	3 3/4	1 3/8	31/32	2 17/32	2.189	0.874	UCT211-34E			UC211-34	
		64	27	38	146	130.17	102	171	106	19	95	35	25	64	55.6	22.2	UCT211E			UC211	
	2 3/16																UCT211-35E			UC211-35	
	2 3/16	2 17/32	1 1/16	1 23/32	5 3/4	5 1/8	4 1/32	7 5/8	4 11/16	3/4	4 1/32	1 3/8	1 1/4	2 17/32	2.563	1.000	UCTX11E		TX11E	UCX11	5.3
		64	27	44	146	130.17	102	194	119	19	102	35	32	64	65.1	25.4	UCTX11-35E			UCX11-35	
	2 1/4																UCTX11-36E			UCX11-36	
60	2 1/4																UCT212-36E		T212E	UC212-36	4.9
		2 17/32	1 1/16	1 21/32	5 3/4	5 1/8	4 1/32	7 5/8	4 11/16	3/4	4 1/32	1 3/8	1 1/4	2 17/32	2.563	1.000	UCT212E			UC212	
	2 3/8	64	27	42	146	130.17	102	194	119	19	102	35	32	64	65.1	25.4	UCT212-38E			UC212-38	
	2 7/16																UCT212-39E			UC212-39	
		2 3/4	1 1/16	1 7/8	6 9/16	5 15/16	4 3/8	8 13/16	5 13/32	13/16	4 3/4	1 5/8	1 1/4	2 3/4	2.563	1.000	UCTX12E		TX12E	UCX12	7.4
	2 7/16	70	27	48	167	150.8	111	224	137	21	121	41	32	70	65.1	25.4	UCTX12-39E			UCX12-39	
65	2 1/2	2 3/4	1 1/16	1 23/32	6 9/16	5 15/16	4 3/8	8 13/16	5 13/32	13/16	4 3/4	1 5/8	1 1/4	2 3/4	2.563	1.000	UCT213-40E		T213E	UC213-40	6.9
		70	27	44	167	150.8	111	224	137	21	121	41	32	70	65.1	25.4	UCT213E			UC213	
	2 1/2	2 3/4	1 1/16	1 7/8	6 9/16	5 15/16	4 3/8	8 13/16	5 13/32	13/16	4 3/4	1 5/8	1 1/4	2 3/4	2.937	1.189	UCTX13-40E		TX13E	UCX13-40	7.6
		70	27	48	167	150.8	111	224	137	21	121	41	32	70	74.6	30.2	UCTX13E			UCX13	
70	2 3/4	2 3/4	1 1/16	1 13/16	6 9/16	5 15/16	4 3/8	8 13/16	5 13/32	13/16	4 3/4	1 5/8	1 1/4	2 3/4	2.937	1.189	UCT214-44E		T214E	UC214-44	7.0
		70	27	46	167	150.8	111	224	137	21	121	41	32	70	74.6	30.2	UCT214E			UC214	
	2 3/4	2 3/4	1 1/16	1 7/8	6 9/16	5 15/16	4 3/8	9 1/8	5 1/2	13/16	4 3/4	1 5/8	1 1/4	2 3/4	3.063	1.331	UCTX14-44E		TX14E	UCX14-44	7.9
		70	27	48	167	150.8	111	232	140	21	121	41	32	70	77.8	33.3	UCTX14E			UCX14	
75	2 15/16	2 3/4	1 1/16	1 7/8	6 9/16	5 15/16	4 3/8	9 1/8	5 1/2	13/16	4 3/4	1 5/8	1 1/4	2 3/4	3.063	1.331	UCT215-47E		T215E	UC215-47	7.3
		70	27	48	167	150.8	111	232	140	21	121	41	32	70	77.8	33.3	UCT215E			UC215	
	3																UCT215-48E			UC215-48	
	2 15/16	2 3/4	1 1/16	1 7/8	7 1/4	6 1/2	4 3/8	9 1/4	5 1/2	13/16	4 3/4	1 5/8	1 1/4	2 3/4	3.252	1.311	UCTX15-47E		TX15E	UCX15-47	8.7
		70	27	48	184	165	111	235	140	21	121	41	32	70	82.6	33.3	UCTX15E			UCX15	
	3																UCTX15-48E			UCX15-48	
80	3 1/8	2 3/4	1 1/16	2	7 1/4	6 1/2	4 3/8	9 1/4	5 1/2	13/16	4 3/4	1 5/8	1 1/4	2 3/4	3.252	1.311	UCT216-50E		T216E	UC216-50	8.2
		70	27	51	184	165	111	235	140	21	121	41	32	70	82.6	33.3	UCT216E			UC216	
	–	3 1/2	1 13/16	2 11/16	7 25/32	6 13/16	4 7/8	10 1/4	6 3/8	1 3/32	6 3/16	1 7/8	1 1/2	2 7/8	3.374	1.343	UCTX16E		TX16E	UCX16	12.4
		89	46	68	198	173	124	260	162	28	157	48	38	73	85.7	34.1					
85	3 1/4	3 1/2	1 13/16	2 11/16	7 25/32	6 13/16	4 7/8	10 1/4	6 3/8	1 5/32	6 3/16	1 7/8	1 1/2	2 7/8	3.374	1.343	UCT217-52E		T217E	UC217-52	12.1
		89	46	68	198	173	124	260	162	29	157	48	38	73	85.7	34.1	UCT217E			UC217	
	3 7/16	3 1/2	1 13/16	2 11/16	7 25/32	6 13/16	4 7/8	10 1/4	6 3/8	1 3/32	6 3/16	1 7/8	1 1/2	2 7/8	3.780	1.563	UCTX17E		TX17E	UCX17	13.3
		89	46	68	198	173	124	260	162	28	157	48	38	73	96	39.7	UCTX17-55E			UCX17-55	

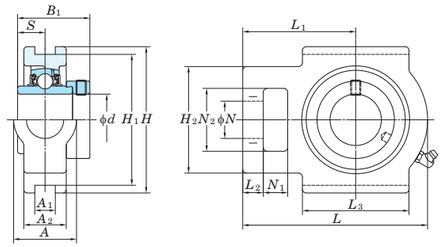
Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   B-1/4-28UNF ..... 201~210, X05~X09, 305~308
   B-R1/8 ..... 211~217, X10~X17, 309~328
3. As for the triple seal type product (from 201 to 205 are the double seal type products), suffix code L3 (L2) follows the Part No. of unit or bearing. (Example of Part No. : UCT206EL3, UC206L3)
4. As for the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
5. Housings of nodular graphite cast iron are also available.

Variations of tolerance of groove width (Δ_{A1s}), variations of tolerance of distance between both grooves (Δ_{H1s}), and tolerance of symmetry of both groove sides (X)

Unit: mm

Housing No.		Δ_{A1s}	Δ_{H1s}	X
T204E~T210E	TX05E~TX10E	+0.2 0	0 −0.5	0.5
T211E~T217E	TX11E~TX17E	+0.3 0	0 −0.8	0.6

NAT-E
Cylindrical bore
(with eccentric locking collar)
d 12 ~ 75 mm



Variations of tolerance of groove width (Δ_{A1s}), variations of tolerance of distance between both grooves (Δ_{H1s}), and tolerance of symmetry of both groove sides (X)

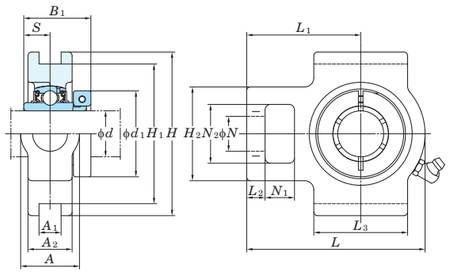
Unit: mm

Housing No.	Δ_{A1s}	Δ_{H1s}	X
T204E~T210E	+0.2 0	0 −0.5	0.5
T211E~T215E	+0.3 0	0 −0.8	0.6

Shaft Dia. mm / inch d	Dimensions inch / mm A	A_1	A_2	H	H_1	H_2	L	L_1	L_2	L_3	N	N_1	N_2	B_1	S	Unit No.		Housing No.	Bearing No.	Mass kg
12																NAT201E		T204E	NA201	0.83
	1/2															NAT201-8E			NA201-8	
15		1 1/4	17/32	13/16	3 1/2	3	2	3 11/16	2 13/32	13/32	2	3/4	5/8	1 1/4	1.720	0.673	NAT202E			NA202	0.81
	5/8	32	13.5	21	89	76.2	51	94	61	10	51	19	16	32	43.7	17.1	NAT202-10E			NA202-10	
17																	NAT203E			NA203	0.8
	3/4																NAT204-12E			NA204-12	0.84
20																	NAT204E			NA204	
25	7/8	1 1/4	17/32	15/16	3 1/2	3	2	3 13/16	2 7/16	13/32	2	3/4	5/8	1 1/4	1.748	0.689	NAT205-14E		T205E	NA205-14	0.89
	15/16	32	13.5	24	89	76.2	51	97	62	10	51	19	16	32	44.4	17.5	NAT205-15E			NA205-15	
	1																NAT205E			NA205	
																	NAT205-16E			NA205-16	
30	1 1/8	1 15/32	17/32	1 3/32	4 1/32	3 1/2	2 7/32	4 7/16	2 3/4	13/32	2 1/4	7/8	5/8	1 15/32	1.906	0.720	NAT206-18E		T206E	NA206-18	1.39
	1 3/16	37	13.5	28	102	88.9	56	113	70	10	57	22	16	37	48.4	18.3	NAT206E			NA206	
	1 1/4																NAT206-19E			NA206-19	
																	NAT206-20E			NA206-20	
35	1 1/4	1 15/32	17/32	1 3/16	4 1/32	3 1/2	2 17/32	5 3/32	3 1/16	1/2	2 17/32	7/8	5/8	1 15/32	2.012	0.740	NAT207-20E		T207E	NA207-20	1.73
	1 5/16	37	13.5	30	102	88.9	64	129	78	13	64	22	16	37	51.1	18.8	NAT207-21E			NA207-21	
	1 3/8																NAT207-22E			NA207-22	
																	NAT207E			NA207	
	1 7/16																NAT207-23E			NA207-23	
40	1 1/2	1 15/16	11/16	1 5/16	4 1/2	4	3 9/32	5 21/32	3 15/32	5/8	3 9/32	1 5/32	3/4	1 15/16	2.217	0.843	NAT208-24E		T208E	NA208-24	2.74
	1 9/16	49	17.5	33	114	101.6	83	144	88	16	83	29	19	49	56.3	21.4	NAT208-25E			NA208-25	
																	NAT208E			NA208	
45	1 5/8	1 15/16	11/16	1 3/8	4 19/32	4	3 9/32	5 21/32	3 7/16	5/8	3 9/32	1 5/32	3/4	1 15/16	2.217	0.843	NAT209-26E		T209E	NA209-26	2.57
	1 11/16	49	17.5	35	117	101.6	83	144	87	16	83	29	19	49	56.3	21.4	NAT209-27E			NA209-27	
	1 3/4																NAT209-28E			NA209-28	
																	NAT209E			NA209	
50	1 7/8	1 15/16	11/16	1 15/32	4 19/32	4	3 9/32	5 7/8	3 17/32	5/8	3 3/8	1 5/32	3/4	1 15/16	2.469	0.969	NAT210-30E		T210E	NA210-30	2.81
	1 15/16	49	17.5	37	117	101.6	83	149	90	16	86	29	19	49	62.7	24.6	NAT210-31E			NA210-31	
	2																NAT210E			NA210	
																	NAT210-32E			NA210-32	
55	2	2 17/32	1 1/16	1 1/2	5 3/4	5 1/8	4 1/32	6 23/32	4 3/16	3/4	3 3/4	1 3/8	31/32	2 17/32	2.811	1.094	NAT211-32E		T211E	NA211-32	4.28
	2 1/8	64	27	38	146	130.17	102	171	106	19	95	35	25	64	71.4	27.8	NAT211-34E			NA211-34	
	2 3/16																NAT211E			NA211	
																	NAT211-35E			NA211-35	
60	2 1/4	2 17/32	1 1/16	1 21/32	5 3/4	5 1/8	4 1/32	7 5/8	4 11/16	3/4	4 1/32	1 3/8	1 1/4	2 17/32	3.063	1.220	NAT212-36E		T212E	NA212-36	5.23
	2 3/8	64	27	42	146	130.17	102	194	119	19	102	35	32	64	77.8	31	NAT212E			NA212	
	2 7/16																NAT212-38E			NA212-38	
																	NAT212-39E			NA212-39	
65	2 1/2	2 3/4	1 1/16	1 23/32	6 9/16	5 15/16	4 3/8	8 13/16	5 13/32	13/16	4 3/4	1 5/8	1 1/4	2 3/4	3.374	1.343	NAT213-40E		T213E	NA213-40	7.49
		70	27	44	167	150.8	111	224	137	21	121	41	32	70	85.7	34.1	NAT213E			NA213	
70	2 3/4	2 3/4	1 1/16	1 13/16	6 9/16	5 15/16	4 3/8	8 13/16	5 13/32	13/16	4 3/4	1 5/8	1 1/4	2 3/4	3.374	1.343	NAT214-44E		T214E	NA214-44	7.87
		70	27	46	167	150.8	111	224	137	21	121	41	32	70	85.7	34.1	NAT214E			NA214	
75	2 15/16	2 3/4	1 1/16	1 7/8	6 9/16	5 15/16	4 3/8	9 1/8	5 1/2	13/16	4 3/4	1 5/8	1 1/4	2 3/4	3.626	1.469	NAT215-47E		T215E	NA215-47	7.83
		70	27	48	167	150.8	111	232	140	21	121	41	32	70	92.1	37.3	NAT215E			NA215	

Remarks
1. In Part No. of unit, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   B-1/4-28UNF..... 204~210
   B-R1/8 ..... 211~215
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
4. Representative examples of the forms of housing are indicated.

NCT
Cylindrical bore
(with concentric locking collar)
d 20 ~ 60 mm



Variations of tolerance of groove width (Δ_{A1s}), variations of tolerance of distance between both grooves (Δ_{H1s}), and tolerance of symmetry of both groove sides (X)

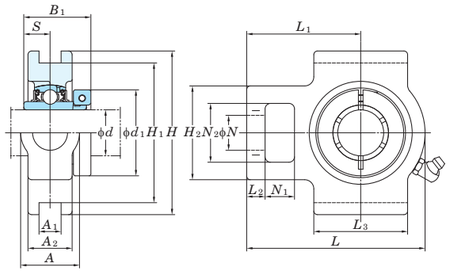
Unit: mm

Housing No.	Δ_{A1s}	Δ_{H1s}	X
T204~T210	+0.2 0	0 −0.5	0.5
T211~T212	+0.3 0	0 −0.8	0.6

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm A	A_1	A_2	H	H_1	H_2	L	L_1	L_2	L_3	N	N_1	N_2	B_1	S	d_1	Unit No.	Housing No.	Bearing No.	Mass kg
20	3/4	1 1/4	15/32	13/16	3 1/2	2 63/64	2	3 11/16	2 13/32	13/32	2	3/4	5/8	1 1/4	1 9/32	0.500	1 3/4	NCT204-12	T204	NC204-12	0.9
		32	12	21	89	76	51	94	61	10	51	19	16	32	32.5	12.7	44.5	NCT204		NC204	
25	7/8																	NCT205-14	T205	NC205-14	1.0
	15/16	1 1/4	15/32	15/16	3 1/2	2 63/64	2	3 13/16	2 7/16	13/32	2	3/4	5/8	1 1/4	1 7/16	0.563	1 15/16	NCT205-15		NC205-15	
		32	12	24	89	76	51	97	62	10	51	19	16	32	36.5	14.3	49.2	NCT205		NC205	
	1																	NCT205-16		NC205-16	
30	1 1/8																	NCT206-18	T206	NC206-18	1.5
		1 15/32	15/32	1 3/32	4 1/32	3 1/2	2 7/32	4 7/16	2 3/4	13/32	2 1/4	7/8	5/8	1 15/32	1 19/32	0.626	2 3/16	NCT206		NC206	
	1 3/16	37	12	28	102	89	56	113	70	10	57	22	16	37	40.1	15.9	55.6	NCT206-19		NC206-19	
	1 1/4																	NCT206-20		NC206-20	
35	1 1/4	1 15/32	15/32	1 3/16	4 1/32	3 1/2	2 17/32	5 3/32	3 1/16	1/2	2 17/32	7/8	5/8	1 15/32	1 3/4	0.689	2 7/16	NCT207-20	T207	NC207-20	1.9
		37	12	30	102	89	64	129	78	13	64	22	16	37	44.5	17.5	61.9				
	1 3/8																	NCT207-22	T207	NC207-22	1.9
		1 15/32	15/32	1 3/16	4 1/32	3 1/2	2 17/32	5 3/32	3 1/16	1/2	2 17/32	7/8	5/8	1 15/32	1 3/4	0.689	2 9/16	NCT207		NC207	
	1 7/16	37	12	30	102	89	64	129	78	13	64	22	16	37	44.5	17.5	65.1	NCT207-23		NC207-23	
40	1 1/2	1 15/16	5/8	1 5/16	4 1/2	4 1/64	3 9/32	5 21/32	3 15/32	5/8	3 9/32	1 5/32	3/4	1 15/16	2	0.748	2 11/16	NCT208-24	T208	NC208-24	2.9
		49	16	33	114	102	83	144	88	16	83	29	19	49	50.8	19	68.3	NCT208		NC208	
45	1 5/8	1 15/16	5/8	1 3/8	4 19/32	4 1/64	3 9/32	5 21/32	3 7/16	5/8	3 9/32	1 5/32	3/4	1 15/16	2	0.748	2 13/16	NCT209-26	T209	NC209-26	2.8
		49	16	35	117	102	83	144	87	16	83	29	19	49	50.8	19	71.4				
	1 11/16																	NCT209-27	T209	NC209-27	2.8
	1 3/4	1 15/16	5/8	1 3/8	4 19/32	4 1/64	3 9/32	5 21/32	3 7/16	5/8	3 9/32	1 5/32	3/4	1 15/16	2	0.748	2 15/16	NCT209-28		NC209-28	
		49	16	35	117	102	83	144	87	16	83	29	19	49	50.8	19	74.6	NCT209		NC209	
50	1 15/16																	NCT210-31	T210	NC210-31	3.2
		1 15/16	5/8	1 15/32	4 19/32	4 1/64	3 9/32	5 7/8	3 17/32	5/8	3 3/8	1 5/32	3/4	1 15/16	2 3/32	0.748	3 3/8	NCT210		NC210	
	2	49	16	37	117	102	83	149	90	16	86	29	19	49	53.1	19	85.7	NCT210-32		NC210-32	
55	2	2 17/32	55/64	1 1/2	5 3/4	5 1/8	4 1/32	6 23/32	4 3/16	3/4	3 3/4	1 3/8	31/32	2 17/32	2 1/4	0.874	3 1/2	NCT211-32	T211	NC211-32	4.4
		64	22	38	146	130	102	171	106	19	95	35	25	64	57.1	22.2	88.9				
	2 3/16	2 17/32	55/64	1 1/2	5 3/4	5 1/8	4 1/32	6 23/32	4 3/16	3/4	3 3/4	1 3/8	31/32	2 17/32	2 1/4	0.874	3 5/8	NCT211	T211	NC211	4.4
		64	22	38	146	130	102	171	106	19	95	35	25	64	57.1	22.2	92.1	NCT211-35		NC211-35	
60	2 1/4	2 17/32	55/64	1 21/32	5 3/4	5 1/8	4 1/32	7 5/8	4 11/16	3/4	4 1/32	1 3/8	1 1/4	2 17/32	2 5/8	1.000	4 1/16	NCT212-36	T212	NC212-36	5.6
		64	22	42	146	130	102	194	119	19	102	35	32	64	66.8	25.4	103.2				
	2 7/16	2 17/32	55/64	1 21/32	5 3/4	5 1/8	4 1/32	7 5/8	4 11/16	3/4	4 1/32	1 3/8	1 1/4	2 17/32	2 5/8	1.000	4 1/8	NCT212	T212	NC212	5.6
		64	22	42	146	130	102	194	119	19	102	35	32	64	66.8	25.4	104.8	NCT212-39		NC212-39	

Remarks
1. In Part No. of unit, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   B-1/4-28UNF..... 204~210
   B-R1/8 ..... 211~212
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
4. Representative examples of the forms of housing are indicated.

NCT-E
Cylindrical bore
(with concentric locking collar)
d 20 ~ 60 mm



Variations of tolerance of groove width (Δ_{A1s}), variations of tolerance of distance between both grooves (Δ_{H1s}), and tolerance of symmetry of both groove sides (X)

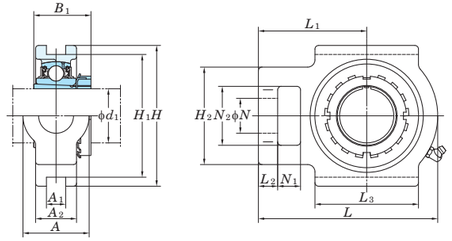
Unit: mm

Housing No.	Δ_{A1s}	Δ_{H1s}	X
T204E~T210E	+0.2 0	0 −0.5	0.5
T211E~T212E	+0.3 0	0 −0.8	0.6

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm d	A	A_1	A_2	H	H_1	H_2	L	L_1	L_2	L_3	N	N_1	N_2	B_1	S	d_1	Unit No.	Housing No.	Bearing No.	Mass kg
20	3/4		1 1/4	17/32	13/16	3 1/2	3	2	3 11/16	2 13/32	13/32	2	3/4	5/8	1 1/4	1 9/32	0.500	1 3/4	NCT204-12E	T204E	NC204-12	0.9
			32	13.5	21	89	76.2	51	94	61	10	51	19	16	32	32.5	12.7	44.5	NCT204E		NC204	
25	7/8																		NCT205-14E	T205E	NC205-14	1.0
	15/16		1 1/4	17/32	15/16	3 1/2	3	2	3 13/16	2 7/16	13/32	2	3/4	5/8	1 1/4	1 7/16	0.563	1 15/16	NCT205-15E		NC205-15	
	1		32	13.5	24	89	76.2	51	97	62	10	51	19	16	32	36.5	14.3	49.2	NCT205E		NC205	
																			NCT205-16E		NC205-16	
30	1 1/8																		NCT206-18E	T206E	NC206-18	1.5
			1 15/32	17/32	1 3/32	4 1/32	3 1/2	2 7/32	4 7/16	2 3/4	13/32	2 1/4	7/8	5/8	1 15/32	1 19/32	0.626	2 3/16	NCT206E		NC206	
	1 3/16		37	13.5	28	102	88.9	56	113	70	10	57	22	16	37	40.1	15.9	55.6	NCT206-19E		NC206-19	
	1 1/4																		NCT206-20E		NC206-20	
35	1 1/4		1 15/32	17/32	1 3/16	4 1/32	3 1/2	2 17/32	5 3/32	3 1/16	1/2	2 17/32	7/8	5/8	1 15/32	1 3/4	0.689	2 7/16	NCT207-20E	T207E	NC207-20	1.9
			37	13.5	30	102	88.9	64	129	78	13	64	22	16	37	44.5	17.5	61.9				
	1 3/8																		NCT207-22E	T207E	NC207-22	1.9
			1 15/32	17/32	1 3/16	4 1/32	3 1/2	2 17/32	5 3/32	3 1/16	1/2	2 17/32	7/8	5/8	1 15/32	1 3/4	0.689	2 9/16	NCT207E		NC207	
	1 7/16		37	13.5	30	102	88.9	64	129	78	13	64	22	16	37	44.5	17.5	65.1	NCT207-23E		NC207-23	
40	1 1/2		1 15/16	11/16	1 5/16	4 1/2	4	3 9/32	5 21/32	3 15/32	5/8	3 9/32	1 5/32	3/4	1 15/16	2	0.748	2 11/16	NCT208-24E	T208E	NC208-24	2.9
			49	17.5	33	114	101.6	83	144	88	16	83	29	19	49	50.8	19	68.3	NCT208E		NC208	
45	1 5/8		1 15/16	11/16	1 3/8	4 19/32	4	3 9/32	5 21/32	3 7/16	5/8	3 9/32	1 5/32	3/4	1 15/16	2	0.748	2 13/16	NCT209-26E	T209E	NC209-26	2.8
			49	17.5	35	117	101.6	83	144	87	16	83	29	19	49	50.8	19	71.4				
	1 11/16																		NCT209-27E	T209E	NC209-27	2.8
	1 3/4		1 15/16	11/16	1 3/8	4 19/32	4	3 9/32	5 21/32	3 7/16	5/8	3 9/32	1 5/32	3/4	1 15/16	2	0.748	2 15/16	NCT209-28E		NC209-28	
			49	17.5	35	117	101.6	83	144	87	16	83	29	19	49	50.8	19	74.6	NCT209E		NC209	
50	1 15/16																		NCT210-31E	T210E	NC210-31	3.2
			1 15/16	11/16	1 15/32	4 19/32	4	3 9/32	5 7/8	3 17/32	5/8	3 3/8	1 5/32	3/4	1 15/16	2 3/32	0.748	3 3/8	NCT210E		NC210	
	2		49	17.5	37	117	101.6	83	149	90	16	86	29	19	49	53.1	19	85.7	NCT210-32E		NC210-32	
55	2		2 17/32	1 1/16	1 1/2	5 3/4	5 1/8	4 1/32	6 23/32	4 3/16	3/4	3 3/4	1 3/8	31/32	2 17/32	2 1/4	0.874	3 1/2	NCT211-32E	T211E	NC211-32	4.4
			64	27	38	146	130.17	102	171	106	19	95	35	25	64	57.1	22.2	88.9				
	2 3/16		2 17/32	1 1/16	1 1/2	5 3/4	5 1/8	4 1/32	6 23/32	4 3/16	3/4	3 3/4	1 3/8	31/32	2 17/32	2 1/4	0.874	3 5/8	NCT211E	T211E	NC211	4.4
			64	27	38	146	130.17	102	171	106	19	95	35	25	64	57.1	22.2	92.1	NCT211-35E		NC211-35	
60	2 1/4		2 17/32	1 1/16	1 21/32	5 3/4	5 1/8	4 1/32	7 5/8	4 11/16	3/4	4 1/32	1 3/8	1 1/4	2 17/32	2 5/8	1.000	4 1/16	NCT212-36E	T212E	NC212-36	5.6
			64	27	42	146	130.17	102	194	119	19	102	35	32	64	66.8	25.4	103.2				
	2 7/16		2 17/32	1 1/16	1 21/32	5 3/4	5 1/8	4 1/32	7 5/8	4 11/16	3/4	4 1/32	1 3/8	1 1/4	2 17/32	2 5/8	1.000	4 1/8	NCT212E	T212E	NC212	5.6
			64	27	42	146	130.17	102	194	119	19	102	35	32	64	66.8	25.4	104.8	NCT212-39E		NC212-39	

Remarks
1. In Part No. of unit, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   B-1/4-28UNF..... 204~210
   B-R1/8 ..... 211~212
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
4. Representative examples of the forms of housing are indicated.

UKT
Tapered bore (with adapter)
d_1 20 ~ 125 mm



Shaft Dia. mm	Shaft Dia. inch	d_1	Dimensions inch / mm: A	A_1	A_2	H	H_1	H_2	L	L_1	L_2	L_3	N	N_1	N_2	B_1	Unit No.	Housing No.	Bearing No.	Adapter No.	Mass kg
20	3/4		1 1/4	15/32	15/16	3 1/2	2 63/64	2	3 13/16	2 7/16	13/32	2	3/4	5/8	1 1/4	1 3/8	UKT205	T205	UK205	HE2305X	0.88
			32	12	24	89	76	51	97	62	10	51	19	16	32	35				H2305X	0.88
	3/4		1 15/32	15/32	1 3/32	4 1/32	3 1/2	2 7/32	4 7/16	2 3/4	13/32	2 1/4	7/8	5/8	1 15/32	1 3/8	UKTX05	TX05	UKX05	HE2305X	1.3
			37	12	28	102	89	56	113	70	10	57	22	16	37	35				H2305X	1.3
	3/4		1 13/32	15/32	1 1/32	3 1/2	3 5/32	2 7/16	4 13/16	3	15/32	2 9/16	1 1/32	5/8	1 13/32	1 3/8	UKT305	T305	UK305	HE2305X	1.5
			36	12	26	89	80	62	122	76	12	65	26	16	36	35				H2305X	1.5
25			1 15/32	15/32	1 3/32	4 1/32	3 1/2	2 7/32	4 7/16	2 3/4	13/32	2 1/4	7/8	5/8	1 15/32	1 1/2	UKT206	T206	UK206	H2306X	1.3
	1		37	12	28	102	89	56	113	70	10	57	22	16	37	38				HE2306X	1.3
			1 15/32	15/32	1 3/16	4 1/32	3 1/2	2 17/32	5 3/32	3 1/16	1/2	2 17/32	7/8	5/8	1 15/32	1 1/2	UKTX06	TX06	UKX06	H2306X	1.7
	1		37	12	30	102	89	64	129	78	13	64	22	16	37	38				HE2306X	1.7
			1 5/8	5/8	1 3/32	3 15/16	3 35/64	2 3/4	5 13/32	3 11/32	9/16	2 29/32	1 3/32	23/32	1 5/8	1 1/2	UKT306	T306	UK306	H2306X	1.9
	1		41	16	28	100	90	70	137	85	14	74	28	18	41	38				HE2306X	1.9
30	1 1/8		1 15/32	15/32	1 3/16	4 1/32	3 1/2	2 17/32	5 3/32	3 1/16	1/2	2 17/32	7/8	5/8	1 15/32	1 11/16	UKT207	T207	UK207	HS2307X	1.7
			37	12	30	102	89	64	129	78	13	64	22	16	37	43				H2307X	1.7
	1 1/8		1 15/16	5/8	1 13/32	4 1/2	4 1/64	3 9/32	5 21/32	3 15/32	19/32	3 9/32	1 5/32	3/4	1 15/16	1 11/16	UKTX07	TX07	UKX07	HS2307X	2.6
			49	16	36	114	102	83	144	88	15	83	29	19	49	43				H2307X	2.6
	1 1/8		1 25/32	5/8	1 1/4	4 3/8	3 15/16	2 15/16	5 29/32	3 11/16	19/32	3 5/32	1 3/16	25/32	1 25/32	1 11/16	UKT307	T307	UK307	HS2307X	2.4
			45	16	32	111	100	75	150	94	15	80	30	20	45	43				H2307X	2.4
35	1 1/4		1 15/16	5/8	1 5/16	4 1/2	4 1/64	3 9/32	5 21/32	3 15/32	5/8	3 9/32	1 5/32	3/4	1 15/16	1 13/16	UKT208	T208	UK208	HE2308X	2.5
	1 3/8		49	16	33	114	102	83	144	88	16	83	29	19	49	46				HS2308X	2.5
																				H2308X	2.5
	1 1/4		1 15/16	5/8	1 13/32	4 19/32	4 1/64	3 9/32	5 21/32	3 7/16	19/32	3 9/32	1 5/32	3/4	1 15/16	1 13/16	UKTX08	TX08	UKX08	HE2308X	2.6
	1 3/8		49	16	36	117	102	83	144	87	15	83	29	19	49	46				HS2308X	2.6
																				H2308X	2.6
	1 1/4		1 31/32	45/64	1 11/32	4 7/8	4 13/32	3 9/32	6 3/8	3 15/16	21/32	3 1/2	1 1/4	7/8	1 31/32	1 13/16	UKT308	T308	UK308	HE2308X	3.0
	1 3/8		50	18	34	124	112	83	162	100	17	89	32	22	50	46				HS2308X	3.0
																				H2308X	3.0
40	1 1/2		1 15/16	5/8	1 3/8	4 19/32	4 1/64	3 9/32	5 21/32	3 7/16	5/8	3 9/32	1 5/32	3/4	1 15/16	1 31/32	UKT209	T209	UK209	HE2309X	2.5
			49	16	35	117	102	83	144	87	16	83	29	19	49	50				H2309X	2.5
	1 1/2		1 15/16	5/8	1 1/2	4 19/32	4 1/64	3 9/32	5 7/8	3 17/32	5/8	3 3/8	1 5/32	3/4	1 15/16	1 31/32	UKTX09	TX09	UKX09	HE2309X	2.9
			49	16	38	117	102	83	149	90	16	86	29	19	49	50				H2309X	2.9
	1 1/2		2 5/32	45/64	1 1/2	5 7/16	4 59/64	3 17/32	7	4 11/32	23/32	3 13/16	1 11/32	15/16	2 5/32	1 31/32	UKT309	T309	UK309	HE2309X	4.2
			55	18	38	138	125	90	178	110	18	97	34	24	55	50				H2309X	4.2
45	1 3/4		1 15/16	5/8	1 15/32	4 19/32	4 1/64	3 9/32	5 7/8	3 17/32	5/8	3 3/8	1 5/32	3/4	1 15/16	2 5/32	UKT210	T210	UK210	HE2310X	2.7
			49	16	37	117	102	83	149	90	16	86	29	19	49	55				H2310X	2.7
	1 3/4		2 17/32	55/64	1 21/32	5 3/4	5 1/8	4 1/32	6 23/32	4 3/16	3/4	3 3/4	1 3/8	31/32	2 17/32	2 5/32	UKTX10	TX10	UKX10	HE2310X	4.4
			64	22	42	146	130	102	171	106	19	95	35	25	64	55				H2310X	4.4
	1 3/4		2 13/32	25/32	1 9/16	5 15/16	5 33/64	3 27/32	7 17/32	4 19/32	25/32	4 3/16	1 15/32	1 1/16	2 13/32	2 5/32	UKT310	T310	UK310	HE2310X	5.0
			61	20	40	151	140	98	191	117	20	106	37	27	61	55				H2310X	5.0
50	1 7/8		2 17/32	55/64	1 1/2	5 3/4	5 1/8	4 1/32	6 23/32	4 3/16	3/4	3 3/4	1 3/8	31/32	2 17/32	2 5/16	UKT211	T211	UK211	HS2311X	4.1
			64	22	38	146	130	102	171	106	19	95	35	25	64	59				H2311X	4.1
	2																			HE2311X	4.1
	1 7/8		2 17/32	55/64	1 23/32	5 3/4	5 1/8	4 1/32	7 5/8	4 11/16	3/4	4 1/32	1 3/8	1 1/4	2 17/32	2 5/16	UKTX11	TX11	UKX11	HS2311X	5.1
			64	22	44	146	130	102	194	119	19	102	35	32	64	59				H2311X	5.1
	2																			HE2311X	5.1
	1 7/8		2 19/32	55/64	1 23/32	6 13/32	5 29/32	4 1/8	8 5/32	5	13/16	4 17/32	1 17/32	1 5/32	2 19/32	2 5/16	UKT311	T311	UK311	HS2311X	6.4
			66	22	44	163	150	105	207	127	21	115	39	29	66	59				H2311X	6.4
	2																			HE2311X	6.4

Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   B-1/4-28UNF..... 205~210, X05~X09, 305~308
   B-R1/8 ..... 211~217, X10~X17, 309~328
3. In Part No. of unit with adapters and bearing with adapters, Part No. of applicable adapter follow the Part No. shown in the dimensional tables.
   (Example of Part No. : UKT206J + H2306X, UK206 + H2306X)

Variations of tolerance of groove width (Δ_{A1s}), variations of tolerance of distance between both grooves (Δ_{H1s}), and tolerance of symmetry of both groove sides (X)

Unit: mm

Housing No.			Δ_{A1s}	Δ_{H1s}	X
T205~T210	TX05~TX10	T305~T310	+0.2 0	0 −0.5	0.5
T211~T217	TX11~TX17	T311~T318	+0.3 0	0 −0.8	0.6
		T319~T322			0.7
		T324~T328			0.8

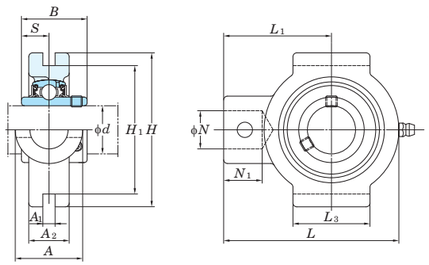
Form and dimension of L_c of T205FJE3 (housing with cast iron cover) are shown below.

T205FJE3 L_c = 102 mm

Shaft Dia. mm	Shaft Dia. inch	d_1	Dimensions inch / mm: A	A_1	A_2	H	H_1	H_2	L	L_1	L_2	L_3	N	N_1	N_2	B_1	Unit No.	Housing No.	Bearing No.	Adapter No.	Mass kg
55	2 1/8		2 17/32	55/64	1 21/32	5 3/4	5 1/8	4 1/32	7 5/8	4 11/16	3/4	4 1/32	1 3/8	1 1/4	2 17/32	2 7/16	UKT212	T212	UK212	HS2312X	4.8
			64	22	42	146	130	102	194	119	19	102	35	32	64	62				H2312X	4.8
	2 1/8		2 3/4	1 1/32	1 7/8	6 9/16	5 15/16	4 3/8	8 13/16	5 13/32	13/16	4 3/4	1 5/8	1 1/4	2 3/4	2 7/16	UKTX12	TX12	UKX12	HS2312X	7.3
			70	26	48	167	151	111	224	137	21	121	41	32	70	62				H2312X	7.3
	2 1/8		2 25/32	55/64	1 13/16	7	6 19/64	4 7/16	8 21/32	5 5/16	29/32	4 27/32	1 5/8	1 7/32	2 25/32	2 7/16	UKT312	T312	UK312	HS2312X	7.5
			71	22	46	178	160	113	220	135	23	123	41	31	71	62				H2312X	7.5
60	2 1/4		2 3/4	1 1/32	1 23/32	6 9/16	5 15/16	4 3/8	8 13/16	5 13/32	13/16	4 3/4	1 5/8	1 1/4	2 3/4	2 9/16	UKT213	T213	UK213	HE2313X	6.8
			70	26	44	167	151	111	224	137	21	121	41	32	70	65				H2313X	6.8
	2 3/8																			HS2313X	6.8
	2 1/4		2 3/4	1 1/32	1 7/8	6 9/16	5 15/16	4 3/8	8 13/16	5 13/32	13/16	4 3/4	1 5/8	1 1/4	2 3/4	2 9/16	UKTX13	TX13	UKX13	HE2313X	7.2
			70	26	48	167	151	111	224	137	21	121	41	32	70	65				H2313X	7.2
	2 3/8																			HS2313X	7.2
	2 1/4		3 5/32	1 1/32	1 31/32	7 15/32	6 11/16	4 9/16	9 3/8	5 3/4	31/32	5 9/32	1 11/16	1 1/4	2 3/4	2 9/16	UKT313	T313	UK313	HE2313X	9.4
			80	26	50	190	170	116	238	146	25	134	43	32	70	65				H2313X	9.4
	2 3/8																			HS2313X	9.4
65	2 1/2		2 3/4	1 1/32	1 7/8	6 9/16	5 15/16	4 3/8	9 1/8	5 1/2	13/16	4 3/4	1 5/8	1 1/4	2 3/4	2 7/8	UKT215	T215	UK215	HE2315X	7.4
			70	26	48	167	151	111	232	140	21	121	41	32	70	73				H2315X	7.4
	2 1/2		2 3/4	1 7/64	1 7/8	7 1/4	6 1/2	4 3/8	9 1/4	5 1/2	13/16	4 3/4	1 5/8	1 1/4	2 3/4	2 7/8	UKTX15	TX15	UKX15	HE2315X	8.4
			70	28	48	184	165	111	235	140	21	121	41	32	70	73				H2315X	8.4
	2 1/2		3 17/32	1 1/32	2 5/32	8 1/2	7 9/16	5 3/16	10 5/16	6 5/16	31/32	5 29/32	1 13/16	1 13/32	3 11/32	2 7/8	UKT315	T315	UK315	HE2315X	13.1
			90	26	55	216	192	132	262	160	25	150	46	36	85	73				H2315X	13.1
70	2 3/4		2 3/4	1 1/32	2	7 1/4	6 1/2	4 3/8	9 1/4	5 1/2	13/16	4 3/4	1 5/8	1 1/4	2 3/4	3 1/16	UKT216	T216	UK216	HE2316X	8.5
			70	26	51	184	165	111	235	140	21	121	41	32	70	78				H2316X	8.5
	2 3/4		2 7/8	1 7/64	2 1/8	7 25/32	6 13/16	4 7/8	10 1/4	6 3/8	1 3/32	6 3/16	1 7/8	1 1/2	2 7/8	3 1/16	UKTX16	TX16	UKX16	HE2316X	11.8
			73	28	54	198	173	124	260	162	28	157	48	38	73	78				H2316X	11.8
	2 3/4		4 1/32	1 3/16	2 3/8	9 1/16	8 1/32	5 29/32	11 3/32	6 27/32	1 3/32	6 5/16	2 3/32	1 21/32	3 27/32	3 1/16	UKT316	T316	UK316	HE2316X	16.3
			102	30	60	230	204	150	282	174	28	160	53	42	98	78				H2316X	16.3
75			2 7/8	1 3/16	2 1/8	7 25/32	6 13/16	4 7/8	10 1/4	6 3/8	1 5/32	6 3/16	1 7/8	1 1/2	2 7/8	3 7/32	UKT217	T217	UK217	H2317X	11.2
	3		73	30	54	198	173	124	260	162	29	157	48	38	73	82				H2317X	11.2
			2 7/8	1 7/64	2 1/8	7 25/32	6 13/16	4 7/8	10 1/4	6 3/8	1 3/32	6 3/16	1 7/8	1 1/2	2 7/8	3 7/32	UKTX17	TX17	UKX17	H2317X	11.4
	3		73	28	54	198	173	124	260	162	28	157	48	38	73	82				H2317X	11.4
			4 1/32	1 17/64	2 17/32	9 7/16	8 27/64	5 31/32	11 23/32	7 7/32	1 3/16	6 11/16	2 3/32	1 21/32	3 27/32	3 7/32	UKT317	T317	UK317	H2317X	18.9
	3		102	32	64	240	214	152	298	183	30	170	53	42	98	82				HE2317X	18.9
80	–		4 11/32	1 17/64	2 19/32	10 1/32	8 31/32	6 5/16	12 9/32	7 9/16	1 3/16	6 7/8	2 1/4	1 13/16	4 3/16	3 3/8	UKT318	T318	UK318	H2318X	21.7
			110	32	66	255	228	160	312	192	30	175	57	46	106	86					
85	3 1/4		4 11/32	1 3/8	2 27/32	10 5/8	9 29/64	6 1/2	12 11/16	7 3/4	1 7/32	7 3/32	2 1/4	1 13/16	4 3/16	3 17/32	UKT319	T319	UK319	HE2319X	25.2
			110	35	72	270	240	165	322	197	31	180	57	46	106	90				H2319X	25.2
90	3 1/2		4 23/32	1 3/8	2 15/16	11 13/32	10 15/64	6 7/8	13 19/32	8 9/32	1 1/4	7 7/8	2 5/16	1 7/8	4 17/32	3 13/16	UKT320	T320	UK320	HE2320X	30.4
			120	35	75	290	260	175	345	210	32	200	59	48	115	97				H2320X	30.4
100	4		5 1/8	1 1/2	3 5/32	12 19/32	11 7/32	7 9/32	15 5/32	9 1/4	1 1/2	8 15/32	2 9/16	2 1/16	4 29/32	4 1/8	UKT322	T322	UK322	H2322X	39.5
			130	38	80	320	285	185	385	235	38	215	65	52	125	105				H2322X	39.5
110	–		5 1/2	1 49/64	3 17/32	13 31/32	12 19/32	8 9/32	17	10 1/2	1 21/32	9 1/16	2 3/4	2 3/8	5 1/2	4 13/32	UKT324	T324	UK324	H2324X	54.7
			140	45	90	355	320	210	432	267	42	230	70	60	140	112					
115	4 1/2		5 29/32	1 31/32	3 15/16	15 5/32	13 25/32	8 21/32	18 5/16	11 7/32	1 25/32	9 7/16	2 15/16	2 9/16	5 29/32	4 3/4	UKT326	T326	UK326	HE2326X	69.1
			150	50	100	385	350	220	465	285	45	240	75	65	150	121				H2326X	69.1
125	–		6 3/32	1 31/32	3 15/16	16 11/32	14 61/64	9 1/16	20 9/32	12 13/32	1 31/32	10 1/32	3 5/32	2 3/4	6 5/16	5 5/32	UKT328	T328	UK328	H2328X	85.1
			155	50	100	415	380	230	515	315	50	255	80	70	160	131					

4. As for the triple seal type product (205 is the double seal type product), suffix code L3 (or L2) follows the Part No. of unit or bearing.
   (Example of Part No. : UKT206JL3 + H2306X, UK206L3 + H2306X)
5. For the dimensions and forms of applicable bearings and adapters, see the dimensional tables of ball bearing for unit and adapter.
6. Housings of nodular graphite cast iron are also available.

UCTRS
Cylindrical bore (with set screws)
d 25 ~ 35 mm



Variations of tolerance of groove width (Δ_{A1s}), variations of tolerance of distance between both grooves (Δ_{H1s}), and tolerance of symmetry of both groove sides (X)

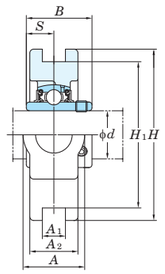
Unit: mm

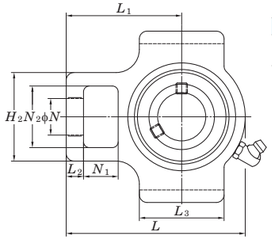
Housing No.	Δ_{A1s}	Δ_{H1s}	X
TRS205~TRS207	+0.2 0	0 −0.5	0.5

Shaft Dia. mm	Shaft Dia. inch	d	Dimensions inch / mm: A	A_1	A_2	H	H_1	L	L_1	L_3	N	N_1	B	S	Unit No.	Housing No.	Bearing No.	Mass kg
25	7/8														UCTRS205-14	TRS205	UC205-14	0.68
	15/16		1 3/8	1/4	13/16	3 5/32	2 5/8	3 19/32	2 7/32	1 9/16	25/32	25/32	1.343	0.563	UCTRS205-15		UC205-15	0.66
			35	6.35	21	80	66.7	91	56	40	19.84	20	34.1	14.3	UCTRS205		UC205	0.65
	1														UCTRS205-16		UC205-16	0.65
30	1 1/8														UCTRS206-18	TRS206	UC206-18	1.25
			1 3/8	1/4	15/16	4 1/8	3 1/2	4 11/32	2 11/16	2 17/32	3/4	15/16	1.500	0.626	UCTRS206		UC206	1.23
	1 3/16		35	6.35	24	105	88.9	110	68	64	19.05	24	38.1	15.9	UCTRS206-19		UC206-19	1.23
	1 1/4														UCTRS206-20		UC206-20	1.21
35	1 1/4														UCTRS207-20	TRS207	UC207-20	1.35
	1 5/16														UCTRS207-21		UC207-21	1.31
	1 3/8		1 3/8	1/4	31/32	4 1/8	3 1/2	4 1/2	2 11/16	2 17/32	3/4	15/16	1.689	0.689	UCTRS207-22		UC207-22	1.29
			35	6.35	25	105	88.9	114	68	64	19.05	24	42.9	17.5	UCTRS207		UC207	1.29
	1 7/16														UCTRS207-23		UC207-23	1.26

Remarks 1. Part No. of applicable grease fittings are shown below.
A-1/4-28UNF..... 205~207
2. As for the triple seal type product (from 205 is the double seal type products), suffix code L3 (L2) follows the Part No. of unit or bearing.
(Example of Part No. : UCTRS206JL3, UC206L3)
3. As for the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
4. Housings of nodular graphite cast iron are also available.

UCST-S6
Cylindrical bore (with set screws)
d 20 ~ 50 mm





Variations of tolerance of groove width (Δ_{A1s}), variations of tolerance of distance between both grooves (Δ_{H1s}), and tolerance of symmetry of both groove sides (X)

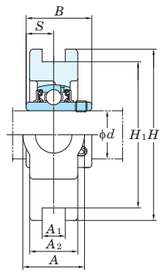
Unit: mm

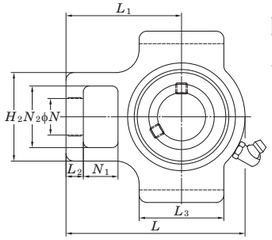
Housing No.	Δ_{A1s}	Δ_{H1s}	X
ST204~ST210	+0.2 0	0 −0.5	0.5

Shaft Dia. mm	Shaft Dia. inch	d	Dimensions inch	A	A_1	A_2	H	H_1	H_2	L	L_1	L_2	L_3	N	N_1	N_2	B	S	Unit No.	Housing No.	Bearing No.	Mass kg
20	3/4			1 1/4	15/32	29/32	3 1/2	2 63/64	1 13/16	3 1/2	2 5/16	11/32	1 23/32	3/4	23/32	1 1/4	1.220	0.500	UCST204-12S6	ST204	UC204-12S6	0.73
				32	12	23	89	76	46	89	59	9	44	19	18	32	31	12.7	UCST204S6		UC204S6	
25	7/8																		UCST205-14S6	ST205	UC205-14S6	0.79
	15/16			1 1/4	15/32	31/32	3 1/2	2 63/64	1 13/16	3 21/32	2 3/8	11/32	1 23/32	3/4	23/32	1 1/4	1.343	0.563	UCST205-15S6		UC205-15S6	
				32	12	25	89	76	46	93	60	9	44	19	18	32	34.1	14.3	UCST205S6		UC205S6	
	1																		UCST205-16S6		UC205-16S6	
30	1 1/8																		UCST206-18S6	ST206	UC206-18S6	1.1
				1 15/32	15/32	1 1/16	4 1/32	3 1/2	2 1/16	4 3/16	2 5/8	11/32	1 31/32	7/8	23/32	1 15/32	1.500	0.626	UCST206S6		UC206S6	
	1 3/16			37	12	27	102	89	52	106	67	9	50	22	18	37	38.1	15.9	UCST206-19S6		UC206-19S6	
	1 1/4																		UCST206-20S6		UC206-20S6	
35	1 1/4																		UCST207-20S6	ST207	UC207-20S6	1.5
	1 5/16																		UCST207-21S6		UC207-21S6	
	1 3/8			1 15/32	15/32	1 7/32	4 1/32	3 1/2	2 7/32	4 11/16	2 15/16	7/16	2 7/32	7/8	23/32	1 15/32	1.689	0.689	UCST207-22S6		UC207-22S6	
				37	12	31	102	89	56	119	75	11	56	22	18	37	42.9	17.5	UCST207S6		UC207S6	
	1 7/16																		UCST207-23S6		UC207-23S6	
40	1 1/2																		UCST208-24S6	ST208	UC208-24S6	2
	1 9/16			1 15/16	5/8	1 1/4	4 1/2	4 1/64	2 29/32	5 5/16	3 11/32	9/16	2 17/32	1 5/32	25/32	1 15/16	1.937	0.748	UCST208-25S6		UC208-25S6	
				49	16	32	114	102	74	135	85	14	64	29	20	49	49.2	19	UCST208S6		UC208S6	
45	1 5/8																		UCST209-26S6	ST209	UC209-26S6	2.1
	1 11/16			1 15/16	5/8	1 11/32	4 19/32	4 1/64	2 29/32	5 13/32	3 11/32	9/16	2 19/32	1 5/32	25/32	1 15/16	1.937	0.748	UCST209-27S6		UC209-27S6	
	1 3/4			49	16	34	117	102	74	137	85	14	66	29	20	49	49.2	19	UCST209-28S6		UC209-28S6	
																			UCST209S6		UC209S6	
50	1 7/8																		UCST210-30S6	ST210	UC210-30S6	2.3
	1 15/16			1 15/16	5/8	1 3/8	4 19/32	4 1/64	2 29/32	5 5/8	3 7/16	9/16	2 27/32	1 5/32	25/32	1 15/16	2.031	0.748	UCST210-31S6		UC210-31S6	
	2			49	16	35	117	102	74	143	87	14	72	29	20	49	51.6	19	UCST210S6		UC210S6	
																			UCST210-32S6		UC210-32S6	

Remarks 1. In Part No. of unit, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fitting is B-1/4-28UNFN13.
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.

UCST-ES6
Cylindrical bore (with set screws)
d 20 ~ 50 mm





Variations of tolerance of groove width (Δ_{A1s}), variations of tolerance of distance between both grooves (Δ_{H1s}), and tolerance of symmetry of both groove sides (X)

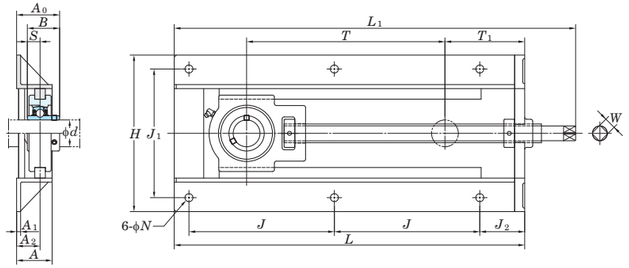
Unit: mm

Housing No.	Δ_{A1s}	Δ_{H1s}	X
ST204E~ST210E	+0.2 0	0 −0.5	0.5

Shaft Dia. mm	Shaft Dia. inch	d	Dimensions inch	A	A_1	A_2	H	H_1	H_2	L	L_1	L_2	L_3	N	N_1	N_2	B	S	Unit No.	Housing No.	Bearing No.	Mass kg
20	3/4			1 1/4	17/32	29/32	3 1/2	3	1 13/16	3 1/2	2 5/16	11/32	1 23/32	3/4	23/32	1 1/4	1.220	0.500	UCST204-12ES6	ST204E	UC204-12S6	0.73
				32	13.5	23	89	76.2	46	89	59	9	44	19	18	32	31	12.7	UCST204ES6		UC204S6	
25	7/8																		UCST205-14ES6	ST205E	UC205-14S6	0.79
	15/16			1 1/4	17/32	31/32	3 1/2	3	1 13/16	3 21/32	2 3/8	11/32	1 23/32	3/4	23/32	1 1/4	1.343	0.563	UCST205-15ES6		UC205-15S6	
				32	13.5	25	89	76.2	46	93	60	9	44	19	18	32	34.1	14.3	UCST205ES6		UC205S6	
	1																		UCST205-16ES6		UC205-16S6	
30	1 1/8																		UCST206-18ES6	ST206E	UC206-18S6	1.1
				1 15/32	17/32	1 1/16	4 1/32	3 1/2	2 1/16	4 3/16	2 5/8	11/32	1 31/32	7/8	23/32	1 15/32	1.500	0.626	UCST206ES6		UC206S6	
	1 3/16			37	13.5	27	102	88.9	52	106	67	9	50	22	18	37	38.1	15.9	UCST206-19ES6		UC206-19S6	
	1 1/4																		UCST206-20ES6		UC206-20S6	
35	1 1/4																		UCST207-20ES6	ST207E	UC207-20S6	1.5
	1 5/16																		UCST207-21ES6		UC207-21S6	
	1 3/8			1 15/32	17/32	1 7/32	4 1/32	3 1/2	2 7/32	4 11/16	2 15/16	7/16	2 7/32	7/8	23/32	1 15/32	1.689	0.689	UCST207-22ES6		UC207-22S6	
				37	13.5	31	102	88.9	56	119	75	11	56	22	18	37	42.9	17.5	UCST207ES6		UC207S6	
	1 7/16																		UCST207-23ES6		UC207-23S6	
40	1 1/2																		UCST208-24ES6	ST208E	UC208-24S6	2
	1 9/16			1 15/16	11/16	1 1/4	4 1/2	4	2 29/32	5 5/16	3 11/32	9/16	2 17/32	1 5/32	25/32	1 15/16	1.937	0.748	UCST208-25ES6		UC208-25S6	
				49	17.5	32	114	101.6	74	135	85	14	64	29	20	49	49.2	19	UCST208ES6		UC208S6	
45	1 5/8																		UCST209-26ES6	ST209E	UC209-26S6	2.1
	1 11/16			1 15/16	11/16	1 11/32	4 19/32	4	2 29/32	5 13/32	3 11/32	9/16	2 19/32	1 5/32	25/32	1 15/16	1.937	0.748	UCST209-27ES6		UC209-27S6	
	1 3/4			49	17.5	34	117	101.6	74	137	85	14	66	29	20	49	49.2	19	UCST209-28ES6		UC209-28S6	
																			UCST209ES6		UC209S6	
50	1 7/8																		UCST210-30ES6	ST210E	UC210-30S6	2.3
	1 15/16			1 15/16	11/16	1 3/8	4 19/32	4	2 29/32	5 5/8	3 7/16	9/16	2 27/32	1 5/32	25/32	1 15/16	2.031	0.748	UCST210-31ES6		UC210-31S6	
	2			49	17.5	35	117	101.6	74	143	87	14	72	29	20	49	51.6	19	UCST210ES6		UC210S6	
																			UCST210-32ES6		UC210-32S6	

Remarks 1. In Part No. of unit, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fitting is B-1/4-28UNFN13.
3. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.

UCTH
Cylindrical bore (with set screws)
d 12 ~ 65 mm



Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm															Bolt Size inch / mm	Unit No.	Bearing No.	Mass kg
d		H	L	L1	A	J	J1	J2	N	T	T1	A1	A2	A0	B	S	W				
12	1/2																		UCTH201-150	UC201	6.7
15																			UCTH201-8-150	UC201-8	6.7
	5/8	7 7/8	12 17/32	14 13/16	1 31/32	4 39/64	6 1/16	2 9/16	15/32	6 1/32	3 15/32	1/4	1 7/64	1 13/16	1.220	0.500	7/16	3/8	UCTH202-150	UC202	6.7
		200	318	376	50	117	154	65	12	153	88	6	28	46.3	31	12.7	11	M10	UCTH202-10-150	UC202-10	6.7
17																			UCTH203-150	UC203	6.7
	3/4																		UCTH204-12-150	UC204-12	6.7
20																			UCTH204-150	UC204	6.7
	7/8																		UCTH205-14-150	UC205-14	6.7
25	15/16	7 7/8	12 17/32	14 7/8	1 31/32	4 39/64	6 1/16	2 9/16	15/32	5 31/32	3 15/32	1/4	1 7/64	1 7/8	1.343	0.563	7/16	3/8	UCTH205-15-150	UC205-15	6.7
		200	318	378	50	117	154	65	12	152	88	6	28	47.8	34.1	14.3	11	M10	UCTH205-150	UC205	6.7
	1																		UCTH205-16-150	UC205-16	6.7
	1 1/8																		UCTH206-18-150	UC206-18	8.0
30		8 3/8	13 7/32	16 1/32	1 31/32	4 31/32	6 17/32	2 9/16	15/32	5 5/8	3 15/16	1/4	1 17/64	2 1/8	1.500	0.626	9/16	3/8	UCTH206-150	UC206	8.0
	1 3/16	213	336	407	50	126	166	65	12	143	100	6	32	54.2	38.1	15.9	14	M10	UCTH206-19-150	UC206-19	8.0
	1 1/4																		UCTH206-20-150	UC206-20	8.0
	1 1/4																		UCTH207-20-230	UC207-20	10.5
	1 5/16																		UCTH207-21-230	UC207-21	10.5
35	1 3/8	8 3/8	16 15/16	19 11/16	1 31/32	6 13/16	6 17/32	2 9/16	15/32	8 5/8	4 7/32	1/4	1 17/64	2 1/4	1.689	0.689	9/16	3/8	UCTH207-22-230	UC207-22	10.5
		213	430	500	50	173	166	65	12	219	107	6	32	57.4	42.9	17.5	14	M10	UCTH207-230	UC207	10.5
	1 7/16																		UCTH207-23-230	UC207-23	10.5
	1 1/2																		UCTH208-24-300	UC208-24	12.5
40	1 9/16	9 7/32	20 19/32	23 19/32	1 31/32	8 35/64	7 9/16	2 5/8	15/32	11 21/32	4 11/16	1/4	1 3/8	2 9/16	1.937	0.748	21/32	3/8	UCTH208-25-300	UC208-25	12.5
		234	523	599	50	217	192	67	12	296	119	6	35	65.2	49.2	19	17	M10	UCTH208-300	UC208	12.5
	1 5/8																		UCTH209-26-300	UC209-26	12.4
45	1 11/16	9 7/32	20 19/32	23 17/32	1 31/32	8 35/64	7 9/16	2 5/8	15/32	11 11/16	4 21/32	1/4	1 3/8	2 9/16	1.937	0.748	21/32	3/8	UCTH209-27-300	UC209-27	12.4
	1 3/4	234	523	598	50	217	192	67	12	297	118	6	35	65.2	49.2	19	17	M10	UCTH209-28-300	UC209-28	12.4
																			UCTH209-300	UC209	12.4
	1 7/8																		UCTH210-30-300	UC210-30	12.6
50	1 15/16	9 7/32	20 3/4	23 3/4	1 31/32	8 5/8	7 9/16	2 5/8	19/32	11 21/32	4 3/4	1/4	1 3/8	2 21/32	2.031	0.748	21/32	7/16	UCTH210-31-300	UC210-31	12.6
		234	527	603	50	219	192	67	15	296	121	6	35	67.6	51.6	19	17	M12	UCTH210-300	UC210	12.6
	2																		UCTH210-32-300	UC210-32	12.6
	2																		UCTH211-32-300	UC211-32	20.1
55	2 1/8	11 31/32	21 15/32	24 3/4	2 9/16	9 1/16	9 7/16	2 15/32	19/32	11 15/32	5 9/16	1/4	1 1/2	2 13/16	2.189	0.874	3/4	7/16	UCTH211-34-300	UC211-34	20.1
		304	545	629	65	230	240	63	15	291	141	6	38	71.4	55.6	22.2	19	M12	UCTH211-300	UC211	20.1
	2 3/16																		UCTH211-35-300	UC211-35	20.1
	2 1/4																		UCTH212-36-300	UC212-36	21.4
60		11 31/32	22 15/32	25 5/8	2 9/16	9 9/16	9 7/16	2 15/32	19/32	11 11/32	6 1/16	1/4	1 1/2	3 1/16	2.563	1.000	3/4	7/16	UCTH212-300	UC212	21.4
	2 3/8	304	571	651	65	243	240	63	15	288	154	6	38	77.7	65.1	25.4	19	M12	UCTH212-38-300	UC212-38	21.4
	2 7/16																		UCTH212-39-300	UC212-39	21.4
65	2 1/2	13 1/16	23 31/32	28 1/16	2 9/16	10 15/64	10 15/64	2 5/8	19/32	11 13/16	7	1/4	1 11/16	3 1/4	2.563	1.000	29/32	7/16	UCTH213-40-300	UC213-40	25.5
		332	609	713	65	260	260	67	15	300	178	6	43	82.7	65.1	25.4	23	M12	UCTH213-300	UC213	25.5

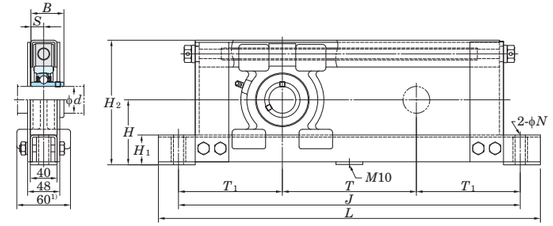
Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   B-1/4-28UNF..... 201~210
   B-R1/8 ..... 211~213
3. As for the triple seal type product (from 201 to 205 are the double seal type products), suffix code L3 (or L2) follows the Part No. of unit or bearing. (Example of Part No. : UCTH206JL3-150, UC206L3)
4. If heavy load (P_r /C_r > 0.12), vibration, or impact occurs, contact with FYH.
5. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
6. Tapered bore (with adapter) type products are also available. (Example of Part No. : UKTH205J-150 + H2305X, UK205 + H2305X)

Variations of tolerance of distance between centers of bolt holes (Δ_{Js}, Δ_{J1s})

Unit: mm

Nominal unit code	Δ_{Js}	Δ_{J1s}
UCTH201~UCTH213	±0.5	±0.5

UCTL
Cylindrical bore (with set screws)
d 20 ~ 45 mm



Shaft Dia. mm	Dimensions mm										Bolt Size mm	Unit No.	Bearing No.	Mass kg
d	H	H1	H2	L	J	N	T	T1	B	S				
20	77	44	146	430	370	15	100	135	31	12.7	M12	UCTL204-100	UC204	6.0
	77	44	146	530	470	15	200	135	31	12.7	M12	UCTL204-200	UC204	7.0
	77	44	146	630	570	15	300	135	31	12.7	M12	UCTL204-300	UC204	7.5
	77	44	146	730	670	15	400	135	31	12.7	M12	UCTL204-400	UC204	8.0
25	82	44	156	440	380	15	100	140	34.1	14.3	M12	UCTL205-100	UC205	7.0
	82	44	156	540	480	15	200	140	34.1	14.3	M12	UCTL205-200	UC205	7.5
	82	44	156	640	580	15	300	140	34.1	14.3	M12	UCTL205-300	UC205	8.0
	82	44	156	740	680	15	400	140	34.1	14.3	M12	UCTL205-400	UC205	9.0
30	87	44	166	450	390	15	100	145	38.1	15.9	M12	UCTL206-100	UC206	7.0
	87	44	166	550	490	15	200	145	38.1	15.9	M12	UCTL206-200	UC206	8.0
	87	44	166	650	590	15	300	145	38.1	15.9	M12	UCTL206-300	UC206	9.0
	87	44	166	750	690	15	400	145	38.1	15.9	M12	UCTL206-400	UC206	9.5
35	92	44	176	460	400	15	100	150	42.9	17.5	M12	UCTL207-100	UC207	8.0
	92	44	176	560	500	15	200	150	42.9	17.5	M12	UCTL207-200	UC207	8.5
	92	44	176	660	600	15	300	150	42.9	17.5	M12	UCTL207-300	UC207	9.0
	92	44	176	760	700	15	400	150	42.9	17.5	M12	UCTL207-400	UC207	10
40	97	44	186	470	410	15	100	155	49.2	19	M12	UCTL208-100	UC208	8.5
	97	44	186	570	510	15	200	155	49.2	19	M12	UCTL208-200	UC208	9.0
	97	44	186	670	610	15	300	155	49.2	19	M12	UCTL208-300	UC208	10
	97	44	186	770	710	15	400	155	49.2	19	M12	UCTL208-400	UC208	10.5
45	100	44	192	480	420	15	100	160	49.2	19	M12	UCTL209-100	UC209	9.0
	100	44	192	580	520	15	200	160	49.2	19	M12	UCTL209-200	UC209	9.5
	100	44	192	680	620	15	300	160	49.2	19	M12	UCTL209-300	UC209	10.5
	100	44	192	780	720	15	400	160	49.2	19	M12	UCTL209-400	UC209	11

Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter codes. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings is C-1/4-28UNF.
3. As for the triple seal type product (204 and 205 are the double seal type products), suffix code L3 (or L2) follows the Part No. of unit or bearing. (Example of Part No. : UCTL206JL3-100, UC206L3)
4. The unit should be mounted so that load is applied to the frame mounting surface vertically and downward.
5. If heavy load (P_r /C_r > 0.12), vibration, or impact occurs, contact with FYH.
6. Tapered bore (with adapter) type bearing units are also available. (Example of Part No. : UKTL206J-100 + H2306X, UK206 + H2306X)
7. If frame parts need to be corrosion resistant, contact with FYH.
8. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.

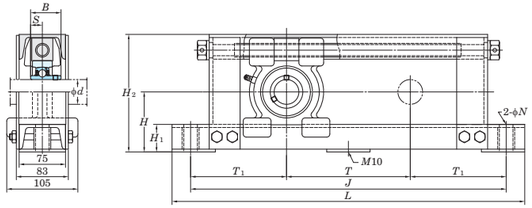
Note 1) The dimension specified in this note is 55 for TL204 only.

Variations of tolerance of distance from mounting bottom to center of spherical bore (Δ_{Hs}) and variations of tolerance of distance between centers of bolt holes (Δ_{Js})

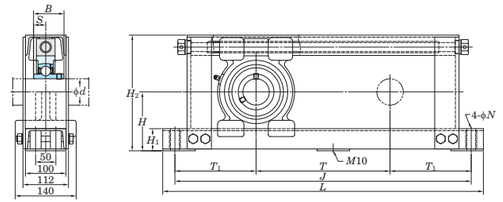
Unit: mm

Nominal unit code	Δ_{Hs}	Δ_{Js}
UCTL204~207	±2	±0.5
UCTL208, 209		±0.8

UCTU
Cylindrical bore (with set screws)
d 40 ~ 90 mm



UCTU200



UCTU300

Variations of tolerance of distance from mounting bottom to center of spherical bore (Δ_{Hs}) and variations of tolerance of distance between centers of bolt holes (Δ_{Js})

Unit: mm

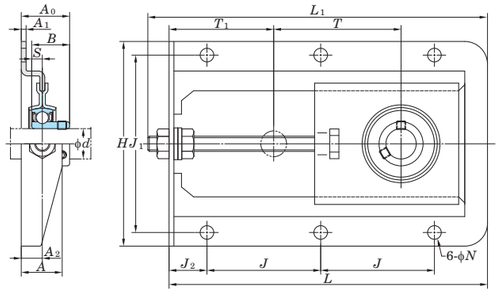
Nominal unit code	Δ_{Hs}	Δ_{Js}
UCTU208~212 UCTU313~315	±2	±0.8
UCTU316~318		±1.2

Shaft Dia. mm	Dimensions mm										Bolt Size mm	Unit No.	Bearing No.	Mass
d	H	H_1	H_2	L	J	N	T	T_1	B	S				kg
	97	44	190	870	810	22	500	155	49.2	19	M18	**UCTU208-500**	UC208	21
	97	44	190	970	910	22	600	155	49.2	19	M18	**UCTU208-600**	UC208	22
40	97	44	190	1,070	1,010	22	700	155	49.2	19	M18	**UCTU208-700**	UC208	24
	97	44	190	1,170	1,110	22	800	155	49.2	19	M18	**UCTU208-800**	UC208	26
	97	44	190	1,270	1,210	22	900	155	49.2	19	M18	**UCTU208-900**	UC208	28
	102	44	200	880	820	22	500	160	49.2	19	M18	**UCTU209-500**	UC209	22
	102	44	200	980	920	22	600	160	49.2	19	M18	**UCTU209-600**	UC209	24
45	102	44	200	1,080	1,020	22	700	160	49.2	19	M18	**UCTU209-700**	UC209	25
	102	44	200	1,180	1,120	22	800	160	49.2	19	M18	**UCTU209-800**	UC209	27
	102	44	200	1,280	1,220	22	900	160	49.2	19	M18	**UCTU209-900**	UC209	29
	107	44	210	890	830	22	500	165	51.6	19	M18	**UCTU210-500**	UC210	23
	107	44	210	990	930	22	600	165	51.6	19	M18	**UCTU210-600**	UC210	25
50	107	44	210	1,090	1,030	22	700	165	51.6	19	M18	**UCTU210-700**	UC210	27
	107	44	210	1,190	1,130	22	800	165	51.6	19	M18	**UCTU210-800**	UC210	28
	107	44	210	1,290	1,230	22	900	165	51.6	19	M18	**UCTU210-900**	UC210	30
	115	44	230	910	850	22	500	175	55.6	22.2	M18	**UCTU211-500**	UC211	25
	115	44	230	1,010	950	22	600	175	55.6	22.2	M18	**UCTU211-600**	UC211	27
55	115	44	230	1,110	1,050	22	700	175	55.6	22.2	M18	**UCTU211-700**	UC211	28
	115	44	230	1,210	1,150	22	800	175	55.6	22.2	M18	**UCTU211-800**	UC211	30
	115	44	230	1,310	1,250	22	900	175	55.6	22.2	M18	**UCTU211-900**	UC211	32
	120	44	240	920	860	22	500	180	65.1	25.4	M18	**UCTU212-500**	UC212	26
	120	44	240	1,020	960	22	600	180	65.1	25.4	M18	**UCTU212-600**	UC212	28
60	120	44	240	1,120	1,060	22	700	180	65.1	25.4	M18	**UCTU212-700**	UC212	30
	120	44	240	1,220	1,160	22	800	180	65.1	25.4	M18	**UCTU212-800**	UC212	31
	120	44	240	1,320	1,260	22	900	180	65.1	25.4	M18	**UCTU212-900**	UC212	33
	145	55	285	940	880	22	500	190	75	30	M18	**UCTU313-500**	UC313	40
	145	55	285	1,040	980	22	600	190	75	30	M18	**UCTU313-600**	UC313	43
65	145	55	285	1,140	1,080	22	700	190	75	30	M18	**UCTU313-700**	UC313	46
	145	55	285	1,240	1,180	22	800	190	75	30	M18	**UCTU313-800**	UC313	49
	145	55	285	1,340	1,280	22	900	190	75	30	M18	**UCTU313-900**	UC313	51
	150	55	295	960	900	22	500	200	78	33	M18	**UCTU314-500**	UC314	44
	150	55	295	1,060	1,000	22	600	200	78	33	M18	**UCTU314-600**	UC314	46
70	150	55	295	1,160	1,100	22	700	200	78	33	M18	**UCTU314-700**	UC314	48
	150	55	295	1,260	1,200	22	800	200	78	33	M18	**UCTU314-800**	UC314	51
	150	55	295	1,360	1,300	22	900	200	78	33	M18	**UCTU314-900**	UC314	53
	155	55	305	980	920	22	500	210	82	32	M18	**UCTU315-500**	UC315	54
	155	55	305	1,080	1,020	22	600	210	82	32	M18	**UCTU315-600**	UC315	57
75	155	55	305	1,180	1,120	22	700	210	82	32	M18	**UCTU315-700**	UC315	59
	155	55	305	1,280	1,220	22	800	210	82	32	M18	**UCTU315-800**	UC315	61
	155	55	305	1,380	1,320	22	900	210	82	32	M18	**UCTU315-900**	UC315	64

Shaft Dia. mm	Dimensions mm										Bolt Size mm	Unit No.	Bearing No.	Mass
d	H	H_1	H_2	L	J	N	T	T_1	B	S				kg
	160	55	315	1,000	940	22	500	220	86	34	M18	**UCTU316-500**	UC316	57
	160	55	315	1,100	1,040	22	600	220	86	34	M18	**UCTU316-600**	UC316	60
80	160	55	315	1,200	1,140	22	700	220	86	34	M18	**UCTU316-700**	UC316	62
	160	55	315	1,300	1,240	22	800	220	86	34	M18	**UCTU316-800**	UC316	64
	160	55	315	1,400	1,340	22	900	220	86	34	M18	**UCTU316-900**	UC316	67
	165	55	325	1,020	960	22	500	230	96	40	M18	**UCTU317-500**	UC317	62
	165	55	325	1,120	1,060	22	600	230	96	40	M18	**UCTU317-600**	UC317	64
85	165	55	325	1,220	1,160	22	700	230	96	40	M18	**UCTU317-700**	UC317	67
	165	55	325	1,320	1,260	22	800	230	96	40	M18	**UCTU317-800**	UC317	69
	165	55	325	1,420	1,360	22	900	230	96	40	M18	**UCTU317-900**	UC317	71
	170	55	335	1,050	990	22	500	245	96	40	M18	**UCTU318-500**	UC318	65
	170	55	335	1,150	1,090	22	600	245	96	40	M18	**UCTU318-600**	UC318	67
90	170	55	335	1,250	1,190	22	700	245	96	40	M18	**UCTU318-700**	UC318	70
	170	55	335	1,350	1,290	22	800	245	96	40	M18	**UCTU318-800**	UC318	72
	170	55	335	1,450	1,390	22	900	245	96	40	M18	**UCTU318-900**	UC318	74

Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   C-1/4-28UNF..... 208~210
   C-R1/8..... 211, 212, 313~318
3. As for the triple seal type product, suffix code L3 follows the Part No. of unit or bearing. (Example of Part No. : UCTU208JL3-500, UC208L3)
4. The unit should be mounted so that load is applied to the frame mounting surface vertically and downward.
5. If heavy load ($P_r/C_r > 0.12$), vibration, or impact occurs, contact with FYH.
6. Tapered bore (with adapter) type bearing units are also available. (Example of Part No. : UKTU208J-500 + H2308X, UK208 + H2308X)
7. If frame parts need to be corrosion resistant, contact with FYH.
8. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.

SBPTH
Cylindrical bore (with set screws)
d 12 ~ 25 mm



Variations of tolerance of distance between centers of bolt holes (Δ_{Js}, Δ_{J1s})

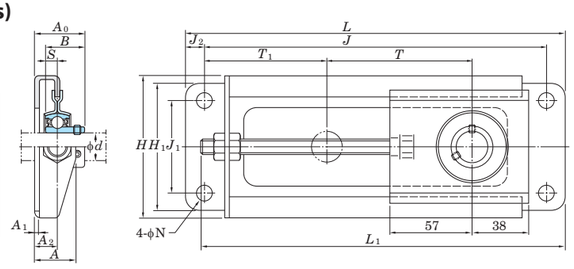
Unit: mm

Nominal unit code	Δ_{Js}	Δ_{J1s}
SBPTH201~SBPTH205	±0.7	±0.7

Shaft Dia. mm	Dimensions inch / mm															Bolt Size inch	Unit No.		Bearing No.	Mass
d	H	L	L_1	A	J	J_1	J_2	N	T	T_1	A_1	A_2	A_0	B	S	mm				kg
12	5 5/16	8 9/32	8 21/32	1 1/16	2 61/64	4 39/64	31/32	23/64	3 15/32	2 23/32	1/8	35/64	1 3/16	0.866	0.236	5/16	SBPTH201-90		SB201	0.91
	135	210	220	27	75	117	25	9	88	69	3.2	13.9	29.9	22	6	M8				
15	5 5/16	8 9/32	8 21/32	1 1/16	2 61/64	4 39/64	31/32	23/64	3 15/32	2 23/32	1/8	35/64	1 3/16	0.866	0.236	5/16	SBPTH202-90		SB202	0.91
	135	210	220	27	75	117	25	9	88	69	3.2	13.9	29.9	22	6	M8				
17	5 5/16	8 9/32	8 21/32	1 1/16	2 61/64	4 39/64	31/32	23/64	3 15/32	2 23/32	1/8	35/64	1 3/16	0.866	0.236	5/16	SBPTH203-90		SB203	0.91
	135	210	220	27	75	117	25	9	88	69	3.2	13.9	29.9	22	6	M8				
20	5 5/16	8 9/32	8 21/32	1 1/16	2 61/64	4 39/64	31/32	23/64	3 15/32	2 23/32	1/8	35/64	1 1/4	0.984	0.276	5/16	SBPTH204-90		SB204	0.91
	135	210	220	27	75	117	25	9	88	69	3.2	13.9	31.9	25	7	M8				
25	5 5/16	8 9/32	8 21/32	1 1/16	2 61/64	4 39/64	31/32	23/64	3 15/32	2 23/32	1/8	35/64	1 5/16	1.063	0.295	5/16	SBPTH205-90		SB205	0.91
	135	210	220	27	75	117	25	9	88	69	3.2	13.9	33.4	27	7.5	M8				

Remarks 1. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
2. If heavy load (P_r /C_r > 0.12), vibration, or impact occurs, contact with FYH.

SBNPTH
Cylindrical bore (with set screws)
d 12 ~ 25 mm



Variations of tolerance of distance between centers of bolt holes (Δ_{Js}, Δ_{J1s})

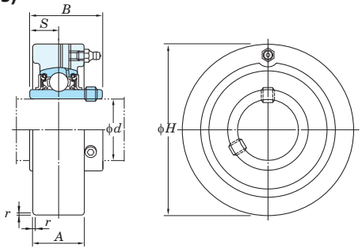
Unit: mm

Nominal unit code	Δ_{Js}	Δ_{J1s}
SBNPTH201~SBNPTH205	±0.7	±0.7

Shaft Dia. mm	Dimensions inch / mm																Bolt Size inch	Unit No.		Bearing No.	Mass
d	H	H_1	L	L_1	A	J	J_1	J_2	N	T	T_1	A_1	A_2	A_0	B	S	mm				kg
12	3 15/16	3 17/32	10 1/4	9 11/16	1 1/16	9 1/4	2 9/16	1/2	7/16	3 15/16	3 9/32	1/8	19/32	1 7/32	0.866	0.236	3/8	SBNPTH201-100		SB201	0.93
	100	90	260	246	27	235	65	12.5	11	100	83.5	3.2	15	31	22	6	M10				
15	3 15/16	3 17/32	10 1/4	9 11/16	1 1/16	9 1/4	2 9/16	1/2	7/16	3 15/16	3 9/32	1/8	19/32	1 7/32	0.866	0.236	3/8	SBNPTH202-100		SB202	0.93
	100	90	260	246	27	235	65	12.5	11	100	83.5	3.2	15	31	22	6	M10				
17	3 15/16	3 17/32	10 1/4	9 11/16	1 1/16	9 1/4	2 9/16	1/2	7/16	3 15/16	3 9/32	1/8	19/32	1 7/32	0.866	0.236	3/8	SBNPTH203-100		SB203	0.93
	100	90	260	246	27	235	65	12.5	11	100	83.5	3.2	15	31	22	6	M10				
20	3 15/16	3 17/32	10 1/4	9 11/16	1 1/16	9 1/4	2 9/16	1/2	7/16	3 15/16	3 9/32	1/8	19/32	1 5/16	0.984	0.276	3/8	SBNPTH204-100		SB204	0.93
	100	90	260	246	27	235	65	12.5	11	100	83.5	3.2	15	33	25	7	M10				
25	3 15/16	3 17/32	10 1/4	9 11/16	1 1/16	9 1/4	2 9/16	1/2	7/16	3 15/16	3 9/32	1/8	19/32	1 11/32	1.063	0.295	3/8	SBNPTH205-100		SB205	0.93
	100	90	260	246	27	235	65	12.5	11	100	83.5	3.2	15	34.5	27	7.5	M10				

Remarks 1. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.
2. If heavy load (P_r /C_r > 0.12), vibration, or impact occurs, contact with FYH.

UCC
Cylindrical bore (with set screws)
d 12 ~ 140 mm



Variations of tolerance of outside diameter (Δ_{DH_s}), variations of tolerance of width (Δ_{As}), and tolerance of circumferential runout of outside diameter (Y)

Unit: mm

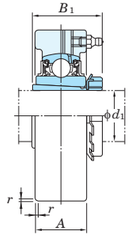
Housing No.			Δ_{DH_s}	Δ_{As}	Y
C204~C205			0 −0.030	±0.2	0.2
C206~C210	CX05~CX08	C305~C308	0 −0.035		
	CX09~CX10	C309~C310	0 −0.040	±0.3	0.3
C211~C213	CX11~CX12	C311~C314			
		C315~C318	0 −0.046		0.4
		C319			
		C320~C322	0 −0.052		
		C324~C328	0 −0.057		

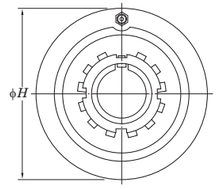
Shaft Dia. mm / inch d		Dimensions inch / mm H	A	r	B	S	Unit No.	Housing No.	Bearing No.	Mass kg
12	1/2						UCC201	C204	UC201	0.52
							UCC201-8		UC201-8	
15							UCC202		UC202	0.50
	5/8	2.835	25/32	0.06	1.220	0.500	UCC202-10		UC202-10	
17		72	20	1.5	31	12.7	UCC203		UC203	0.49
	3/4						UCC204-12		UC204-12	0.47
20							UCC204		UC204	
	7/8						UCC205-14	C205	UC205-14	0.64
	15/16	3.150	55/64	0.06	1.343	0.563	UCC205-15		UC205-15	
		80	22	1.5	34.1	14.3	UCC205		UC205	
25	1						UCC205-16		UC205-16	
	1	3.543	1 1/16	0.06	1.500	0.626	UCCX05	CX05	UCX05	1.0
		90	27	1.5	38.1	15.9	UCCX05-16		UCX05-16	
	1	3.543	1 1/32	0.08	1.496	0.591	UCC305	C305	UC305	1.5
		90	26	2	38	15	UCC305-16		UC305-16	
	1 1/8						UCC206-18	C206	UC206-18	0.81
		3.346	1 1/16	0.06	1.500	0.626	UCC206		UC206	
	1 3/16	85	27	1.5	38.1	15.9	UCC206-19		UC206-19	
	1 1/4						UCC206-20		UC206-20	
30							UCCX06	CX06	UCX06	1.3
	1 3/16	3.937	1 3/16	0.08	1.689	0.689	UCCX06-19		UCX06-19	
	1 1/4	100	30	2	42.9	17.5	UCCX06-20		UCX06-20	
	–	3.937	1 7/64	0.08	1.693	0.669	UCC306	C306	UC306	1.7
		100	28	2	43	17				
	1 1/4						UCC207-20	C207	UC207-20	0.93
	1 5/16						UCC207-21		UC207-21	
	1 3/8	3.543	1 7/64	0.08	1.689	0.689	UCC207-22		UC207-22	
		90	28	2	42.9	17.5	UCC207		UC207	
35	1 7/16						UCC207-23		UC207-23	
	1 3/8						UCCX07-22	CX07	UCX07-22	1.7
		4.331	1 11/32	0.08	1.937	0.748	UCCX07		UCX07	
	1 7/16	110	34	2	49.2	19	UCCX07-23		UCX07-23	
	–	4.331	1 17/64	0.12	1.890	0.748	UCC307	C307	UC307	2.2
		110	32	3	48	19				
	1 1/2						UCC208-24	C208	UC208-24	1.2
	1 9/16	3.937	1 3/16	0.08	1.937	0.748	UCC208-25		UC208-25	
		100	30	2	49.2	19	UCC208		UC208	
40	1 1/2	4.724	1 1/2	0.08	1.937	0.748	UCCX08-24	CX08	UCX08-24	2.3
		120	38	2	49.2	19	UCCX08		UCX08	
	1 1/2	4.724	1 11/32	0.12	2.047	0.748	UCC308-24	C308	UC308-24	2.2
		120	34	3	52	19	UCC308		UC308	
	1 5/8						UCC209-26	C209	UC209-26	1.5
	1 11/16	4.331	1 7/32	0.08	1.937	0.748	UCC209-27		UC209-27	
45	1 3/4	110	31	2	49.2	19	UCC209-28		UC209-28	
							UCC209		UC209	

Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 201~213, X05~X12, 305~308
   A-R1/8..... 309~328
3. As for the triple seal type product (from 201 to 205 are the double seal type products), suffix code L3 (L2) follows the Part No. of unit or bearing.
   (Example of Part No. : UCC206JL3, UC206L3)
4. For the dimensions and forms of applicable bearings, see the dimensional tables of ball bearing for unit.

Shaft Dia. mm / inch d		Dimensions inch / mm H	A	r	B	S	Unit No.	Housing No.	Bearing No.	Mass kg
45	1 11/16	4.724	1 1/2	0.08	2.031	0.748	UCCX09-27	CX09	UCX09-27	2.3
	1 3/4	120	38	2	51.6	19	UCCX09-28		UCX09-28	
							UCCX09		UCX09	
	1 3/4	5.118	1 1/2	0.12	2.244	0.866	UCC309-28	C309	UC309-28	2.8
		130	38	3	57	22	UCC309		UC309	
50	1 7/8						UCC210-30	C210	UC210-30	2.0
	1 15/16	4.724	1 19/64	0.08	2.031	0.748	UCC210-31		UC210-31	
		120	33	2	51.6	19	UCC210		UC210	
	2						UCC210-32		UC210-32	
	1 15/16	5.118	1 37/64	0.1	2.189	0.874	UCCX10-31	CX10	UCX10-31	2.8
		130	40	2.5	55.6	22.2	UCCX10		UCX10	
	2						UCCX10-32		UCX10-32	
	–	5.512	1 37/64	0.12	2.402	0.866	UCC310	C310	UC310	3.2
		140	40	3	61	22				
55	2						UCC211-32	C211	UC211-32	2.2
	2 1/8	4.921	1 3/8	0.1	2.189	0.874	UCC211-34		UC211-34	
		125	35	2.5	55.6	22.2	UCC211		UC211	
	2 3/16						UCC211-35		UC211-35	
	2 3/16	5.906	1 21/32	0.1	2.563	1.000	UCCX11	CX11	UCX11	4.0
	2 1/4	150	42	2.5	65.1	25.4	UCCX11-35		UCX11-35	
							UCCX11-36		UCX11-36	
	2	5.906	1 47/64	0.12	2.598	0.984	UCC311-32	C311	UC311-32	3.9
	2 3/16	150	44	3	66	25	UCC311		UC311	
							UCC311-35		UC311-35	
60	2 1/4	5.118	1 1/2	0.1	2.563	1.000	UCC212-36	C212	UC212-36	2.6
	2 3/8	130	38	2.5	65.1	25.4	UCC212		UC212	
	2 7/16						UCC212-38		UC212-38	
							UCC212-39		UC212-39	
	2 7/16	6.299	1 47/64	0.1	2.563	1.000	UCCX12	CX12	UCX12	4.6
		160	44	2.5	65.1	25.4	UCCX12-39		UCX12-39	
	2 7/16	6.299	1 13/16	0.12	2.795	1.024	UCC312	C312	UC312	4.8
		160	46	3	71	26	UCC312-39		UC312-39	
65	2 1/2	5.512	1 37/64	0.1	2.563	1.000	UCC213-40	C213	UC213-40	3.0
		140	40	2.5	65.1	25.4	UCC213		UC213	
	2 1/2	6.693	1 31/32	0.12	2.953	1.181	UCC313-40	C313	UC313-40	5.7
		170	50	3	75	30	UCC313		UC313	
70	2 3/4	7.087	2 3/64	0.12	3.071	1.299	UCC314-44	C314	UC314-44	6.7
		180	52	3	78	33	UCC314		UC314	
75	2 15/16	7.480	2 11/64	0.16	3.228	1.260	UCC315-47	C315	UC315-47	7.8
		190	55	4	82	32	UCC315		UC315	
	3						UCC315-48		UC315-48	
80	–	7.874	2 23/64	0.16	3.386	1.339	UCC316	C316	UC316	9.2
		200	60	4	86	34				
85	–	8.465	2 33/64	0.16	3.780	1.575	UCC317	C317	UC317	11.7
		215	64	4	96	40				
90	3 1/2	8.858	2 19/32	0.16	3.780	1.575	UCC318-56	C318	UC318-56	13.1
		225	66	4	96	40	UCC318		UC318	
95	–	9.449	2 53/64	0.16	4.055	1.614	UCC319	C319	UC319	15.8
		240	72	4	103	41				
100	3 15/16	10.236	2 61/64	0.16	4.252	1.654	UCC320	C320	UC320	19.6
	4	260	75	4	108	42	UCC320-63		UC320-63	
							UCC320-64		UC320-64	
105	–	10.236	2 61/64	0.16	4.409	1.732	UCC321	C321	UC321	27.0
		260	75	4	112	44				
110	–	11.811	3 5/32	0.2	4.606	1.811	UCC322	C322	UC322	29.2
		300	80	5	117	46				
120	–	12.598	3 35/64	0.2	4.961	2.008	UCC324	C324	UC324	35.9
		320	90	5	126	51				
130	–	13.386	3 15/16	0.2	5.315	2.126	UCC326	C326	UC326	43.0
		340	100	5	135	54				
140	–	14.173	3 15/16	0.2	5.709	2.323	UCC328	C328	UC328	52.9
		360	100	5	145	59				

UKC
Tapered bore (with adapter)
d_1 20 ~ 125 mm





Variations of tolerance of outside diameter (Δ_{Hs}), variations of tolerance of width (Δ_{As}), and tolerance of circumferential runout of outside diameter (Y)

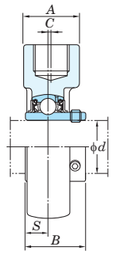
Unit: mm

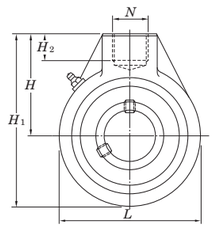
Housing No.			Δ_{Hs}	Δ_{As}	Y
C205			0 −0.030	±0.2	0.2
C206~C210	CX05~CX08	C305~C308	0 −0.035		
	CX09~CX10	C309~C310	0		
C211~C213	CX11~CX12	C311~C314	−0.040	±0.3	0.3
		C315~C318	0 −0.046		
		C319			0.4
		C320~C322	0 −0.052		
		C324~C328	0 −0.057		

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm H	A	r	B_1	Unit No.	Housing No.	Bearing No.	Adapter No.	Mass kg
20	3/4	3.150 80	55/64 22	0.06 1.5	1 3/8 35	UKC205	C205	UK205	HE2305X H2305X	0.7
	3/4	3.543 90	1 1/16 27	0.06 1.5	1 3/8 35	UKCX05	CX05	UKX05	HE2305X H2305X	0.99
	3/4	3.543 90	1 1/32 26	0.08 2	1 3/8 35	UKC305	C305	UK305	HE2305X H2305X	1.6
25	1	3.346 85	1 1/16 27	0.06 1.5	1 1/2 38	UKC206	C206	UK206	H2306X HE2306X	0.89
	1	3.937 100	1 3/16 30	0.08 2	1 1/2 38	UKCX06	CX06	UKX06	H2306X HE2306X	1.3
	1	3.937 100	1 7/64 28	0.08 2	1 1/2 38	UKC306	C306	UK306	H2306X HE2306X	1.8
30	1 1/8	3.543 90	1 7/64 28	0.08 2	1 11/16 43	UKC207	C207	UK207	HS2307X H2307X	1.0
	1 1/8	4.331 110	1 11/32 34	0.08 2	1 11/16 43	UKCX07	CX07	UKX07	HS2307X H2307X	1.8
	1 1/8	4.331 110	1 17/64 32	0.12 3	1 11/16 43	UKC307	C307	UK307	HS2307X H2307X	2.2
35	1 1/4 1 3/8	3.937 100	1 3/16 30	0.08 2	1 13/16 46	UKC208	C208	UK208	HE2308X HS2308X H2308X	1.5
	1 1/4 1 3/8	4.724 120	1 1/2 38	0.08 2	1 13/16 46	UKCX08	CX08	UKX08	HE2308X HS2308X H2308X	2.4
	1 1/4 1 3/8	4.724 120	1 11/32 34	0.12 3	1 13/16 46	UKC308	C308	UK308	HE2308X HS2308X H2308X	2.2
40	1 1/2	4.331 110	1 7/32 31	0.08 2	1 31/32 50	UKC209	C209	UK209	HE2309X H2309X	1.8
	1 1/2	4.724 120	1 1/2 38	0.08 2	1 31/32 50	UKCX09	CX09	UKX09	HE2309X H2309X	2.4
	1 1/2	5.118 130	1 1/2 38	0.12 3	1 31/32 50	UKC309	C309	UK309	HE2309X H2309X	2.8
45	1 3/4	4.724 120	1 19/64 33	0.08 2	2 5/32 55	UKC210	C210	UK210	HE2310X H2310X	2.2
	1 3/4	5.118 130	1 37/64 40	0.1 2.5	2 5/32 55	UKCX10	CX10	UKX10	HE2310X H2310X	2.9
	1 3/4	5.512 140	1 37/64 40	0.12 3	2 5/32 55	UKC310	C310	UK310	HE2310X H2310X	3.2
50	1 7/8 2	4.921 125	1 3/8 35	0.1 2.5	2 5/16 59	UKC211	C211	UK211	HS2311X H2311X HE2311X	2.7
	1 7/8 2	5.906 150	1 21/32 42	0.1 2.5	2 5/16 59	UKCX11	CX11	UKX11	HS2311X H2311X HE2311X	4.1
50	1 7/8 2	5.906 150	1 47/64 44	0.12 3	2 5/16 59	UKC311	C311	UK311	HS2311X H2311X HE2311X	4.1
55	2 1/8	5.118 130	1 1/2 38	0.1 2.5	2 7/16 62	UKC212	C212	UK212	HS2312X H2312X	3.1
	2 1/8	6.299 160	1 47/64 44	0.1 2.5	2 7/16 62	UKCX12	CX12	UKX12	HS2312X H2312X	4.4
	2 1/8	6.299 160	1 13/16 46	0.12 3	2 7/16 62	UKC312	C312	UK312	HS2312X H2312X	4.7
60	2 1/4 2 3/8	5.512 140	1 37/64 40	0.1 2.5	2 9/16 65	UKC213	C213	UK213	HE2313X H2313X HS2313X	3.3
	2 1/4 2 3/8	6.693 170	1 31/32 50	0.12 3	2 9/16 65	UKC313	C313	UK313	HE2313X H2313X HS2313X	5.8
65	2 1/2	7.480 190	2 11/64 55	0.16 4	2 7/8 73	UKC315	C315	UK315	HE2315X H2315X	8.0
70	2 3/4	7.874 200	2 23/64 60	0.16 4	3 1/16 78	UKC316	C316	UK316	HE2316X H2316X	9.2
75	3	8.465 215	2 33/64 64	0.16 4	3 7/32 82	UKC317	C317	UK317	H2317X HE2317X	11.6
80	–	8.858 225	2 19/32 66	0.16 4	3 3/8 86	UKC318	C318	UK318	H2318X	13.1
85	3 1/4	9.449 240	2 53/64 72	0.16 4	3 17/32 90	UKC319	C319	UK319	HE2319X H2319X	16.1
90	3 1/2	10.236 260	2 61/64 75	0.16 4	3 13/16 97	UKC320	C320	UK320	HE2320X H2320X	19.2
100	4	11.811 300	3 5/32 80	0.2 5	4 1/8 105	UKC322	C322	UK322	H2322X HE2322X	29.1
110	–	12.598 320	3 35/64 90	0.2 5	4 13/32 112	UKC324	C324	UK324	H2324	36.2
115	4 1/2	13.386 340	3 15/16 100	0.2 5	4 3/4 121	UKC326	C326	UK326	HE2326 H2326	42.8
125	–	14.173 360	3 15/16 100	0.2 5	5 5/32 131	UKC328	C328	UK328	H2328	52.9

Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 205~213, X05~X12, 305~308
   A-R1/8..... 309~328
3. In Part No. of unit with adapters and bearing with adapters, Part No. of applicable adapter follow the Part No. shown in the dimensional tables.
   (Example of Part No. : UKC206J + H2306X, UK206 + H2306X)
4. As for the triple seal type product (205 is the double seal type product), suffix code L3 (or L2) follows the Part No. of unit or bearing.
   (Example of Part No. : UKC206JL3 + H2306X, UK206L3 + H2306X)
5. As for the dimensions and forms of applicable bearings and adapters, see the dimensional tables of ball bearing for unit and adapter.

UCHA
Cylindrical bore (with set screws)
d 12 ~ 75 mm





Shaft Dia. mm	Shaft Dia. inch	Dimensions inch / mm H	A	L	H1	H2	N 1)	C	B	S	Unit No.	Housing No.	Bearing No.	Mass kg
12											**UCHA201**		UC201	0.77
	1/2										**UCHA201-8**		UC201-8	
15											**UCHA202**		UC202	0.75
	5/8	2 17/32	1 9/16	2 17/32	3 25/32	3/4		–	1.220	0.500	**UCHA202-10**	HA204	UC202-10	
		64	40	64	96	19	Rp 3/4	–	31	12.7				
17											**UCHA203**		UC203	0.74
	3/4										**UCHA204-12**		UC204-12	0.72
20											**UCHA204**		UC204	
	7/8										**UCHA205-14**		UC205-14	
25	15/16	2 17/32	1 9/16	3 1/16	4 1/16	3/4		–	1.343	0.563	**UCHA205-15**	HA205	UC205-15	0.87
		64	40	78	103	19	Rp 3/4	–	34.1	14.3	**UCHA205**		UC205	
	1										**UCHA205-16**		UC205-16	
	1 1/8										**UCHA206-18**		UC206-18	
30		2 17/32	1 9/16	3 1/16	4 1/16	3/4		–	1.500	0.626	**UCHA206**	HA206	UC206	0.83
	1 3/16	64	40	78	103	19	Rp 3/4	–	38.1	15.9	**UCHA206-19**		UC206-19	
	1 1/4										**UCHA206-20**		UC206-20	
	1 1/4										**UCHA207-20**		UC207-20	
	1 5/16										**UCHA207-21**		UC207-21	
35	1 3/8	2 3/4	1 9/16	3 5/8	4 9/16	3/4		–	1.689	0.689	**UCHA207-22**	HA207	UC207-22	1.2
		70	40	92	116	19	Rp 3/4	–	42.9	17.5	**UCHA207**		UC207	
	1 7/16										**UCHA207-23**		UC207-23	
	1 1/2										**UCHA208-24**		UC208-24	
40	1 9/16	2 7/8	1 9/16	3 25/32	4 3/4	3/4		5/64	1.937	0.748	**UCHA208-25**	HA208	UC208-25	1.3
		73	40	96	121	19	Rp 3/4	2	49.2	19	**UCHA208**		UC208	
	1 5/8										**UCHA209-26**		UC209-26	
45	1 11/16	3 7/32	1 7/8	4 1/4	5 11/32	13/16		13/64	1.937	0.748	**UCHA209-27**	HA209	UC209-27	1.7
	1 3/4	82	48	108	136	21	Rp 1	5	49.2	19	**UCHA209-28**		UC209-28	
											UCHA209		UC209	
	1 7/8										**UCHA210-30**		UC210-30	
50	1 15/16	3 9/32	1 7/8	4 21/32	5 19/32	13/16		13/64	2.031	0.748	**UCHA210-31**	HA210	UC210-31	2.1
		83	48	118	142	21	Rp 1	5	51.6	19	**UCHA210**		UC210	
	2										**UCHA210-32**		UC210-32	
	2										**UCHA211-32**		UC211-32	
55	2 1/8	3 7/16	2 3/8	4 31/32	5 29/32	31/32		9/32	2.189	0.874	**UCHA211-34**	HA211	UC211-34	2.8
		87	60	126	150	25	Rp 1 1/4	7	55.6	22.2	**UCHA211**		UC211	
	2 3/16										**UCHA211-35**		UC211-35	
	2 1/4										**UCHA212-36**		UC212-36	
60		4 1/32	2 3/8	5 19/32	6 13/16	1 3/32		23/64	2.563	1.000	**UCHA212**	HA212	UC212	3.9
	2 3/8	102	60	142	173	28	Rp 1 1/4	9	65.1	25.4	**UCHA212-38**		UC212-38	
	2 7/16										**UCHA212-39**		UC212-39	
65	2 1/2	4 19/32	2 3/4	6 17/32	7 7/8	1 1/4		3/8	2.563	1.000	**UCHA213-40**	HA213	UC213-40	5.8
		117	70	166	200	32	Rp 1 1/2	9.5	65.1	25.4	**UCHA213**		UC213	
70	2 3/4	4 19/32	2 3/4	6 17/32	7 7/8	1 1/4		3/8	2.937	1.189	**UCHA214-44**	HA214	UC214-44	5.9
		117	70	166	200	32	Rp 1 1/2	9.5	74.6	30.2	**UCHA214**		UC214	
	2 15/16										**UCHA215-47**		UC215-47	
75		4 19/32	2 3/4	6 17/32	7 7/8	1 1/4		3/8	3.063	1.311	**UCHA215**	HA215	UC215	5.6
	3	117	70	166	200	32	Rp 1 1/2	9.5	77.8	33.3	**UCHA215-48**		UC215-48	

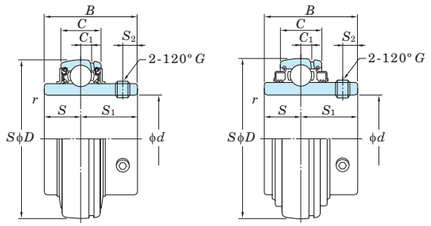
Remarks
1. In Part No. of unit and units with covers, fitting codes follow bore diameter numbers. (See **Table 10.5** in P.62.)
2. Part No. of applicable grease fittings are shown below.
   A-1/4-28UNF..... 201~210
   A-R1/8..... 211~215
3. As for the triple seal type product (from 201 to 205 are the double seal type products), suffix code L3 (or L2) follows the Part No. of unit or bearing.
   (Example of Part No. : UCHA206JL3, UC206L3)
4. For the dimensions and forms of applicable bearings and adapters, see the dimensional tables of ball bearing for unit and adapter.
5. Tapered bore (with adapter) type products are also available. (Example of Part No. : UKHA205J + H2305X, UK205 + H2305X)

Note 1) Dimensions of the N screw hole comply with JIS B 0203 (Pipe threads where pressure-tight joints are not made on the threads).
This specification does not apply to Parallel Pipe Male Threads.
Below are the dimensions for Parallel Pipe Female Threads.
Unit: mm

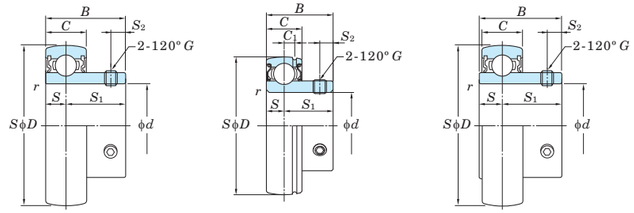
Nominal of Thread	Female Thread Major Diameter D	Female Thread Pitch Diameter D_2	Female Thread Minor Diameter D_1	Thread Number of Threads $\left(\frac{\text{in 25.4}}{\text{mm}}\right)$ n	Apply Male Thread
Rp 3/4	26.441	25.279	24.117	14	R 3/4
Rp 1	33.249	31.770	30.291	11	R 1
Rp 1 1/2	41.910	40.431	38.952	11	R 1 1/2
Rp 1 1/4	47.803	46.324	44.845	11	R 1 1/4

UC, SB, SB-RKP8, SU
Cylindrical bore (with set screws)
d 8 ~ 25 mm

UC SB SB-RKP8 SU



UC UC-L3



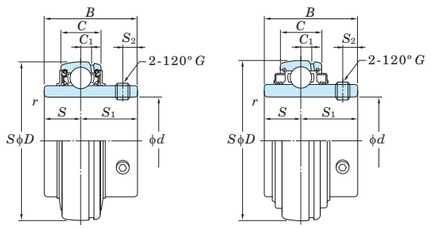
SB SB-RKP8 SU

Shaft Dia. mm	Shaft Dia. inch	Dimensions								Basic Load Ratings kN		Factor	Bearing No.		Dimensions								Set Screw Brg. Bore G		Mass
d		D		B		C		r (min.)							C_1		S		S_1		S_2				
		mm	inch	mm	inch	mm	inch	mm	inch	C_r	C_{0r}	f_0	Standard	L3 Type	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	kg
8	–	22	0.866	12	0.472	7	0.276	0.3	0.012	3.27	1.37	12.4	**SU08**	–	–	–	3.5	0.138	8.5	0.335	2.8	0.110	M3×0.35	–	0.012
10	–	26	1.024	15	0.591	8	0.315	0.3	0.012	4.55	1.95	12.3	**SU000**	–	–	–	5	0.197	10	0.394	3	0.118	M3×0.35	–	0.024
12	–	28	1.102	15	0.591	8	0.315	0.3	0.012	5.10	2.40	13.2	**SU001**	–	–	–	5	0.197	10	0.394	3	0.118	M3×0.35	–	0.026
		40	1.575	22	0.866	12	0.472	0.6	0.024	9.55	4.80	13.2	**SB201**	–	–	–	6	0.236	16	0.630	4	0.157	M5×0.5	–	0.10
		40	1.575	22	0.866	12	0.472	0.6	0.024	9.55	4.80	13.2	**SB201RKP8**	–	3.4	0.134	6	0.236	16	0.630	4	0.157	M5×0.5	–	0.10
		47	1.850	31	1.220	16	0.630	0.6	0.024	12.8	6.65	13.2	**UC201**	**UC201L2**	4	0.157	12.7	0.500	18.3	0.720	5	0.197	M6×0.75	–	0.21
–	1/2	40	1.575	22	0.866	12	0.472	0.6	0.024	9.55	4.80	13.2	**SB201-8**	–	–	–	6	0.236	16	0.630	4	0.157	–	No.10-32UNF	0.10
		40	1.575	22	0.866	12	0.472	0.6	0.024	9.55	4.80	13.2	**SB201-8RKP8**	–	3.4	0.134	6	0.236	16	0.630	4	0.157	–	No.10-32UNF	0.10
		47	1.850	31	1.220	16	0.630	0.6	0.024	12.8	6.65	13.2	**UC201-8**	**UC201-8L2**	4	0.157	12.7	0.500	18.3	0.720	5	0.197	–	1/4-28UNF	0.21
15	–	32	1.260	16.5	0.650	9	0.354	0.3	0.012	5.60	2.85	13.9	**SU002**	–	–	–	5.5	0.217	11	0.433	3.3	0.130	M4×0.5	–	0.038
		40	1.575	22	0.866	12	0.472	0.6	0.024	9.55	4.80	13.2	**SB202**	–	–	–	6	0.236	16	0.630	4	0.157	M5×0.5	–	0.10
		40	1.575	22	0.866	12	0.472	0.6	0.024	9.55	4.80	13.2	**SB202RKP8**	–	3.4	0.134	6	0.236	16	0.630	4	0.157	M5×0.5	–	0.10
		47	1.850	31	1.220	16	0.630	0.6	0.024	12.8	6.65	13.2	**UC202**	**UC202L2**	4	0.157	12.7	0.500	18.3	0.720	5	0.197	M6×0.75	–	0.19
–	5/8	40	1.575	22	0.866	12	0.472	0.6	0.024	9.55	4.80	13.2	**SB202-10**	–	–	–	6	0.236	16	0.630	4	0.157	–	No.10-32UNF	0.10
		40	1.575	22	0.866	12	0.472	0.6	0.024	9.55	4.80	13.2	**SB202-10RKP8**	–	3.4	0.134	6	0.236	16	0.630	4	0.157	–	No.10-32UNF	0.10
		47	1.850	31	1.220	16	0.630	0.6	0.024	12.8	6.65	13.2	**UC202-10**	**UC202-10L2**	4	0.157	12.7	0.500	18.3	0.720	5	0.197	–	1/4-28UNF	0.19
17	–	35	1.378	17.5	0.689	10	0.394	0.3	0.012	6.00	3.25	14.4	**SU003**	–	–	–	6	0.236	11.5	0.453	3.3	0.130	M4×0.5	–	0.050
		40	1.575	22	0.866	12	0.472	0.6	0.024	9.55	4.80	13.2	**SB203**	–	–	–	6	0.236	16	0.630	4	0.157	M5×0.5	–	0.10
		40	1.575	22	0.866	12	0.472	0.6	0.024	9.55	4.80	13.2	**SB203RKP8**	–	3.4	0.134	6	0.236	16	0.630	4	0.157	M5×0.5	–	0.10
		47	1.850	31	1.220	16	0.630	0.6	0.024	12.8	6.65	13.2	**UC203**	**UC203L2**	4	0.157	12.7	0.500	18.3	0.720	5	0.197	M6×0.75	–	0.18
–	3/4	47	1.850	25	0.984	14	0.551	1	0.039	12.8	6.65	13.2	**SB204-12**	–	–	–	7	0.276	18	0.709	5	0.197	–	1/4-28UNF	0.15
		47	1.850	25	0.984	14	0.551	1	0.039	12.8	6.65	13.2	**SB204-12RKP8**	–	3.7	0.146	7	0.276	18	0.709	5	0.197	–	1/4-28UNF	0.19
		47	1.850	31	1.220	16	0.630	1	0.039	12.8	6.65	13.2	**UC204-12**	**UC204-12L2**	4	0.157	12.7	0.500	18.3	0.720	5	0.197	–	1/4-28UNF	0.16
20	–	42	1.654	21	0.827	12	0.472	0.6	0.024	9.40	5.05	13.9	**SU004**	–	–	–	7	0.276	14	0.551	4	0.157	M5×0.5	–	0.080
		47	1.850	25	0.984	14	0.551	1	0.039	12.8	6.65	13.2	**SB204**	–	–	–	7	0.276	18	0.709	5	0.197	M6×0.75	–	0.15
		47	1.850	25	0.984	14	0.551	1	0.039	12.8	6.65	13.2	**SB204RKP8**	–	3.7	0.146	7	0.276	18	0.709	5	0.197	M6×0.75	–	0.19
		47	1.850	31	1.220	16	0.630	1	0.039	12.8	6.65	13.2	**UC204**	**UC204L2**	4	0.157	12.7	0.500	18.3	0.720	5	0.197	M6×0.75	–	0.16
–	7/8	52	2.047	27	1.063	15	0.591	1	0.039	14.0	7.85	13.9	**SB205-14**	–	–	–	7.5	0.295	19.5	0.768	5.5	0.217	–	1/4-28UNF	0.18
		52	2.047	27	1.063	15	0.591	1	0.039	14.0	7.85	13.9	**SB205-14RKP8**	–	3.7	0.146	7.5	0.295	19.5	0.768	5.5	0.217	–	1/4-28UNF	0.19
		52	2.047	34.1	1.343	17	0.669	1	0.039	14.0	7.85	13.9	**UC205-14**	**UC205-14L2**	4.5	0.177	14.3	0.563	19.8	0.780	5.5	0.217	–	1/4-28UNF	0.23
–	15/16	52	2.047	27	1.063	15	0.591	1	0.039	14.0	7.85	13.9	**SB205-15**	–	–	–	7.5	0.295	19.5	0.768	5.5	0.217	–	1/4-28UNF	0.18
		52	2.047	27	1.063	15	0.591	1	0.039	14.0	7.85	13.9	**SB205-15RKP8**	–	3.7	0.146	7.5	0.295	19.5	0.768	5.5	0.217	–	1/4-28UNF	0.19
		52	2.047	34.1	1.343	17	0.669	1	0.039	14.0	7.85	13.9	**UC205-15**	**UC205-15L2**	4.5	0.177	14.3	0.563	19.8	0.780	5.5	0.217	–	1/4-28UNF	0.21
25	–	47	1.850	22	0.866	12	0.472	0.6	0.024	10.1	5.85	14.5	**SU005**	–	–	–	7	0.276	15	0.591	4.5	0.177	M5×0.5	–	0.10
		52	2.047	27	1.063	15	0.591	1	0.039	14.0	7.85	13.9	**SB205**	–	–	–	7.5	0.295	19.5	0.768	5.5	0.217	M6×0.75	–	0.18
		52	2.047	27	1.063	15	0.591	1	0.039	14.0	7.85	13.9	**SB205RKP8**	–	3.7	0.146	7.5	0.295	19.5	0.768	5.5	0.217	M6×0.75	–	0.19
		52	2.047	34.1	1.343	17	0.669	1	0.039	14.0	7.85	13.9	**UC205**	**UC205L2**	4.5	0.177	14.3	0.563	19.8	0.780	5.5	0.217	M6×0.75	–	0.20
		62	2.441	38.1	1.500	19	0.748	1	0.039	19.5	11.3	13.9	**UCX05**	**UCX05L3**	5	0.197	15.9	0.626	22.2	0.874	6	0.236	M6×0.75	–	0.39
		62	2.441	38	1.496	22	0.866	1.1	0.043	21.2	10.9	12.6	**UC305**	–	6	0.236	15	0.591	23	0.906	6	0.236	M6×0.75	–	0.45
–	1	52	2.047	27	1.063	15	0.591	1	0.039	14.0	7.85	13.9	**SB205-16**	–	–	–	7.5	0.295	19.5	0.768	5.5	0.217	–	1/4-28UNF	0.18
		52	2.047	27	1.063	15	0.591	1	0.039	14.0	7.85	13.9	**SB205-16RKP8**	–	3.7	0.146	7.5	0.295	19.5	0.768	5.5	0.217	–	1/4-28UNF	0.19
		52	2.047	34.1	1.343	17	0.669	1	0.039	14.0	7.85	13.9	**UC205-16**	**UC205-16L2**	4.5	0.177	14.3	0.563	19.8	0.780	5.5	0.217	–	1/4-28UNF	0.20
		62	2.441	38.1	1.500	19	0.748	1	0.039	19.5	11.3	13.9	**UCX05-16**	**UCX05-16L3**	5	0.197	15.9	0.626	22.2	0.874	6	0.236	–	1/4-28UNF	0.38
		62	2.441	38	1.496	22	0.866	1.1	0.043	21.2	10.9	12.6	**UC305-16**	–	6	0.236	15	0.591	23	0.906	6	0.236	M6×0.75	–	0.44
–	1 1/8	62	2.441	30	1.181	16	0.630	1	0.039	19.5	11.3	13.9	**SB206-18**	–	–	–	8	0.315	22	0.866	6	0.236	–	1/4-28UNF	0.27
		62	2.441	30	1.181	16	0.630	1	0.039	19.5	11.3	13.9	**SB206-18RKP8**	–	4.7	0.185	8	0.315	22	0.866	6	0.236	–	1/4-28UNF	0.31
		62	2.441	38.1	1.500	19	0.748	1	0.039	19.5	11.3	13.9	**UC206-18**	**UC206-18L3**	5	0.197	15.9	0.626	22.2	0.874	6	0.236	–	1/4-28UNF	0.34

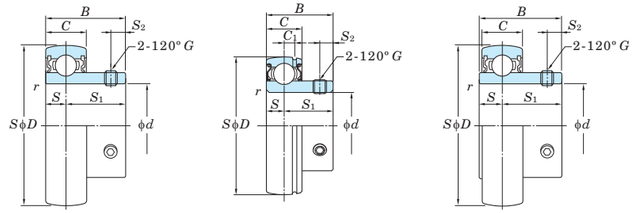
Remarks 1. SU type product is the clean series ball bearing for unit.
2. From UC201 to 205 are the double seal type products (L2).

UC, SB, SB-RKP8, SU
Cylindrical bore (with set screws)
d 30 ~ 40 mm

UC SB SB-RKP8 SU



UC UC-L3



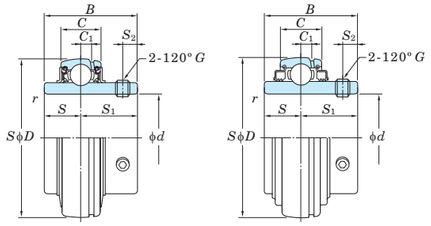
SB SB-RKP8 SU

Shaft Dia. mm	Shaft Dia. inch	Dimensions								Basic Load Ratings kN		Factor	Bearing No.		Dimensions								Set Screw Brg. Bore G		Mass
d		D		B		C		r (min.)		C_r	C_{0r}	f_0	Standard	L3 Type	C_1		S		S_1		S_2		mm	inch	kg
		mm	inch	mm	inch	mm	inch	mm	inch						mm	inch	mm	inch	mm	inch	mm	inch			
30	–	55	2.165	24.5	0.965	13	0.512	1	0.039	13.2	8.25	14.7	SU006	–	–	–	7.5	0.295	17	0.669	5.5	0.217	M5×0.5	–	0.15
		62	2.441	30	1.181	16	0.630	1	0.039	19.5	11.3	13.9	SB206	–	–	–	8	0.315	22	0.866	6	0.236	M6×0.75	–	0.27
		62	2.441	30	1.181	16	0.630	1	0.039	19.5	11.3	13.9	SB206RKP8	–	4.7	0.185	8	0.315	22	0.866	6	0.236	M6×0.75	–	0.31
		62	2.441	38.1	1.500	19	0.748	1	0.039	19.5	11.3	13.9	UC206	UC206L3	5	0.197	15.9	0.626	22.2	0.874	6	0.236	M6×0.75	–	0.32
		72	2.835	42.9	1.689	20	0.787	1	0.039	25.7	15.4	13.9	UCX06	UCX06L3	5.5	0.217	17.5	0.689	25.4	1.000	6.5	0.256	M8×1	–	0.58
		72	2.835	43	1.693	24	0.945	1.1	0.043	26.7	15.0	13.3	UC306	–	6.5	0.256	17	0.669	26	1.024	6	0.236	M6×0.75	–	0.56
–	1 3/16	62	2.441	30	1.181	16	0.630	1	0.039	19.5	11.3	13.9	SB206-19	–	–	–	8	0.315	22	0.866	6	0.236	–	1/4-28UNF	0.27
		62	2.441	30	1.181	16	0.630	1	0.039	19.5	11.3	13.9	SB206-19RKP8	–	4.7	0.185	8	0.315	22	0.866	6	0.236	–	1/4-28UNF	0.31
		62	2.441	38.1	1.500	19	0.748	1	0.039	19.5	11.3	13.9	UC206-19	UC206-19L3	5	0.197	15.9	0.626	22.2	0.874	6	0.236	–	1/4-28UNF	0.32
		72	2.835	42.9	1.689	20	0.787	1	0.039	25.7	15.4	13.9	UCX06-19	UCX06-19L3	5.5	0.217	17.5	0.689	25.4	1.000	6.5	0.256	–	5/16-24UNF	0.58
–	1 1/4	62	2.441	30	1.181	16	0.630	1	0.039	19.5	11.3	13.9	SB206-20	–	–	–	8	0.315	22	0.866	6	0.236	–	1/4-28UNF	0.27
		62	2.441	30	1.181	16	0.630	1	0.039	19.5	11.3	13.9	SB206-20RKP8	–	4.7	0.185	8	0.315	22	0.866	6	0.236	–	1/4-28UNF	0.31
		62	2.441	38.1	1.500	19	0.748	1	0.039	19.5	11.3	13.9	UC206-20	UC206-20L3	5	0.197	15.9	0.626	22.2	0.874	6	0.236	–	1/4-28UNF	0.30
		72	2.835	42.9	1.689	20	0.787	1	0.039	25.7	15.4	13.9	UCX06-20	UCX06-20L3	5.5	0.217	17.5	0.689	25.4	1.000	6.5	0.256	–	5/16-24UNF	0.55
–	1 1/4	72	2.835	32	1.260	17	0.669	1.1	0.043	25.7	15.4	13.9	SB207-20	–	–	–	8.5	0.335	23.5	0.925	6	0.236	–	1/4-28UNF	0.42
		72	2.835	32	1.260	17	0.669	1.1	0.043	25.7	15.4	13.9	SB207-20RKP8	–	5	0.197	8.5	0.335	23.5	0.925	6	0.236	–	1/4-28UNF	0.51
		72	2.835	42.9	1.689	20	0.787	1.1	0.043	25.7	15.4	13.9	UC207-20	UC207-20L3	5.5	0.217	17.5	0.689	25.4	1.000	6.5	0.256	–	5/16-24UNF	0.54
–	1 5/16	72	2.835	42.9	1.689	20	0.787	1.1	0.043	25.7	15.4	13.9	UC207-21	UC207-21L3	5.5	0.217	17.5	0.689	25.4	1.000	6.5	0.256	–	5/16-24UNF	0.51
–	1 3/8	72	2.835	32	1.260	17	0.669	1.1	0.043	25.7	15.4	13.9	SB207-22	–	–	–	8.5	0.335	23.5	0.925	6	0.236	–	1/4-28UNF	0.42
		72	2.835	32	1.260	17	0.669	1.1	0.043	25.7	15.4	13.9	SB207-22RKP8	–	5	0.197	8.5	0.335	23.5	0.925	6	0.236	–	1/4-28UNF	0.51
		72	2.835	42.9	1.689	20	0.787	1.1	0.043	25.7	15.4	13.9	UC207-22	UC207-22L3	5.5	0.217	17.5	0.689	25.4	1.000	6.5	0.256	–	5/16-24UNF	0.48
		80	3.150	49.2	1.937	21	0.827	1.1	0.043	29.1	17.8	14.0	UCX07-22	UCX07-22L3	6	0.236	19	0.748	30.2	1.189	8	0.315	–	5/16-24UNF	0.75
35	–	72	2.835	32	1.260	17	0.669	1.1	0.043	25.7	15.4	13.9	SB207	–	–	–	8.5	0.335	23.5	0.925	6	0.236	M6×0.75	–	0.42
		72	2.835	32	1.260	17	0.669	1.1	0.043	25.7	15.4	13.9	SB207RKP8	–	5	0.197	8.5	0.335	23.5	0.925	6	0.236	M6×0.75	–	0.51
		72	2.835	42.9	1.689	20	0.787	1.1	0.043	25.7	15.4	13.9	UC207	UC207L3	5.5	0.217	17.5	0.689	25.4	1.000	6.5	0.256	M8×1	–	0.48
		80	3.150	49.2	1.937	21	0.827	1.1	0.043	29.1	17.8	14.0	UCX07	UCX07L3	6	0.236	19	0.748	30.2	1.189	8	0.315	M8×1	–	0.75
		80	3.150	48	1.890	26	1.024	1.5	0.059	33.4	19.3	13.2	UC307	UC307L3	7.5	0.295	19	0.748	29	1.142	8	0.315	M8×1	–	0.71
–	1 7/16	72	2.835	32	1.260	17	0.669	1.1	0.043	25.7	15.4	13.9	SB207-23	–	–	–	8.5	0.335	23.5	0.925	6	0.236	–	1/4-28UNF	0.42
		72	2.835	32	1.260	17	0.669	1.1	0.043	25.7	15.4	13.9	SB207-23RKP8	–	5	0.197	8.5	0.335	23.5	0.925	6	0.236	–	1/4-28UNF	0.51
		72	2.835	42.9	1.689	20	0.787	1.1	0.043	25.7	15.4	13.9	UC207-23	UC207-23L3	5.5	0.217	17.5	0.689	25.4	1.000	6.5	0.256	–	5/16-24UNF	0.45
		80	3.150	49.2	1.937	21	0.827	1.1	0.043	29.1	17.8	14.0	UCX07-23	UCX07-23L3	6	0.236	19	0.748	30.2	1.189	8	0.315	–	5/16-24UNF	0.72
–	1 1/2	80	3.150	34	1.339	18	0.709	1.1	0.043	29.1	17.8	14.0	SB208-24	–	–	–	9	0.354	25	0.984	8	0.315	–	5/16-24UNF	0.60
		80	3.150	34	1.339	18	0.709	1.1	0.043	29.1	17.8	14.0	SB208-24RKP8	–	5.2	0.205	9	0.354	25	0.984	8	0.315	–	5/16-24UNF	0.65
		80	3.150	49.2	1.937	21	0.827	1.1	0.043	29.1	17.8	14.0	UC208-24	UC208-24L3	6	0.236	19	0.748	30.2	1.189	8	0.315	–	5/16-24UNF	0.68
		85	3.346	49.2	1.937	22	0.866	1.1	0.043	34.1	21.3	14.0	UCX08-24	UCX08-24L3	6	0.236	19	0.748	30.2	1.189	8	0.315	–	5/16-24UNF	0.87
		90	3.543	52	2.047	28	1.102	1.5	0.059	40.7	24.0	13.2	UC308-24	UC308-24L3	8	0.315	19	0.748	33	1.299	10	0.394	M10×1.25	–	1.05
–	1 9/16	80	3.150	49.2	1.937	21	0.827	1.1	0.043	29.1	17.8	14.0	UC208-25	UC208-25L3	6	0.236	19	0.748	30.2	1.189	8	0.315	–	5/16-24UNF	0.60
40	–	80	3.150	34	1.339	18	0.709	1.1	0.043	29.1	17.8	14.0	SB208	–	–	–	9	0.354	25	0.984	8	0.315	M8×1	–	0.60
		80	3.150	34	1.339	18	0.709	1.1	0.043	29.1	17.8	14.0	SB208RKP8	–	5.2	0.205	9	0.354	25	0.984	8	0.315	M8×1	–	0.65
		80	3.150	49.2	1.937	21	0.827	1.1	0.043	29.1	17.8	14.0	UC208	UC208L3	6	0.236	19	0.748	30.2	1.189	8	0.315	M8×1	–	0.64
		85	3.346	49.2	1.937	22	0.866	1.1	0.043	34.1	21.3	14.0	UCX08	UCX08L3	6	0.236	19	0.748	30.2	1.189	8	0.315	M8×1	–	0.83
		90	3.543	52	2.047	28	1.102	1.5	0.059	40.7	24.0	13.2	UC308	UC308L3	8	0.315	19	0.748	33	1.299	10	0.394	M10×1.25	–	1.00
–	1 5/8	85	3.346	49.2	1.937	22	0.866	1.1	0.043	34.1	21.3	14.0	UC209-26	UC209-26L3	6	0.236	19	0.748	30.2	1.189	8	0.315	–	5/16-24UNF	0.78
–	1 11/16	85	3.346	49.2	1.937	22	0.866	1.1	0.043	34.1	21.3	14.0	UC209-27	UC209-27L3	6	0.236	19	0.748	30.2	1.189	8	0.315	–	5/16-24UNF	0.74
		90	3.543	51.6	2.031	24	0.945	1.1	0.043	35.1	23.3	14.4	UCX09-27	UCX09-27L3	6	0.236	19	0.748	32.6	1.283	9	0.354	–	3/8-24UNF	0.93
–	1 3/4	85	3.346	49.2	1.937	22	0.866	1.1	0.043	34.1	21.3	14.0	UC209-28	UC209-28L3	6	0.236	19	0.748	30.2	1.189	8	0.315	–	5/16-24UNF	0.70
		90	3.543	51.6	2.031	24	0.945	1.1	0.043	35.1	23.3	14.4	UCX09-28	UCX09-28L3	6	0.236	19	0.748	32.6	1.283	9	0.354	–	3/8-24UNF	0.97
		100	3.937	57	2.244	30	1.181	1.5	0.059	48.9	29.5	13.3	UC309-28	UC309-28L3	8.5	0.335	22	0.866	35	1.378	10	0.394	M10×1.25	–	1.35

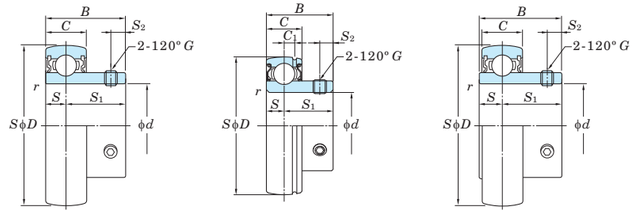
Remarks 1. SU type product is the clean series ball bearing for unit.
2. From UC201 to 205 are the double seal type products (L2).

UC, SB, SB-RKP8, SU
Cylindrical bore (with set screws)
d 45 ~ (75) mm

UC SB SB-RKP8 SU



UC UC-L3



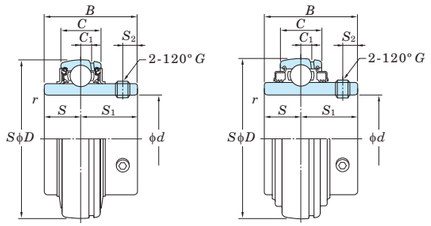
SB SB-RKP8 SU

Shaft Dia. mm	Shaft Dia. inch	Dimensions D mm	D inch	B mm	B inch	C mm	C inch	r (min.) mm	r (min.) inch	Basic Load Ratings kN C_r	Basic Load Ratings kN C_{0r}	Factor f_0	Bearing No. Standard	Bearing No. L3 Type	Dimensions C_1 mm	C_1 inch	S mm	S inch	S_1 mm	S_1 inch	S_2 mm	S_2 inch	Set Screw Brg. Bore G mm	G inch	Mass kg
45	–	85	3.346	49.2	1.937	22	0.866	1.1	0.043	34.1	21.3	14.0	UC209	UC209L3	6	0.236	19	0.748	30.2	1.189	8	0.315	M8×1	–	0.68
		90	3.543	51.6	2.031	24	0.945	1.1	0.043	35.1	23.3	14.4	UCX09	UCX09L3	6	0.236	19	0.748	32.6	1.283	9	0.354	M10×1.25	–	0.95
		100	3.937	57	2.244	30	1.181	1.5	0.059	48.9	29.5	13.3	UC309	UC309L3	8.5	0.335	22	0.866	35	1.378	10	0.394	M10×1.25	–	1.33
–	1 7/8	90	3.543	51.6	2.031	24	0.945	1.1	0.043	35.1	23.3	14.4	UC210-30	UC210-30L3	6	0.236	19	0.748	32.6	1.283	9	0.354	–	3/8-24UNF	0.87
–	1 15/16	90	3.543	51.6	2.031	24	0.945	1.1	0.043	35.1	23.3	14.4	UC210-31	UC210-31L3	6	0.236	19	0.748	32.6	1.283	9	0.354	–	3/8-24UNF	0.82
		100	3.937	55.6	2.189	25	0.984	1.1	0.043	43.4	29.4	14.4	UCX10-31	UCX10-31L3	7	0.276	22.2	0.874	33.4	1.315	9	0.354	–	3/8-24UNF	1.32
50	–	90	3.543	51.6	2.031	24	0.945	1.1	0.043	35.1	23.3	14.4	UC210	UC210L3	6	0.236	19	0.748	32.6	1.283	9	0.354	M10×1.25	–	0.80
		100	3.937	55.6	2.189	25	0.984	1.1	0.043	43.4	29.4	14.4	UCX10	UCX10L3	7	0.276	22.2	0.874	33.4	1.315	9	0.354	M10×1.25	–	1.29
		110	4.331	61	2.402	32	1.260	2	0.079	62.0	38.3	13.2	UC310	UC310L3	9	0.354	22	0.866	39	1.535	12	0.472	M12×1.5	–	1.69
–	2	90	3.543	51.6	2.031	24	0.945	1.1	0.043	35.1	23.3	14.4	UC210-32	UC210-32L3	6	0.236	19	0.748	32.6	1.283	9	0.354	–	3/8-24UNF	0.78
		100	3.937	55.6	2.189	25	0.984	1.1	0.043	43.4	29.4	14.4	UCX10-32	UCX10-32L3	7	0.276	22.2	0.874	33.4	1.315	9	0.354	–	3/8-24UNF	1.26
–	2	100	3.937	55.6	2.189	25	0.984	1.5	0.059	43.4	29.4	14.4	UC211-32	UC211-32L3	7	0.276	22.2	0.874	33.4	1.315	9	0.354	–	3/8-24UNF	1.26
		120	4.724	66	2.598	34	1.339	2	0.079	71.6	45.0	13.2	UC311-32	UC311-32L3	10	0.394	25	0.984	41	1.614	12	0.472	M12×1.5	–	2.08
–	2 1/8	100	3.937	55.6	2.189	25	0.984	1.5	0.059	43.4	29.4	14.4	UC211-34	UC211-34L3	7	0.276	22.2	0.874	33.4	1.315	9	0.354	–	3/8-24UNF	1.15
55	–	100	3.937	55.6	2.189	25	0.984	1.5	0.059	43.4	29.4	14.4	UC211	UC211L3	7	0.276	22.2	0.874	33.4	1.315	9	0.354	M10×1.25	–	1.11
		110	4.331	65.1	2.563	27	1.063	1.5	0.059	52.4	36.2	14.4	UCX11	UCX11L3	7.5	0.295	25.4	1.000	39.7	1.563	10.5	0.413	M10×1.25	–	1.80
		120	4.724	66	2.598	34	1.339	2	0.079	71.6	45.0	13.2	UC311	UC311L3	10	0.394	25	0.984	41	1.614	12	0.472	M12×1.5	–	1.90
–	2 3/16	100	3.937	55.6	2.189	25	0.984	1.5	0.059	43.4	29.4	14.4	UC211-35	UC211-35L3	7	0.276	22.2	0.874	33.4	1.315	9	0.354	–	3/8-24UNF	1.09
		110	4.331	65.1	2.563	27	1.063	1.5	0.059	52.4	36.2	14.4	UCX11-35	UCX11-35L3	7.5	0.295	25.4	1.000	39.7	1.563	10.5	0.413	–	3/8-24UNF	1.78
		120	4.724	66	2.598	34	1.339	2	0.079	71.6	45.0	13.2	UC311-35	UC311-35L3	10	0.394	25	0.984	41	1.614	12	0.472	M12×1.5	–	1.67
–	2 1/4	110	4.331	65.1	2.563	27	1.063	1.5	0.059	52.4	36.2	14.4	UCX11-36	UCX11-36L3	7.5	0.295	25.4	1.000	39.7	1.563	10.5	0.413	–	3/8-24UNF	1.7
–	2 1/4	110	4.331	65.1	2.563	27	1.063	1.5	0.059	52.4	36.2	14.4	UC212-36	UC212-36L3	7.5	0.295	25.4	1.000	39.7	1.563	10.5	0.413	–	3/8-24UNF	1.67
60	–	110	4.331	65.1	2.563	27	1.063	1.5	0.059	52.4	36.2	14.4	UC212	UC212L3	7.5	0.295	25.4	1.000	39.7	1.563	10.5	0.413	M10×1.25	–	1.54
		120	4.724	65.1	2.563	28	1.102	1.5	0.059	57.2	40.1	14.4	UCX12	UCX12L3	7.5	0.295	25.4	1.000	39.7	1.563	12	0.472	M12×1.5	–	2.05
		130	5.118	71	2.795	36	1.417	2.1	0.083	81.9	52.2	13.2	UC312	UC312L3	11.5	0.453	26	1.024	45	1.772	12	0.472	M12×1.5	–	2.60
–	2 3/8	110	4.331	65.1	2.563	27	1.063	1.5	0.059	52.4	36.2	14.4	UC212-38	UC212-38L3	7.5	0.295	25.4	1.000	39.7	1.563	10.5	0.413	–	3/8-24UNF	1.52
–	2 7/16	110	4.331	65.1	2.563	27	1.063	1.5	0.059	52.4	36.2	14.4	UC212-39	UC212-39L3	7.5	0.295	25.4	1.000	39.7	1.563	10.5	0.413	–	3/8-24UNF	1.45
		120	4.724	65.1	2.563	28	1.102	1.5	0.059	57.2	40.1	14.4	UCX12-39	UCX12-39L3	7.5	0.295	25.4	1.000	39.7	1.563	12	0.472	–	1/2-20UNF	1.95
		130	5.118	71	2.795	36	1.417	2.1	0.083	81.9	52.2	13.2	UC312-39	UC312-39L3	11.5	0.453	26	1.024	45	1.772	12	0.472	M12×1.5	–	2.50
–	2 1/2	120	4.724	65.1	2.563	28	1.102	1.5	0.059	57.2	40.1	14.4	UC213-40	UC213-40L3	7.5	0.295	25.4	1.000	39.7	1.563	12	0.472	–	1/2-20UNF	1.94
		125	4.921	74.6	2.937	30	1.181	1.5	0.059	62.2	44.1	14.5	UCX13-40	UCX13-40L3	9	0.354	30.2	1.189	44.4	1.748	12	0.472	–	1/2-20UNF	2.61
		140	5.512	75	2.953	38	1.496	2.1	0.083	92.7	59.9	13.2	UC313-40	UC313-40L3	12	0.472	30	1.181	45	1.772	12	0.472	M12×1.5	–	3.24
65	–	120	4.724	65.1	2.563	28	1.102	1.5	0.059	57.2	40.1	14.4	UC213	UC213L3	7.5	0.295	25.4	1.000	39.7	1.563	12	0.472	M12×1.5	–	1.86
		125	4.921	74.6	2.937	30	1.181	1.5	0.059	62.2	44.1	14.5	UCX13	UCX13L3	9	0.354	30.2	1.189	44.4	1.748	12	0.472	M12×1.5	–	2.52
		140	5.512	75	2.953	38	1.496	2.1	0.083	92.7	59.9	13.2	UC313	UC313L3	12	0.472	30	1.181	45	1.772	12	0.472	M12×1.5	–	3.16
–	2 3/4	125	4.921	74.6	2.937	30	1.181	1.5	0.059	62.2	44.1	14.5	UC214-44	UC214-44L3	9	0.354	30.2	1.189	44.4	1.748	12	0.472	–	1/2-20UNF	2.06
		130	5.118	77.8	3.063	32	1.260	1.5	0.059	67.4	48.3	14.5	UCX14-44	UCX14-44L3	9	0.354	33.3	1.311	44.5	1.752	12	0.472	–	1/2-20UNF	2.75
		150	5.906	78	3.071	40	1.575	2.1	0.083	104	68.2	13.2	UC314-44	UC314-44L3	12.5	0.492	33	1.299	45	1.772	12	0.472	M12×1.5	–	3.91
70	–	125	4.921	74.6	2.937	30	1.181	1.5	0.059	62.2	44.1	14.5	UC214	UC214L3	9	0.354	30.2	1.189	44.4	1.748	12	0.472	M12×1.5	–	2.05
		130	5.118	77.8	3.063	32	1.260	1.5	0.059	67.4	48.3	14.5	UCX14	UCX14L3	9	0.354	33.3	1.311	44.5	1.752	12	0.472	M12×1.5	–	2.74
		150	5.906	78	3.071	40	1.575	2.1	0.083	104	68.2	13.2	UC314	UC314L3	12.5	0.492	33	1.299	45	1.772	12	0.472	M12×1.5	–	3.90
–	2 15/16	130	5.118	77.8	3.063	32	1.260	1.5	0.059	67.4	48.3	14.5	UC215-47	UC215-47L3	9	0.354	33.3	1.311	44.5	1.752	12	0.472	–	1/2-20UNF	2.23
		140	5.512	82.6	3.252	33	1.299	1.5	0.059	72.7	53.0	14.6	UCX15-47	UCX15-47L3	9	0.354	33.3	1.311	49.3	1.941	14	0.551	–	1/2-20UNF	3.43
		160	6.299	82	3.228	42	1.654	2.1	0.083	113	77.2	13.2	UC315-47	UC315-47L3	14.5	0.571	32	1.260	50	1.969	14	0.551	M14×1.5	–	4.72
75	–	130	5.118	77.8	3.063	32	1.260	1.5	0.059	67.4	48.3	14.5	UC215	UC215L3	9	0.354	33.3	1.311	44.5	1.752	12	0.472	M12×1.5	–	2.21
		140	5.512	82.6	3.252	33	1.299	1.5	0.059	72.7	53.0	14.6	UCX15	UCX15L3	9	0.354	33.3	1.311	49.3	1.941	14	0.551	M12×1.5	–	3.41
		160	6.299	82	3.228	42	1.654	2.1	0.083	113	77.2	13.2	UC315	UC315L3	14.5	0.571	32	1.260	50	1.969	14	0.551	M14×1.5	–	4.70
–	3	130	5.118	77.8	3.063	32	1.260	1.5	0.059	67.4	48.3	14.5	UC215-48	UC215-48L3	9	0.354	33.3	1.311	44.5	1.752	12	0.472	–	1/2-20UNF	2.12
		140	5.512	82.6	3.252	33	1.299	1.5	0.059	72.7	53.0	14.6	UCX15-48	UCX15-48L3	9	0.354	33.3	1.311	49.3	1.941	14	0.551	–	1/2-20UNF	3.32
		160	6.299	82	3.228	42	1.654	2.1	0.083	113	77.2	13.2	UC315-48	UC315-48L3	14.5	0.571	32	1.260	50	1.969	14	0.551	M14×1.5	–	4.61

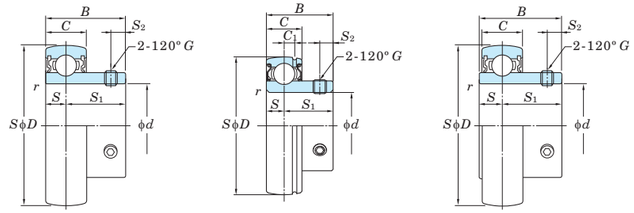
Remarks 1. SU type product is the clean series ball bearing for unit.
2. From UC201 to 205 are the double seal type products (L2).

UC, SB, SB-RKP8, SU
Cylindrical bore (with set screws)
d (75) ~ 140 mm

UC SB SB-RKP8 SU



UC UC-L3



SB SB-RKP8 SU

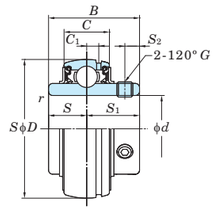
Shaft Dia. mm d	Shaft Dia. inch d	Dimensions D mm	D inch	B mm	B inch	C mm	C inch	r (min.) mm	r (min.) inch	Basic Load Ratings kN C_r	Basic Load Ratings kN C_{0r}	Factor f_0	Bearing No. Standard	Bearing No. L3 Type	Dimensions C_1 mm	C_1 inch	S mm	S inch	S_1 mm	S_1 inch	S_2 mm	S_2 inch	Set Screw Brg. Bore G mm	Set Screw Brg. Bore G inch	Mass kg
–	3 1/8	140	5.512	82.6	3.252	33	1.299	2	0.079	72.7	53.0	14.6	**UC216-50**	**UC216-50L3**	9	0.354	33.3	1.311	49.3	1.941	14	0.551	–	1/2-20UNF	2.84
80	–	140	5.512	82.6	3.252	33	1.299	2	0.079	72.7	53.0	14.6	**UC216**	**UC216L3**	9	0.354	33.3	1.311	49.3	1.941	14	0.551	M12×1.5	–	2.79
		150	5.906	85.7	3.374	35	1.378	2	0.079	84.0	61.9	14.5	**UCX16**	**UCX16L3**	10	0.394	34.1	1.343	51.6	2.031	14	0.551	M12×1.5	–	3.87
		170	6.693	86	3.386	44	1.732	2.1	0.083	123	86.7	13.3	**UC316**	**UC316L3**	15	0.591	34	1.339	52	2.047	14	0.551	M14×1.5	–	5.60
–	3 1/4	150	5.906	85.7	3.374	35	1.378	2	0.079	84.0	61.9	14.5	**UC217-52**	**UC217-52L3**	10	0.394	34.1	1.343	51.6	2.031	14	0.551	–	1/2-20UNF	3.66
85	–	150	5.906	85.7	3.374	35	1.378	2	0.079	84.0	61.9	14.5	**UC217**	**UC217L3**	10	0.394	34.1	1.343	51.6	2.031	14	0.551	M12×1.5	–	3.45
		160	6.299	96	3.780	38	1.496	2	0.079	96.1	71.5	14.5	**UCX17**	**UCX17L3**	11	0.433	39.7	1.563	56.3	2.217	15	0.591	M12×1.5	–	5.05
		180	7.087	96	3.780	46	1.811	3	0.118	133	96.8	13.3	**UC317**	**UC317L3**	15	0.591	40	1.575	56	2.205	16	0.630	M16×1.5	–	6.90
–	3 7/16	160	6.299	96	3.780	38	1.496	2	0.079	96.1	71.5	14.5	**UCX17-55**	**UCX17-55L3**	11	0.433	39.7	1.563	56.3	2.217	15	0.591	–	1/2-20UNF	4.80
–	3 1/2	160	6.299	96	3.780	38	1.496	2	0.079	96.1	71.5	14.5	**UC218-56**	**UC218-56L3**	11	0.433	39.7	1.563	56.3	2.217	15	0.591	–	1/2-20UNF	4.46
		190	7.480	96	3.780	48	1.890	3	0.118	143	107	13.3	**UC318-56**	**UC318-56L3**	15.5	0.610	40	1.575	56	2.205	16	0.630	M16×1.5	–	8.03
90	–	160	6.299	96	3.780	38	1.496	2	0.079	96.1	71.5	14.5	**UC218**	**UC218L3**	11	0.433	39.7	1.563	56.3	2.217	15	0.591	M12×1.5	–	4.35
		170	6.693	104	4.094	40	1.575	2	0.079	109	81.9	14.4	**UCX18**	–	11.5	0.453	42.9	1.689	61.1	2.406	16	0.630	M14×1.5	–	6.00
		190	7.480	96	3.780	48	1.890	3	0.118	143	107	13.3	**UC318**	**UC318L3**	15.5	0.610	40	1.575	56	2.205	16	0.630	M16×1.5	–	7.87
95	–	200	7.874	103	4.055	50	1.969	3	0.118	153	119	13.3	**UC319**	**UC319L3**	16.5	0.650	41	1.614	62	2.441	18	0.709	M16×1.5	–	8.91
100	–	190	7.480	117.5	4.626	43	1.693	2.1	0.083	133	105	14.4	**UCX20**	–	13	0.512	49.2	1.937	68.3	2.689	18	0.709	M16×1.5	–	8.56
		215	8.465	108	4.252	54	2.126	3	0.118	173	141	13.2	**UC320**	**UC320L3**	18	0.709	42	1.654	66	2.598	20	0.787	M18×1.5	–	11.2
–	3 15/16	190	7.480	117.5	4.626	43	1.693	2.1	0.083	133	105	14.4	**UCX20-63**	–	13	0.512	49.2	1.937	68.3	2.689	18	0.709	–	5/8-18UNF	8.56
		215	8.465	108	4.252	54	2.126	3	0.118	173	141	13.2	**UC320-63**	**UC320-63L3**	18	0.709	42	1.654	66	2.598	20	0.787	M18×1.5	–	11.2
–	4	190	7.480	117.5	4.626	43	1.693	2.1	0.083	133	105	14.4	**UCX20-64**	–	13	0.512	49.2	1.937	68.3	2.689	18	0.709	–	5/8-18UNF	8.33
		215	8.465	108	4.252	54	2.126	3	0.118	173	141	13.2	**UC320-64**	**UC320-64L3**	18	0.709	42	1.654	66	2.598	20	0.787	M18×1.5	–	11.0
105		225	8.858	112	4.409	56	2.205	3	0.118	184	153	13.2	**UC321**	–	19	0.748	44	1.732	68	2.677	20	0.787	M18×1.5	–	12.7
110		240	9.449	117	4.606	60	2.362	3	0.118	205	180	13.2	**UC322**	**UC322L3**	20	0.787	46	1.811	71	2.795	20	0.787	M18×1.5	–	15.1
120	–	260	10.236	126	4.961	64	2.520	3	0.118	207	185	13.5	**UC324**	**UC324L3**	21	0.827	51	2.008	75	2.953	20	0.787	M18×1.5	–	19.0
130		280	11.024	135	5.315	68	2.677	4	0.157	229	214	13.6	**UC326**	**UC326L3**	22	0.866	54	2.126	81	3.189	20	0.787	M20×1.5	–	23.6
140		300	11.811	145	5.709	72	2.835	4	0.157	253	246	13.6	**UC328**	**UC328L3**	23	0.906	59	2.323	86	3.386	20	0.787	M20×1.5	–	29.4

Remarks 1. SU type product is the clean series ball bearing for unit.
2. From UC201 to 205 are the double seal type products (L2).

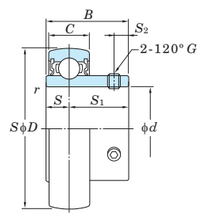
UC-S6, SU-S6 (Stainless steel series)
Cylindrical bore (with set screws)
d 10 ~ 65 mm

UC-S6

SU-S6



UC-S6



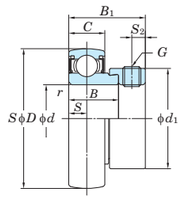
SU-S6

Shaft Dia. mm	Shaft Dia. inch	Dimensions d		D		B		C		r (min.)		Basic Load Ratings kN C_r	Basic Load Ratings kN C_{0r}	Factor f_0	Bearing No. Standard	C_1		S		S_1		S_2		Set Screw Brg. Bore G	Mass
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch					mm	inch	mm	inch	mm	inch	mm	inch	mm	kg
10	–	26	1.024	15	0.591	8	0.315	0.3	0.012	3.9	1.55	12.3	**SU000S6**	–	–	5	0.197	10	0.394	3	0.118	M3×0.35	0.024
12		28	1.102	15	0.591	8	0.315	0.3	0.012	4.3	1.9	13.2	**SU001S6**	–	–	5	0.197	10	0.394	3	0.118	M3×0.35	0.026
		40	1.575	27.4	1.079	13	0.512	0.6	0.024	8.15	3.85	13.2	**UC201XS6**	3.5	0.138	11.5	0.453	15.9	0.626	4	0.158	M5×0.5	0.10
	1/2	40	1.575	27.4	1.079	13	0.512	0.6	0.024	8.15	3.85	13.2	**UC201X-8S6**	3.5	0.138	11.5	0.453	15.9	0.626	4	0.158	M5×0.5	0.10
15		32	1.260	16.5	0.650	9	0.354	0.3	0.012	4.7	2.25	13.9	**SU002S6**	–	–	5.5	0.217	11	0.433	3.3	0.130	M4×0.5	0.038
		40	1.575	27.4	1.079	13	0.512	0.6	0.024	8.15	3.85	13.2	**UC202XS6**	3.5	0.138	11.5	0.453	15.9	0.626	4	0.158	M5×0.5	0.10
	5/8	40	1.575	27.4	1.079	13	0.512	0.6	0.024	8.15	3.85	13.2	**UC202X-10S6**	3.5	0.138	11.5	0.453	15.9	0.626	4	0.158	M5×0.5	0.10
17	–	35	1.378	17.5	0.689	10	0.394	0.3	0.012	5.1	2.6	14.4	**SU003S6**	–	–	6	0.236	11.5	0.453	3.3	0.130	M4×0.5	0.050
		40	1.575	27.4	1.079	13	0.512	0.6	0.024	8.15	3.85	13.2	**UC203XS6**	3.5	0.138	11.5	0.453	15.9	0.626	4	0.158	M5×0.5	0.10
20	3/4	47	1.850	31	1.220	16	0.630	1	0.039	10.9	5.35	13.2	**UC204-12S6**	4	0.157	12.7	0.500	18.3	0.720	5	0.197	M6×0.75	0.16
		42	1.654	21	0.827	12	0.472	0.6	0.024	7.9	4	13.9	**SU004S6**	–	–	7	0.276	14	0.551	4	0.157	M5×0.5	0.080
		47	1.850	31	1.220	16	0.630	1	0.039	10.9	5.35	13.2	**UC204S6**	4	0.157	12.7	0.500	18.3	0.720	5	0.197	M6×0.75	0.16
	7/8	52	2.047	34.1	1.343	17	0.669	1	0.039	11.9	6.3	13.9	**UC205-14S6**	4.5	0.177	14.3	0.563	19.8	0.780	5.5	0.217	M6×0.75	0.23
	15/16	52	2.047	34.1	1.343	17	0.669	1	0.039	11.9	6.3	13.9	**UC205-15S6**	4.5	0.177	14.3	0.563	19.8	0.780	5.5	0.217	M6×0.75	0.21
25		47	1.850	22	0.866	12	0.472	0.6	0.024	8.5	4.65	14.5	**SU005S6**	–	–	7	0.276	15	0.591	4.5	0.177	M5×0.5	0.10
		52	2.047	34.1	1.343	17	0.669	1	0.039	11.9	6.3	13.9	**UC205S6**	4.5	0.177	14.3	0.563	19.8	0.780	5.5	0.217	M6×0.75	0.20
	1	52	2.047	34.1	1.343	17	0.669	1	0.039	11.9	6.3	13.9	**UC205-16S6**	4.5	0.177	14.3	0.563	19.8	0.780	5.5	0.217	M6×0.75	0.20
	1 1/8	62	2.441	38.1	1.500	19	0.748	1	0.039	16.5	9.05	13.9	**UC206-18S6**	5	0.197	15.9	0.626	22.2	0.874	6	0.236	M6×0.75	0.34
		55	2.165	24.5	0.965	13	0.512	1	0.039	11.2	6.6	14.7	**SU006S6**	–	–	7.5	0.295	17	0.669	5.5	0.217	M5×0.5	0.15
30		62	2.441	38.1	1.500	19	0.748	1	0.039	16.5	9.05	13.9	**UC206S6**	5	0.197	15.9	0.626	22.2	0.874	6	0.236	M6×0.75	0.32
	1 3/16	62	2.441	38.1	1.500	19	0.748	1	0.039	16.5	9.05	13.9	**UC206-19S6**	5	0.197	15.9	0.626	22.2	0.874	6	0.236	M6×0.75	0.32
	1 1/4	62	2.441	38.1	1.500	19	0.748	1	0.039	16.5	9.05	13.9	**UC206-20S6**	5	0.197	15.9	0.626	22.2	0.874	6	0.236	M6×0.75	0.30
	1 1/4	72	2.835	42.9	1.689	20	0.787	1.1	0.043	21.8	12.3	13.9	**UC207-20S6**	5.5	0.217	17.5	0.689	25.4	1.000	6.5	0.256	M8×1	0.54
	1 5/16	72	2.835	42.9	1.689	20	0.787	1.1	0.043	21.8	12.3	13.9	**UC207-21S6**	5.5	0.217	17.5	0.689	25.4	1.000	6.5	0.256	M8×1	0.51
35	1 3/8	72	2.835	42.9	1.689	20	0.787	1.1	0.043	21.8	12.3	13.9	**UC207-22S6**	5.5	0.217	17.5	0.689	25.4	1.000	6.5	0.256	M8×1	0.48
		72	2.835	42.9	1.689	20	0.787	1.1	0.043	21.8	12.3	13.9	**UC207S6**	5.5	0.217	17.5	0.689	25.4	1.000	6.5	0.256	M8×1	0.48
	1 7/16	72	2.835	42.9	1.689	20	0.787	1.1	0.043	21.8	12.3	13.9	**UC207-23S6**	5.5	0.217	17.5	0.689	25.4	1.000	6.5	0.256	M8×1	0.45
	1 1/2	80	3.150	49.2	1.937	21	0.827	1.1	0.043	24.8	14.3	14.0	**UC208-24S6**	6	0.236	19	0.748	30.2	1.189	8	0.315	M8×1	0.68
40	1 9/16	80	3.150	49.2	1.937	21	0.827	1.1	0.043	24.8	14.3	14.0	**UC208-25S6**	6	0.236	19	0.748	30.2	1.189	8	0.315	M8×1	0.60
		80	3.150	49.2	1.937	21	0.827	1.1	0.043	24.8	14.3	14.0	**UC208S6**	6	0.236	19	0.748	30.2	1.189	8	0.315	M8×1	0.64
	1 5/8	85	3.346	49.2	1.937	22	0.866	1.1	0.043	27.8	16.2	14.0	**UC209-26S6**	6	0.236	19	0.748	30.2	1.189	8	0.315	M8×1	0.78
45	1 11/16	85	3.346	49.2	1.937	22	0.866	1.1	0.043	27.8	16.2	14.0	**UC209-27S6**	6	0.236	19	0.748	30.2	1.189	8	0.315	M8×1	0.74
	1 3/4	85	3.346	49.2	1.937	22	0.866	1.1	0.043	27.8	16.2	14.0	**UC209-28S6**	6	0.236	19	0.748	30.2	1.189	8	0.315	M8×1	0.70
		85	3.346	49.2	1.937	22	0.866	1.1	0.043	27.8	16.2	14.0	**UC209S6**	6	0.236	19	0.748	30.2	1.189	8	0.315	M8×1	0.68
	1 7/8	90	3.543	51.6	2.031	24	0.945	1.1	0.043	29.8	18.6	14.4	**UC210-30S6**	6	0.236	19	0.748	32.6	1.283	9	0.354	M8×1	0.87
50	1 15/16	90	3.543	51.6	2.031	24	0.945	1.1	0.043	29.8	18.6	14.4	**UC210-31S6**	6	0.236	19	0.748	32.6	1.283	9	0.354	M8×1	0.82
		90	3.543	51.6	2.031	24	0.945	1.1	0.043	29.8	18.6	14.4	**UC210S6**	6	0.236	19	0.748	32.6	1.283	9	0.354	M8×1	0.80
	2	90	3.543	51.6	2.031	24	0.945	1.1	0.043	29.8	18.6	14.4	**UC210-32S6**	6	0.236	19	0.748	32.6	1.283	9	0.354	M8×1	0.78
	2	100	3.937	55.6	2.189	25	0.984	1.5	0.059	36.8	23.5	14.4	**UC211-32S6**	7	0.276	22.2	0.874	33.4	1.315	9	0.354	M10×1.25	1.26
55	2 1/8	100	3.937	55.6	2.189	25	0.984	1.5	0.059	36.8	23.5	14.4	**UC211-34S6**	7	0.276	22.2	0.874	33.4	1.315	9	0.354	M10×1.25	1.15
		100	3.937	55.6	2.189	25	0.984	1.5	0.059	36.8	23.5	14.4	**UC211S6**	7	0.276	22.2	0.874	33.4	1.315	9	0.354	M10×1.25	1.11
	2 3/16	100	3.937	55.6	2.189	25	0.984	1.5	0.059	36.8	23.5	14.4	**UC211-35S6**	7	0.276	22.2	0.874	33.4	1.315	9	0.354	M10×1.25	1.09
	2 1/4	110	4.331	65.1	2.563	27	1.063	1.5	0.059	44.5	29	14.4	**UC212-36S6**	7.5	0.295	25.4	1.000	39.7	1.563	10.5	0.413	M10×1.25	1.67
60		110	4.331	65.1	2.563	27	1.063	1.5	0.059	44.5	29	14.4	**UC212S6**	7.5	0.295	25.4	1.000	39.7	1.563	10.5	0.413	M10×1.25	1.54
	2 3/8	110	4.331	65.1	2.563	27	1.063	1.5	0.059	44.5	29	14.4	**UC212-38S6**	7.5	0.295	25.4	1.000	39.7	1.563	10.5	0.413	M10×1.25	1.52
	2 7/16	110	4.331	65.1	2.563	27	1.063	1.5	0.059	44.5	29	14.4	**UC212-39S6**	7.5	0.295	25.4	1.000	39.7	1.563	10.5	0.413	M10×1.25	1.45
65	2 1/2	120	4.724	65.1	2.563	28	1.102	1.5	0.059	48.6	32.1	14.4	**UC213-40S6**	7.5	0.295	25.4	1.000	39.7	1.563	12	0.472	M12×1.5	1.93
		120	4.724	65.1	2.563	28	1.102	1.5	0.059	48.6	32.1	14.4	**UC213S6**	7.5	0.295	25.4	1.000	39.7	1.563	12	0.472	M12×1.5	1.86

Remark S6 series product is the stainless steel series ball bearing for unit.

SA, SA-F, NA
Cylindrical bore
(with eccentric locking collar)
d 12 ~ (30) mm

SA SA-F NA



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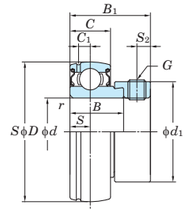
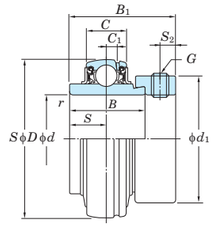


SA-F

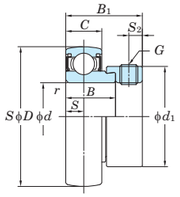


NA

Shaft Dia mm	Shaft Dia inch	Dimensions										Basic Load Ratings kN		Factor	Bearing No.		Dimensions								Set Screw Brg.Bore		Mass
d		D		B		B_1		C		r (min.)		C_r	C_{0r}	f_0			C_1		S		S_2		d_1				
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch						mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	kg
		40	1.575	19	0.784	28.5	1.122	12	0.472	0.6	0.024	9.55	4.80	13.2	**SA201**		–	–	6	0.236	4.8	0.189	28.6	1.126	M6×0.75	–	0.13
12	–	40	1.575	19.1	0.752	28.6	1.126	13	0.512	0.6	0.024	9.55	4.80	13.2	**SA201F**		3.4	0.134	6.5	0.256	4.8	0.189	28.6	1.126	M6×0.75	–	0.13
		47	1.850	34.2	1.346	43.7	1.720	16	0.630	1	0.039	12.8	6.65	13.2	**NA201**		4	0.157	17.1	0.673	4.8	0.189	33.3	1.311	M6×0.75	–	0.29
		40	1.575	19	0.784	28.5	1.122	12	0.472	0.6	0.024	9.55	4.80	13.2	**SA201-8**		–	–	6	0.236	4.8	0.189	28.6	1.126	–	1/4-28UNF	0.13
–	1/2	40	1.575	19.1	0.752	28.6	1.126	13	0.512	0.6	0.024	9.55	4.80	13.2	**SA201-8F**		3.4	0.134	6.5	0.256	4.8	0.189	28.6	1.126	–	1/4-28UNF	0.13
		47	1.850	34.2	1.346	43.7	1.720	16	0.630	1	0.039	12.8	6.65	13.2	**NA201-8**		4	0.157	17.1	0.673	4.8	0.189	33.3	1.311	–	1/4-28UNF	0.29
		40	1.575	19	0.784	28.5	1.122	12	0.472	0.6	0.024	9.55	4.80	13.2	**SA202**		–	–	6	0.236	4.8	0.189	28.6	1.126	M6×0.75	–	0.13
15	–	40	1.575	19.1	0.752	28.6	1.126	13	0.512	0.6	0.024	9.55	4.80	13.2	**SA202F**		3.4	0.134	6.5	0.256	4.8	0.189	28.6	1.126	M6×0.75	–	0.13
		47	1.850	34.2	1.346	43.7	1.720	16	0.630	1	0.039	12.8	6.65	13.2	**NA202**		4	0.157	17.1	0.673	4.8	0.189	33.3	1.311	M6×0.75	–	0.27
		40	1.575	19	0.784	28.5	1.122	12	0.472	0.6	0.024	9.55	4.80	13.2	**SA202-10**		–	–	6	0.236	4.8	0.189	28.6	1.126	–	1/4-28UNF	0.13
–	5/8	47	1.850	34.2	1.346	43.7	1.720	16	0.630	1	0.039	12.8	6.65	13.2	**NA202-10**		4	0.157	17.1	0.673	4.8	0.189	33.3	1.311	–	1/4-28UNF	0.26
		40	1.575	19	0.784	28.5	1.122	12	0.472	0.6	0.024	9.55	4.80	13.2	**SA203**		–	–	6	0.236	4.8	0.189	28.6	1.126	M6×0.75	–	0.13
17	–	40	1.575	19.1	0.752	28.6	1.126	13	0.512	0.6	0.024	9.55	4.80	13.2	**SA203F**		3.4	0.134	6.5	0.256	4.8	0.189	28.6	1.126	M6×0.75	–	0.13
		47	1.850	34.2	1.346	43.7	1.720	16	0.630	1	0.039	12.8	6.65	13.2	**NA203**		4	0.157	17.1	0.673	4.8	0.189	33.3	1.311	M6×0.75	–	0.25
		47	1.850	20	0.787	29.5	1.161	14	0.551	1	0.039	12.8	6.65	13.2	**SA204-12**		–	–	7	0.276	4.8	0.189	33.3	1.311	–	1/4-28UNF	0.15
–	3/4	47	1.850	21.5	0.846	31	1.220	15	0.591	1	0.039	12.8	6.65	13.2	**SA204-12F**		3.7	0.146	7.5	0.295	4.8	0.189	33.3	1.311	–	1/4-28UNF	0.19
		47	1.850	34.2	1.346	43.7	1.720	16	0.630	1	0.039	12.8	6.65	13.2	**NA204-12**		4	0.157	17.1	0.673	4.8	0.189	33.3	1.311	–	1/4-28UNF	0.23
		47	1.850	20	0.787	29.5	1.161	14	0.551	1	0.039	12.8	6.65	13.2	**SA204**		–	–	7	0.276	4.8	0.189	33.3	1.311	M6×0.75	–	0.15
20	–	47	1.850	21.5	0.846	31	1.220	15	0.591	1	0.039	12.8	6.65	13.2	**SA204F**		3.7	0.146	7.5	0.295	4.8	0.189	33.3	1.311	M6×0.75	–	0.19
		47	1.850	34.2	1.346	43.7	1.720	16	0.630	1	0.039	12.8	6.65	13.2	**NA204**		4	0.157	17.1	0.673	4.8	0.189	33.3	1.311	M6×0.75	–	0.22
		52	2.047	21	0.827	30.5	1.201	15	0.591	1	0.039	14.0	7.85	13.9	**SA205-14**		–	–	7.5	0.295	4.8	0.189	38.1	1.500	–	1/4-28UNF	0.22
–	7/8	52	2.047	34.9	1.374	44.4	1.748	17	0.669	1	0.039	14.0	7.85	13.9	**NA205-14**		4.5	0.177	17.5	0.689	4.8	0.189	38.1	1.500	–	1/4-28UNF	0.27
		52	2.047	21	0.827	30.5	1.201	15	0.591	1	0.039	14.0	7.85	13.9	**SA205-15**		–	–	7.5	0.295	4.8	0.189	38.1	1.500	–	1/4-28UNF	0.22
–	15/16	52	2.047	21.5	0.846	31	1.220	15	0.591	1	0.039	14.0	7.85	13.9	**SA205-15F**		3.7	0.146	7.5	0.295	4.8	0.189	38.1	1.500	–	1/4-28UNF	0.23
		52	2.047	34.9	1.374	44.4	1.748	17	0.669	1	0.039	14.0	7.85	13.9	**NA205-15**		4.5	0.177	17.5	0.689	4.8	0.189	38.1	1.500	–	1/4-28UNF	0.29
		52	2.047	21	0.827	30.5	1.201	15	0.591	1	0.039	14.0	7.85	13.9	**SA205**		–	–	7.5	0.295	4.8	0.189	38.1	1.500	M6×0.75	–	0.22
25	–	52	2.047	21.5	0.846	31	1.220	15	0.591	1	0.039	14.0	7.85	13.9	**SA205F**		3.7	0.146	7.5	0.295	4.8	0.189	38.1	1.500	M6×0.75	–	0.23
		52	2.047	34.9	1.374	44.4	1.748	17	0.669	1	0.039	14.0	7.85	13.9	**NA205**		4.5	0.177	17.5	0.689	4.8	0.189	38.1	1.500	M6×0.75	–	0.25
		52	2.047	21	0.827	30.5	1.201	15	0.591	1	0.039	14.0	7.85	13.9	**SA205-16**		–	–	7.5	0.295	4.8	0.189	38.1	1.500	–	1/4-28UNF	0.22
–	1	52	2.047	21.5	0.846	31	1.220	15	0.591	1	0.039	14.0	7.85	13.9	**SA205-16F**		3.7	0.146	7.5	0.295	4.8	0.189	38.1	1.500	–	1/4-28UNF	0.23
		52	2.047	34.9	1.374	44.4	1.748	17	0.669	1	0.039	14.0	7.85	13.9	**NA205-16**		4.5	0.177	17.5	0.689	4.8	0.189	38.1	1.500	–	1/4-28UNF	0.25
		62	2.441	22	0.866	33.9	1.335	16	0.630	1	0.039	19.5	11.3	13.9	**SA206-18**		–	–	8	0.315	6	0.236	44.5	1.752	–	5/16-24UNF	0.3
–	1 1/8	62	2.441	23.8	0.937	35.7	1.406	18	0.709	1	0.039	19.5	11.3	13.9	**SA206-18F**		4.7	0.185	9	0.354	6	0.236	44.5	1.752	–	5/16-24UNF	0.34
		62	2.441	36.5	1.437	48.4	1.906	19	0.748	1	0.039	19.5	11.3	13.9	**NA206-18**		5	0.197	18.3	0.720	6	0.236	44.5	1.752	–	5/16-24UNF	0.43
		62	2.441	22	0.866	33.9	1.335	16	0.630	1	0.039	19.5	11.3	13.9	**SA206**		–	–	8	0.315	6	0.236	44.5	1.752	M8×1	–	0.3
30	–	62	2.441	23.8	0.937	35.7	1.406	18	0.709	1	0.039	19.5	11.3	13.9	**SA206F**		4.7	0.185	9	0.354	6	0.236	44.5	1.752	M8×1	–	0.34
		62	2.441	36.5	1.437	48.4	1.906	19	0.748	1	0.039	19.5	11.3	13.9	**NA206**		5	0.197	18.3	0.720	6	0.236	44.5	1.752	M8×1	–	0.41
		62	2.441	22	0.866	33.9	1.335	16	0.630	1	0.039	19.5	11.3	13.9	**SA206-19**		–	–	8	0.315	6	0.236	44.5	1.752	–	5/16-24UNF	0.3
–	1 3/16	62	2.441	23.8	0.937	35.7	1.406	18	0.709	1	0.039	19.5	11.3	13.9	**SA206-19F**		4.7	0.185	9	0.354	6	0.236	44.5	1.752	–	5/16-24UNF	0.34
		62	2.441	36.5	1.437	48.4	1.906	19	0.748	1	0.039	19.5	11.3	13.9	**NA206-19**		5	0.197	18.3	0.720	6	0.236	44.5	1.752	–	5/16-24UNF	0.41
		72	2.835	36.5	1.437	50.5	1.988	24	0.945	1.1	0.043	26.7	15.0	13.3	**NA306-19**		6.5	0.256	17.5	0.689	6.8	0.268	49.2	1.937	–	5/16-24UNF	0.66
		62	2.441	22	0.866	33.9	1.335	16	0.630	1	0.039	19.5	11.3	13.9	**SA206-20**		–	–	8	0.315	6	0.236	44.5	1.752	–	5/16-24UNF	0.3
–	1 1/4	62	2.441	23.8	0.937	35.7	1.406	18	0.709	1	0.039	19.5	11.3	13.9	**SA206-20F**		4.7	0.185	9	0.354	6	0.236	44.5	1.752	–	5/16-24UNF	0.34
		62	2.441	36.5	1.437	48.4	1.906	19	0.748	1	0.039	19.5	11.3	13.9	**NA206-20**		5	0.197	18.3	0.720	6	0.236	44.5	1.752	–	5/16-24UNF	0.38
		72	2.835	23	0.906	36.5	1.437	17	0.669	1.1	0.043	25.7	15.4	13.9	**SA207-20**		–	–	8.5	0.335	6.8	0.268	55.6	2.189	–	5/16-24UNF	0.5
–	1 1/4	72	2.835	25.4	1.000	38.9	1.531	19	0.748	1.1	0.043	25.7	15.4	13.9	**SA207-20F**		5.5	0.217	9.5	0.335	6.8	0.268	55.6	2.189	–	5/16-24UNF	0.57
		72	2.835	37.6	1.480	51.1	2.012	20	0.787	1.1	0.043	25.7	15.4	13.9	**NA207-20**		5.5	0.217	18.8	0.740	6.8	0.268	55.6	2.189	–	5/16-24UNF	0.68
		72	2.835	23	0.906	36.5	1.437	17	0.669	1.1	0.043	25.7	15.4	13.9	**SA207-21**		–	–	8.5	0.335	6.8	0.268	55.6	2.189	–	5/16-24UNF	0.5
–	1 5/16	72	2.835	25.4	1.000	38.9	1.531	19	0.748	1.1	0.043	25.7	15.4	13.9	**SA207-21F**		5.5	0.217	9.5	0.335	6.8	0.268	55.6	2.189	–	5/16-24UNF	0.57
		72	2.835	37.6	1.480	51.1	2.012	20	0.787	1.1	0.043	25.7	15.4	13.9	**NA207-21**		5.5	0.217	18.8	0.740	6.8	0.268	55.6	2.189	–	5/16-24UNF	0.65

SA, SA-F, NA
Cylindrical bore
(with eccentric locking collar)
d (30) ~ 60 mm

SA SA-F NA



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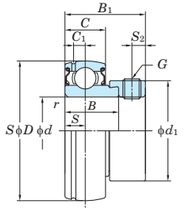

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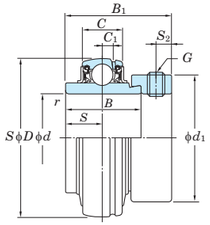
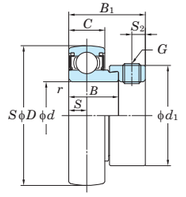


NA

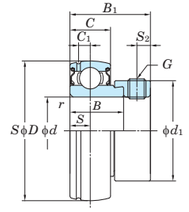
Shaft Dia mm d	Shaft Dia inch d	Dimensions D mm	D inch	B mm	B inch	B_1 mm	B_1 inch	C mm	C inch	r (min.) mm	r (min.) inch	Basic Load Ratings kN C_r	Basic Load Ratings kN C_{0r}	Factor f_0	Bearing No.	Dimensions C_1 mm	C_1 inch	S mm	S inch	S_2 mm	S_2 inch	d_1 mm	d_1 inch	Set Screw Brg.Bore mm	Set Screw Brg.Bore inch	Mass kg
–	1 3/8	72	2.835	23	0.906	36.5	1.437	17	0.669	1.1	0.043	25.7	15.4	13.9	**SA207-22**	–	–	8.5	0.335	6.8	0.268	55.6	2.189	–	5/16-24UNF	0.5
		72	2.835	25.4	1.000	38.9	1.531	19	0.748	1.1	0.043	25.7	15.4	13.9	**SA207-22F**	5.5	0.217	9.5	0.335	6.8	0.268	55.6	2.189	–	5/16-24UNF	0.57
		72	2.835	37.6	1.480	51.1	2.012	20	0.787	1.1	0.043	25.7	15.4	13.9	**NA207-22**	5.5	0.217	18.8	0.740	6.8	0.268	55.6	2.189	–	5/16-24UNF	0.61
35	–	72	2.835	23	0.906	36.5	1.437	17	0.669	1.1	0.043	25.7	15.4	13.9	**SA207**	–	–	8.5	0.335	6.8	0.268	55.6	2.189	M8×1	–	0.5
		72	2.835	25.4	1.000	38.9	1.531	19	0.748	1.1	0.043	25.7	15.4	13.9	**SA207F**	5.5	0.217	9.5	0.335	6.8	0.268	55.6	2.189	M8×1	–	0.57
		72	2.835	37.6	1.480	51.1	2.012	20	0.787	1.1	0.043	25.7	15.4	13.9	**NA207**	5.5	0.217	18.8	0.740	6.8	0.268	55.6	2.189	M8×1	–	0.61
–	1 7/16	72	2.835	23	0.906	36.5	1.437	17	0.669	1.1	0.043	25.7	15.4	13.9	**SA207-23**	–	–	8.5	0.335	6.8	0.268	55.6	2.189	–	5/16-24UNF	0.5
		72	2.835	25.4	1.000	38.9	1.531	19	0.748	1.1	0.043	25.7	15.4	13.9	**SA207-23F**	5.5	0.217	9.5	0.335	6.8	0.268	55.6	2.189	–	5/16-24UNF	0.57
		72	2.835	37.6	1.480	51.1	2.012	20	0.787	1.1	0.043	25.7	15.4	13.9	**NA207-23**	5.5	0.217	18.8	0.740	6.8	0.268	55.6	2.189	–	5/16-24UNF	0.58
		80	3.150	38.1	1.500	52.1	2.051	26	1.024	1.5	0.059	33.4	19.3	13.2	**NA307-23**	7.5	0.295	18.3	0.720	6.8	0.268	55.6	2.189	–	5/16-24UNF	0.81
–	1 1/2	80	3.150	27	1.063	40.5	1.595	18	0.709	1.1	0.043	29.1	17.8	14.0	**SA208-24**	–	–	9	0.354	6.8	0.268	60.3	2.374	–	5/16-24UNF	0.67
		80	3.150	30.2	1.189	43.7	1.720	22	0.866	1.1	0.043	29.1	17.8	14.0	**SA208-24F**	6.2	0.244	11	0.433	6.8	0.268	60.3	2.374	–	5/16-24UNF	0.75
		80	3.150	42.8	1.685	56.3	2.217	21	0.827	1.1	0.043	29.1	17.8	14.0	**NA208-24**	6	0.236	21.4	0.843	6.8	0.268	60.3	2.374	–	5/16-24UNF	0.83
		90	3.543	41.3	1.626	57.6	2.268	28	1.102	1.5	0.059	40.7	24.0	13.2	**NA308-24**	8	0.315	19.6	0.772	8	0.315	63.5	2.500	–	3/8-24UNF	1.19
–	1 9/16	80	3.150	27	1.063	40.5	1.595	18	0.709	1.1	0.043	29.1	17.8	14.0	**SA208-25**	–	–	9	0.354	6.8	0.268	60.3	2.374	–	5/16-24UNF	0.67
		80	3.150	30.2	1.189	43.7	1.720	22	0.866	1.1	0.043	29.1	17.8	14.0	**SA208-25F**	6.2	0.244	11	0.433	6.8	0.268	60.3	2.374	–	5/16-24UNF	0.75
		80	3.150	42.8	1.685	56.3	2.217	21	0.827	1.1	0.043	29.1	17.8	14.0	**NA208-25**	6	0.236	21.4	0.843	6.8	0.268	60.3	2.374	–	5/16-24UNF	0.79
40	–	80	3.150	27	1.063	40.5	1.595	18	0.709	1.1	0.043	29.1	17.8	14.0	**SA208**	–	–	9	0.354	6.8	0.268	60.3	2.374	M8×1	–	0.67
		80	3.150	30.2	1.189	43.7	1.720	22	0.866	1.1	0.043	29.1	17.8	14.0	**SA208F**	6.2	0.244	11	0.433	6.8	0.268	60.3	2.374	M8×1	–	0.75
		80	3.150	42.8	1.685	56.3	2.217	21	0.827	1.1	0.043	29.1	17.8	14.0	**NA208**	6	0.236	21.4	0.843	6.8	0.268	60.3	2.374	M8×1	–	0.78
–	1 5/8	85	3.346	30.2	1.189	43.7	1.720	22	0.866	1.1	0.043	34.1	21.3	14.0	**SA209-26F**	6	0.236	11	0.433	6.8	0.268	63.5	2.500	–	5/16-24UNF	0.82
		85	3.346	42.8	1.685	56.3	2.217	22	0.866	1.1	0.043	34.1	21.3	14.0	**NA209-26**	6	0.236	21.4	0.843	6.8	0.268	63.5	2.500	–	5/16-24UNF	0.96
–	1 11/16	85	3.346	30.2	1.189	43.7	1.720	22	0.866	1.1	0.043	34.1	21.3	14.0	**SA209-27F**	6	0.236	11	0.433	6.8	0.268	63.5	2.500	–	5/16-24UNF	0.82
		85	3.346	42.8	1.685	56.3	2.217	22	0.866	1.1	0.043	34.1	21.3	14.0	**NA209-27**	6	0.236	21.4	0.843	6.8	0.268	63.5	2.500	–	5/16-24UNF	0.91
		100	3.937	42.9	1.689	58.7	2.311	30	1.181	1.5	0.059	48.9	29.5	13.3	**NA309-27**	8.5	0.335	19.8	0.780	8	0.315	69.8	2.748	–	3/8-24UNF	1.47
–	1 3/4	85	3.346	30.2	1.189	43.7	1.720	22	0.866	1.1	0.043	34.1	21.3	14.0	**SA209-28F**	6	0.236	11	0.433	6.8	0.268	63.5	2.500	–	5/16-24UNF	0.82
		85	3.346	42.8	1.685	56.3	2.217	22	0.866	1.1	0.043	34.1	21.3	14.0	**NA209-28**	6	0.236	21.4	0.843	6.8	0.268	63.5	2.500	–	5/16-24UNF	0.87
45	–	85	3.346	30.2	1.189	43.7	1.720	22	0.866	1.1	0.043	34.1	21.3	14.0	**SA209F**	6	0.236	11	0.433	6.8	0.268	63.5	2.500	M8×1	–	0.82
		85	3.346	42.8	1.685	56.3	2.217	22	0.866	1.1	0.043	34.1	21.3	14.0	**NA209**	6	0.236	21.4	0.843	6.8	0.268	63.5	2.500	M8×1	–	0.85
–	1 7/8	90	3.543	30.2	1.189	43.7	1.720	22	0.866	1.1	0.043	35.1	23.3	14.4	**SA210-30F**	6.6	0.260	11	0.433	6.8	0.268	69.9	2.752	–	5/16-24UNF	0.85
		90	3.543	49.2	1.937	62.7	2.469	24	0.945	1.1	0.043	35.1	23.3	14.4	**NA210-30**	6	0.236	24.6	0.969	6.8	0.268	69.9	2.752	–	5/16-24UNF	1.08
–	1 15/16	90	3.543	30.2	1.189	43.7	1.720	22	0.866	1.1	0.043	35.1	23.3	14.4	**SA210-31F**	6.6	0.260	11	0.433	6.8	0.268	69.9	2.752	–	5/16-24UNF	0.85
		90	3.543	49.2	1.937	62.7	2.469	24	0.945	1.1	0.043	35.1	23.3	14.4	**NA210-31**	6	0.236	24.6	0.969	6.8	0.268	69.9	2.752	–	5/16-24UNF	1.04
		110	4.331	49.2	1.937	66.6	2.622	32	1.260	2	0.079	62.0	38.3	13.2	**NA310-31**	9	0.354	24.6	0.969	8.7	0.343	76.2	3.000	–	3/8-24UNF	1.95
50	–	90	3.543	30.2	1.189	43.7	1.720	22	0.866	1.1	0.043	35.1	23.3	14.4	**SA210F**	6.6	0.260	11	0.433	6.8	0.268	69.9	2.752	M8×1	–	0.85
		90	3.543	49.2	1.937	62.7	2.469	24	0.945	1.1	0.043	35.1	23.3	14.4	**NA210**	6	0.236	24.6	0.969	6.8	0.268	69.9	2.752	M8×1	–	1.01
–	2	90	3.543	49.2	1.937	62.7	2.469	24	0.945	1.1	0.043	35.1	23.3	14.4	**NA210-32**	6	0.236	24.6	0.969	6.8	0.268	69.9	2.752	–	5/16-24UNF	0.99
		100	3.937	32.4	1.276	48.3	1.902	24	0.945	1.5	0.059	43.4	29.4	14.4	**SA211-32F**	7	0.276	12	0.472	8	0.315	76.2	3.000	–	3/8-24UNF	1.2
		100	3.937	55.5	2.185	71.4	2.811	25	0.984	1.5	0.059	43.4	29.4	14.4	**NA211-32**	7	0.276	27.8	1.094	8	0.315	76.2	3.000	–	3/8-24UNF	1.58
–	2 1/8	100	3.937	32.4	1.276	48.3	1.902	24	0.945	1.5	0.059	43.4	29.4	14.4	**SA211-34F**	7	0.276	12	0.472	8	0.315	76.2	3.000	–	3/8-24UNF	1.2
		100	3.937	55.5	2.185	71.4	2.811	25	0.984	1.5	0.059	43.4	29.4	14.4	**NA211-34**	7	0.276	27.8	1.094	8	0.315	76.2	3.000	–	3/8-24UNF	1.49
55	–	100	3.937	32.4	1.276	48.3	1.902	24	0.945	1.5	0.059	43.4	29.4	14.4	**SA211F**	7	0.276	12	0.472	8	0.315	76.2	3.000	M10×1.25	–	1.2
		100	3.937	55.5	2.185	71.4	2.811	25	0.984	1.5	0.059	43.4	29.4	14.4	**NA211**	7	0.276	27.8	1.094	8	0.315	76.2	3.000	M10×1.25	–	1.39
–	2 3/16	100	3.937	32.4	1.276	48.3	1.902	24	0.945	1.5	0.059	43.4	29.4	14.4	**SA211-35F**	7	0.276	12	0.472	8	0.315	76.2	3.000	–	3/8-24UNF	1.2
		100	3.937	55.5	2.185	71.4	2.811	25	0.984	1.5	0.059	43.4	29.4	14.4	**NA211-35**	7	0.276	27.8	1.094	8	0.315	76.2	3.000	–	3/8-24UNF	1.36
		120	4.724	55.6	2.189	73	2.874	34	1.339	2	0.079	71.6	45.0	13.2	**NA311-35**	10	0.394	27.8	1.094	8.7	0.343	82.5	3.248	–	3/8-24UNF	2.2
60	2 1/4	110	4.331	61.9	2.437	77.8	3.063	27	1.063	1.5	0.059	52.4	36.2	14.4	**NA212-36**	7.5	0.295	31	1.220	8	0.315	84.2	3.315	–	3/8-24UNF	2.03
		110	4.331	61.9	2.437	77.8	3.063	27	1.063	1.5	0.059	52.4	36.2	14.4	**NA212**	7.5	0.295	31	1.220	8	0.315	84.2	3.315	M10×1.25	–	1.87
	2 7/16	130	5.118	61.9	2.437	79.3	3.122	36	1.417	2.1	0.083	81.9	52.2	13.2	**NA312-39**	11.5	0.453	31	1.220	8.7	0.343	88.9	3.500	–	3/8-24UNF	3

SA, SA-F, NA
Cylindrical bore
(with eccentric locking collar)
d 65 ~ 75 mm

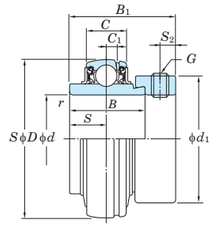
SA SA-F NA



SA



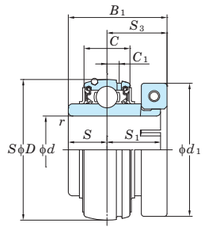
SA-F



NA

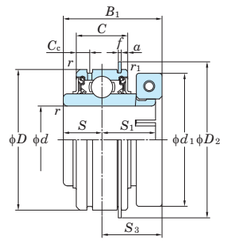
Shaft Dia mm	Shaft Dia inch	Dimensions										Basic Load Ratings kN		Factor	Bearing No.	Dimensions								Set Screw Brg.Bore		Mass
d		D		B		B_1		C		r (min.)		C_r	C_{0r}	f_0		C_1		S		S_2		d_1				
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch					mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	kg
65	2 1/2	120	4.724	68.2	2.685	85.7	3.374	28	1.102	1.5	0.059	57.2	40.1	14.4	NA213-40	7.5	0.295	34.1	1.343	8.5	0.335	92	3.622	–	3/8-24UNF	2.51
		120	4.724	68.2	2.685	85.7	3.374	28	1.102	1.5	0.059	57.2	40.1	14.4	NA213	7.5	0.295	34.1	1.343	8.5	0.335	92	3.622	M10×1.25	–	2.45
70	2 11/16	150	5.906	68.3	2.689	92.1	3.626	40	1.575	2.1	0.083	104	68.2	13.2	NA314-43	12.5	0.492	34.1	1.343	11.9	0.469	101.6	4.000	–	1/2-20UNF	4.7
	2 3/4	125	4.921	68.2	2.685	85.7	3.374	30	1.181	1.5	0.059	62.2	44.1	14.5	NA214-44	9	0.354	34.1	1.343	8.5	0.335	97	3.819	–	3/8-24UNF	2.94
		125	4.921	68.2	2.685	85.7	3.374	30	1.181	1.5	0.059	62.2	44.1	14.5	NA214	9	0.354	34.1	1.343	8.5	0.335	97	3.819	M10×1.25	–	2.92
75	2 15/16	160	6.299	74.6	2.937	100	3.937	42	1.654	2.1	0.083	113	77.2	13.2	NA315-47	14.5	0.571	37.3	1.469	12.7	0.500	112.7	4.437	–	5/8-18UNF	5.8
		130	5.118	74.6	2.937	92.1	3.626	32	1.260	1.5	0.059	67.4	48.3	14.5	NA215	9	0.354	37.3	1.469	8.5	0.335	102	4.016	M10×1.25	–	2.74
	3	130	5.118	74.6	2.937	92.1	3.626	32	1.260	1.5	0.059	67.4	48.3	14.5	NA215-48	9	0.354	37.3	1.469	8.5	0.335	102	4.016	–	3/8-24UNF	2.72

NC2
Cylindrical bore
(with concentric locking collar)
d 20 ~ 60 mm



Shaft Dia. d mm	Shaft Dia. d inch	Dimensions D mm	D inch	B_1 mm	B_1 inch	C mm	C inch	r mm	r inch	Basic Load Ratings kN C_r	Basic Load Ratings kN C_{0r}	Factor f_0	Bearing No.	Collar No.	C_1 mm	C_1 inch	S mm	S inch	S_1 mm	S_1 inch	S_3 mm	S_3 inch	d_1 mm	d_1 inch	Cap Screw inch	Cap Screw mm	Mass kg
20	3/4	47	1.850	32.5	1.280	16	0.630	1	0.039	12.8	6.65	13.2	**NC204-12**	UCL204B	4	0.157	12.7	0.500	18.3	0.720	19.8	0.780	44.5	1.752	No.8-32UNC		0.30
													NC204	UCL204BM												M4×0.7	
25	7/8	52	2.047	36.5	1.437	17	0.669	1	0.039	14.0	7.85	13.9	**NC205-14**	UCL205A	4.5	0.177	14.3	0.563	19.8	0.780	22.2	0.874	49.2	1.937	No.8-32UNC		0.40
	15/16												**NC205-15**	UCL205A											No.8-32UNC		
													NC205	UCL205AM												M4×0.7	
	1												**NC205-16**	UCL205A											No.8-32UNC		
30	1 1/8	62	2.441	40.1	1.579	19	0.748	1	0.039	19.5	11.3	13.9	**NC206-18**	UCL206A	5	0.197	15.9	0.626	22.2	0.874	24.2	0.953	55.6	2.189	No.8-32UNC		0.50
													NC206	UCL206AM												M4×0.7	
	1 3/16												**NC206-19**	UCL206A											No.8-32UNC		
	1 1/4												**NC206-20**	UCL206A											No.8-32UNC		
35	1 1/4	72	2.835	44.5	1.752	20	0.787	1.1	0.043	25.7	15.4	13.9	**NC207-20**	UCL207A	5.5	0.217	17.5	0.689	25.4	1.000	27	1.063	61.9	2.437	No.10-24UNC		0.80
	1 3/8	72	2.835	44.5	1.752	20	0.787	1.1	0.043	25.7	15.4	13.9	**NC207-22**	UCL207B	5.5	0.217	17.5	0.689	25.4	1.000	27	1.063	65.1	2.563	No.10-24UNC		0.80
													NC207	UCL207BM												M5×0.8	
	1 7/16												**NC207-23**	UCL207B											No.10-24UNC		
40	1 1/2	80	3.150	50.8	2.000	21	0.827	1.1	0.043	29.1	17.8	14.0	**NC208-24**	UCL208A	6	0.236	19	0.748	30.2	1.189	31.8	1.252	68.3	2.689	No.10-24UNC		1.0
													NC208	UCL208AM												M5×0.8	
45	1 5/8	85	3.346	50.8	2.000	22	0.866	1.1	0.043	34.1	21.3	14.0	**NC209-26**	UCL209A	6	0.236	19	0.748	30.2	1.189	31.8	1.252	71.4	2.811	No.10-24UNC		1.1
	1 11/16	85	3.346	50.8	2.000	22	0.866	1.1	0.043	34.1	21.3	14.0	**NC209-27**	UCL209B	6	0.236	19	0.748	30.2	1.189	31.8	1.252	74.6	2.937	No.10-24UNC		1.1
	1 3/4												**NC209-28**	UCL209B											No.10-24UNC		
													NC209	UCL209BM												M5×0.8	
50	1 15/16	90	3.543	53.1	2.091	24	0.945	1.1	0.043	35.1	23.3	14.4	**NC210-31**	UCL210A	6	0.236	19	0.748	32.6	1.283	34.1	1.343	85.7	3.374	1/4-20UNC		1.4
													NC210	UCL210AM												M6×1	
	2												**NC210-32**	UCL210A											1/4-20UNC		
55	2	100	3.937	57.1	2.248	25	0.984	1.5	0.059	43.4	29.4	14.4	**NC211-32**	UCL211A	7	0.276	22.2	0.874	33.4	1.315	34.9	1.374	88.9	3.500	1/4-20UNC		1.5
	2 3/16	100	3.937	57.1	2.248	25	0.984	1.5	0.059	43.4	29.4	14.4	**NC211**	UCL211BM	7	0.276	22.2	0.874	33.4	1.315	34.9	1.374	92.1	3.626	M6×1		1.5
													NC211-35	UCL211B											1/4-20UNC		
60	2 1/4	110	4.331	66.8	2.630	27	1.063	1.5	0.059	52.4	36.2	14.4	**NC212-36**	UCL212A	7.5	0.295	25.4	1.000	39.7	1.563	41.4	1.630	103.2	4.063	5/16-18UNC		2.2
	2 7/16	110	4.331	66.8	2.630	27	1.063	1.5	0.059	52.4	36.2	14.4	**NC212**	UCL212BM	7.5	0.295	25.4	1.000	39.7	1.563	41.4	1.630	104.8	4.126	M8×1.25		2.2
													NC212-39	UCL212B											5/16-18UNC		

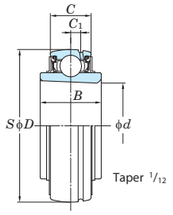
ERC
Cylindrical bore
(with concentric locking collar)
Cylindrical O. D.
d 20 ~ 60 mm



Shaft Dia. d mm	Shaft Dia. d inch	Dimensions D mm	D inch	B_1 mm	B_1 inch	C mm	C inch	r mm	r inch	r_1 (min.) mm	r_1 (min.) inch	Basic Load Ratings kN C_r	Basic Load Ratings kN C_{0r}	Factor f_0	Bearing No.	Collar No.	Dimensions C_c mm	C_c inch	S mm	S inch	S_1 mm	S_1 inch	S_3 mm	S_3 inch	a mm	a inch	f mm	f inch	d_1 mm	d_1 inch	D_2 mm	D_2 inch	Cap Screw inch / mm	Mass kg
20	3/4	47	1.850	32.5	1.280	16	0.630	1	0.039	0.5	0.020	12.8	6.65	13.2	**ERC204-12**	UCL204B	4	0.157	12.7	0.500	18.3	0.720	19.8	0.780	2.38	0.094	1.07	0.042	44.5	1.752	52.5	2.067	No.8-32UNC	0.36
															ERC204	UCL204BM																	M4×0.7	
25	7/8	52	2.047	36.5	1.437	19	0.748	1	0.039	0.5	0.020	14.0	7.85	13.9	**ERC205-14**	UCL205A	5	0.197	14.3	0.563	19.8	0.780	22.2	0.874	2.38	0.094	1.07	0.042	49.2	1.937	57.7	2.272	No.8-32UNC	0.47
	15/16														**ERC205-15**	UCL205A																	No.8-32UNC	
															ERC205	UCL205AM																	M4×0.7	
	1														**ERC205-16**	UCL205A																	No.8-32UNC	
30	1 1/8	62	2.441	40.1	1.579	22	0.866	1	0.039	0.5	0.020	19.5	11.3	13.9	**ERC206-18**	UCL206A	5.5	0.217	15.9	0.626	22.2	0.874	24.2	0.953	3.18	0.125	1.65	0.065	55.6	2.189	67.5	2.657	No.8-32UNC	0.57
															ERC206	UCL206AM																	M4×0.7	
	1 3/16														**ERC206-19**	UCL206A																	No.8-32UNC	
	1 1/4														**ERC206-20**	UCL206A																	No.8-32UNC	
35	1 1/4	72	2.835	44.5	1.752	24	0.945	1.1	0.043	0.5	0.020	25.7	15.4	13.9	**ERC207-20**	UCL207A	5.5	0.217	17.5	0.689	25.4	1.000	27	1.063	3.18	0.125	1.65	0.065	61.9	2.437	78.4	3.087	No.10-24UNC	0.95
	1 3/8	72	2.835	44.5	1.752	24	0.945	1.1	0.043	0.5	0.020	25.7	15.4	13.9	**ERC207-22**	UCL207B	5.5	0.217	17.5	0.689	25.4	1.000	27	1.063	3.18	0.125	1.65	0.065	65.1	2.563	78.4	3.087	No.10-24UNC	0.95
															ERC207	UCL207BM																	M5×0.8	
	1 7/16														**ERC207-23**	UCL207B																	No.10-24UNC	
40	1 1/2	80	3.150	50.8	2.000	28	1.102	1.1	0.043	0.5	0.020	29.1	17.8	14.0	**ERC208-24**	UCL208A	6	0.236	19	0.748	30.2	1.189	31.8	1.252	3.18	0.125	1.65	0.065	68.3	2.689	86.4	3.402	No.10-24UNC	1.2
															ERC208	UCL208AM																	M5×0.8	
45	1 5/8	85	3.346	50.8	2.000	28	1.102	1.1	0.043	0.5	0.020	34.1	21.3	14.0	**ERC209-26**	UCL209A	6	0.236	19	0.748	30.2	1.189	31.8	1.252	3.18	0.125	1.65	0.065	71.4	2.811	91.4	3.598	No.10-24UNC	1.3
	1 11/16	85	3.346	50.8	2.000	28	1.102	1.1	0.043	0.5	0.020	34.1	21.3	14.0	**ERC209-27**	UCL209B	6	0.236	19	0.748	30.2	1.189	31.8	1.252	3.18	0.125	1.65	0.065	74.6	2.937	91.4	3.598	No.10-24UNC	1.3
	1 3/4														**ERC209-28**	UCL209B																	No.10-24UNC	
															ERC209	UCL209BM																	M5×0.8	
50	1 15/16	90	3.543	53.1	2.091	28	1.102	1.1	0.043	0.5	0.020	35.1	23.3	14.4	**ERC210-31**	UCL210A	7.5	0.295	19	0.748	32.6	1.283	34.1	1.343	3.18	0.125	2.41	0.095	85.7	3.374	96.3	3.791	1/4-20UNC	1.6
															ERC210	UCL210AM																	M6×1	
	2														**ERC210-32**	UCL210A																	1/4-20UNC	
55	2	100	3.937	57.1	2.248	30	1.181	1.5	0.059	0.5	0.020	43.4	29.4	14.4	**ERC211-32**	UCL211A	7.5	0.295	22.2	0.874	33.4	1.315	34.9	1.374	3.18	0.125	2.41	0.095	88.9	3.500	106.3	4.185	1/4-20UNC	1.8
	2 3/16	100	3.937	57.1	2.248	30	1.181	1.5	0.059	0.5	0.020	43.4	29.4	14.4	**ERC211**	UCL211BM	7.5	0.295	22.2	0.874	33.4	1.315	34.9	1.374	3.18	0.125	2.41	0.095	92.1	3.626	106.3	4.185	M6×1	1.8
															ERC211-35	UCL211B																	1/4-20UNC	
60	2 1/4	110	4.331	66.8	2.630	32	1.260	1.5	0.059	0.5	0.020	52.4	36.2	14.4	**ERC212-36**	UCL212A	7.5	0.295	25.4	1.000	39.7	1.563	41.4	1.630	3.18	0.125	2.41	0.095	103.2	4.063	116.4	4.583	5/16-18UNC	2.5
															ERC212	UCL212BM																	M8×1.25	
	2 7/16	110	4.331	66.8	2.630	32	1.260	1.5	0.059	0.5	0.020	52.4	36.2	14.4	**ERC212-39**	UCL212B	7.5	0.295	25.4	1.000	39.7	1.563	41.4	1.630	3.18	0.125	2.41	0.095	104.8	4.126	116.4	4.583	5/16-18UNC	2.5

UK
Tapered bore (with adapter)
d_1 20 ~ (50) mm

UK UK+H



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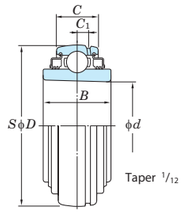
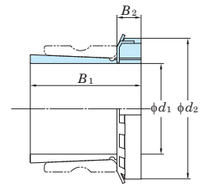
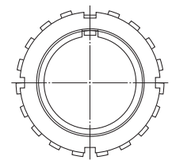


UK-L3





Adapter

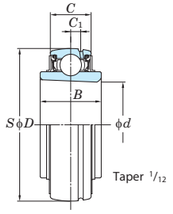
Shaft Dia. mm	Shaft Dia. inch	Dimensions inch/mm d	D	B	C	C_1	Basic Load Ratings kN C_r	C_{0r}	Factor f_0	Bearing No. Standard	No. L3 Type	Mass kg Standard	Mass kg L3 Type	Adapter No.	H23 Series Adapter Dimensions inch/mm B_1	B_2	d_2	Mass kg	Sleeve No.
d_1																			
20	3/4	0.984	2.047	0.945	0.669	0.177	14.0	7.85	13.9	UK205	UK205L2	0.18	0.18	HE2305X	1.378	0.315	1.496	0.095	AE2305X
		25	52	24	17	4.5								H2305X	35	8	38		A2305X
	3/4	0.984	2.441	1.063	0.748	0.197	19.5	11.3	13.9	UKX05	–	0.27	–	HE2305X	1.378	0.315	1.496	0.095	AE2305X
		25	62	27	19	5								H2305X	35	8	38		A2305X
	3/4	0.984	2.441	1.063	0.866	0.236	21.2	10.9	12.6	UK305	–	0.40	–	HE2305X	1.378	0.315	1.496	0.095	AE2305X
		25	62	27	22	6								H2305X	35	8	38		A2305X
25	1	1.181	2.441	1.063	0.748	0.197	19.5	11.3	13.9	UK206	UK206L3	0.29	0.29	H2306X	1.496	0.315	1.772	0.13	A2306X
		30	62	27	19	5								HE2306X	38	8	45		AE2306X
	1	1.181	2.835	1.181	0.787	0.217	25.7	15.4	13.9	UKX06	–	0.43	–	H2306X	1.496	0.315	1.772	0.13	A2306X
		30	72	30	20	5.5								HE2306X	38	8	45		AE2306X
	1	1.181	2.835	1.181	0.945	0.256	26.7	15.0	13.3	UK306	–	0.47	–	H2306X	1.496	0.315	1.772	0.13	A2306X
		30	72	30	24	6.5								HE2306X	38	8	45		AE2306X
30	1 1/8	1.378	2.835	1.181	0.787	0.217	25.7	15.4	13.9	UK207	UK207L3	0.43	0.43	HS2307X	1.693	0.354	2.047	0.17	AS2307X
		35	72	30	20	5.5								H2307X	43	9	52		A2307X
	1 1/8	1.378	3.150	1.339	0.827	0.236	29.1	17.8	14.0	UKX07	–	0.53	–	HS2307X	1.693	0.354	2.047	0.17	AS2307X
		35	80	34	21	6								H2307X	43	9	52		A2307X
	1 1/8	1.378	3.150	1.299	1.024	0.295	33.4	19.3	13.2	UK307	UK307L3	0.60	0.60	HS2307X	1.693	0.354	2.047	0.17	AS2307X
		35	80	33	26	7.5								H2307X	43	9	52		A2307X
35	1 1/4 1 3/8	1.575	3.150	1.339	0.827	0.236	29.1	17.8	14.0	UK208	UK208L3	0.58	0.58	HE2308X HS2308X	1.811	0.394	2.283	0.22	AE2308X AS2308X
		40	80	34	21	6								H2308X	46	10	58		A2308X
	1 1/4 1 3/8	1.575	3.346	1.417	0.866	0.236	34.1	21.3	14.0	UKX08	–	0.58	–	HE2308X HS2308X	1.811	0.394	2.283	0.22	AE2308X AS2308X
		40	85	36	22	6								H2308X	46	10	58		A2308X
	1 1/4 1 3/8	1.575	3.543	1.378	1.102	0.315	40.7	24.0	13.2	UK308	UK308L3	0.80	0.80	HE2308X HS2308X	1.811	0.394	2.283	0.22	AE2308X AS2308X
		40	90	35	28	8								H2308X	46	10	58		A2308X
40	1 1/2	1.772	3.346	1.417	0.866	0.236	34.1	21.3	14.0	UK209	UK209L3	0.65	0.65	HE2309X	1.969	0.433	2.559	0.28	AE2309X
		45	85	36	22	6								H2309X	50	11	65		A2309X
	1 1/2	1.772	3.543	1.417	0.945	0.236	35.1	23.3	14.4	UKX09	–	0.67	–	HE2309X	1.969	0.433	2.559	0.28	AE2309X
		45	90	36	24	6								H2309X	50	11	65		A2309X
	1 1/2	1.772	3.937	1.496	1.181	0.335	48.9	29.5	13.3	UK309	UK309L3	1.08	1.08	HE2309X	1.969	0.433	2.559	0.28	AE2309X
		45	100	38	30	8.5								H2309X	50	11	65		A2309X
45	1 3/4	1.969	3.543	1.417	0.945	0.236	35.1	23.3	14.4	UK210	UK210L3	0.65	0.65	HE2310X	2.165	0.472	2.756	0.36	AE2310X
		50	90	36	24	6								H2310X	55	12	70		A2310X
	1 3/4	1.969	3.937	1.575	0.984	0.276	43.4	29.4	14.4	UKX10	–	0.89	–	HE2310X	2.165	0.472	2.756	0.36	AE2310X
		50	100	40	25	7								H2310X	55	12	70		A2310X
	1 3/4	1.969	4.331	1.575	1.260	0.354	62.0	38.3	13.2	UK310	UK310L3	1.38	1.38	HE2310X	2.165	0.472	2.756	0.36	AE2310X
		50	110	40	32	9								H2310X	55	12	70		A2310X
50	1 7/8 2	2.165	3.937	1.575	0.984	0.276	43.4	29.4	14.4	UK211	UK211L3	1.09	1.09	HS2311X H2311X HE2311X	2.323	0.472	2.953	0.42	AS2311X A2311X AE2311X
		55	100	40	25	7									59	12	75		
	1 7/8 2	2.165	4.331	1.850	1.063	0.295	52.4	36.2	14.4	UKX11	–	1.15	–	HS2311X H2311X HE2311X	2.323	0.472	2.953	0.42	AS2311X A2311X AE2311X
		55	110	47	27	7.5									59	12	75		

Remarks 1. In Part No. of unit with adapters, Part No. of applicable adapters follow the Part No. shown in the dimensional tables.
(Example of Part No. : UK206 + H2306X, UK206L3 + H2306X)

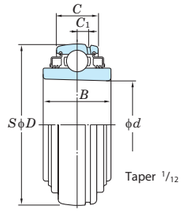
2. Adapter series applicable to UK200 series
UK200 ..... H2300X series
UK200L3 (or L2)..... H2300X series
3. UK205 is the double seal type product (L2).
4. Inch bore diameter series adapters are also available (see the dimensional tables of adapters).

UK
Tapered bore (with adapter)
d_1 (50) ~ (90) mm

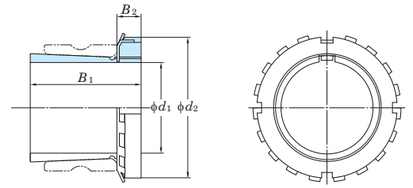
UK UK+H



UK



UK-L3



Adapter

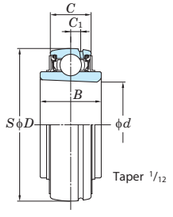
Shaft Dia. d_1 mm	Shaft Dia. d_1 inch	Dimensions inch/mm d	D	B	C	C_1	Basic Load Ratings kN C_r	C_{0r}	Factor f_0	Bearing No. Standard	No. L3 Type	Mass kg Standard	Mass kg L3 Type	Adapter No.	H23 Series Adapter Dimensions inch/mm B_1	B_2	d_2	Mass kg	Sleeve No.
50	1 7/8	2.165	4.724	1.693	1.339	0.394	71.6	45.0	13.2	UK311	UK311L3	1.78	1.78	HS2311X	2.323	0.472	2.953	0.42	AS2311X
		55	120	43	34	10								H2311X	59	12	75		A2311X
	2													HE2311X					AE2311X
55	2 1/8	2.362	4.331	1.850	1.063	0.295	52.4	36.2	14.4	UK212	UK212L3	1.41	1.41	HS2312X	2.441	0.512	3.150	0.48	AS2312X
		60	110	47	27	7.5								H2312X	62	13	80		A2312X
	2 1/8	2.362	4.724	1.850	1.102	0.295	57.2	40.1	14.4	UKX12	–	1.45	–	HS2312X	2.441	0.512	3.150	0.48	AS2312X
		60	120	47	28	7.5								H2312X	62	13	80		A2312X
	2 1/8	2.362	5.118	1.850	1.417	0.453	81.9	52.2	13.2	UK312	UK312L3	2.06	2.06	HS2312X	2.441	0.512	3.150	0.48	AS2312X
		60	130	47	36	11.5								H2312X	62	13	80		A2312X
60	2 1/4	2.559	4.724	1.850	1.102	0.295	57.2	40.1	14.4	UK213	UK213L3	1.67	1.67	HE2313X	2.559	0.551	3.346	0.56	AE2313X
		65	120	47	28	7.5								H2313X	65	14	85		A2313X
	2 3/8													HS2313X					AS2313X
	2 1/4	2.559	4.921	2.008	1.181	0.354	62.2	44.1	14.5	UKX13	–	1.62	–	HE2313X	2.559	0.551	3.346	0.56	AE2313X
		65	125	51	30	9								H2313X	65	14	85		A2313X
	2 3/8													HS2313X					AS2313X
	2 1/4	2.559	5.512	1.929	1.496	0.472	92.7	59.9	13.2	UK313	UK313L3	2.71	2.71	HE2313X	2.559	0.551	3.346	0.56	AE2313X
		65	140	49	38	12								H2313X	65	14	85		A2313X
	2 3/8													HS2313X					AS2313X
65	2 1/2	2.953	5.118	2.008	1.260	0.354	67.4	48.3	14.5	UK215	UK215L3	1.99	1.99	HE2315X	2.874	0.591	3.858	1.05	AE2315X
		75	130	51	32	9								H2315X	73	15	98		A2315X
	2 1/2	2.953	5.512	2.165	1.299	0.354	72.7	53.0	14.6	UKX15	–	2.10	–	HE2315X	2.874	0.591	3.858	1.05	AE2315X
		75	140	55	33	9								H2315X	73	15	98		A2315X
	2 1/2	2.953	6.299	2.165	1.654	0.571	113	77.2	13.2	UK315	UK315L3	3.80	3.80	HE2315X	2.874	0.591	3.858	1.05	AE2315X
		75	160	55	42	14.5								H2315X	73	15	98		A2315X
70	2 3/4	3.150	5.512	2.165	1.299	0.354	72.7	53.0	14.6	UK216	UK216L3	2.56	2.56	HE2316X	3.071	0.669	4.134	1.3	AE2316X
		80	140	55	33	9								H2316X	78	17	105		A2316X
	2 3/4	3.150	5.906	2.244	1.378	0.394	84.0	61.9	14.5	UKX16	–	2.64	–	HE2316X	3.071	0.669	4.134	1.3	AE2316X
		80	150	57	35	10								H2316X	78	17	105		A2316X
	2 3/4	3.150	6.693	2.165	1.732	0.591	123	86.7	13.3	UK316	UK316L3	4.39	4.39	HE2316X	3.071	0.669	4.134	1.3	AE2316X
		80	170	55	44	15								H2316X	78	17	105		A2316X
75	3	3.346	5.906	2.244	1.378	0.394	84.0	61.9	14.5	UK217	UK217L3	3.10	3.10	H2317X	3.228	0.709	4.331	1.45	A2317X
		85	150	57	35	10								HE2317X	82	18	110		AE2317X
	3	3.346	6.299	2.480	1.496	0.433	96.1	71.5	14.5	UKX17	–	3.25	–	H2317X	3.228	0.709	4.331	1.45	A2317X
		85	160	63	38	11								HE2317X	82	18	110		AE2317X
	3	3.346	7.087	2.362	1.811	0.591	133	96.8	13.3	UK317	UK317L3	5.30	5.30	H2317X	3.228	0.709	4.331	1.45	A2317X
		85	180	60	46	15								HE2317X	82	18	110		AE2317X
80	–	3.543	6.299	2.480	1.496	0.433	96.1	71.5	14.5	UK218	UK218L3	3.77	3.77	H2318X	3.386	0.709	4.724	1.7	A2318X
		90	160	63	38	11									86	18	120		
	–	3.543	6.693	2.559	1.575	0.453	109	81.9	14.4	UKX18	–	3.80	–	H2318X	3.386	0.709	4.724	1.7	A2318X
		90	170	65	40	11.5									86	18	120		
	–	3.543	7.480	2.362	1.890	0.610	143	107	13.3	UK318	UK318L3	6.20	6.20	H2318X	3.386	0.709	4.724	1.7	A2318X
		90	190	60	48	15.5									86	18	120		
85	3 1/4	3.740	7.874	2.598	1.969	0.650	153	119	13.3	UK319	UK319L3	7.31	7.31	H2319X	3.543	0.748	4.921	1.95	A2319X
		95	200	66	50	16.5									90	19	125		
90	3 1/2	3.937	7.480	2.717	1.693	0.512	133	105	14.4	UKX20	–	5.36	–	HE2320X	3.819	0.787	5.118	2.2	AE2320X
		100	190	69	43	13								H2320X	97	20	130		A2320X

Remarks 1. In Part No. of unit with adapters, Part No. of applicable adapters follow the Part No. shown in the dimensional tables.
(Example of Part No. : UK206 + H2306X, UK206L3 + H2306X)

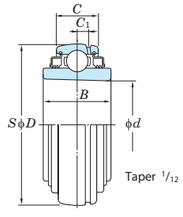
2. Adapter series applicable to UK200 series
UK200 ..... H2300X series
UK200L3 (or L2) ..... H2300X series
3. UK205 is the double seal type product (L2).
4. Inch bore diameter series adapters are also available (see the dimensional tables of adapters).

UK
Tapered bore (with adapter)
d_1 (90) ~ 125 mm

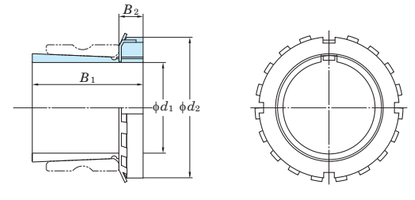
UK UK+H



UK



UK-L3



Adapter

Shaft Dia. mm	Shaft Dia. inch	Dimensions inch/mm d	D	B	C	C_1	Basic Load Ratings kN C_r	C_{0r}	Factor f_0	Bearing No. Standard	No. L3 Type	Mass kg Standard	Mass kg L3 Type
d_1													
90	3 1/2	3.937	8.465	2.677	2.126	0.709	173	141	13.2	**UK320**	**UK320L3**	8.70	8.70
		100	215	68	54	18							
100	4	4.331	9.449	3.071	2.362	0.787	205	180	13.2	**UK322**	**UK322L3**	12.2	12.2
		110	240	78	60	20							
110	–	4.724	10.236	3.425	2.520	0.827	207	185	13.5	**UK324**	**UK324L3**	16.1	16.1
		120	260	87	64	21							
115	4 1/2	5.118	11.024	3.425	2.677	0.866	229	214	13.6	**UK326**	**UK326L3**	18.8	18.8
		130	280	87	68	22							
125	–	5.512	11.811	3.819	2.835	0.906	253	246	13.6	**UK328**	**UK328L3**	23.9	23.9
		140	300	97	72	23							

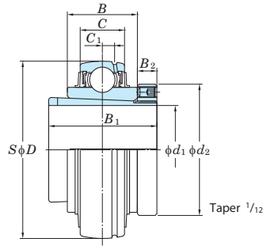
H23 Series Adapter Adapter No.	Dimensions inch/mm B_1	B_2	d_2	Mass kg	Sleeve No.
HE2320X	3.819	0.787	5.118	2.2	AE2320X
H2320X	97	20	130		A2320X
H2322X	4.134	0.827	5.709	2.75	A2322X
HE2322X	105	21	145		AE2322X
H2324X	4.409	0.866	6.102	3.2	A2324X
	112	22	155		
HE2326X	4.764	0.906	6.496	4.6	AE2326X
H2326X	121	23	165		A2326X
H2328X	5.157	0.945	7.087	5.5	A2328X
	131	24	180		

Remarks 1. In Part No. of unit with adapters, Part No. of applicable adapters follow the Part No. shown in the dimensional tables.
(Example of Part No. : UK206 + H2306X, UK206L3 + H2306X)

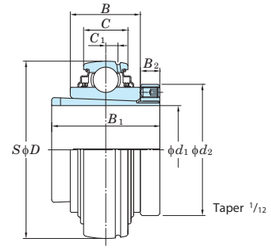
2. Adapter series applicable to UK200 series
UK200 ..... H2300X series
UK200L3 (or L2)..... H2300X series
3. UK205 is the double seal type product (L2).
4. Inch bore diameter series adapters are also available (see the dimensional tables of adapters).

ZK
Tapered bore (with adapter)
d_1 20 ~ 55 mm

ZK



ZK



ZK-L3

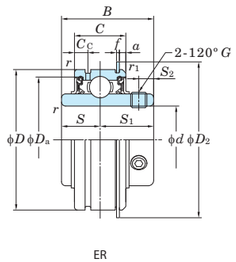
Shaft Dia. mm / inch d_1		Dimensions inch / mm d	D	B	B_1	B_2	d_2	C	C_1	Basic Load Ratings kN C_r	C_{0r}	Factor f_0		Bearing No. Standard	L3 Type	Mass kg Standard	L3 Type	Adapter No.
20	3/4	0.984	2.047	0.945	1.457	0.276	1.575	0.669	0.177	14.0	7.85	13.9		ZK205-12	ZK205-12L2	0.270	0.290	ZKE05
		25	52	24	37	7	40	17	4.5					ZK205	ZK205L2			ZK05
25	7/8	1.181	2.441	1.063	1.575	0.276	1.772	0.748	0.197	19.5	11.3	13.9		ZK206-14	ZK206-14L3	0.38	0.42	ZKS06
	15/16	30	62	27	40	7	45	19	5					ZK206-15	ZK206-15L3			ZKA06
														ZK206	ZK206L3			ZK06
	1													ZK206-16	ZK206-16L3			ZKE06
30	1 1/8	1.378	2.835	1.181	1.732	0.276	1.969	0.787	0.217	25.7	15.4	13.9		ZK207-18	ZK207-18L3	0.54	0.60	ZKS07
		35	72	30	44	7	50	20	5.5					ZK207	ZK207L3			ZK07
	1 3/16													ZK207-19	ZK207-19L3			ZKA07
35	1 1/4	1.575	3.150	1.339	1.850	0.315	2.244	0.827	0.236	29.1	17.8	14.0		ZK208-20	ZK208-20L3	0.69	0.80	ZKE08
	1 3/8	40	80	34	47	8	57	21	6					ZK208-22	ZK208-22L3			ZKS08
														ZK208	ZK208L3			ZK08
40	1 7/16	1.772	3.346	1.417	1.929	0.315	2.441	0.866	0.236	34.1	21.3	14.0		ZK209-23	ZK209-23L3	0.77	0.90	ZKA09
	1 1/2	45	85	36	49	8	62	22	6					ZK209-24	ZK209-24L3			ZKE09
														ZK209	ZK209L3			ZK09
45	1 5/8	1.969	3.543	1.417	2.126	0.433	2.638	0.945	0.236	35.1	23.3	14.4		ZK210-26	ZK210-26L3	0.92	0.98	ZKS10
	1 11/16	50	90	36	54	11	67	24	6					ZK210-27	ZK210-27L3			ZKA10
	1 3/4													ZK210-28	ZK210-28L3			ZKE10
														ZK210	ZK210L3			ZK10
50	1 7/8	2.165	3.937	1.575	2.402	0.433	2.913	0.984	0.276	43.4	29.4	14.4		ZK211-30	ZK211-30L3	1.22	1.51	ZKS11
	1 15/16	55	100	40	61	11	74	25	7					ZK211-31	ZK211-31L3			ZKA11
														ZK211	ZK211L3			ZK11
	2													ZK211-32	ZK211-32L3			ZKE11
55	2 1/8	2.362	4.331	1.850	2.598	0.551	3.346	1.063	0.295	52.4	36.2	14.4		ZK212-34	ZK212-34L3	1.630	2.020	ZKS12
		60	110	47	66	14	85	27	7.5					ZK212	ZK212L3			ZK12

Remarks 1. In Part No. of bearing with adapters, turn UK in the Part No. shown in the dimensional tables to ZK
(Example of Part No. : ZK206=UK206+ZK06)
2. UK205 is the double seal type product (L2).
3. Inch bore diameter series adapters are also available (see the dimensional tables of adapters).

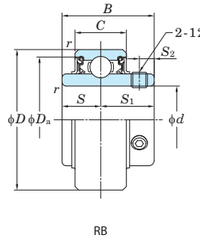
ER, RB
Cylindrical bore (with set screws), Cylindrical O. D.
d 12 ~ 60 mm

ER

RB



ER



RB

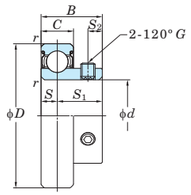
Shaft Dia. mm	Shaft Dia. inch	Dimensions mm D	B	C	r (min.)	r_1 (min.)	Basic Load Ratings kN C_r	C_{0r}	Factor f_0	Bearing No. (ER)	(RB)	Dimensions inch mm S	S_1	S_2	C_c	a	f	D_2	D_a	Set Screw Brg. Bore G mm	inch	Mass kg (ER)	(RB)
12										ER201	RB201									M6×0.75	–	0.27	0.27
	1/2									ER201-8	RB201-8									–	1/4-28UNF	0.27	0.27
15		1.850	1.220	0.630	0.024	0.020	12.8	6.65	13.2	ER202	RB202	0.500	0.720	0.197	0.157	0.094	0.042	2.067	1.693	M6×0.75	–	0.25	0.25
	5/8	47	31	16	0.6	0.5				ER202-10	RB202-10	12.7	18.3	5	4	2.38	1.07	52.5	43	–	1/4-28UNF	0.25	0.25
17										ER203	RB203									M6×0.75	–	0.24	0.24
20	3/4	1.850	1.220	0.630	0.039	0.020	12.8	6.65	13.2	ER204-12	RB204-12	0.500	0.720	0.197	0.157	0.094	0.042	2.067	1.693	–	1/4-28UNF	0.22	0.22
		47	31	16	1	0.5				ER204	RB204	12.7	18.3	5	4	2.38	1.07	52.5	43	M6×0.75	–	0.22	0.22
	7/8									ER205-14	RB205-14									–	1/4-28UNF	0.3	0.29
25	15/16	2.047	1.343	0.748	0.039	0.020	14.0	7.85	13.9	ER205-15	RB205-15	0.563	0.780	0.217	0.197	0.094	0.042	2.272	1.85	–	1/4-28UNF	0.28	0.27
		52	34.1	19	1	0.5				ER205	RB205	14.3	19.8	5.5	5	2.38	1.07	57.7	47	M6×0.75	–	0.27	0.26
	1									ER205-16	RB205-16									–	1/4-28UNF	0.27	0.26
	1 1/8									ER206-18	RB206-18									–	1/4-28UNF	0.41	0.4
30		2.441	1.500	0.866	0.039	0.020	19.5	11.3	13.9	ER206	RB206	0.626	0.874	0.236	0.217	0.125	0.065	2.657	2.205	M6×0.75	–	0.39	0.38
	1 3/16	62	38.1	22	1	0.5				ER206-19	RB206-19	15.9	22.2	6	5.5	3.18	1.65	67.5	56	–	1/4-28UNF	0.39	0.38
	1 1/4									ER206-20	RB206-20									–	1/4-28UNF	0.37	0.36
	1 1/4									ER207-20	RB207-20									–	5/16-24UNF	0.69	0.68
	1 5/16									ER207-21	RB207-21									–	5/16-24UNF	0.66	0.65
35	1 3/8	2.835	1.689	0.945	0.043	0.020	25.7	15.4	13.9	ER207-22	RB207-22	0.689	1.000	0.256	0.217	0.125	0.065	3.087	2.52	–	5/16-24UNF	0.64	0.63
		72	42.9	24	1.1	0.5				ER207	RB207	17.5	25.4	6.5	5.5	3.18	1.65	78.4	64	M8×1	–	0.63	0.62
	1 7/16									ER207-23	RB207-23									–	5/16-24UNF	0.61	0.6
40	1 1/2	3.150	1.937	1.102	0.043	0.020	29.1	17.8	14.0	ER208-24	RB208-24	0.748	1.189	0.315	0.236	0.125	0.065	3.402	2.835	–	5/16-24UNF	0.85	0.84
	1 9/16	80	49.2	28	1.1	0.5				ER208-25	RB208-25	19	30.2	8	6	3.18	1.65	86.4	72	–	5/16-24UNF	0.82	0.81
										ER208	RB208									M8×1	–	0.81	0.78
45	1 5/8	3.346	1.937	1.102	0.043	0.020	34.1	21.3	14.0	ER209-26	–	0.748	1.189	0.315	0.236	0.125	0.065	3.598	3.031	–	5/16-24UNF	1.0	–
	1 11/16									ER209-27	–									–	5/16-24UNF	0.96	–
	1 3/4	85	49.2	28	1.1	0.5				ER209-28	–	19	30.2	8	6	3.18	1.65	91.4	77	–	5/16-24UNF	0.92	–
										ER209	–									M8×1	–	0.90	–
	1 7/8									ER210-30	–									–	3/8-24UNF	1.05	–
50	1 15/16	3.543	2.031	1.102	0.043	0.020	35.1	23.3	14.4	ER210-31	–	0.748	1.283	0.354	0.295	0.125	0.095	3.791	3.268	–	3/8-24UNF	1.0	–
		90	51.6	28	1.1	0.5				ER210	–	19	32.6	9	7.5	3.18	2.41	96.3	83	M10×1.25	–	0.98	–
	2									ER210-32	–									–	3/8-24UNF	0.96	–
	2									ER211-32	–									–	3/8-24UNF	1.56	–
55	2 1/8	3.937	2.189	1.181	0.059	0.020	43.4	29.4	14.4	ER211-34	–	0.874	1.315	0.354	0.295	0.125	0.095	4.185	3.661	–	3/8-24UNF	1.45	–
		100	55.6	30	1.5	0.5				ER211	–	22.2	33.4	9	7.5	3.18	2.41	106.3	93	M10×1.25	–	1.41	–
	2 3/16									ER211-35	–									–	3/8-24UNF	1.39	–
	2 1/4									ER212-36	–									–	3/8-24UNF	2.02	–
60		4.331	2.563	1.260	0.059	0.020	52.4	36.2	14.4	ER212	–	1.000	1.563	0.413	0.295	0.125	0.095	4.583	4.016	M10×1.25	–	1.89	–
	2 3/8	110	65.1	32	1.5	0.5				ER212-38	–	25.4	39.7	10.5	7.5	3.18	2.41	116.4	102	–	3/8-24UNF	1.87	–
	2 7/16									ER212-39	–									–	3/8-24UNF	1.8	–

SBB-RK
Cylindrical bore (with set screws) Cylindrical O. D.
SAA-FP7
Cylindrical bore (with eccentric locking collar) Cylindrical O. D.

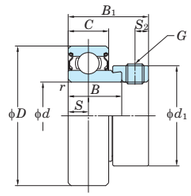
d 12 ~ 55 mm

SBB-RK

SAA-FP7



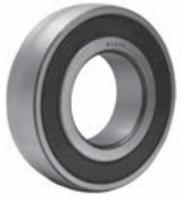
SBB-RK

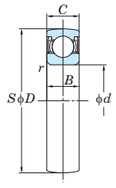


SAA-FP7

Shaft Dia. d mm	Shaft Dia. d inch	Dimensions D mm	D inch	B mm	B inch	B1 mm	B1 inch	C mm	C inch	r (min.) mm	r (min.) inch	Basic Load Ratings kN Cr	Basic Load Ratings kN C0r	Factor f0	Bearing No.	Dimensions S mm	S inch	S1 mm	S1 inch	S2 mm	S2 inch	d1 mm	d1 inch	Set Screw Brg. Bore mm	Set Screw Brg. Bore inch	Mass kg
12	–	40	1.575	22	0.866	–	–	12	0.472	0.6	0.024	9.55	4.80	13.2	SBB201RK	6	0.236	16	0.630	4	0.157	–	–	M5×0.5	–	0.10
		40	1.575	19.1	0.752	28.6	1.126	13	0.512	0.6	0.024	9.55	4.80	13.2	SAA201FP7	6.5	0.256			4.8	0.189	28.6	1.126	M6×0.75	–	0.13
–	1/2	40	1.575	22	0.866	–	–	12	0.472	0.6	0.024	9.55	4.80	13.2	SBB201-8RK	6	0.236	16	0.630	4	0.157	–	–	–	No.10-32UNF	0.10
	1/2	40	1.575	19.1	0.752	28.6	1.126	13	0.512	0.6	0.024	9.55	4.80	13.2	SAA201-8FP7	6.5	0.256			4.8	0.189	28.6	1.126	–	1/4-28UNF	0.13
15	–	40	1.575	22	0.866	–	–	12	0.472	0.6	0.024	9.55	4.80	13.2	SBB202RK	6	0.236	16	0.630	4	0.157	–	–	M5×0.5	–	0.10
		40	1.575	19.1	0.752	28.6	1.126	13	0.512	0.6	0.024	9.55	4.80	13.2	SAA202FP7	6.5	0.256			4.8	0.189	28.6	1.126	M6×0.75	–	0.13
–	5/8	40	1.575	22	0.866	–	–	12	0.472	0.6	0.024	9.55	4.80	13.2	SBB202-10RK	6	0.236	16	0.630	4	0.157	–	–	–	No.10-32UNF	0.10
17	–	40	1.575	22	0.866	–	–	12	0.472	0.6	0.024	9.55	4.80	13.2	SBB203RK	6	0.236	16	0.630	4	0.157	–	–	M5×0.5	–	0.10
		40	1.575	19.1	0.752	28.6	1.126	13	0.512	0.6	0.024	9.55	4.80	13.2	SAA203FP7	6.5	0.256			4.8	0.189	28.6	1.126	M6×0.75	–	0.13
–	3/4	47	1.850	25	0.984	–	–	14	0.551	1	0.039	12.8	6.65	13.2	SBB204-12RK	7	0.276	18	0.709	5	0.197	–	–	–	1/4-28UNF	0.15
	3/4	47	1.850	21.5	0.846	31	1.220	15	0.591	1	0.039	12.8	6.65	13.2	SAA204-12FP7	7.5	0.295			4.8	0.189	33.3	1.311	–	1/4-28UNF	0.19
20	–	47	1.850	25	0.984	–	–	14	0.551	1	0.039	12.8	6.65	13.2	SBB204RK	7	0.276	18	0.709	5	0.197	–	–	M6×0.75	–	0.15
		47	1.850	21.5	0.846	31	1.220	15	0.591	1	0.039	12.8	6.65	13.2	SAA204FP7	7.5	0.295			4.8	0.189	33.3	1.311	M6×0.75	–	0.19
–	7/8	52	2.047	27	1.063	–	–	15	0.591	1	0.039	14.0	7.85	13.9	SBB205-14RK	7.5	0.295	19.5	0.768	5.5	0.217	–	–	–	1/4-28UNF	0.18
–	15/16	52	2.047	27	1.063	–	–	15	0.591	1	0.039	14.0	7.85	13.9	SBB205-15RK	7.5	0.295	19.5	0.768	5.5	0.217	–	–	–	1/4-28UNF	0.18
	15/16	52	2.047	21.5	0.846	31	1.220	15	0.591	1	0.039	14.0	7.85	13.9	SAA205-15FP7	7.5	0.295			4.8	0.189	38.1	1.500	–	1/4-28UNF	0.23
25	–	52	2.047	27	1.063	–	–	15	0.591	1	0.039	14.0	7.85	13.9	SBB205RK	7.5	0.295	19.5	0.768	5.5	0.217	–	–	M6×0.75	–	0.18
		52	2.047	21.5	0.846	31	1.220	15	0.591	1	0.039	14.0	7.85	13.9	SAA205FP7	7.5	0.295			4.8	0.189	38.1	1.500	M6×0.75	–	0.23
–	1	52	2.047	27	1.063	–	–	15	0.591	1	0.039	14.0	7.85	13.9	SBB205-16RK	7.5	0.295	19.5	0.768	5.5	0.217	–	–	–	1/4-28UNF	0.18
	1	52	2.047	21.5	0.846	31	1.220	15	0.591	1	0.039	14.0	7.85	13.9	SAA205-16FP7	7.5	0.295			4.8	0.189	38.1	1.500	–	1/4-28UNF	0.23
–	1 1/8	62	2.441	30	1.181	–	–	16	0.630	1	0.039	19.5	11.3	13.9	SBB206-18RK	8	0.315	22	0.866	6	0.236	–	–	–	1/4-28UNF	0.27
	1 1/8	62	2.441	23.8	0.937	35.7	1.406	18	0.709	1	0.039	19.5	11.3	13.9	SAA206-18FP7	9	0.354			6	0.236	44.5	1.752	–	5/16-24UNF	0.34
30	–	62	2.441	30	1.181	–	–	16	0.630	1	0.039	19.5	11.3	13.9	SBB206RK	8	0.315	22	0.866	6	0.236	–	–	M6×0.75	–	0.27
		62	2.441	23.8	0.937	35.7	1.406	18	0.709	1	0.039	19.5	11.3	13.9	SAA206FP7	9	0.354			6	0.236	44.5	1.752	M8×1	–	0.34
–	1 3/16	62	2.441	30	1.181	–	–	16	0.630	1	0.039	19.5	11.3	13.9	SBB206-19RK	8	0.315	22	0.866	6	0.236	–	–	–	1/4-28UNF	0.27
	1 3/16	62	2.441	23.8	0.937	35.7	1.406	18	0.709	1	0.039	19.5	11.3	13.9	SAA206-19FP7	9	0.354			6	0.236	44.5	1.752	–	5/16-24UNF	0.34
–	1 1/4	62	2.441	30	1.181	–	–	16	0.630	1	0.039	19.5	11.3	13.9	SBB206-20RK	8	0.315	22	0.866	6	0.236	–	–	–	1/4-28UNF	0.27
	1 1/4	62	2.441	23.8	0.937	35.7	1.406	18	0.709	1	0.039	19.5	11.3	13.9	SAA206-20FP7	9	0.354			6	0.236	44.5	1.752	–	5/16-24UNF	0.34
–	1 1/4	72	2.835	32	1.260	–	–	17	0.669	1.1	0.043	25.7	15.4	13.9	SBB207-20RK	8.5	0.335	23.5	0.925	6	0.236	–	–	–	1/4-28UNF	0.42
	1 1/4	72	2.835	25.4	1.000	38.9	1.531	19	0.748	1.1	0.043	25.7	15.4	13.9	SAA207-20FP7	9.5	0.374			6.8	0.268	55.6	2.189	–	5/16-24UNF	0.57
–	1 5/16	72	2.835	25.4	1.000	38.9	1.531	19	0.748	1.1	0.043	25.7	15.4	13.9	SAA207-21FP7	9.5	0.374	–	–	6.8	0.268	55.6	2.189	–	5/16-24UNF	0.57
–	1 3/8	72	2.835	32	1.260	–	–	17	0.669	1.1	0.043	25.7	15.4	13.9	SBB207-22RK	8.5	0.335	23.5	0.925	6	0.236	–	–	–	1/4-28UNF	0.42
	1 3/8	72	2.835	25.4	1.000	38.9	1.531	19	0.748	1.1	0.043	25.7	15.4	13.9	SAA207-22FP7	9.5	0.374			6.8	0.268	55.6	2.189	–	5/16-24UNF	0.57
35	–	72	2.835	32	1.260	–	–	17	0.669	1.1	0.043	25.7	15.4	13.9	SBB207RK	8.5	0.335	23.5	0.925	6	0.236	–	–	M6×0.75	–	0.42
		72	2.835	25.4	1.000	38.9	1.531	19	0.748	1.1	0.043	25.7	15.4	13.9	SAA207FP7	9.5	0.374			6.8	0.268	55.6	2.189	M8×1	–	0.57
–	1 7/16	72	2.835	32	1.260	–	–	17	0.669	1.1	0.043	25.7	15.4	13.9	SBB207-23RK	8.5	0.335	23.5	0.925	6	0.236	–	–	–	1/4-28UNF	0.42
	1 7/16	72	2.835	25.4	1.000	38.9	1.531	19	0.748	1.1	0.043	25.7	15.4	13.9	SAA207-23FP7	9.5	0.374			6.8	0.268	55.6	2.189	–	5/16-24UNF	0.57
–	1 1/2	80	3.150	34	1.339	–	–	18	0.709	1.1	0.043	29.1	17.8	14.0	SBB208-24RK	9	0.354	25	0.984	8	0.315	–	–	–	5/16-24UNF	0.60
	1 1/2	80	3.150	30.2	1.189	43.7	1.720	22	0.866	1.1	0.043	29.1	17.8	14.0	SAA208-24FP7	11	0.433			6.8	0.268	60.3	2.374	–	5/16-24UNF	0.75
–	1 9/16	80	3.150	30.2	1.189	43.7	1.720	22	0.866	1.1	0.043	29.1	17.8	14.0	SAA208-25FP7	11	0.433	–	–	6.8	0.268	60.3	2.374	–	5/16-24UNF	0.75
40	–	80	3.150	34	1.339	–	–	18	0.709	1.1	0.043	29.1	17.8	14.0	SBB208RK	9	0.354	25	0.984	8	0.315	–	–	M8×1	–	0.60
		80	3.150	30.2	1.189	43.7	1.720	22	0.866	1.1	0.043	29.1	17.8	14.0	SAA208FP7	11	0.433			6.8	0.268	60.3	2.374	M8×1	–	0.75
–	1 5/8	85	3.346	30.2	1.189	43.7	1.720	22	0.866	1.1	0.043	34.1	21.3	14.0	SAA209-26FP7	11	0.433	–	–	6.8	0.268	63.5	2.500	–	5/16-24UNF	0.82
–	1 11/16	85	3.346	30.2	1.189	43.7	1.720	22	0.866	1.1	0.043	34.1	21.3	14.0	SAA209-27FP7	11	0.433	–	–	6.8	0.268	63.5	2.500	–	5/16-24UNF	0.82
45	1 3/4	85	3.346	30.2	1.189	43.7	1.720	22	0.866	1.1	0.043	34.1	21.3	14.0	SAA209-28FP7	11	0.433	–	–	6.8	0.268	63.5	2.500	–	5/16-24UNF	0.82
		85	3.346	30.2	1.189	43.7	1.720	22	0.866	1.1	0.043	34.1	21.3	14.0	SAA209FP7	11	0.433	–	–	6.8	0.268	63.5	2.500	M8×1	–	0.82
–	1 7/8	90	3.543	30.2	1.189	43.7	1.720	22	0.866	1.1	0.043	35.1	23.3	14.4	SAA210-30FP7	11	0.433	–	–	6.8	0.268	69.9	2.752	–	5/16-24UNF	0.85
50	1 15/16	90	3.543	30.2	1.189	43.7	1.720	22	0.866	1.1	0.043	35.1	23.3	14.4	SAA210-31FP7	11	0.433	–	–	6.8	0.268	69.9	2.752	–	5/16-24UNF	0.85
		90	3.543	30.2	1.189	43.7	1.720	22	0.866	1.1	0.043	35.1	23.3	14.4	SAA210FP7	11	0.433	–	–	6.8	0.268	69.9	2.752	M8×1	–	0.85
–	2	100	3.937	32.4	1.276	48.3	1.902	24	0.945	1.5	0.059	43.4	29.4	14.4	SAA211-32FP7	12	0.472	–	–	8	0.315	76.2	3.000	–	3/8-24UNF	1.2
–	2 1/8	100	3.937	32.4	1.276	48.3	1.902	24	0.945	1.5	0.059	43.4	29.4	14.4	SAA211-34FP7	12	0.472	–	–	8	0.315	76.2	3.000	–	3/8-24UNF	1.2
55	–	100	3.937	32.4	1.276	48.3	1.902	24	0.945	1.5	0.059	43.4	29.4	14.4	SAA211FP7	12	0.472	–	–	8	0.315	76.2	3.000	M10×1.25	–	1.2
–	2 3/16	100	3.937	32.4	1.276	48.3	1.902	24	0.945	1.5	0.059	43.4	29.4	14.4	SAA211-35FP7	12	0.472	–	–	8	0.315	76.2	3.000	–	3/8-24UNF	1.2

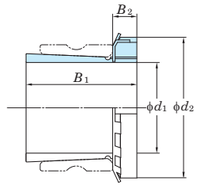
SC
Cylindrical bore
d 17 ~ 40 mm

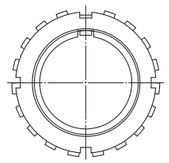




Shaft Dia. mm	Dimensions								Basic Load Ratings kN		Factor	Bearing No.	Mass
d	D		B		C		r (min.)		C_0	C_{0r}	f_0		kg
	mm	inch	mm	inch	mm	inch	mm	inch					
17	40	1.575	12	0.472	12	0.472	0.6	0.024	9.55	4.80	13.2	**SC203**	0.10
20	47	1.850	14	0.551	14	0.551	1	0.039	12.8	6.65	13.2	**SC204**	0.15
25	52	2.047	15	0.591	15	0.591	1	0.039	14.0	7.85	13.9	**SC205**	0.18
30	62	2.441	16	0.630	16	0.630	1	0.039	19.5	11.3	13.9	**SC206**	0.27
35	72	2.835	17	0.669	17	0.669	1.1	0.043	25.7	15.4	13.9	**SC207**	0.42
40	80	3.150	18	0.709	18	0.709	1.1	0.043	29.1	17.8	14.0	**SC208**	0.60

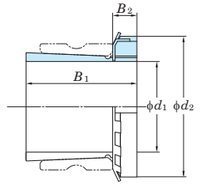
H2300X
d_1 20 ~ 110 mm

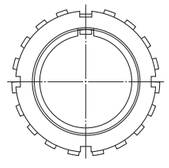




Shaft Dia. d_1 mm (H)	Shaft Dia. d_1 inch (HE)	Shaft Dia. d_1 inch (HS)	Shaft Dia. d_1 inch (HA)	Dimensions inch mm B_1	Dimensions inch mm B_2	Dimensions inch mm d_2	Adapter No. (H)	Adapter No. (HE)	Adapter No. (HS)	Adapter No. (HA)	Sleeve No. (H)	Sleeve No. (HE)	Sleeve No. (HS)	Sleeve No. (HA)	Lock Nut No.	Washer No.	Mass kg (H)	Mass kg (HE)	Mass kg (HS)	Mass kg (HA)
20	–	–	–	1.378	0.315	1.496	**H2305X**	–	–	–	A2305X	–	–	–	AN05	AW05X	0.095	–	–	–
	3/4	–	–	35	8	38	–	**HE2305X**	–	–	–	AE2305X	–	–	AN05	AW05X	–	0.085	–	–
25	–	–	–				**H2306X**	–	–	–	A2306X	–	–	–	AN06	AW06X	0.13	–	–	–
	1	–	–	1.496	0.315	1.772	–	**HE2306X**	–	–	–	AE2306X	–	–	AN06	AW06X	–	0.12	–	–
	–	7/8	–	38	8	45	–	–	**HS2306X**	–	–	–	AS2306X	–	–	–	–	–	0.16	–
	–	–	15/16				–	–	–	**HA2306X**	–	–	–	AA2306X	–	–	–	–	–	0.14
30	–	–	–	1.693	0.354	2.047	**H2307X**	–	–	–	A2307X	–	–	–	AN07	AW07X	0.17	–	–	–
	–	–	1 3/16	43	9	52	–	–	–	**HA2307X**	–	–	–	AA2307X	–	–	–	–	–	0.17
35	–	–	–	1.811	0.394	2.283	**H2308X**	–	–	–	A2308X	–	–	–	AN08	AW08X	0.22	–	–	–
	1 1/4	–	–	46	10	58	–	**HE2308X**	–	–	–	AE2308X	–	–	AN08	AW08X	–	0.28	–	–
40	–	–	–				**H2309X**	–	–	–	A2309X	–	–	–	AN09	AW09X	0.28	–	–	–
	1 1/2	–	–	1.969	0.433	2.559	–	**HE2309X**	–	–	–	AE2309X	–	–	AN09	AW09X	–	0.32	–	–
	–	–	1 7/16	50	11	65	–	–	–	**HA2309X**	–	–	–	AA2309X	–	–	–	–	–	0.35
45	–	–	–				**H2310X**	–	–	–	A2310X	–	–	–	AN10	AW10X	0.36	–	–	–
	1 3/4	–	–	2.165	0.472	2.756	–	**HE2310X**	–	–	–	AE2310X	–	–	AN10	AW10X	–	0.37	–	–
	–	1 5/8	–	55	12	70	–	–	**HS2310X**	–	–	–	AS2310X	–	–	–	–	–	0.46	–
	–	–	1 11/16				–	–	–	**HA2310X**	–	–	–	AA2310X	–	–	–	–	–	0.42
50	–	–	–				**H2311X**	–	–	–	A2311X	–	–	–	AN11	AW11X	0.42	–	–	–
	2	–	–	2.323	0.472	2.953	–	**HE2311X**	–	–	–	AE2311X	–	–	AN11	AW11X	–	0.40	–	–
	–	1 7/8	–	59	12	75	–	–	**HS2311X**	–	–	–	AS2311X	–	AN11	AW11X	–	–	0.50	–
	–	–	1 15/16				–	–	–	**HA2311X**	–	–	–	AA2311X	–	–	–	–	–	0.45
55	–	–	–	2.441	0.512	3.150	**H2312X**	–	–	–	A2312X	–	–	–	AN12	AW12X	0.48	–	–	–
	–	2 1/8	–	62	13	80	–	–	**HS2312X**	–	–	–	AS2312X	–	AN12	AW12X	–	–	0.52	–
60	–	–	–				**H2313X**	–	–	–	A2313X	–	–	–	AN13	AW13X	0.56	–	–	–
	2 1/4	–	–	2.559	0.551	3.346	–	**HE2313X**	–	–	–	AE2313X	–	–	AN13	AW13X	–	0.69	–	–
	–	2 3/8	–	65	14	85	–	–	**HS2313X**	–	–	–	AS2313X	–	AN13	AW13X	–	–	0.55	–
	–	–	2 3/16				–	–	–	**HA2313X**	–	–	–	AA2313X	–	–	–	–	–	0.76
65	–	–	–				**H2315X**	–	–	–	A2315X	–	–	–	AN15	AW15X	1.05	–	–	–
	2 1/2	–	–	2.874	0.591	3.858	–	**HE2315X**	–	–	–	AE2315X	–	–	AN15	AW15X	–	1.15	–	–
	–	–	2 7/16	73	15	98	–	–	–	**HA2315X**	–	–	–	AA2315X	–	–	–	–	–	1.15
	–	2 5/8	–				–	–	**HS2315X**	–	–	–	AS2315X	–	–	–	–	–	0.9	–
70	–	–	–				**H2316X**	–	–	–	A2316X	–	–	–	AN16	AW16X	1.3	–	–	–
	2 3/4	–	–	3.071	0.669	4.134	–	**HE2316X**	–	–	–	AE2316X	–	–	AN16	AW16X	–	1.3	–	–
	–	–	2 11/16	78	17	105	–	–	–	**HA2316X**	–	–	–	AA2316X	–	–	–	–	–	1.41
75	–	–	–				**H2317X**	–	–	–	A2317X	–	–	–	AN17	AW17X	1.45	–	–	–
	3	–	–	3.228	0.709	4.331	–	**HE2317X**	–	–	–	AE2317X	–	–	AN17	AW17X	–	1.35	–	–
	–	–	2 15/16	82	18	110	–	–	–	**HA2317X**	–	–	–	HA2317X	–	–	–	–	–	1.48
80	–	–	–				**H2318X**	–	–	–	A2318X	–	–	–	AN18	AW18X	1.7	–	–	–
	3 1/4	–	–	3.386	0.709	4.724	–	**HE2318X**	–	–	–	AE2318X	–	–	–	–	–	1.49	–	–
	–	–	3 3/16	86	18	120	–	–	–	**HA2318X**	–	–	–	AA2318X	–	–	–	–	–	1.62
85	–	–	–	3.543	0.748	4.921	**H2319X**	–	–	–	A2319X	–	–	–	AN19	AW19X	1.95	–	–	–
	3 1/4	–	–	90	19	125	–	**HE2319X**	–	–	–	AE2319X	–	–	AN19	AW19X	–	2.15	–	–
90	–	–	–				**H2320X**	–	–	–	A2320X	–	–	–	AN20	AW20X	2.2	–	–	–
	3 1/2	–	–	3.819	0.787	5.118	–	**HE2320X**	–	–	–	AE2320X	–	–	AN20	AW20X	–	2.3	–	–
	–	–	3 7/16	97	20	130	–	–	–	**HA2320X**	–	–	–	AA2320X	–	–	–	–	–	2.47
100	–	–	–	4.134	0.827	5.709	**H2322X**	–	–	–	A2322X	–	–	–	AN22	AW22X	2.75	–	–	–
	4	–	–	105	21	145	–	**HE2322X**	–	–	–	AE2322X	–	–	AN22	AW22X	–	2.55	–	–
110	–	–	–				**H2324X**	–	–	–	A2324X	–	–	–	AN24	AW24	3.2	–	–	–
	4 1/4	–	–	4.409	0.866	6.102	–	**HE2324X**	–	–	–	AE2324X	–	–	–	–	–	3.5	–	–
	–	–	4 3/16	112	22	155	–	–	–	**HA2324X**	–	–	–	AA2324X	–	–	–	–	–	3.79

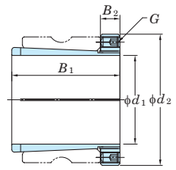
H2300X
d_1 115 ~ 125 mm

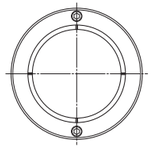




Shaft Dia. d_1 mm	Shaft Dia. d_1 inch			Dimensions inch mm			Adapter No.					Sleeve No.				Lock Nut No.	Washer No.	Mass kg			
(H)	(HE)	(HS)	(HA)	B_1	B_2	d_2	(H)	(HE)	(HS)	(HA)		(H)	(HE)	(HS)	(HA)			(H)	(HE)	(HS)	(HA)
	–	–	–	4.764	0.906	6.496	**H2326X**	–	–	–		A2326X	–	–	–	AN26	AW26	4.6	–	–	–
115	4 1/2	–	–	121	23	165	–	**HE2326X**	–	–		–	AE2326X	–	–	AN26	AW26	–	4.7	–	–
	–	–	4 7/16				–	–	–	**HA2326X**		–	–	–	AA2326X	–	–	–	–	–	4.23
	–	–	–	5.157	0.945	7.087	**H2328X**	–	–	–		A2328X	–	–	–	AN28	AW28	5.5	–	–	–
125	5	–	–	131	24	180	–	**HE2328X**	–	–		–	AE2328X	–	–	–	–	–	5.1	–	–
	–	–	4 15/16				–	–	–	**HA2328X**		–	–	–	AA2328X	–	–	–	–	–	5.42

ZK
d_1 **20 ~ 55 mm**





Shaft Dia. d_1 mm (ZK)	Shaft Dia. d_1 inch (ZKE)	Shaft Dia. d_1 inch (ZKS)	Shaft Dia. d_1 inch (ZKA)	Dimensions inch/mm B_1	Dimensions inch/mm B_2	Dimensions inch/mm d_2	Adapter No. (ZK)	Adapter No. (ZKE)	Adapter No. (ZKS)	Adapter No. (ZKA)	Sleeve No. (ZK)	Sleeve No. (ZKE)	Sleeve No. (ZKS)	Sleeve No. (ZKA)	Lock Nut No.	Set Screw G mm	Mass kg (ZK)	Mass kg (ZKE)	Mass kg (ZKS)	Mass kg (ZKA)
20	–	–		1.457	0.276	1.575	**ZK05**	–	–	–	AZ05	–	–	–	AK05	M5×0.5×6	0.11	–	–	–
	3/4	–		37	7	40	–	**ZKE05**	–	–	–	AZE05	–	–	AK05	M5×0.5×6	–	0.119	–	–
25	–	–	–	1.575	0.276	1.772	**ZK06**	–	–	–	AZ06	–	–	–	AK06	M5×0.5×6	0.13	–	–	–
	1	–	–				–	**ZKE06**	–	–	–	AZE06	–	–	AK06	M5×0.5×6	–	0.125	–	–
	–	7/8	–	40	7	45	–	–	**ZKS06**	–	–	–	AZS06	–	AK06	M5×0.5×6	–	–	0.16	–
	–	–	15/16				–	–	–	**ZKA06**	–	–	–	AZA06	AK06	M5×0.5×6	–	–	–	0.15
30	–	–	–	1.732	0.276	1.969	**ZK07**	–	–	–	AZ07	–	–	–	AK07	M5×0.5×6	0.17	–	–	–
	–	1 1/8	–				–	–	**ZKS07**	–	–	–	AZS07	–	AK07	M5×0.5×6	–	–	0.20	–
	–	–	1 3/16	44	7	50	–	–	–	**ZKA07**	–	–	–	AZA07	AK07	M5×0.5×6	–	–	–	0.17
35	–	–	–	1.850	0.315	2.244	**ZK08**	–	–	–	AZ08	–	–	–	AK08	M6×0.75×7	0.22	–	–	–
	1 1/4	–	–				–	**ZKE08**	–	–	–	AZE08	–	–	AK08	M6×0.75×7	–	0.29	–	–
	–	1 3/8	–	47	8	57	–	–	**ZKS08**	–	–	–	AZS08	–	AK08	M6×0.75×7	–	–	0.22	–
40	–	–	–	1.929	0.3158	2.441	**ZK09**	–	–	–	AZ09	–	–	–	AK09	M6×0.75×7	0.25	–	–	–
	1 1/2	–	–				–	**ZKE09**	–	–	–	AZE09	–	–	AK09	M6×0.75×7	–	0.30	–	–
	–	–	1 7/16	49	8	62	–	–	–	**ZKA09**	–	–	–	AZA09	AK09	M6×0.75×7	–	–	–	0.33
45	–	–	–	2.126	0.433	2.638	**ZK10**	–	–	–	AZ10	–	–	–	AK10	M6×0.75×10	0.33	–	–	–
	1 3/4	–	–				–	**ZKE10**	–	–	–	AZE10	–	–	AK10	M6×0.75×10	–	0.35	–	–
	–	1 5/8	–	54	11	67	–	–	**ZKS10**	–	–	–	AZS10	–	AK10	M6×0.75×10	–	–	0.43	–
	–	–	1 11/16				–	–	–	**ZKA10**	–	–	–	AZA10	AK10	M6×0.75×10	–	–	–	0.40
50	–	–	–	2.402	0.433	2.913	**ZK11**	–	–	–	AZ11	–	–	–	AK11	M6×0.75×10	0.42	–	–	–
	2	–	–				–	**ZKE11**	–	–	–	AZE11	–	–	AK11	M6×0.75×10	–	0.40	–	–
	–	1 7/8	–	61	11	74	–	–	**ZKS11**	–	–	–	AZS11	–	AK11	M6×0.75×10	–	–	0.5	–
	–	–	1 15/16				–	–	–	**ZKA11**	–	–	–	AZA11	AK11	M6×0.75×10	–	–	–	0.45
55	–	–	–	2.598	0.551	3.346	**ZK12**	–	–	–	AZ12	–	–	–	AK12	M8×1×12	0.61	–	–	–
	–	2 1/8	–	66	14	85	–	–	**ZKS12**	–	–	–	AZS12	–	AK12	M8×1×12	–	–	0.66	–

16 Parts and Accessories

16.1 Part No. of Steel Plate Covers

Table 16.1 Part No. of steel plate cover for UC type bearing

Bearing No.	Shaft dia. (mm)	Steel plate cover No.	
		Open type	Sealed type
UC201	12	C– 4×12	D– 4
UC202	15	C– 4×15	D– 4
UC203	17	C– 4×17	D– 4
UC204	20	C– 4×20	D– 4
UC205	25	C– 5×25	D– 5
UC206	30	C– 6×30	D– 6
UC207	35	C– 7×35	D– 7
UC208	40	C– 8×40	D– 8
UC209	45	C– 9×45	D– 9
UC210	50	C–10×50	D–10
UC211	55	C–11×55	D–11
UC212	60	C–12×60	D–12
UC213	65	C–13×65	D–13
UC214	70	C–14×70	D–14
UC215	75	C–15×75	D–15
UC216	80	C–16×80	D–16
UC217	85	C–17×85	D–17
UC218	90	C–18×90	D–18
UCX05	25	C– 6×25	D– 6
UCX06	30	C– 7×30	D– 7
UCX07	35	C– 8×35	D– 8
UCX08	40	C– 9×40	D– 9
UCX09	45	C–10×45	D–10
UCX10	50	C–11×50	D–11
UCX11	55	C–12×55	D–12
UCX12	60	C–13×60	D–13
UCX13	65	C–14×65	D–14
UCX14	70	C–15×70	D–15
UCX15	75	C–16×75	D–16
UCX16	80	C–17×80	D–17
UCX17	85	C–18×85	D–18

Remark In the Part No. of the steel plate covers for shouldered shaft, shaft diameter follows the basic code of the cover. For example, Part No. of the cover for a shaft with 35 mm diameter for UC207 is C–7×35.

Table 16.2 Part No. of steel plate cover for UK type bearing

Bearing No.	Shaft dia. (mm)	Steel plate cover No.	
		Open type	Sealed type
–			
–			
–			
–			
UK205	20	C– 5×20	D– 5
UK206	25	C– 6×25	D– 6
UK207	30	C– 7×30	D– 7
UK208	35	C– 8×35	D– 8
UK209	40	C– 9×40	D– 9
UK210	45	C–10×45	D–10
UK211	50	C–11×50	D–11
UK212	55	C–12×55	D–12
UK213	60	C–13×60	D–13
–			
UK215	65	C–15×65	D–15
UK216	70	C–16×70	D–16
UK217	75	C–17×75	D–17
UK218	80	C–18×80	D–18
UKX05	20	C– 6×20	D– 6
UKX06	25	C– 7×25	D– 7
UKX07	30	C– 8×30	D– 8
UKX08	35	C– 9×35	D– 9
UKX09	40	C–10×40	D–10
UKX10	45	C–11×45	D–11
UKX11	50	C–12×50	D–12
UKX12	55	C–13×55	D–13
UKX13	60	C–14×60	D–14
–			
UKX15	65	C–16×65	D–16
UKX16	70	C–17×70	D–17
UKX17	75	C–18×75	D–18

16.2 Part No. of Cast Iron Covers

Table 16.3 Part No. of cast iron cover for UC type bearing

Bearing No.	Shaft dia. (mm)	Cast iron cover No.		Mounting bolt (reference)
		Open type	Closed type	
UC204	20	204FC×20 (204FC3×20)[1]	204FD (204FD3)[1]	M3 (M4)
UC205	25	205FC×25 (205FC3×25)[1]	205FD (205FD3)[1]	M3 (M4)
UC206	30	206FC×30	206FD	M4
UC207	35	207FC×35	207FD	M4
UC208	40	208FC×40	208FD	
UC209	45	209FC×45	209FD	
UC210	50	210FC×50	210FD	M4
UC211	55	211FC×55	211FD	
UC212	60	212FC×60	212FD	
UC213	65	213FC×65	213FD	M4
UC214	70	214FC×70	214FD	
UC215	75	215FC×75	215FD	
UC216	80	216FC×80	216FD	M5
UC217	85	217FC×85	217FD	
UC218	90	218FC×90	218FD	
UCX18	90	X18C×90 (X18C3×90)[2]	X18D (X18D3)[2]	M5
UCX20	100	X20C×100 (X20C3×100)[2]	X20D (X20D3)[2]	
UC305	25	305C×25	305D	M4
UC306	30	306C×30	306D	
UC307	35	307C×35	307D	
UC308	40	308C×40	308D	M5
UC309	45	309C×45	309D	
UC310	50	310C×50	310D	
UC311	55	311C×55	311D	M5
UC312	60	312C×60	312D	
UC313	65	313C×65	313D	
UC314	70	314C×70	314D	M5
UC315	75	315C×75	315D	
UC316	80	316C×80	316D	
UC317	85	317C×85	317D	M5
UC318	90	318C×90	318D	
UC319	95	319C×95	319D	
UC320	100	320C×100	320D	M5
UC321	105	321C×105	321D	
UC322	110	322C×110	322D	
UC324	120	324C×120	324D	M5
UC326	130	326C×130	326D	M8
UC328	140	328C×140	328D	

Table 16.4 Part No. of cast iron cover for UK type bearing

Bearing No.	Shaft dia. (mm)	Cast iron cover No.		Mounting bolt (reference)
		Open type	Closed type	
–				
UK205	20	205FC×20 (205FC3×20)[1]	205FD (205FD3)[1]	M3 (M4)
UK206	25	206FC×25	206FD	M4
UK207	30	207FC×30	207FD	M4
UK208	35	208FC×35	208FD	
UK209	40	209FC×40	209FD	
UK210	45	210FC×45	210FD	M4
UK211	50	211FC×50	211FD	
UK212	55	212FC×55	212FD	
UK213	60	213FC×60	213FD	M4
–				
UK215	65	215FC×65	215FD	
UK216	70	216FC×70	216FD	M5
UK217	75	217FC×75	217FD	
UK218	80	218FC×80	218FD	
UKX18	80	X18C×80 (X18C3×80)[2]	X18D (X18D3)[2]	M5
UKX20	90	X20C×90 (X20C3×90)[2]	X20D (X20D3)[2]	
UK305	20	305C×20	305D	M4
UK306	25	306C×25	306D	
UK307	30	307C×30	307D	
UK308	35	308C×35	308D	M5
UK309	40	309C×40	309D	
UK310	45	310C×45	310D	
UK311	50	311C×50	311D	M5
UK312	55	312C×55	312D	
UK313	60	313C×60	313D	
–				
UK315	65	315C×65	315D	M5
UK316	70	316C×70	316D	
UK317	75	317C×75	317D	M5
UK318	80	318C×80	318D	
UK319	85	319C×85	319D	
UK320	90	320C×90	320D	M5
–				
UK322	100	322C×100	322D	
UK324	110	324C×110	324D	M5
UK326	115	326C×115	326D	M8
UK328	125	328C×125	328D	

Note [1] Items in parentheses apply to the pillow type (P), square four-bolt flange type (F), oval flange type (FL), and the take-up type (T) bearings, and can be mounted to housings with three hexagon socket head cap screws (use four to mount other items).

[2] Items in parentheses are applicable to the round flange cartridge type bearing (FC), and can be mounted to housings with three hexagon socket head cap screws (use four to mount other items).

Remark In the nominal codes of the cast iron covers for shouldered shafts, shaft diameter follows the basic code of the cover. For example, Part No. of the cover for a shaft with 60 mm diameter for UC210 is 210FC×60.

FYH®

SPHERICAL ROLLER BEARING UNITS

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6 Dimensional Tables for Spherical Roller Bearing Units

ZS2SN, XS2SN 260
d 40 ~ 100 mm

ZDS2SN, XDS2SN 262
d 60 ~ 100 mm

ZS2P, XS2P 264
d 1 3/8 ~ 4 inch 40 ~ 100 mm

ZSE2P, XSE2P 266
d 1 3/8 ~ 4 inch 40 ~ 100 mm

ZS4F, XS4F 268
d 1 3/8 ~ 4 inch 40 ~ 100 mm

ZSE4F, XSE4F 270
d 1 3/8 ~ 4 inch 40 ~ 100 mm

ZS4FC, XS4FC 272
d 1 3/8 ~ 4 inch 40 ~ 100 mm

ZST, XST 274
d 1 15/16 ~ 3 1/2 inch 50 ~ 90 mm

ZS4P, XS4P 276
d 2 7/16 ~ 4 inch 60 ~ 100 mm

ZDS4P, XDS4P 278
d 2 7/16 ~ 4 inch 60 ~ 100 mm

ZS4, XS4 280
d 1 3/8 ~ 4 inch 40 ~ 100 mm

ZDS4, XDS4 281
d 2 7/16 ~ 4 inch 60 ~ 100 mm

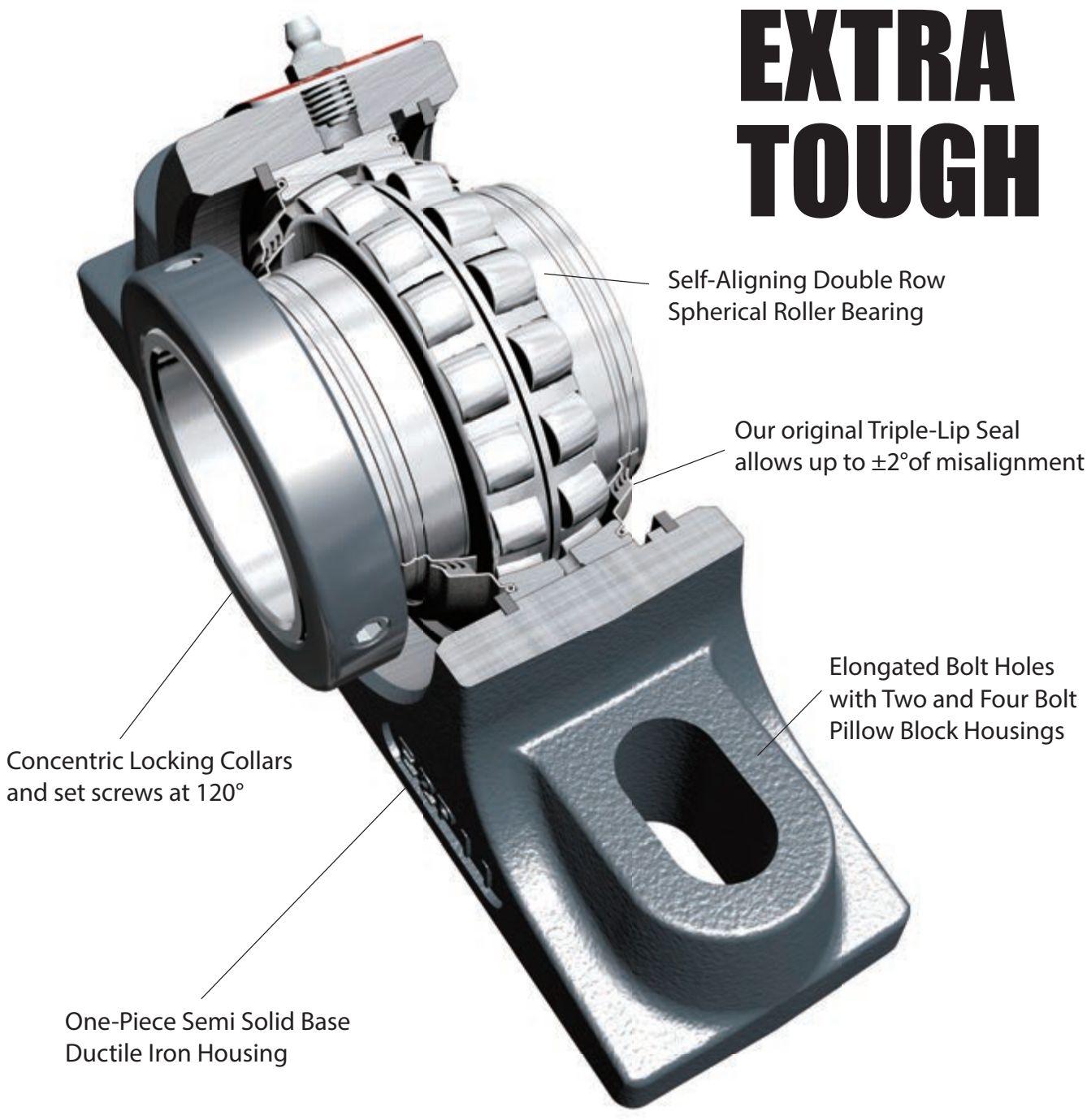
1 Structure and Features

1.1 Structure

More than sixty years of experience and innovation in the field of mounted ball bearing units has led to the production of mounted spherical roller units that cater to a wide range of applications and industries. Bearing and housing production are accomplished entirely by FYH while utilizing only the highest quality materials available. Through meticulous design enhancements and careful material selection, this heavy duty mounted roller series attains the designation of "EXTRA TOUGH".

1.2 Features

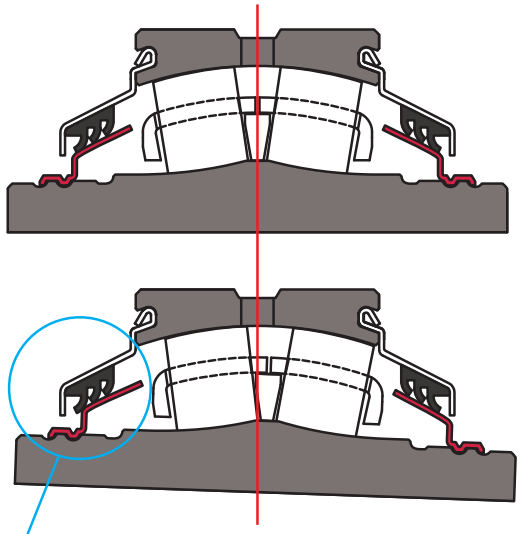
FYH spherical roller bearing units have many features and are available in various models. A wide selection of mounted units is offered to fit virtually any application.



1 Triple-Lip Seal

±2° Self Aligning capability

The triple lip seal maintains positive contact with a specially designed sealing ring at virtually any angle of shaft misalignment.
Our patented sealing design protects the bearing from a wide range of wet and dry contaminants, significantly extending bearing life.
Expansion units are also available to accommodate shaft expansion.



Positive seal contact is maintained during mis-alignment at any angle.

2 Semi Solid Base

One piece ductile iron housings

Ductile iron housings are approximately twice as strong as standard cast iron.
Our semi-solid base design provides an excellent mounting foundation and superior rigidity compared to competitive products.

3 Lubrication

FYH Roller Grease is a calcium sulfonate complex thickened lubricating grease formulated in mineral oil. FYH Roller Grease has excellent low temperature and high temperature performance, and it provides excellent extreme pressure and anti-wear protection. FYH Roller Grease also provides excellent corrosion protection and water wash-out resistance. Grease temperature range: -40 to 340°F (-40 to 170°C) FYH Roller Grease is also available in automatic lubricators.

4 Designed to Interchange with the Competition

Units are designed to interchange with most spherical roller unit footprints. Elongated bolt holes are dimensioned to allow for a shortened or extended mounting pitch to accommodate practically any competitive tapered roller or spherical roller design.

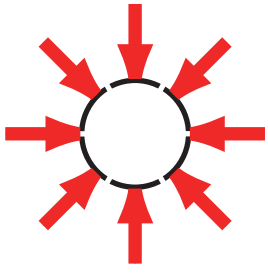
5 Convertible from Non-expansion to Expansion

By simply moving a snap ring on the back of the unit the bearing can easily be converted from non-expansion to expansion or vice versa.
This procedure can be easily performed in the field even after the unit has been mounted.

6 Locking Style

The patented Z-LOCK is FYH's original tapered bore locking collar system. By simply tightening the cap screws, the specially designed tapered bore collar provides exceptional holding power on the shaft without causing any damage.
This system offers a true 360-degree locking mechanism.
Disassembly is easy, thanks to two threaded holes in the collar designed for standard dismounting.

Z LOCK



THE MOST REVOLUTIONARY
TRUE 360° GRIP

2 Models

2.1 Model List

Table 2.1 shows the models of FYH Spherical Roller Bearing Units.

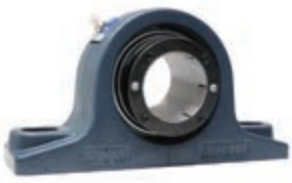
Table 2.1 FYH Spherical Roller Bearing Units models

Model	Type	Bearing bore dia. Surface (fixing to shaft)	Model code	Shaft dia. (inch) min.	Shaft dia. (inch) max.	Shaft dia. (mm) min.	Shaft dia. (mm) max.	Dimension table
1 SPHERICAL ROLLER BEARING UNITS	(1) 2 -Bolt Base Type SN Pillow Block	with Z-LOCK	**ZS2SN**	–	–	40	100	P.260
		with set screw collar lock	**XS2SN**	–	–	40	100	P.260
		with Z-LOCK (both)	**ZDS2SN**	–	–	60	100	P.262
		with set screw collar lock (both)	**XDS2SN**	–	–	60	100	P.262
	(2) 2-Bolt Base Pillow Block Units	with Z-LOCK	**ZS2P**	$1\,^{3}/_{8}$	4	40	100	P.264
		with set screw collar lock	**XS2P**	$1\,^{3}/_{8}$	4	40	100	P.264
	(3) 2-Bolt Base Type E Pillow Units	with Z-LOCK	**ZSE2P**	$1\,^{3}/_{8}$	4	40	100	P.266
		with set screw collar lock	**XSE2P**	$1\,^{3}/_{8}$	4	40	100	P.266
	(4) 4-Bolt Flange Units	with Z-LOCK	**ZS4F**	$1\,^{3}/_{8}$	4	40	100	P.268
		with set screw collar lock	**XS4F**	$1\,^{3}/_{8}$	4	40	100	P.268
	(5) 4-Bolt Type E Flange Units	with Z-LOCK	**ZSE4F**	$1\,^{3}/_{8}$	4	40	100	P.270
		with set screw collar lock	**XSE4F**	$1\,^{3}/_{8}$	4	40	100	P.270
	(6) Flange Cartridge Units	with Z-LOCK	**ZS4FC**	$1\,^{3}/_{8}$	4	40	100	P.272
		with set screw collar lock	**XS4FC**	$1\,^{3}/_{8}$	4	40	100	P.272
	(7) Take-Up Units	with Z-LOCK	**ZST**	$1\,^{15}/_{16}$	$3\,^{1}/_{2}$	50	90	P.274
		with set screw collar lock	**XST**	$1\,^{15}/_{16}$	$3\,^{1}/_{2}$	50	90	P.274
	(8) 4-Bolt Base Pillow Block Units	with Z-LOCK	**ZS4P**	$2\,^{7}/_{16}$	4	60	100	P.276
		with set screw collar lock	**XS4P**	$2\,^{7}/_{16}$	4	60	100	P.276
		with Z-LOCK (both)	**ZDS4P**	$2\,^{7}/_{16}$	4	60	100	P.278
		with set screw collar lock (both)	**XDS4P**	$2\,^{7}/_{16}$	4	60	100	P.278
2 SPHERICAL ROLLER BEARING INSERTS	(1) ZS Inserts	with Z-LOCK	**ZS**	$1\,^{3}/_{8}$	4	40	100	P.280
	(2) XS Inserts	with set screw collar lock	**XS**	$1\,^{3}/_{8}$	4	40	100	P.280
	(3) ZDS Inserts	with Z-LOCK (both)	**ZDS**	$2\,^{7}/_{16}$	4	60	100	P.281
	(4) XDS Inserts	with set screw collar lock (both)	**XDS**	$2\,^{7}/_{16}$	4	60	100	P.281

2.2 Models and Features

1 SPHERICAL ROLLER BEARING UNITS

1 2 - Bolt Base Type SN Pillow Block Units



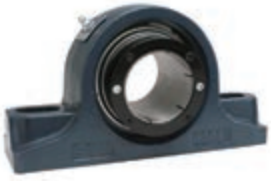
ZS2SN

XS2SN

ZS2SN is a patented Z-LOCK spherical roller bearing unit with SN style housing for the replacement of SN plummer blocks.

XS2SN has the same housing dimensions as the above styles but utilizes the patented Bullet Point set screws, spaced 120 degrees apart, to hold the shaft securely in place.

2 2 - Bolt Base Pillow Block Units



ZS2P
ZSE2P

XS2P
XSE2P

ZS2P is a two-bolt pillow block unit with a Z-LOCK locking system. This unit is equivalent to many of our competitors SRB style housings. The ends of the housing are milled flat to allow for mounting inside of a fixed frame assembly.

ZSE2P is a two-bolt base pillow block unit with Type E mounting dimensions. It has a footprint that can accommodate both a tapered roller unit and a spherical roller unit for most shaft sizes.

XS2P and **XSE2P** have the same housing dimensions as the above styles but utilizes the patented Bullet Point set screws, spaced 120 degrees apart, to hold the shaft securely in place.

3 4 - Bolt Flange Units

ZS4F
ZSE4F

XS4F
XSE4F

ZS4F is a four-bolt flange unit with standard spherical roller unit mounting dimensions and a compact footprint for areas with limited space.

ZSE4F is a four-bolt flange unit with Type E tapered roller unit mounting dimensions. This makes for easy replacement of Type E units when the features of a spherical roller unit are more desirable.

XS4F and **XSE4F** have the same housing dimensions as the above styles but utilizes the patented Bullet Point set screws, spaced 120 degrees apart, to hold the shaft securely in place.

4 Flange Cartridge Units

ZS4FC

XS4FC

ZS4FC is a flange cartridge unit with pilot mounting dimensions that are the same as medium duty ball bearing units for easy upgrading to a heavier duty series. The threaded withdrawal holes allow for quick and easy dismounting.

XS4FC has the same housing dimensions as the above styles but utilizes the patented Bullet Point set screws, spaced 120 degrees apart, to hold the shaft securely in place.

5 Take - Up Units

ZST

XST

ZST is a take-up unit with rail slots that are compatible with many industrial frame sizes. This unit can safely handle high belt tension and heavy shock loads.

XST has the same housing dimensions as the above styles but utilizes the patented Bullet Point set screws, spaced 120 degrees apart, to hold the shaft securely in place.

6 4 - Bolt Base Pillow Block Units

ZS4P

XS4P

ZS4P is a four-bolt base pillow block unit with standard spherical roller bearing mounting dimensions. Four mounting bolt-holes create a firm and secure fit to the mounting surface. The ends of the housing are flat to allow mounting inside a fixed frame assembly.

XS4P has the same housing dimensions as the above styles but utilizes the patented Bullet Point set screws, spaced 120 degrees apart, to hold the shaft securely in place.

7 4 - Bolt Base Pillow Block Units (Double Collar)

ZDS4P

XDS4P

ZDS4P is the same as the ZS4P but utilizes a double lock. This insert has patented Z-LOCK locking mechanism on both the front and back of the inner ring. This additional locking mechanism is beneficial in applications where the bearing experiences some thrust loads on the inner ring that could cause a single locking unit to slip.

XDS4P has the same housing dimensions as the above styles but utilizes the patented Bullet Point set screws, spaced 120 degrees apart, to hold the shaft securely in place.

2 SPHERICAL ROLLER BEARING INSERTS

1 Spherical Roller Bearing Inserts (Single Collar)

ZS

XS

ZS is a Z-LOCK concentric locking insert that utilizes a tapered collar that allows for fast mounting while avoiding damage to the shaft that a set screw unit can cause. The tapered collar provides 100% true concentric holding power and does not remove any clearance in the insert by over tightening like the adapter sleeve locking system can. The unit is tightened down using a hex wrench on the cap screws in a star pattern. The insert can be uninstalled by removing all cap screws and using two of them in the withdrawal holes to disengage the collar.

XS is a set screw locking insert that utilizes the patented Bullet Point set screws, spaced 120 degrees apart, to hold the shaft securely in place. This is the most economical type of SRB insert and can be utilized in a wide variety of industrial and agricultural applications.

2 Spherical Roller Bearing Inserts (Double Collar)

ZDS

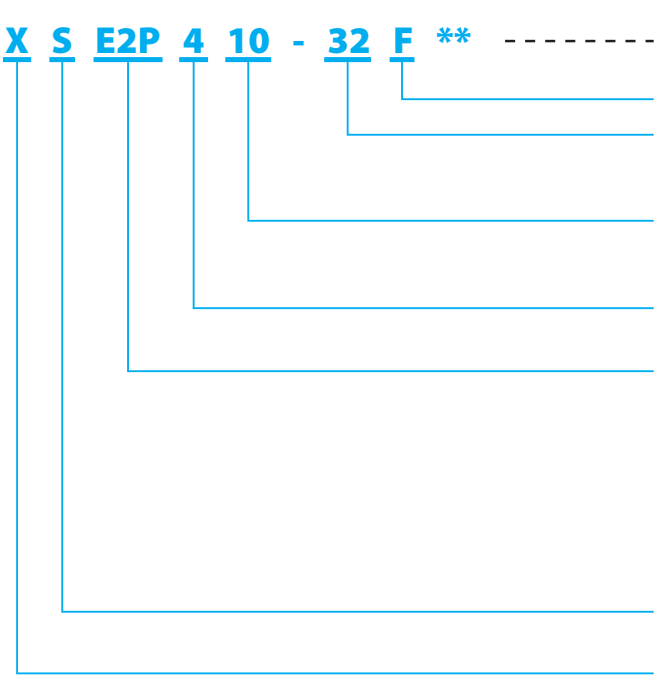
XDS

ZDS is the same as the ZS above but utilizes a double lock. This insert has a concentric tapered collar on both the front and back of the inner ring. This additional locking mechanism is helpful in applications where a bearing experiences some thrust loads on the inner ring that could cause a single locking unit to slip.

XDS is the same as the XS above but utilizes a double lock. This insert has a set screw locking mechanism on both the front and back of the inner ring. This additional locking mechanism is helpful in applications where the bearing experiences some thrust loads on the inner ring that could cause a single locking unit to slip.

3 Nomenclature

The nomenclature of a FYH Spherical Roller Unit consists of the roller bearing unit model code which is composed of the bearing model code and the housing model code. This in combination with the diameter series code, bore diameter code, accessory code and any special code for individual applications determines the FYH Spherical Roller Units part number.



Bearing No.	XS410-32
Housing No.	E2P10

EXPANSION Type

Bore Size (inch)
Number of 1/16″ of Inches
(ex. 39 = 2 7/16″)

Bore Size (base)
Metric type x 5 mm of Number
(ex. 13 = 65 mm)

Series code

4	Spherical Roller

Housing model code

2SN	2 -Bolt Base Type SN Pillow Block
2P	2 - Bolt Pillow Block
4P	4 - Bolt Pillow Block
4F	4 - Bolt Flange
4FC	Flange Cartridge
T	Take - Up
E2P	2 - Bolt Pillow Block : TYPE E (inch)
E4F	4 - Bolt Flange : TYPE E (inch)

INSERT-2 model code

S	Spherical Roller

INSERT-1 Locking Type code

Z	Z-LOCK Concentric Locking System
ZD	Z-LOCK Concentric Locking System (Both side)
X	Concentric set screw lock (One side)
XD	Concentric set screw lock (Both side)

4 Engineering Information

Spherical Roller Bearing Life Calculations

The relationship between the basic rating life, the basic dynamic load rating, and the dynamic equivalent load of the spherical roller bearing is expressed by Formula A. If the spherical roller bearing unit is being used at a fixed rotating speed, the life is indicated as time.
This is shown in Formula B.

A. $$L_{10} = \left(\frac{C_r}{P_r}\right)^{\frac{10}{3}}$$

B. $$L_{10h} = \frac{10^6 L_{10}}{60n} = \frac{10^6}{60n}\left(\frac{C_r}{P_r}\right)^{\frac{10}{3}}$$

L_{10} : Basic Rating Life 10^6 rotations
L_{10h}: Rated Life (hr)
C_r : Basic Dynamic Load Rating (lbf)
P_r : Dynamic equivalent Load (lbf)
n : Speed (min^{-1})

Basic Loads (lbf)		
Size Code	Dynamic C_r	Static C_{or}
XS408	19967	22744
XS409	20834	24491
XS410	21683	26306
XS411	27191	33029
XS413	39006	49591
XS415	42032	54986
XS418	63910	86343
XS420	81897	111863

Limiting Speed for Seals		
Size Code	Standard Triple-Lip Seal Limiting Speeds (*dn*=110,000) RPM	Non-Contact Seal Limiting Speeds (*dn*=130,000) RPM
XS408	2750	3200
XS409	2450	2800
XS410	2200	2600
XS411	2000	2360
XS413	1692	2000
XS415	1460	1730
XS418	1220	1440
XS420	1100	1300

Allowable Radial Load (lbf) at Various RPM																				
Shaft Size	Size	L_{10h}	RPM																	
			50	100	150	300	500	750	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3200
1 3/8″ 1 7/16″ 1 1/2″ 40 mm	XS408	10000	7197	5846	5177	4205	3607	3194	2930	2774	2649	2545	2456	2380	2313	2253	2200	2151	2107	2067
		25000	5468	4441	3932	3194	2740	2426	2226	2107	2012	1933	1866	1808	1757	1712	1671	1634	1601	1570
		50000	4441	3607	3194	2594	2226	1971	1808	1712	1634	1570	1516	1468	1427	1390	1357	1327	1300	1275
		70000	4015	3261	2887	2345	2012	1782	1634	1547	1477	1419	1370	1327	1290	1257	1227	1200	1175	1153
		100000	3607	2930	2594	2107	1808	1601	1468	1390	1327	1275	1231	1193	1159	1129	1102	1078	1056	1036
1 11/16″ 1 3/4″ 45 mm	XS409	10000	7510	6100	5401	4387	3764	3333	3057	2894	2764	2655	2563	2483	2413	2351	2295	2245		
		25000	5705	4634	4103	3333	2859	2532	2322	2199	2099	2017	1947	1886	1833	1786	1744	1705		
		50000	4634	3764	3333	2707	2322	2056	1886	1786	1705	1638	1581	1532	1489	1451	1416	1385		
		70000	4189	3402	3013	2447	2099	1859	1705	1615	1542	1481	1430	1385	1346	1311	1280	1252		
		100000	3764	3057	2707	2199	1886	1670	1532	1451	1385	1331	1285	1245	1209	1178	1150	1125		
1 15/16″ 2″ 50 mm	XS410	10000	7816	6349	5621	4566	3917	3469	3182	3012	2876	2763	2667	2584	2512	2447	2389			
		25000	5937	4823	4270	3469	2976	2635	2417	2288	2185	2099	2026	1963	1908	1859	1815			
		50000	4823	3917	3469	2817	2417	2140	1963	1859	1775	1705	1646	1595	1550	1510	1474			
		70000	4360	3541	3136	2547	2185	1935	1775	1680	1604	1541	1488	1442	1401	1365	1332			
		100000	3917	3182	2817	2288	1963	1738	1595	1510	1442	1385	1337	1295	1259	1226	1197			
2 3/16″ 55 mm	XS411	10000	9801	7961	7049	5726	4912	4350	3990	3778	3607	3465	3345	3241	3150					
		25000	7446	6048	5355	4350	3732	3304	3031	2870	2740	2632	2541	2462	2393					
		50000	6048	4912	4350	3533	3031	2684	2462	2331	2226	2138	2064	2000	1943					
		70000	5467	4441	3932	3194	2740	2426	2226	2107	2012	1933	1866	1808	1757					
		100000	4912	3990	3533	2870	2462	2180	2000	1893	1808	1737	1676	1624	1579					
2 7/16″ 65 mm	XS413	10000	14060	11421	10113	8214	7047	6240	5724	5419	5174	4971	4798	4649						
		25000	10681	8676	7682	6240	5353	4740	4348	4117	3931	3776	3645	3532						
		50000	8676	7047	6240	5068	4348	3850	3532	3344	3193	3067	2961	2869						
		70000	7843	6370	5641	4582	3931	3480	3193	3023	2886	2773	2677	2593						
		100000	7047	5724	5068	4117	3532	3127	2869	2716	2593	2491	2405	2330						
2 11/16″ 2 15/16″ 75 mm	XS415	10000	15151	12307	10897	8851	7594	6724	6168	5840	5576	5357								
		25000	11510	9349	8278	6724	5768	5108	4685	4436	4236	4069								
		50000	9349	7594	6724	5461	4685	4149	3806	3603	3440	3305								
		70000	8451	6864	6078	4937	4236	3750	3440	3257	3110	2988								
		100000	7594	6168	5461	4436	3806	3370	3091	2927	2794	2685								
3 7/16″ 90 mm	XS418	10000	23037	18712	16569	13458	11546	10224	9378	8879	8478									
		25000	17500	14215	12587	10224	8771	7766	7124	6745	6440									
		50000	14215	11546	10224	8304	7124	6308	5787	5479	5231									
		70000	12850	10437	9242	7507	6440	5703	5231	4953	4729									
		100000	11546	9378	8304	6745	5787	5124	4700	4450	4249									
3 15/16″ 100 mm	XS420	10000	29521	23979	21232	17246	14796	13101	12018	11378	10864									
		25000	22426	18215	16129	13101	11240	9952	9129	8643	8253									
		50000	18215	14796	13101	10641	9129	8084	7415	7021	6703									
		70000	16467	13375	11843	9620	8253	7308	6703	6347	6060									
		100000	14796	12018	10641	8643	7415	6566	6023	5703	5445									

1. Blue area: The Standard Triple-Lip Seal is used.
2. Green area: A Non-Contact Seal is used.

5 Installation Guide

5.1 Precautions

- Read the entire installation guide prior to beginning.
- Bearings are precision instruments and they must always be handled carefully to prevent damage.
- Store bearings in a cool and dry location, and always leave bearings in original packaging until ready for installation.
- Bearing life calculations should be performed prior to installation to ensure that the selected unit is acceptable for the application.
- The use of more than two bearings on a single shaft is not recommended.
- To maximize the life of the bearing, avoid mis-alignment and pre-loading by carefully following these instructions.
- Always lock out the power source and adhere closely to industry safety standards before performing any work on the equipment.

5.2 Preparation

The mounting surface and housing base must be clean, flat, and of sufficient thickness to support the weight of the entire assembly without deflecting or breaking. Make sure that the mounting surface is parallel to the plane of the shaft for pillow blocks, and perpendicular to the shaft for flanges and take-up units. FYH mounted bearings can accommodate up to ±2 degrees of mis-alignment; however longer bearing life can be achieved if mis-alignment can be minimized during installation.

Check the shaft diameter and make sure that it is within tolerance as indicated in Table 1. Check that the shaft is straight, clean, and free of burrs or other imperfections. Use emery cloth or a fine file to smooth the surface as necessary. A small amount of lubricant may be applied to both the shaft and the bore of the bearing; however lubricant should not be applied to the areas where the bearing locking mechanism contacts the shaft. To ensure adequate locking power between the bearing and shaft, the hardness of the shaft should not exceed Rc 45.

Table 1 - Shaft Tolerance

Shaft Size (mm)		h6		h7	
		Shaft Speed Greater Than 50% of Max RPM Rating		Shaft Speed Less Than 50% of Max RPM Rating	
Over	Incl.	Max (mm)	Min (mm)	Max (mm)	Min (mm)
30	50	+0	–0.016	+0	–0.025
50	80	+0	–0.019	+0	–0.03
80	120	+0	–0.022	+0	–0.035

Converting units from fixed to expansion

FYH mounted roller units are capable of operating in both a fixed and expansion configuration.

Before bearing installation

On the back side of the unit (opposite the housing markings), remove the bearing retaining ring located on the inner diameter of the housing and move it back to the groove on the outer position of the housing. Slide the bearing insert rearward within the housing until it sits against the retaining ring that was just relocated. When ready for installation, slide the insert forward in the housing approximately one thirty-second of an inch ($^1/_{32}$") and alternately tighten the set screws onto the shaft to the specified torque setting as shown in Table 4.

After bearing installation

Before performing any work on the bearing, lock out the power source and allow the shaft and adjacent machinery to cool down to ambient temperature. Loosen the set screws or other locking mechanism to allow the shaft to move freely within the bore, then follow the same procedures explained in the "Before bearing installation" section.

5.3 Installation

1. Slide the unit onto the shaft while holding the inner ring of the bearing.
   Position the unit on the mounting surface so that the plane of the shaft is perpendicular to the face of the housing, and alternately tighten the mounting bolts to the specified torque as shown in Table 2.
   Make sure to use bolts, washers, and nuts of sufficient strength and grade rating for the application.

Table 2 - Mounting Bolt Tightening Torque

Bolt Size		Tightening Torque		
mm	inch	N·m	in-lbf	ft-lbf
M6	1/4	5	43	4
M8	5/16	10	92	8
M10	3/8	22	196	17
M12	7/16	38	334	27
M16	5/8	95	840	70
M18	–	139	1231	103
M20	3/4	189	1664	139
M22	7/8	260	2301	192
M24	–	309	2850	237
M27	1	484	4277	358

2. Check the final position of the shaft and alternately tighten the set screws of the non-expansion unit onto the shaft to the specified torque setting as shown in Table 3. The set screws in the bearing on the opposite side of the shaft should line up with the set screws of the bearing that was installed first (See Figure A). Expansion bearings should be installed only after the shaft and adjacent machinery have cooled down to the ambient temperature.
   After positioning the expansion unit on the shaft, slide the insert to the rearmost position within the housing until it seats against the retaining ring. Then slide the insert forward in the housing approximately one thirty second of an inch (1/32") and alternately tighten the set screws onto the shaft to the specified torque setting as shown in Table 3. Allowable shaft expansion and expansion calculation data can be found in Table 4 and Formula 1 respectively.

3. Once installed, slowly rotate the bearing by hand to confirm that it turns smoothly and without resistance, vibration, or any other abnormalities.

Table 3 - Set Screw Tightening Torque (recommended)

Size Code	Set Screw Size	Set Screw Tightening Torque		
		N·m	in-lbf	ft-lbf
XS408-XS409	5/16-28UNF×1/2	14.5	128	11
XS410-XS413	3/8-24UNF×5/8	25.5	226	19
XS414-XS420	1/2-20UNF×3/4	56.5	500	42

Table 4 - Quantity of Total Movement

Size Code		Quantity of Total Movement	
		mm	inch
XS408-XS410	ZS408-ZS410	5	13/64
XS411-XS420	ZS411-ZS420	6	15/64

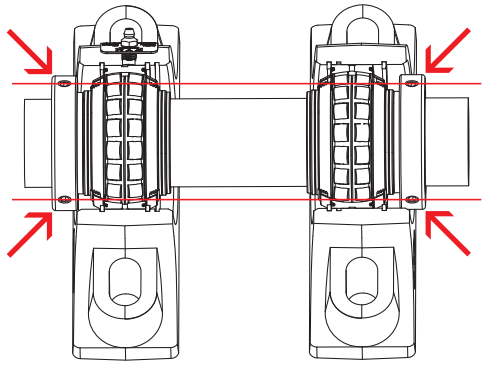
Formula 1 – Linear Shaft Expansion

L = A · T · D

L : Expansion of shaft (mm)
A : Linear expansion coefficient of shaft for ordinary steel (11.5 x 10^{-6})
T : Temperature increase (°C)
D : Installation distance between bearing units (mm)

Allowable shaft expansion: 3/16" max

Figure A – Set Screws Lined Up in Both Bearings



4. To install **Z-LOCK**, evenly tighten the four cap screws on the face of the locking collar with the included Allen wrench. Repeat to draw the collar onto the inner ring. (**See Table 5**) To disassemble, remove all the black cap screws as well as the two silver cap screws. Screw two black cap screws where the silver cap screws had been. Screw the two black cap screws until the collar disengages.

Table 5 - Cap screw of Z-LOCK Tightening Torque (recommended)

Size Code	Allen Wrench (mm)	Tightening Torque		
		N·m	in-lbf	ft-lbf
ZS408-ZS409	3	3-5.5	26.5-48.7	2.2-4.1
ZS410-ZS411	4	6-11	53-97.4	4.4-8.1
ZS412-ZS420	5	12-22	106-194	8.8-16.2

5.4 Lubrication

Proper lubrication practices will greatly extend the life of the bearing.
Bearings are factory lubricated with the proper amount and type of lubricant for most general purpose applications as well as many highly demanding operating environments, and except as recommended by FYH, no further lubrication is required upon installation.

Lubrication tips:

- The factory standard lubricant is a **Calcium Sulfonate** grease. Always use the same type of lubricant to avoid compatibility issues and other potential problems.
- When adding lubricant, do so slowly and while the bearing is rotating until a small amount of lubricant can be seen coming out of the seals.
- At low speeds (below 200 RPM) it is acceptable to completely fill the bearing with grease.
- At moderate to high speeds it is not advisable to completely fill the bearing with grease as it could lead to overheating and reduced bearing life.
- It is generally better to use less lubrication more frequently than more lubricant less often.
- If the unit will not be operated for an extended period of time extra lubricant should be added to prevent corrosion.
- If the unit has not been operated for an extended period of time fresh lubricant should be added prior to start-up.
- If the unit becomes too hot during operation from over-lubrication remove the grease fitting and operate the unit for approximately thirty minutes to allow excess grease to purge.

Appropriate lubrication intervals can be determined by referring to Table 5; however, experience should largely determine the actual lubrication regimen for a particular application. Consult with an FYH representative for assistance.

The use of any other type of lubricant should be avoided to prevent compatibility issues with the Calcium Sulfonate grease that is originally supplied.

To find the proper lubrication interval in Table 6, obtain the relevant percentage of max allowable RPM by referring to Table 7.
Example: XS411 with positive contact seals has a max RPM rating of 2000. If the application has an RPM of 600 then the percentage of max RPM is 30% (600/2000 = .30).
The amount of grease for replenishment can be found in Table 8.

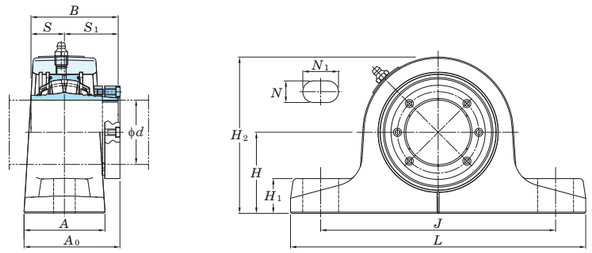
Table 6 - Lubrication Schedule

Environment	Clean to Moderately Dirty				Dirty to Very Dirty
Temperature (°C)	Under 120 degrees				From -20 to 120
% of max allowable RPM	0 - 25%	25 - 50%	50 - 75%	75 - 100%	0 - 100%
Lubrication interval	From three to eight months	From one to three months	From one week to one month	Daily to once per week	Daily to once per week

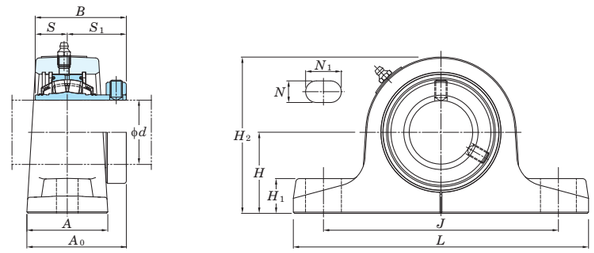
Table 7 - Limiting Speed for Seals (min^{-1})			
Size Code		Standard Triple-Lip Seal Limiting	Non-Contact Seal Limiting
XS408	ZS408	2750	3200
XS409	ZS409	2450	2800
XS410	ZS410	2200	2600
XS411	ZS411	2000	2360
XS412-XS413	ZS412-ZS413	1692	2000
XS414-XS415	ZS414-ZS415	1460	1730
XS416-XS418	ZS416-ZS418	1220	1440
XS420	ZS420	1100	1300

Table 8 - Grease Amount for Replenishment (recommended)		
Size Code		Amount of Grease (grams)
XS408	ZS408	7-8
XS409	ZS409	7-9
XS410	ZS410	8-9
XS411	ZS411	10-12
XS412-XS413	ZS412-ZS413	19-22
XS414-XS415	ZS414-ZS415	22-26
XS416-XS418	ZS416-ZS418	40-46
XS420	ZS420	50-59

ZS2SN
Cylindrical bore
(with Z-LOCK)
d 40 ~ 100 mm

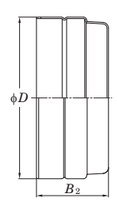


XS2SN
Cylindrical bore
(with set screw collar lock)
d 40 ~ 100 mm



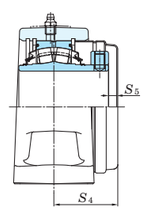
Shaft Dia. mm d	Dimensions mm H	L	A	J	N	N_1	H_1	H_2	A_0	B	S	S_1	Unit No.	Bearing No.	Unit No.	Bearing No.	Housing No.	Bolt Size	Basic Load Ratings kN C_r	C_{0r}	Interchange to SN Plummer Block Units
40	60	205	60	164.8	15	24.8	25	112	68.9	64.3	25.4	38.9	**ZS2SN408**	ZS408	**XS2SN408**	XS408	2SN408	M12	88.7	101.1	SN509
45	60	205	60	167.5	15	22.5	25	115	72.1	67.5	25.4	42.1	**ZS2SN409**	ZS409	**XS2SN409**	XS409	2SN409	M12	92.6	108.8	SN510
50	70	255	70	203	20	31	28	130	81.8	72.2	25.4	46.8	**ZS2SN410**	ZS410	**XS2SN410**	XS410	2SN410	M16	96.4	116.9	SN511
55	70	255	70	203	20	31	30	135	81	74.6	28.6	46	**ZS2SN411**	ZS411	**XS2SN411**	XS411	2SN411	M16	120.8	146.8	SN512
60 **65**	80	280	80	220.5	20	33.5	30	155	89.6	81.4	31.8	49.6	**ZS2SN412** **ZS2SN413**	ZS412 ZS413	**XS2SN412** **XS2SN413**	XS412 XS413	2SN413	M16	173.3	220.4	SN513 SN515
70 **75**	95	316	90	256.4	25	34.1	32	176	104.5	91.3	31.8	59.5	**ZS2SN414** **ZS2SN415**	ZS414 ZS415	**XS2SN414** **XS2SN415**	XS414 XS415	2SN415	M20	186.8	244.4	SN516 SN517
80	100	345	100	281.8	25	34	35	198	115.1	103.6	38.5	65.1	**ZS2SN416**	ZS416	**XS2SN416**	XS416	2SN416	M20	284.1	383.7	SN518
85	112	345	100	280.2	25	38	35	210	115.1	103.6	38.5	65.1	**ZS2SN417**	ZS417	**XS2SN417**	XS417	2SN417	M20	284.1	383.7	SN519
90	112	380	110	309.9	29	43.1	40	218	120.1	103.6	38.5	65.1	**ZS2SN418**	ZS418	**XS2SN418**	XS418	2SN418	M24	284.1	383.7	SN520
100	125	410	120	335.2	29	46.8	45	239	132.6	113.9	41.3	72.6	**ZS2SN420**	ZS420	**XS2SN420**	XS420	2SN420	M24	364	497.2	SN522

Pressed Steel Cover (DS-8 - DS-20)

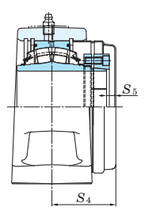


Pressed Steel Cover No.	Dimension mm D	B_2
DS-8	80	31
DS-9	85	35
DS-10	90	40
DS-11	100	38
DS-13	120	39
DS-15	130	49
DS-18	160	50
DS-20	180	55

Pressed Steel Cover with XS Unit



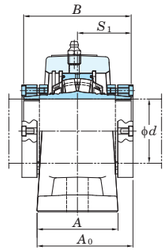
Pressed Steel Cover with ZS Unit

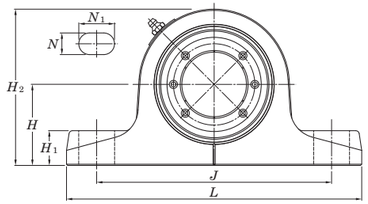


S_4 and S_5 are the same size as other units.
(2P, 4P, SN, 4F, 4T, E4F)

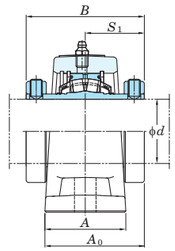
Size Code	Dimension mm S_4	S_5
408	45.5	5.6
409	49.5	6.4
410	54.5	6.7
411	53.5	6.5
412 **413**	58	7.4
414 **415**	68	7.5
416 **417** **418**	73.5	7.4
419 **420**	81.5	7.9

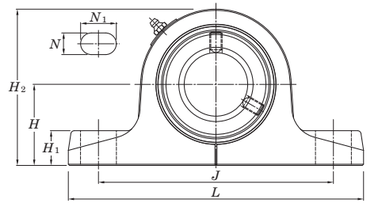
ZDS2SN
Cylindrical bore
(with Z-LOCK (both))
d 60 ~ 100 mm





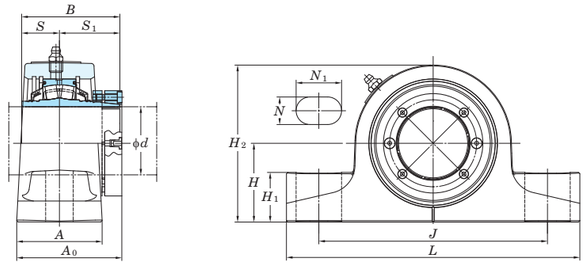
XDS2SN
Cylindrical bore
(with set screw collar lock (both))
d 60 ~ 100 mm



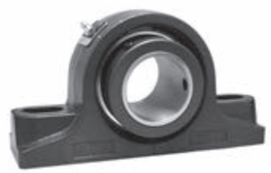


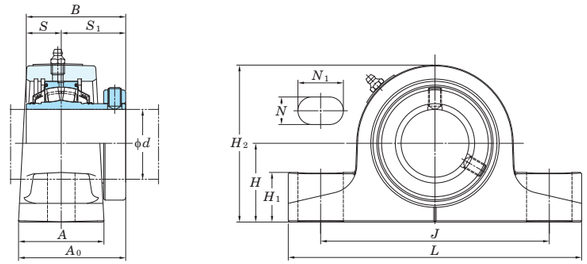
Shaft Dia. mm d	Dimensions mm H	L	A	J	N	N_1	H_1	H_2	A_0	B	S_1	Unit No.	Bearing No.	Unit No.	Bearing No.	Housing No.	Bolt Size	Basic Load Ratings kN C_r	C_{0r}	Interchange to SN Plummer Block Units
60	80	280	80	220.5	20	33.5	30	155	89.6	99.2	49.6	**ZDS2SN412**	ZDS412	**XDS2SN412**	XDS412	2SN413	M16	173.3	220.4	SN513
65												**ZDS2SN413**	ZDS413	**XDS2SN413**	XDS413					SN515
70	95	316	90	256.4	25	34.1	32	176	104.5	119	59.5	**ZDS2SN414**	ZDS414	**XDS2SN414**	XDS414	2SN415	M20	186.8	244.4	SN516
75												**ZDS2SN415**	ZDS415	**XDS2SN415**	XDS415					SN517
80	100	345	100	281.8	25	34	35	198	115.1	130.2	65.1	**ZDS2SN416**	ZDS416	**XDS2SN416**	XDS416	2SN416	M20	284.1	383.7	SN518
85	112	345	100	280.2	25	38	35	210	115.1	130.2	65.1	**ZDS2SN417**	ZDS417	**XDS2SN417**	XDS417	2SN417	M20	284.1	383.7	SN519
90	112	380	110	309.9	29	43.1	40	218	120.1	130.2	65.1	**ZDS2SN418**	ZDS418	**XDS2SN418**	XDS418	2SN418	M24	284.1	383.7	SN520
100	125	410	120	335.2	29	46.8	45	239	132.6	145.2	72.6	**ZDS2SN420**	ZDS420	**XDS2SN420**	XDS420	2SN420	M24	364	497.2	SN522

ZS2P
Cylindrical bore
(with Z-LOCK)
d **1 3/8 ~ 4 inch**
40 ~ 100 mm



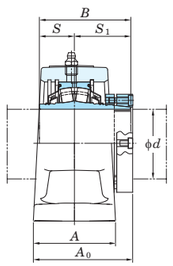
XS2P
Cylindrical bore
(with set screw collar lock)
d **1 3/8 ~ 4 inch**
40 ~ 100 mm

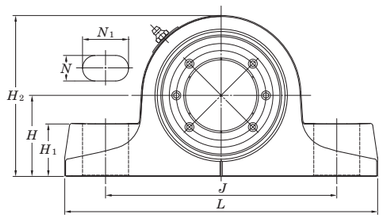




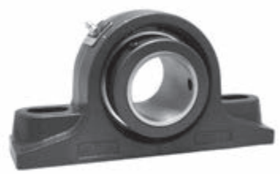
Shaft Dia. inch / mm d	Dimensions inch / mm H	L	A	J	N	N_1	H_1	H_2	A_0	B	S	S_1	Unit No.	Bearing No.	Unit No.	Bearing No.	Housing No.	Bolt Size inch / mm	Basic Load Ratings kN C_r	C_{0r}
1 3/8													ZS2P408-22	ZS408-22	XS2P408-22	XS408-22				
1 7/16	1 7/8	6 7/8	2 5/32	5 9/32	19/32	1 3/32	1 1/4	3 25/32	2 5/8	2.531	1	1.531	ZS2P408-23	ZS408-23	XS2P408-23	XS408-23	2P408	1/2	88.7	101.1
1 1/2	47.6	175	55	134	15	28	32	96	66.4	64.3	25.4	38.9	ZS2P408-24	ZS408-24	XS2P408-24	XS408-24		M12		
40													**ZS2P408**	ZS408	**XS2P408**	XS408				
1 11/16													ZS2P409-27	ZS409-27	XS2P409-27	XS409-27				
1 3/4	2 1/8	7 3/8	2 3/8	5 25/32	19/32	1 3/32	1 5/16	4 1/4	2 27/32	2.657	1	1.657	ZS2P409-28	ZS409-28	XS2P409-28	XS409-28	2P409	1/2	92.6	108.8
45	54	187	60	147	15	28	33	108	72.1	67.5	25.4	42.1	**ZS2P409**	ZS409	**XS2P409**	XS409		M12		
1 15/16													ZS2P410-31	ZS410-31	XS2P410-31	XS410-31				
50	2 1/4	8 3/8	2 7/16	6 17/32	25/32	1 5/16	1 3/8	4 1/2	3 1/16	2.843	1	1.843	**ZS2P410**	ZS410	**XS2P410**	XS410	2P410	5/8	96.4	116.9
2	57.2	213	62	166	20	33	35	114	77.8	72.2	25.4	46.8	ZS2P410-32	ZS410-32	XS2P410-32	XS410-32		M16		
55													**ZS2P411**	ZS411	**XS2P411**	XS411				
2 3/16	2 1/2	8 7/8	2 5/8	6 7/8	25/32	1 3/16	1 5/8	4 31/32	3 1/8	2.937	1.126	1.811	ZS2P411-35	ZS411-35	XS2P411-35	XS411-35	2P411	5/8	120.8	146.8
2 1/4	63.5	225	67	175	20	30	41	126	79.5	74.6	28.6	46	ZS2P411-36	ZS411-36	XS2P411-36	XS411-36		M16		
60													**ZS2P412**	ZS412	**XS2P412**	XS412				
2 7/16	2 3/4	9 1/4	2 7/8	7 9/32	25/32	1 3/16	1 25/32	5 19/32	3 3/8	3.205	1.252	1.953	ZS2P413-39	ZS413-39	XS2P413-39	XS413-39	2P413	5/8	173.3	220.4
2 1/2	69.8	235	73	185	20	30	45	142	86.1	81.4	31.8	49.6	ZS2P413-40	ZS413-40	XS2P413-40	XS413-40		M16		
65													**ZS2P413**	ZS413	**XS2P413**	XS413				
70													**ZS2P414**	ZS414	**XS2P414**	XS414				
2 11/16													ZS2P415-43	ZS415-43	XS2P415-43	XS415-43				
2 3/4	3 1/4	10 7/16	3	8 9/32	15/16	1 9/32	1 7/8	6 3/8	3 13/16	3.594	1.252	2.343	ZS2P415-44	ZS415-44	XS2P415-44	XS415-44	2P415	3/4	186.8	244.4
2 15/16	82.6	265	76	210	24	32	48	162	97	91.3	31.8	59.5	ZS2P415-47	ZS415-47	XS2P415-47	XS415-47		M20		
75													**ZS2P415**	ZS415	**XS2P415**	XS415				
3													ZS2P415-48	ZS415-48	XS2P415-48	XS415-48				
80													**ZS2P416**	ZS416	**XS2P416**	XS416				
3 1/4													ZS2P417-52	ZS417-52	XS2P417-52	XS417-52				
85	3 3/4	13	3 3/8	10 5/16	1 1/16	1 23/32	2 1/4	7 15/32	4 1/4	4.079	1.516	2.563	**ZS2P417**	ZS417	**XS2P417**	XS417	2P418	7/8	284.1	383.7
3 7/16	95.2	330	86	262	27	44	57	190	108.1	103.6	38.5	65.1	ZS2P418-55	ZS418-55	XS2P418-55	XS418-55		M22		
3 1/2													ZS2P418-56	ZS418-56	XS2P418-56	XS418-56				
90													**ZS2P418**	ZS418	**XS2P418**	XS418				
100													**ZS2P420**	ZS420	**XS2P420**	XS420				
3 15/16	4 1/4	15 1/4	3 3/4	11 1/4	1 5/32	2 5/16	2 17/32	8 11/32	4 23/32	4.484	1.626	2.858	ZS2P420-63	ZS420-63	XS2P420-63	XS420-63	2P420	1	364	497.2
4	108	387	95	286	29	59	64	212	120.1	113.9	41.3	72.6	ZS2P420-64	ZS420-64	XS2P420-64	XS420-64		M24		

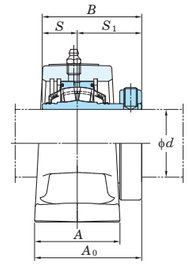
ZSE2P
Cylindrical bore
(with Z-LOCK)
d 1 3/8 ~ 4 inch
40 ~ 100 mm

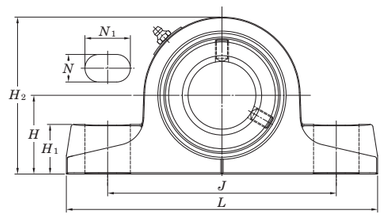




XSE2P
Cylindrical bore
(with set screw collar lock)
d 1 3/8 ~ 4 inch
40 ~ 100 mm

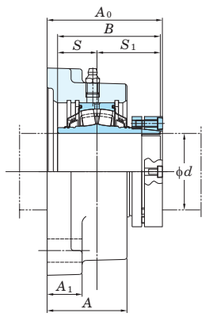


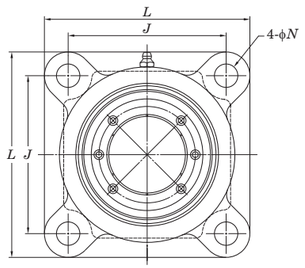




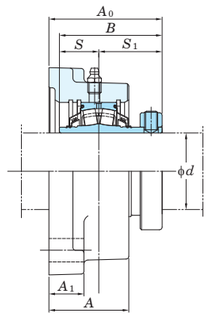
Shaft Dia. inch / mm d	Dimensions inch / mm H	L	A	J	N	N_1	H_1	H_2	A_0	B	S	S_1	Unit No.	Bearing No.	Unit No.	Bearing No.	Housing No.	Bolt Size inch / mm	Basic Load Ratings kN C_r	C_{0r}
1 3/8													ZSE2P408-22	ZS408-22	XSE2P408-22	XS408-22				
1 7/16	1 7/8	7 3/8	2 5/32	5 9/32	19/32	1 3/32	1 1/4	3 25/32	2 5/8	2.531	1	1.531	ZSE2P408-23	ZS408-23	XSE2P408-23	XS408-23	E2P08	1/2	88.7	101.1
1 1/2	47.6	187	55	134	15	28	32	96	66.4	64.3	25.4	38.9	ZSE2P408-24	ZS408-24	XSE2P408-24	XS408-24		M12		
40													ZSE2P408	ZS408	XSE2P408	XS408				
1 11/16													ZSE2P409-27	ZS409-27	XSE2P409-27	XS409-27				
1 3/4	2 1/8	7 7/8	2 3/8	5 25/32	19/32	1 3/32	1 5/16	4 1/4	2 27/32	2.657	1	1.657	ZSE2P409-28	ZS409-28	XSE2P409-28	XS409-28	E2P09	1/2	92.6	108.8
45	54	200	60	147	15	28	33	108	72.1	67.5	25.4	42.1	ZSE2P409	ZS409	XSE2P409	XS409		M12		
1 15/16													ZSE2P410-31	ZS410-31	XSE2P410-31	XS410-31				
50	2 1/4	8 29/32	2 7/16	6 17/32	25/32	1 5/16	1 3/8	4 1/2	3 1/16	2.843	1	1.843	ZSE2P410	ZS410	XSE2P410	XS410	E2P10	5/8	96.4	116.9
2	57.2	226	62	166	20	33	35	114	77.8	72.2	25.4	46.8	ZSE2P410-32	ZS410-32	XSE2P410-32	XS410-32		M16		
55													ZSE2P411	ZS411	XSE2P411	XS411				
2 3/16	2 1/2	9 21/32	2 5/8	7 1/8	25/32	1 13/32	1 5/8	4 31/32	3 1/8	2.937	1.126	1.811	ZSE2P411-35	ZS411-35	XSE2P411-35	XS411-35	E2P11	5/8	120.8	146.8
2 1/4	63.5	245	67	181	20	36	41	126	79.5	74.6	28.6	46	ZSE2P411-36	ZS411-36	XSE2P411-36	XS411-36		M16		
60													ZSE2P412	ZS412	XSE2P412	XS412				
2 7/16	2 3/4	10 1/4	2 7/8	7 11/16	25/32	1 9/16	1 25/32	5 19/32	3 3/8	3.205	1.252	1.953	ZSE2P413-39	ZS413-39	XSE2P413-39	XS413-39	E2P13	5/8	173.3	220.4
2 1/2	69.8	260	73	195	20	40	45	142	86.1	81.4	31.8	49.6	ZSE2P413-40	ZS413-40	XSE2P413-40	XS413-40		M16		
65													ZSE2P413	ZS413	XSE2P413	XS413				
70													ZSE2P414	ZS414	XSE2P414	XS414				
2 11/16													ZSE2P415-43	ZS415-43	XSE2P415-43	XS415-43				
2 3/4	3 1/8	11 5/8	3	8 11/16	15/16	1 11/16	1 25/32	6 1/4	3 13/16	3.594	1.252	2.343	ZSE2P415-44	ZS415-44	XSE2P415-44	XS415-44	E2P15	3/4	186.8	244.4
2 15/16	79.5	295	76	221	24	43	45	159	97	91.3	31.8	59.5	ZSE2P415-47	ZS415-47	XSE2P415-47	XS415-47		M20		
75													ZSE2P415	ZS415	XSE2P415	XS415				
3													ZSE2P415-48	ZS415-48	XSE2P415-48	XS415-48				
80													ZSE2P416	ZS416	XSE2P416	XS416				
3 1/4													ZSE2P417-52	ZS417-52	XSE2P417-52	XS417-52				
85	3 3/4	13 1/2	3 3/8	10 5/16	1 1/16	1 23/32	2 1/4	7 15/32	4 1/4	4.079	1.516	2.563	ZSE2P417	ZS417	XSE2P417	XS417	E2P18	7/8	284.1	383.7
3 7/16	95.2	343	86	262	27	44	57	190	108.1	103.6	38.5	65.1	ZSE2P418-55	ZS418-55	XSE2P418-55	XS418-55		M22		
3 1/2													ZSE2P418-56	ZS418-56	XSE2P418-56	XS418-56				
90													ZSE2P418	ZS418	XSE2P418	XS418				
100													ZSE2P420	ZS420	XSE2P420	XS420				
3 15/16	4 1/8	15 1/4	3 3/4	11 1/4	1 5/32	2 5/16	2 13/32	8 7/32	4 23/32	4.484	1.626	2.858	ZSE2P420-63	ZS420-63	XSE2P420-63	XS420-63	E2P20	1	364	497.2
4	104.9	387	95	286	29	59	61	209	120.1	113.9	41.3	72.6	ZSE2P420-64	ZS420-64	XSE2P420-64	XS420-64		M24		

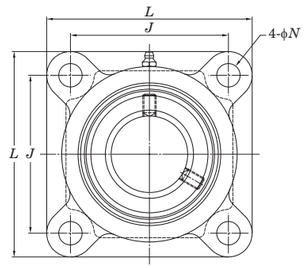
ZS4F
Cylindrical bore
(with Z-LOCK)
d **1 3/8 ~ 4 inch**
40 ~ 100 mm





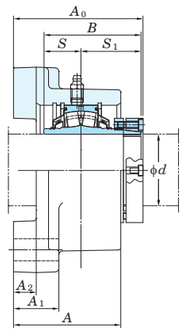
XS4F
Cylindrical bore
(with set screw collar lock)
d **1 3/8 ~ 4 inch**
40 ~ 100 mm

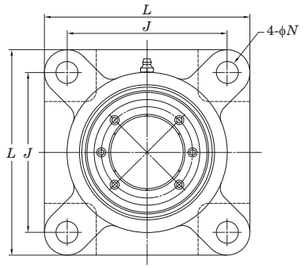




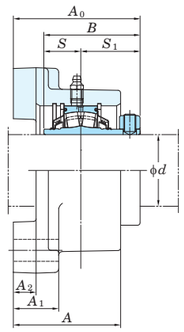
Shaft Dia. inch / mm *d*	Dimensions inch / mm *L*	*A*	*J*	*N*	*A*1	*A*0	*B*	*S*	*S*1	Unit No.	Bearing No.	Unit No.	Bearing No.	Housing No.	Bolt Size inch / mm	Basic Load Ratings kN *C*r	*C*0r
1 3/8										ZS4F408-22	ZS408-22	XS4F408-22	XS408-22				
1 7/16	4 3/4	2 3/32	3 17/32	35/64	3/4	2 3/4	2.531	1	1.531	ZS4F408-23	ZS408-23	XS4F408-23	XS408-23	4F408	1/2	88.7	101.1
1 1/2	121	53	89.7	14	19	70.2	64.3	25.4	38.9	ZS4F408-24	ZS408-24	XS4F408-24	XS408-24		M12		
40										**ZS4F408**	ZS408	**XS4F408**	XS408				
1 11/16	5 1/8	2 5/32	3 57/64	35/64	3/4	2 31/32	2.657	1	1.657	ZS4F409-27	ZS409-27	XS4F409-27	XS409-27				
1 3/4	130	55	98.8	14	19	75.4	67.5	25.4	42.1	ZS4F409-28	ZS409-28	XS4F409-28	XS409-28	4F409	1/2	92.6	108.8
45										**ZS4F409**	ZS409	**XS4F409**	XS409		M12		
1 15/16	5 5/16	2 5/32	4 1/16	35/64	3/4	3 5/32	2.843	1	1.843	ZS4F410-31	ZS410-31	XS4F410-31	XS410-31				
50	135	55	103.2	14	19	80.2	72.2	25.4	46.8	**ZS4F410**	ZS410	**XS4F410**	XS410	4F410	1/2	96.4	116.9
2										ZS4F410-32	ZS410-32	XS4F410-32	XS410-32		M12		
55										**ZS4F411**	ZS411	**XS4F411**	XS411				
2 3/16	5 29/32	2 9/32	4 33/64	21/32	1 1/32	3 1/4	2.937	1.126	1.811	ZS4F411-35	ZS411-35	XS4F411-35	XS411-35	4F411	5/8	120.8	146.8
2 1/4	150	58	114.7	17	26	82.2	74.6	28.6	46	ZS4F411-36	ZS411-36	XS4F411-36	XS411-36		M16		
60										**ZS4F412**	ZS412	**XS4F412**	XS412				
2 7/16	6 1/8	2 9/16	4 25/32	21/32	1 1/32	3 17/32	3.205	1.252	1.953	ZS4F413-39	ZS413-39	XS4F413-39	XS413-39	4F413	5/8	173.3	220.4
2 1/2	156	65	121.4	17	26	89.3	81.4	31.8	49.6	ZS4F413-40	ZS413-40	XS4F413-40	XS413-40		M16		
65										**ZS4F413**	ZS413	**XS4F413**	XS413				
70										**ZS4F414**	ZS414	**XS4F414**	XS414				
2 11/16										ZS4F415-43	ZS415-43	XS4F415-43	XS415-43				
2 3/4	7 7/32	2 5/8	5 9/16	7/8	1 1/32	3 29/32	3.594	1.252	2.343	ZS4F415-44	ZS415-44	XS4F415-44	XS415-44	4F415	3/4	186.8	244.4
2 15/16	183	67	141.3	22	26	99.2	91.3	31.8	59.5	ZS4F415-47	ZS415-47	XS4F415-47	XS415-47		M20		
75										**ZS4F415**	ZS415	**XS4F415**	XS415				
3										ZS4F415-48	ZS415-48	XS4F415-48	XS415-48				
80										**ZS4F416**	ZS416	**XS4F416**	XS416				
3 1/4										ZS4F417-52	ZS417-52	XS4F417-52	XS417-52				
85	8 9/32	3 5/32	6 23/32	7/8	1 5/32	4 3/8	4.079	1.516	2.563	**ZS4F417**	ZS417	**XS4F417**	XS417	4F418	3/4	284.1	383.7
3 7/16	210	80	170.7	22	29	111.5	103.6	38.5	65.1	ZS4F418-55	ZS418-55	XS4F418-55	XS418-55		M20		
3 1/2										ZS4F418-56	ZS418-56	XS4F418-56	XS418-56				
90										**ZS4F418**	ZS418	**XS4F418**	XS418				
100										**ZS4F420**	ZS420	**XS4F420**	XS420				
3 15/16	9 1/4	3 19/32	7 39/64	63/64	1 3/16	4 27/32	4.484	1.626	2.858	ZS4F420-63	ZS420-63	XS4F420-63	XS420-63	4F420	7/8	364	497.2
4	235	91	193.3	25	30	123	113.9	41.3	72.6	ZS4F420-64	ZS420-64	XS4F420-64	XS420-64		M22		

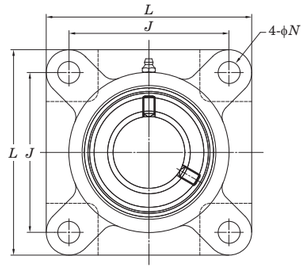
ZSE4F
Cylindrical bore
(with Z-LOCK)
d **1 3/8 ~ 4 inch**
40 ~ 100 mm





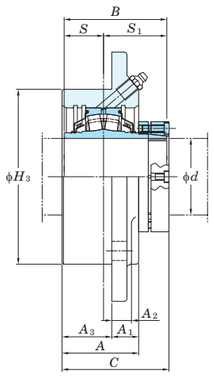
XSE4F
Cylindrical bore
(with set screw collar lock)
d **1 3/8 ~ 4 inch**
40 ~ 100 mm

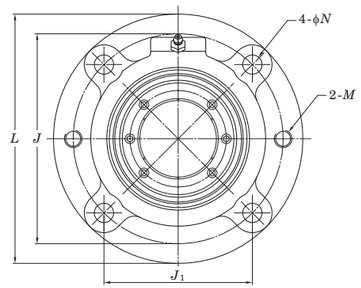




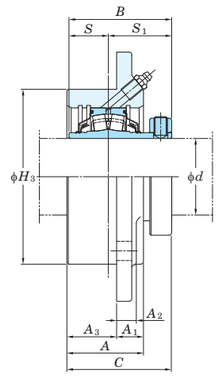
Shaft Dia. inch / mm *d*	Dimensions inch / mm *L*	*A*	*J*	*N*	*A*1	*A*2	*A*0	*B*	*S*	*S*1	Unit No.	Bearing No.	Unit No.	Bearing No.	Housing No.	Bolt Size inch / mm	Basic Load Ratings kN *C*r	*C*0r
1 3/8											ZSE4F408-22	ZS408-22	XSE4F408-22	XS408-22				
1 7/16	4 19/32	2 15/32	3 1/2	35/64	1 1/16	1/2	3 1/16	2.531	1	1.531	ZSE4F408-23	ZS408-23	XSE4F408-23	XS408-23	E4F408	1/2	88.7	101.1
1 1/2	117	63	88.9	14	27	13	77.8	64.3	25.4	38.9	ZSE4F408-24	ZS408-24	XSE4F408-24	XS408-24		M12		
40											**ZSE4F408**	ZS408	**XSE4F408**	XS408				
1 11/16											ZSE4F409-27	ZS409-27	XSE4F409-27	XS409-27				
1 3/4	5 11/32	2 15/16	4 1/8	35/64	1 3/16	5/8	3 1/2	2.657	1	1.657	ZSE4F409-28	ZS409-28	XSE4F409-28	XS409-28	E4F409	1/2	92.6	108.8
45	136	75	104.9	14	30	16	88.8	67.5	25.4	42.1	**ZSE4F409**	ZS409	**XSE4F409**	XS409		M12		
1 15/16											ZSE4F410-31	ZS410-31	XSE4F410-31	XS410-31				
50	5 5/8	2 15/16	4 3/8	35/64	1 3/16	5/8	3 5/8	2.843	1	1.843	**ZSE4F410**	ZS410	**XSE4F410**	XS410	E4F410	1/2	96.4	116.9
2	143	75	111	14	30	16	92	72.2	25.4	46.8	ZSE4F410-32	ZS410-32	XSE4F410-32	XS410-32		M12		
55											**ZSE4F411**	ZS411	**XSE4F411**	XS411				
2 3/16	6 1/4	3 9/32	4 7/8	21/32	1 3/8	23/32	3 7/8	2.937	1.126	1.811	ZSE4F411-35	ZS411-35	XSE4F411-35	XS411-35	E4F411	5/8	120.8	146.8
2 1/4	159	83	123.7	17	35	18	98.2	74.6	28.6	46	ZSE4F411-36	ZS411-36	XSE4F411-36	XS411-36		M16		
60											**ZSE4F412**	ZS412	**XSE4F412**	XS412				
2 7/16	6 7/8	3 11/32	5 3/8	21/32	1 1/2	25/32	4 3/16	3.205	1.252	1.953	ZSE4F413-39	ZS413-39	XSE4F413-39	XS413-39	E4F413	5/8	173.3	220.4
2 1/2	175	85	136.4	17	38	20	106.3	81.4	31.8	49.6	ZSE4F413-40	ZS413-40	XSE4F413-40	XS413-40		M16		
65											**ZSE4F413**	ZS413	**XSE4F413**	XS413				
70											**ZSE4F414**	ZS414	**XSE4F414**	XS414				
2 11/16											ZSE4F415-43	ZS415-43	XSE4F415-43	XS415-43				
2 3/4	7 3/4	3 13/16	6	7/8	1 5/8	15/16	4 11/16	3.594	1.252	2.343	ZSE4F415-44	ZS415-44	XSE4F415-44	XS415-44	E4F415	3/4	186.8	244.4
2 15/16	197	97	152.4	22	41	24	119	91.3	31.8	59.5	ZSE4F415-47	ZS415-47	XSE4F415-47	XS415-47		M20		
75											**ZSE4F415**	ZS415	**XSE4F415**	XS415				
3											ZSE4F415-48	ZS415-48	XSE4F415-48	XS415-48				
80											**ZSE4F416**	ZS416	**XSE4F416**	XS416				
3 1/4											ZSE4F417-52	ZS417-52	XSE4F417-52	XS417-52				
85	9 1/4	4 9/32	7	7/8	1 7/8	31/32	5 5/16	4.079	1.516	2.563	**ZSE4F417**	ZS417	**XSE4F417**	XS417				
3 7/16	235	109	177.8	22	48	24.5	135.1	103.6	38.5	65.1	ZSE4F418-55	ZS418-55	XSE4F418-55	XS418-55	E4F418	3/4	284.1	383.7
3 1/2											ZSE4F418-56	ZS418-56	XSE4F418-56	XS418-56		M20		
90											**ZSE4F418**	ZS418	**XSE4F418**	XS418				
100											**ZSE4F420**	ZS420	**XSE4F420**	XS420				
3 15/16	10 1/4	5 1/2	7 3/4	63/64	2 1/8	1 3/32	6 1/2	4.484	1.626	2.858	ZSE4F420-63	ZS420-63	XSE4F420-63	XS420-63	E4F420	7/8	364	497.2
4	260	140	196.9	25	54	28	165.2	113.9	41.3	72.6	ZSE4F420-64	ZS420-64	XSE4F420-64	XS420-64		M22		

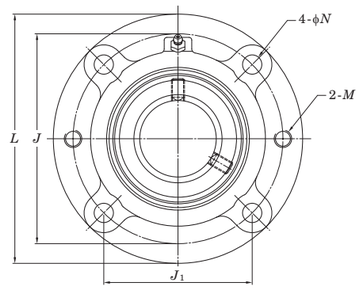
ZS4FC
Cylindrical bore
(with Z-LOCK)
d **1 3/8 ~ 4 inch**
40 ~ 100 mm





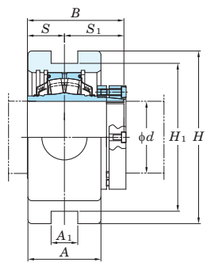
XS4FC
Cylindrical bore
(with set screw collar lock)
d **1 3/8 ~ 4 inch**
40 ~ 100 mm

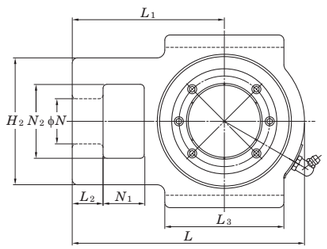




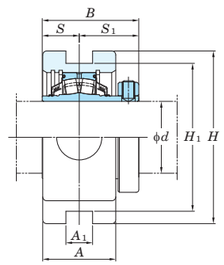
Shaft Dia. inch / mm *d*	Dimensions inch / mm *L*	*H*3	*J*	*J*1	*N*	*A*	*A*1	*A*2	*A*3	*C*	*M*	*B*	*S*	*S*1	Unit No.	Bearing No.	Unit No.	Bearing No.	Housing No.	Bolt Size inch / mm	Basic Load Ratings kN *C*r	*C*0r
1 3/8 1 7/16 1 1/2 **40**	5 1/4 133	3.625 92.1	4 3/8 111.1	3 3/32 78.6	15/32 12	1 27/32 46.8	13/16 21	11/16 17.3	1 1/32 26	2 17/32 64.3	3/8-16UNC	2.531 64.3	1 25.4	1.531 38.9	**ZS4FC408-22** **ZS4FC408-23** **ZS4FC408-24** **ZS4FC408**	ZS408-22 ZS408-23 ZS408-24 ZS408	**XS4FC408-22** **XS4FC408-23** **XS4FC408-24** **XS4FC408**	XS408-22 XS408-23 XS408-24 XS408	4FC408	3/8 M10	88.7	101.1
1 11/16 1 3/4 **45**	6 5/32 156	4.25 107.8	5 1/8 130.2	3 5/8 92.1	9/16 14	1 29/32 48.4	5/8 16	1/2 12.7	1 17/64 32.2	2 23/32 69.1	7/16-14UNC	2.657 67.5	1 25.4	1.657 42.1	**ZS4FC409-27** **ZS4FC409-28** **ZS4FC409**	ZS409-27 ZS409-28 ZS409	**XS4FC409-27** **XS4FC409-28** **XS4FC409**	XS409-27 XS409-28 XS409	4FC409	7/6 M12	92.6	108.8
1 15/16 **50** 2	6 3/8 162	4.5 114.3	5 3/8 136.5	3 51/64 96.5	9/16 14	2 50.8	3/4 19	9/16 14.3	1 17/64 32.2	2 55/64 72.6	7/16-14UNC	2.843 72.2	1 25.4	1.843 46.8	**ZS4FC410-31** **ZS4FC410** **ZS4FC410-32**	ZS410-31 ZS410 ZS410-32	**XS4FC410-31** **XS4FC410** **XS4FC410-32**	XS410-31 XS410 XS410-32	4FC410	7/6 M12	96.4	116.9
55 2 3/16 2 1/4	7 1/8 181	5 127	6 152.4	4 1/4 107.8	35/64 14	2 3/16 55.6	25/32 20	9/16 14.3	1 27/64 36.1	3 76.1	1/2-13UNC	2.937 74.6	1.126 28.6	1.811 46	**ZS4FC411** **ZS4FC411-35** **ZS4FC411-36**	ZS411 ZS411-35 ZS411-36	**XS4FC411** **XS4FC411-35** **XS4FC411-36**	XS411 XS411-35 XS411-36	4FC411	1/2 M12	120.8	146.8
60 2 7/16 2 1/2 **65**	7 5/8 194	5.5 139.7	6 1/2 165.1	4 19/32 116.7	35/64 14	2 1/2 63.5	15/16 24	5/8 15.9	1 9/16 39.7	3 7/16 87.4	1/2-13UNC	3.205 81.4	1.252 31.8	1.953 49.6	**ZS4FC412** **ZS4FC413-39** **ZS4FC413-40** **ZS4FC413**	ZS412 ZS413-39 ZS413-40 ZS413	**XS4FC412** **XS4FC413-39** **XS4FC413-40** **XS4FC413**	XS412 XS413-39 XS413-40 XS413	4FC413	1/2 M12	173.3	220.4
70 2 11/16 2 3/4 2 15/16 **75** 3	8 3/4 222	6.375 161.9	7 1/2 190.5	5 19/64 134.7	43/64 17	2 5/8 66.7	31/32 25	3/4 19.1	1 5/8 41.3	3 41/64 92.5	5/8-11UNC	3.594 91.3	1.252 31.8	2.343 59.5	**ZS4FC414** **ZS4FC415-43** **ZS4FC415-44** **ZS4FC415-47** **ZS4FC415** **ZS4FC415-48**	ZS414 ZS415-43 ZS415-44 ZS415-47 ZS415 ZS415-48	**XS4FC414** **XS4FC415-43** **XS4FC415-44** **XS4FC415-47** **XS4FC415** **XS4FC415-48**	XS414 XS415-43 XS415-44 XS415-47 XS415 XS415-48	4FC415	5/8 M16	186.8	244.4
80 3 1/4 **85** 3 7/16 3 1/2 **90**	10 1/4 260	7.375 187.3	8 5/8 219.1	6 3/32 154.9	29/32 23	3 76.2	1 15/32 38	15/16 23.8	1 33/64 38.5	4 5/32 105.6	3/4-10UNC	4.079 103.6	1.516 38.5	2.563 65.1	**ZS4FC416** **ZS4FC417-52** **ZS4FC417** **ZS4FC418-55** **ZS4FC418-56** **ZS4FC418**	ZS416 ZS417-52 ZS417 ZS418-55 ZS418-56 ZS418	**XS4FC416** **XS4FC417-52** **XS4FC417** **XS4FC418-55** **XS4FC418-56** **XS4FC418**	XS416 XS417-52 XS417 XS418-55 XS418-56 XS418	4FC418	3/4 M20	284.1	383.7
100 3 15/16 4	10 7/8 276	8.125 206.4	9 3/8 238.1	6 5/8 168.4	29/32 23	3 1/2 88.9	1 9/16 40	1 1/4 31.4	1 29/32 48.4	4 9/16 115.9	3/4-10UNC	4.484 113.9	1.626 41.3	2.858 72.6	**ZS4FC420** **ZS4FC420-63** **ZS4FC420-64**	ZS420 ZS420-63 ZS420-64	**XS4FC420** **XS4FC420-63** **XS4FC420-64**	XS420 XS420-63 XS420-64	4FC420	3/4 M20	364	497.2

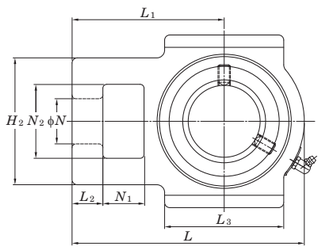
ZST
Cylindrical bore
(with Z-LOCK)
d 1 15/16 ~ 3 1/2 inch
50 ~ 90 mm





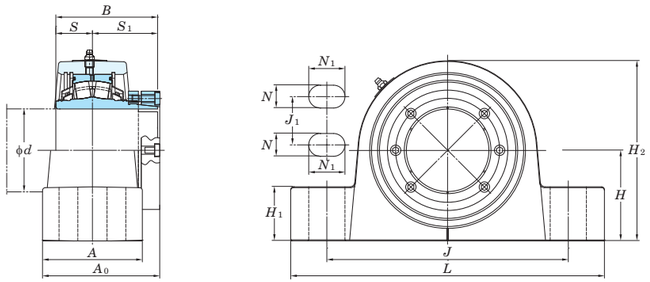
XST
Cylindrical bore
(with set screw collar lock)
d 1 15/16 ~ 3 1/2 inch
50 ~ 90 mm



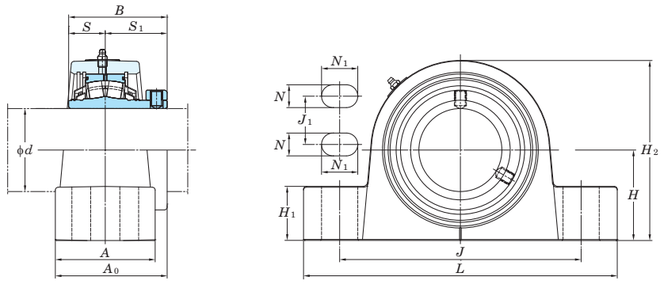


Shaft Dia. inch / mm	Dimensions inch / mm															Unit No.	Bearing No.	Unit No.	Bearing No.	Housing No.	Basic Load Ratings kN	
d	*A*	A_1	*H*	H_1	H_2	*L*	L_1	L_2	L_3	*N*	N_1	N_2	*B*	*S*	S_1						C_r	C_{0r}
1 15/16	2	11/16	4 3/4	4	3 5/16	6 3/16	3 15/16	15/16	3 5/8	1 1/8	3/4	1 15/16	2.843	1	1.843	**ZST410-31**	ZS410-31	**XST410-31**	XS410-31			
50	51	17.5	121	101.6	84	157.2	100	23.8	92	28.6	19.1	49.2	72.2	25.4	46.8	**ZST410**	ZS410	**XST410**	XS410	T410	96.4	116.9
2																**ZST410-32**	ZS410-32	**XST410-32**	XS410-32			
55																**ZST411**	ZS411	**XST411**	XS411			
2 3/16	2 7/32	13/16	5 1/4	4 1/2	3 27/32	7 1/16	4 5/8	15/16	3 5/8	1 3/8	1 1/4	2 1/4	2.937	1.126	1.811	**ZST411-35**	ZS411-35	**XST411-35**	XS411-35	T411	120.8	146.8
2 1/4	56	20.6	133	114.3	98	179.4	117.5	23.8	92	34.9	31.8	57.2	74.6	28.6	46	**ZST411-36**	ZS411-36	**XST411-36**	XS411-36			
60																**ZST412**	ZS412	**XST412**	XS412			
2 7/16	2 7/16	1 1/16	5 7/8	5 1/8	4 1/4	7 25/32	5	15/16	4 3/8	1 3/8	1 1/4	2 1/2	3.205	1.252	1.953	**ZST413-39**	ZS413-39	**XST413-39**	XS413-39	T413	173.3	220.4
2 1/2	62	27	149	130.2	108	198	127	23.8	111	34.9	31.8	63.5	81.4	31.8	49.6	**ZST413-40**	ZS413-40	**XST413-40**	XS413-40			
65																**ZST413**	ZS413	**XST413**	XS413			
70																**ZST414**	ZS414	**XST414**	XS414			
2 11/16																**ZST415-43**	ZS415-43	**XST415-43**	XS415-43			
2 3/4	2 11/16	1 13/16	6 11/16	5 15/16	4 7/8	8 7/8	5 3/4	1 1/8	4 1/2	1 5/8	1 1/2	2 3/4	3.594	1.252	2.343	**ZST415-44**	ZS415-44	**XST415-44**	XS415-44	T415	186.8	244.4
2 15/16	68	46	170	150.8	124	225.4	146.1	28.6	114.3	41.3	38.1	69.9	91.3	31.8	59.5	**ZST415-47**	ZS415-47	**XST415-47**	XS415-47			
75																**ZST415**	ZS415	**XST415**	XS415			
3																**ZST415-48**	ZS415-48	**XST415-48**	XS415-48			
80																**ZST416**	ZS416	**XST416**	XS416			
3 1/4																**ZST417-52**	ZS417-52	**XST417-52**	XS417-52			
85	3 1/16	1 13/16	7 25/32	6 13/16	5 1/8	10 1/16	6 3/8	1 1/16	5 1/2	1 7/8	1 5/8	2 7/8	4.079	1.516	2.563	**ZST417**	ZS417	**XST417**	XS417	T418	284.1	383.7
3 7/16	78	46	198	173	130	255.6	161.9	27	139.7	47.6	41.3	73	103.6	38.5	65.1	**ZST418-55**	ZS418-55	**XST418-55**	XS418-55			
3 1/2																**ZST418-56**	ZS418-56	**XST418-56**	XS418-56			
90																**ZST418**	ZS418	**XST418**	XS418			

ZS4P
Cylindrical bore
(with Z-LOCK)
d **2 7/16 ~ 4 inch**
60 ~ 100 mm

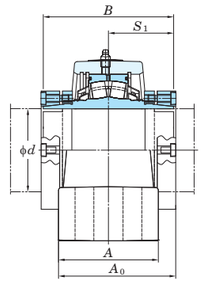


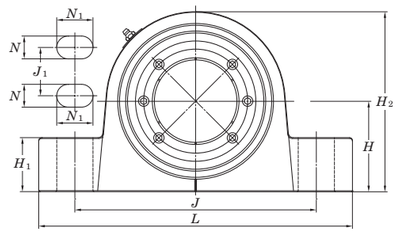
XS4P
Cylindrical bore
(with set screw collar lock)
d **2 7/16 ~ 4 inch**
60 ~ 100 mm



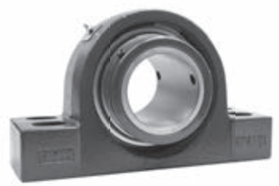
Shaft Dia. inch / mm d	Dimensions inch / mm H	L	A	J	J_1	N	N_1	H_1	H_2	A_0	B	S	S_1	Unit No.	Bearing No.	Unit No.	Bearing No.	Housing No.	Bolt Size inch / mm	Basic Load Ratings kN C_r	C_{0r}
60														**ZS4P412**	ZS412	**XS4P412**	XS412				
2 7/16	2 3/4	9 1/4	3 3/8	7 1/8	1 3/4	19/32	13/16	1 5/8	5 19/32	3 21/32	3.205	1.252	1.953	**ZS4P413-39**	ZS413-39	**XS4P413-39**	XS413-39	4P413	1/2	173.3	220.4
2 1/2	69.8	235	86	181	44	15	21	41	142	92.6	81.4	31.8	49.6	**ZS4P413-40**	ZS413-40	**XS4P413-40**	XS413-40		M12		
65														**ZS4P413**	ZS413	**XS4P413**	XS413				
70														**ZS4P414**	ZS414	**XS4P414**	XS414				
2 11/16														**ZS4P415-43**	ZS415-43	**XS4P415-43**	XS415-43				
2 3/4	3 1/4	10 7/16	3 3/4	8 1/8	1 7/8	25/32	15/16	1 7/8	6 3/8	4 7/32	3.594	1.252	2.343	**ZS4P415-44**	ZS415-44	**XS4P415-44**	XS415-44	4P415	5/8	186.8	244.4
2 15/16	82.6	265	95	206	48	20	24	48	162	107	91.3	31.8	59.5	**ZS4P415-47**	ZS415-47	**XS4P415-47**	XS415-47		M16		
75														**ZS4P415**	ZS415	**XS4P415**	XS415				
3														**ZS4P415-48**	ZS415-48	**XS4P415-48**	XS415-48				
80														**ZS4P416**	ZS416	**XS4P416**	XS416				
3 1/4														**ZS4P417-52**	ZS417-52	**XS4P417-52**	XS417-52				
85	3 3/4	13	4 1/8	10	2	15/16	1 1/2	2 1/4	7 9/16	4 5/8	4.079	1.516	2.563	**ZS4P417**	ZS417	**XS4P417**	XS417	4P418	3/4	284.1	383.7
3 7/16	95.2	330	105	254	50.8	24	38	57	192	117.6	103.6	38.5	65.1	**ZS4P418-55**	ZS418-55	**XS4P418-55**	XS418-55		M20		
3 1/2														**ZS4P418-56**	ZS418-56	**XS4P418-56**	XS418-56				
90														**ZS4P418**	ZS418	**XS4P418**	XS418				
100														**ZS4P420**	ZS420	**XS4P420**	XS420				
3 15/16	4 1/4	15 1/4	4 1/2	12 1/2	2 1/4	15/16	1 17/32	2 7/16	8 3/8	5 3/32	4.484	1.626	2.858	**ZS4P420-63**	ZS420-63	**XS4P420-63**	XS420-63	4P420	3/4	364	497.2
4	108	387	114	318	57	24	39	62	213	129.6	113.9	41.3	72.6	**ZS4P420-64**	ZS420-64	**XS4P420-64**	XS420-64		M20		

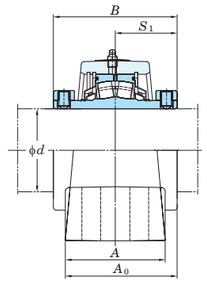
ZDS4P
Cylindrical bore
(with Z-LOCK)
d **2 7/16 ~ 4 inch**
60 ~ 100 mm

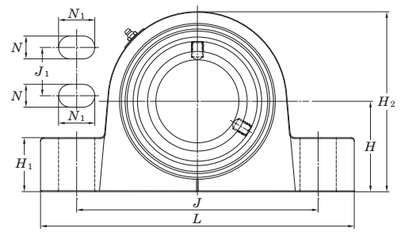




XDS4P
Cylindrical bore
(with set screw collar lock)
d **2 7/16 ~ 4 inch**
60 ~ 100 mm

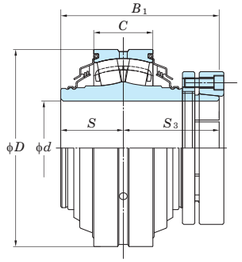




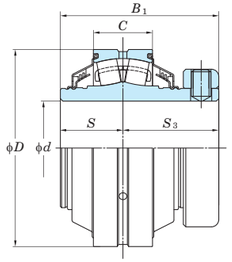


Shaft Dia. inch / mm d	Dimensions inch / mm H	L	A	J	J_1	N	N_1	H_1	H_2	A_0	B	S_1	Unit No.	Bearing No.	Unit No.	Bearing No.	Housing No.	Bolt Size inch / mm	Basic Load Ratings kN C_r	C_{0r}
60													**ZDS4P412**	ZDS412	**XDS4P412**	XDS412				
2 7/16	2 3/4	9 1/4	3 3/8	7 1/8	1 3/4	19/32	13/16	1 5/8	5 19/32	3 21/32	3.906	1.953	**ZDS4P413-39**	ZDS413-39	**XDS4P413-39**	XDS413-39	4P413	1/2	173.3	220.4
2 1/2	69.8	235	86	181	44	15	21	41	142	92.6	99.2	49.6	**ZDS4P413-40**	ZDS413-40	**XDS4P413-40**	XDS413-40		M12		
65													**ZDS4P413**	ZDS413	**XDS4P413**	XDS413				
70													**ZDS4P414**	ZDS414	**XDS4P414**	XDS414				
2 11/16													**ZDS4P415-43**	ZDS415-43	**XDS4P415-43**	XDS415-43				
2 3/4	3 1/4	10 7/16	3 3/4	8 1/8	1 7/8	25/32	15/16	1 7/8	6 3/8	4 7/32	4.686	2.343	**ZDS4P415-44**	ZDS415-44	**XDS4P415-44**	XDS415-44	4P415	5/8	186.8	244.4
2 15/16	82.6	265	95	206	48	20	24	48	162	107	119	59.5	**ZDS4P415-47**	ZDS415-47	**XDS4P415-47**	XDS415-47		M16		
75													**ZDS4P415**	ZDS415	**XDS4P415**	XDS415				
3													**ZDS4P415-48**	ZDS415-48	**XDS4P415-48**	XDS415-48				
80													**ZDS4P416**	ZDS416	**XDS4P416**	XDS416				
3 1/4													**ZDS4P417-52**	ZDS417-52	**XDS4P417-52**	XDS417-52				
85	3 3/4	13	4 1/8	10	2	15/16	1 1/2	2 1/4	7 9/16	4 5/8	5.126	2.563	**ZDS4P417**	ZDS417	**XDS4P417**	XDS417	4P418	3/4	284.1	383.7
3 7/16	95.2	330	105	254	50.8	24	38	57	192	117.6	130.2	65.1	**ZDS4P418-55**	ZDS418-55	**XDS4P418-55**	XDS418-55		M20		
3 1/2													**ZDS4P418-56**	ZDS418-56	**XDS4P418-56**	XDS418-56				
90													**ZDS4P418**	ZDS418	**XDS4P418**	XDS418				
100													**ZDS4P420**	ZDS420	**XDS4P420**	XDS420				
3 15/16	4 1/4	15 1/4	4 1/2	12 1/2	2 1/4	15/16	1 17/32	2 7/16	8 3/8	5 3/32	5.716	2.858	**ZDS4P420-63**	ZDS420-63	**XDS4P420-63**	XDS420-63	4P420	3/4	364	497.2
4	108	387	114	318	57	24	39	62	213	129.6	145.2	72.6	**ZDS4P420-64**	ZDS420-64	**XDS4P420-64**	XDS420-64		M20		

ZS4
Cylindrical bore
(with Z-LOCK)
d 1 3/8 ~ 4 inch
40 ~ 100 mm

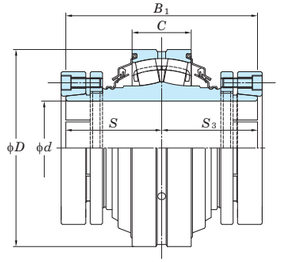


XS4
Cylindrical bore
(with set screw collar lock)

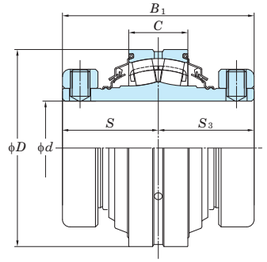


Shaft Dia. inch / mm d	Dimensions inch / mm C	D	B_1	S	S_3	Bearing No.	Bearing No.	Basic Load Ratings kN C_r	C_{0r}
1 3/8						ZS408-22	XS408-22		
1 7/16	15/16	3 5/32	2.531	1	1.531	ZS408-23	XS408-23	88.7	101.1
1 1/2	24	80	64.3	25.4	38.9	ZS408-24	XS408-24		
40						ZS408	XS408		
1 11/16	15/16	3 11/32	2.657	1	1.657	ZS409-27	XS409-27	92.6	108.8
1 3/4	24	85	67.5	25.4	42.1	ZS409-28	XS409-28		
45						ZS409	XS409		
1 15/16	15/16	3 17/32	2.843	1	1.843	ZS410-31	XS410-31	96.4	116.9
50	24	90	72.2	25.4	46.8	ZS410	XS410		
2						ZS410-32	XS410-32		
55	1 1/32	3 15/16	2.937	1.126	1.811	ZS411	XS411	120.8	146.8
2 3/16	26	100	74.6	28.6	46	ZS411-35	XS411-35		
2 1/4						ZS411-36	XS411-36		
60	1 1/4	4 23/32	3.205	1.252	1.953	ZS412	XS412	173.3	220.4
2 7/16	32	120	81.4	31.8	49.6	ZS413-39	XS413-39		
2 1/2						ZS413-40	XS413-40		
65						ZS413	XS413		
70	1 1/4	5 1/8	3.594	1.252	2.343	ZS414	XS414	186.8	244.4
2 11/16	32	130	91.3	31.8	59.5	ZS415-43	XS415-43		
2 3/4						ZS415-44	XS415-44		
2 15/16						ZS415-47	XS415-47		
75						ZS415	XS415		
3						ZS415-48	XS415-48		
80	1 5/8	6 5/16	4.079	1.516	2.563	ZS416	XS416	284.1	383.7
3 1/4	41	160	103.6	38.5	65.1	ZS417-52	XS417-52		
85						ZS417	XS417		
3 7/16						ZS418-55	XS418-55		
3 1/2						ZS418-56	XS418-56		
90						ZS418	XS418		
100	1 27/32	7 3/32	4.484	1.626	2.858	ZS420	XS420	364	497.2
3 15/16	47	180	113.9	41.3	72.6	ZS420-63	XS420-63		
4						ZS420-64	XS420-64		

ZDS4
Cylindrical bore
(with Z-LOCK (both))
d 2 7/16 ~ 4 inch
60 ~ 100 mm



XDS4
Cylindrical bore
(with set screw collar lock (both))



Shaft Dia. inch / mm d	Dimensions inch / mm C	D	B_1	S	S_3	Bearing No.	Bearing No.	Basic Load Ratings kN C_r	C_{0r}
60						ZDS412	XDS412		
2 7/16	1 1/4	4 23/32	3.905	1.953	1.953	ZDS413-39	XDS413-39	173.3	220.4
2 1/2	32	120	99.2	49.6	49.6	ZDS413-40	XDS413-40		
65						ZDS413	XDS413		
70						ZDS414	XDS414		
2 11/16						ZDS415-43	XDS415-43		
2 3/4	1 1/4	5 1/8	4.685	2.343	2.343	ZDS415-44	XDS415-44	186.8	244.4
2 15/16	32	130	119	59.5	59.5	ZDS415-47	XDS415-47		
75						ZDS415	XDS415		
3						ZDS415-48	XDS415-48		
80						ZDS416	XDS416		
3 1/4						ZDS417-52	XDS417-52		
85	1 5/8	6 5/16	5.126	2.563	2.563	ZDS417	XDS417	284.1	383.7
3 7/16	41	160	130.2	65.1	65.1	ZDS418-55	XDS418-55		
3 1/2						ZDS418-56	XDS418-56		
90						ZDS418	XDS418		
100	1 27/32	7 3/32	5.716	2.858	2.858	ZDS420	XDS420	364	497.2
3 15/16	47	180	145.2	72.6	72.6	ZDS420-63	XDS420-63		
4						ZDS420-64	XDS420-64		

FYH
FYH
FYH

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Appendix Table 1 Simplified Chart of Ball Bearing Unit Combinations

Type	Housing for units	Insert bearing units									
		Cylindrical bore (with set screws)					Tapered bore with adapter			Tapered bore with ZK adapter	
		UC200	UCX00	UC300	Stainless steel UC200S6	Plated UC200S7	UK200	UKX00	UK300	ZK200	
Pillow type	P200, PX00, P300, P300E PK200	UCP200	UCPX00	UCP300			UKP200	UKPX00	UKP300	ZKP200	
	IP200, IP300	UCIP200		UCIP300			UKIP200		UKIP300	ZKIP200	
	PA200 PAN200	UCPA200 UCPAN200					UKPA200			ZKPA200	
	PH200	UCPH200					UKPH200			ZKPH200	
	LP200										
	SP200 SPA200 SPAN200 P000, SP000				UCSP200S6 UCSPA200S6 UCSPAN200S6						
	VP200 VPAN200				UCVP200S6	UCVP200S7 UCVPAN200S7					
	PP200										
Square four-bolt flange type	F200, FX00, F300 F200E, FX00E NF200	UCF200 UCF200E	UCFX00 UCFX00E	UCF300			UKF200	UKFX00	UKF300	ZKF200	
	FS300			UCFS300					UKFS300		
	SF200 SF200E VF200				UCSF200S6 UCSF200ES6 UCVF200S6	UCVF200S7					
Oval flange type	FL200, FLX00, FL300 FL200E NFL200	UCFL200 UCFL200E	UCFLX00	UCFL300			UKFL200	UKFLX00	UKFL300	ZKFL200	
	LF200										
	FL000, SFL000 SFL200 SFL200E VFL200				UCSFL200S6 UCSFL200ES6 UCVFL200S6	UCVFL200S7					
	TFD200H4										
	FA200	UCFA200					UKFA200			ZKFA200	
	FB200	UCFB200					UKFB200			ZKFB200	
	VFB200					UCVFB200S7					
	PFL200										
Round flange cartridge type	FC200, FCX00 FCX00E FCF200 SFC200	UCFC200 UCFCF200	UCFCX00 UCFCX00E		UCSFC200S6		UKFC200	UKFCX00		ZKFC200	
Stamped steel plate flange type	PF200										
Take-up type	T200, TX00, T300 T200E, TX00E TRS200	UCT200 UCT200E	UCTX00 UCTX00E	UCT300			UKT200	UKTX00	UKT300	ZKT200	
	ST200 ST200E				UCST200S6 UCST200ES6						
	TH200	UCTH200									
	TL200 TU200, TU300	UCTL200 UCTU200		UCTU300			(UKTL200) (UKTU200)		(UKTU300)		
	PTH200 NPTH200										
Cartridge type	C200, CX00, C300	UCC200	UCCX00	UCC300			UKC200	UKCX00	UKC300	ZKC200	
Hanger type	HA200	UCHA200					UKHA200			ZKHA200	

Insert bearing units								Housing for units	Type
Cylindrical bore									
NC-LOC	with set screws			with eccentric looking collar					
NC200	SU000	Stainless steel SU000S6	SB200 SB200RKP8	SA200	SA200FP9	NA200	NA300		
NCP200			SBP200RKP8		SAP200FP9	NAP200 NAPK200	NAP300E	P200, PX00, P300, P300E PK200	Pillow type
								IP200, IP300	
NCPA200 NCPAN200			SBPAN200RKP8		SAPAN200FP9			PA200 PAN200	
NCPH200								PH200	
			BLP200	ALP200				LP200	
	UP000	USP000S6						SP200 SPA200 SPAN200 P000, SP000	
								VP200 VPAN200	
			SBPP200	SAPP200				PP200	
NCF200 NCF200E			SBF200RKP8		SAF200FP9	NAF200 NANF200		F200, FX00, F300 F200E, FX00E NF200	Square four-bolt flange type
								FS300	
								SF200 SF200E VF200	
NCFL200 NCFL200E			SBFL200RKP8		SAFL200FP9	NAFL200 NANFL200		FL200, FLX00, FL300 FL200E NFL200	Oval flange type
			BLF200	ALF200				LF200	
	UFL000	USFL000S6						FL000, SFL000 SFL200 SFL200E VFL200	
			SBTFD200H4RKP8		SATFD200FH4P9			TFD200H4	
NCFA200								FA200	
NCFB200								FB200	
								VFB200	
			SBPFL200	SAPFL200				PFL200	
NCFC200			SBFC200RKP8		SAFC200FP9	NAFC200		FC200, FCX00 FCX00E FCF200 SFC200	Round flange cartridge type
			SBPF200	SAPF200				PF200	Stamped steel plate flange type
NCT200 NCT200E						NAT200 NAT200E		T200, TX00, T300 T200E, TX00E TRS200	Take-up type
								ST200 ST200E	
								TH200	
								TL200 TU200, TU300	
			SBPTH200 SBNPTH200					PTH200 NPTH200	
NCC200						NAC200		C200, CX00, C300	Cartridge type
NCHA200								HA200	Hanger type

Appendix Table 2 Tightening Torques of Housings and Cast Iron Cover Mounting Bolts

(1) Tightening torques of housings mounting bolts (recommended)

Nominal size of screws	Tightening torques N · m
M 6	2.6– 4.7
M 8	6 – 10
M10	12 – 21
M12	21 – 37
M14	34 – 60
M16	53 – 93
M18	77 – 137
M20	104 – 186
M22	143 – 256
M27	266 – 478
M30	360 – 645
M33	494 – 886
M36	631 –1,130

(2) Tightening torques of plastic housings mounting bolts (recommended)

Nominal size of screws	Tightening torques N · m
M10	17.7–24.5
M12	29.4–44.1

(3) Tightening torques of cast iron cover mounting bolts (recommended)

Nominal size of screws	Tightening torques, N · m	Part No. of applicable cast iron covers (reference)		
		200 series	X00 series	300 series
M3	0.3– 0.6	204, 205	–	–
M4	0.8– 1.4	204FC3 (FD3), 205FC3 (FD3), 206–215	–	305–307
M5	1.5– 2.8	216–218	X18, X20	308–324
M8	6 –10	–	–	326, 328

Appendix Table 3 Tightening Torques of Set Screws for Inner Rings, Eccentric Locking Collars, and Z-LOCK Sleeves

(1) Tightening torques of set screws for inner rings, eccentric locking collars, and Z-LOCK sleeves (metric series) (recommended)

Nominal size of screws	Tightening torques, N · m	Part No. of applicable bearings						
		UC2, RB	UCX	UC3	NA	SB	SU	ER
M 3X0.35	0.7						08, 000, 001	
M 4X0.5	1.8	–				–	002, 003	
M 5X0.5	3	201X–203X	–	–		201–203	004–006	–
M 6X0.75	4	201–206	X05	305, 306	204, 205	204–207	–	201–206
M 8X1	8.5	207–209	X06–X08	307	206–210	208		207–209
M10X1.25	17.5	210–212	X09–X11	308, 309	211, 212	–		210–212
M12X1.5	28	213–218	X12–X17	310–314	–			–
M14X1.5	35	–	X18	315, 316				
M16X1.5	56		X20	317–319				
M18X1.5	62		–	320–324				
M20X1.5	83			326, 328				

Remarks 1) Tightening torques of set screws for UC2-S6 are identical to that of UC2. As for UC210S6, tightening torque of the set screw M8 × 1 should be applied.
2) When the application is exposed to vibration and shock load additional tightening is required. The maximum tightening torque should not exceed 1.5 times the normal tightening torque specifications.

Nominal size of screws	Tightening torques, N · m	Part No. of applicable bearings
		ZK
M 5X0.5	4.5	05–07
M 6X0.75	6	08–11
M 8X1	12.8	12

(2) Tightening torques of inner rings and eccentric locking collar set screws (inch series) (recommended)

Nominal size of screws	Tightening torques, N · m	Part No. of applicable bearings		
		UC2-, ER2-, RB2-	UCX-	SB-
10-32UNF	3	–	–	201, 202
1/4-28UNF	4	201–206	X05	204–207
5/16-24UNF	8.5	207–209	X06–X08	208
3/8-24UNF	17.5	210–212	X09–X11	–
1/2-20UNF	28	213–218	X12–X18	
5/8-18UNF	56	–	X20	

Remark When the application is exposed to vibration and shock load, additional tightening is required. The maximum tightening torque should not exceed 1.5 times the normal tightening torque specifications.

(3) NC concentric cap screw tightening torque

Nominal size of screws	Tightening torques, N · m	
	Recommended	Max. limit
M4	4.2– 4.6	4.9
M5	8.8– 9.8	10
M6	15.2–16.8	17
M8	38 –42	44
No.8-32UNC	4.2– 4.6	4.9
No.10-24UNC	8.8– 9.8	10
1/4-20UNC	15.2–16.8	17
5/16-18UNC	38 –42	44

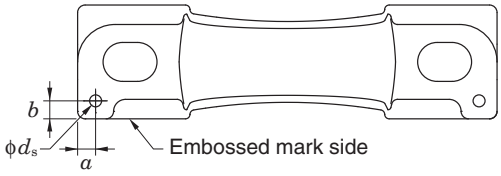
Remark When the application is exposed to vibration and shock load, additional tightening is required. The maximum tightening torque should not exceed 1.5 times the normal tightening torque specifications.

Appendix Table 4 Tightening Torques of Adapter Lock Nuts (reference)

Bore code	Tightening torques, N · m								
	UK200			UKX00			UK300		
	Standard load		Heavy load	Standard load		Heavy load	Standard load		Heavy load
	min.	Max.	(Max. × 1.5)	min.	Max.	(Max. × 1.5)	min.	Max.	(Max. × 1.5)
05	25	38	56	35	53	79	30	45	68
06	30	45	68	40	60	90	45	68	101
07	40	60	90	50	75	113	60	90	135
08	50	75	113	75	113	169	80	120	180
09	60	90	135	75	113	169	120	180	270
10	75	113	169	110	165	248	150	225	338
11	100	150	225	140	210	315	180	270	405
12	130	195	293	165	248	371	225	338	506
13	150	225	338	195	293	439	265	398	596
15	170	255	383	215	323	484	375	563	844
16	200	300	450	255	383	574	450	675	1,013
17	220	330	495	295	443	664	530	795	1,193
18	260	390	585	340	510	765	610	915	1,373
19	–	–	–	–	–	–	710	1,065	1,598
20	–	–	–	490	735	1,103	885	1,328	1,991
22	–	–	–	–	–	–	1,220	1,830	2,745
24	–	–	–	–	–	–	1,470	2,205	3,308
26	–	–	–	–	–	–	1,770	2,655	3,983
28	–	–	–	–	–	–	2,150	3,225	4,838

Appendix Table 5 Machining Dimensions of Holes of Housing Dowel Pins

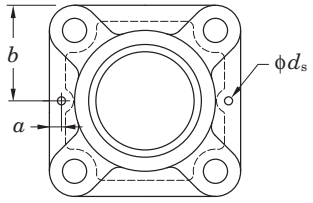
(1) Machining dimensions of holes of pillow type housings (P) dowel pins (recommended)



Unit: mm

Nominal code	a	b	d_s (reference)	Pin seat thickness
P203	6	6	4	16
P204	6	6	4	16
P205	6	6	4	16
P206	6	6	4	17
P207	8	8	5	18
P208	8	8	5	18
P209	8	8	5	20
P210	10	10	5	21
P211	10	10	6	23
P212	10	10	6	25
P213	10	10	6	27
P214	10	10	8	27
P215	12.5	12.5	8	28
P216	12	12	8	30
P217	12	12	8	32
P218	14	14	8	33
PX05	7	7	5	16
PX06	8	8	5	17
PX07	8	8	5	19
PX08	8	8	5	21
PX09	8	8	5	21
PX10	9	9	6	22
PX11	9	9	6	28
PX12	9	9	6	28
PX13	10	10	8	28
PX14	10	10	8	32
PX15	10	10	8	32
PX16	12	12	8	34
PX17	12	12	8	34
PX18	15	15	10	38
PX20	19	19	10	45
P305	8	8	5	16
P306	10	10	5	17
P307	10	10	5	19
P308	11	11	6	19
P309	11	11	6	21
P310	11	11	6	24
P311	12	12	8	27
P312	12	12	8	29
P313	12	12	8	32
P314	12	12	10	35
P315	14	14	10	35
P316	15	15	10	35
P317	15	15	10	40
P318	15	15	10	40
P319	15	15	10	46
P320	17	17	13	46
P321	17	17	13	46
P322	17	17	13	50
P324	17	17	13	50
P326	20	20	13	50
P328	20	20	13	60

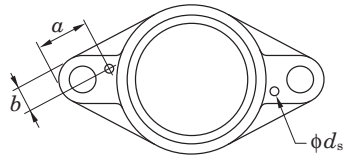
(2) Machining dimensions of holes of square flange type housings (F) dowel pins (recommended)



Unit: mm

Nominal code	a	b	d_s (reference)	Pin seat thickness
F204	6	43	4	8
F205	6	47.5	4	9
F206	7.5	54	4	9
F207	7.5	58.5	5	11
F208	7.5	65	5	11
F209	7.5	68.5	5	12
F210	7.5	71.5	5	12
F211	9	81	6	13
F212	9	87.5	6	14
F213	9	93.5	6	16
F214	10	96.5	8	16
F215	10	100	8	16
F216	10	104	8	17
F217	10	110	8	18
F218	10	117.5	8	20
FX05	7.5	54	5	10
FX06	7.5	58.5	5	11
FX07	7.5	65	5	11
FX08	7.5	68.5	5	11
FX09	7.5	71.5	5	12
FX10	9	81	6	15
FX11	9	87.5	6	15
FX12	9	93.5	6	16
FX13	10	93.5	8	16
FX14	10	98.5	8	18
FX15	10	142	8	18
FX16	10	107	8	18
FX17	10	155	8	18
FX18	12	155	10	18
FX20	12	134	10	20
F305	7.5	55	5	10
F306	7.5	62.5	5	12
F307	7.5	67.5	5	13
F308	9	75	6	14
F309	9	80	6	15
F310	9	87.5	6	16
F311	10	92.5	8	16
F312	10	97.5	8	18
F313	10	104	8	18
F314	12	113	10	19
F315	12	118	10	19
F316	12	125	10	21
F317	12	130	10	21
F318	12	140	10	24
F319	12	145	10	24
F320	16	155	13	26
F321	16	155	13	26
F322	16	170	13	28
F324	16	185	13	32
F326	16	205	13	35
F328	16	225	13	43

(3) Machining dimensions of holes of oval flange type housings (FL) dowel pins (recommended)



Unit: mm

Nominal code	a	b	d_s (reference)	Pin seat thickness
FL204	26	9	4	11
FL205	32	10	4	13
FL206	34	12	4	13
FL207	34	14	5	14
FL208	35	15	5	14
FL209	40	15	5	15
FL210	41	16	5	15
FL211	43	19	6	18
FL212	52	22	6	18
FL213	50	21	6	20
FL214	52	22	8	20
FL215	53	23	8	20
FL216	56	23	8	20
FL217	57	25	8	22
FL218	57	26	8	23
FLX05	27	12	5	13
FLX06	30	14	5	14
FLX07	32	15	5	14
FLX08	33	15	5	14
FLX09	35	16	5	14
FLX10	37	19	6	20
FL305	32	12	5	13
FL306	46	14	5	15
FL307	44	14	5	16
FL308	45	17	6	17
FL309	53	19	6	18
FL310	53	19	6	19
FL311	52	20	8	20
FL312	60	21	8	22
FL313	60	25	8	25
FL314	68	26	10	28
FL315	64	26	10	30
FL316	74	29	10	32
FL317	75	31	10	32
FL318	74	32	10	36
FL319	80	32	10	40
FL320	86	34	13	40
FL322	86	36	13	42
FL324	94	41	13	48

Appendix Table 6 Dimensional Tolerances of Shafts

Classification of shaft (mm)		Tolerance range class of shaft															
Over	Incl.	d 6	e 6	f 6	g 5	g 6	h 5	h 6	h 7	h 8	h 9	h 10	js 5	js 6	js 7	j 5	j 6
3	6	− 30 − 38	− 20 − 28	− 10 − 18	− 4 − 9	− 4 −12	0 − 5	0 − 8	0 −12	0 − 18	0 − 30	0 − 48	± 2.5	± 4	± 6	+ 3 − 2	+ 6 − 2
6	10	− 40 − 49	− 25 − 34	− 13 − 22	− 5 −11	− 5 −14	0 − 6	0 − 9	0 −15	0 − 22	0 − 36	0 − 58	± 3	± 4.5	± 7.5	+ 4 − 2	+ 7 − 2
10	18	− 50 − 61	− 32 − 43	− 16 − 27	− 6 −14	− 6 −17	0 − 8	0 −11	0 −18	0 − 27	0 − 43	0 − 70	± 4	± 5.5	± 9	+ 5 − 3	+ 8 − 3
18	30	− 65 − 78	− 40 − 53	− 20 − 33	− 7 −16	− 7 −20	0 − 9	0 −13	0 −21	0 − 33	0 − 52	0 − 84	± 4.5	± 6.5	±10.5	+ 5 − 4	+ 9 − 4
30	50	− 80 − 96	− 50 − 66	− 25 − 41	− 9 −20	− 9 −25	0 −11	0 −16	0 −25	0 − 39	0 − 62	0 −100	± 5.5	± 8	±12.5	+ 6 − 5	+11 − 5
50	80	−100 −119	− 60 − 79	− 30 − 49	−10 −23	−10 −29	0 −13	0 −19	0 −30	0 − 46	0 − 74	0 −120	± 6.5	± 9.5	±15	+ 6 − 7	+12 − 7
80	120	−120 −142	− 72 − 94	− 36 − 58	−12 −27	−12 −34	0 −15	0 −22	0 −35	0 − 54	0 − 87	0 −140	± 7.5	±11	±17.5	+ 6 − 9	+13 − 9
120	180	−145 −170	− 85 −110	− 43 − 68	−14 −32	−14 −39	0 −18	0 −25	0 −40	0 − 63	0 −100	0 −160	± 9	±12.5	±20	+ 7 −11	+14 −11
180	250	−170 −199	−100 −129	− 50 − 79	−15 −35	−15 −44	0 −20	0 −29	0 −46	0 − 72	0 −115	0 −185	±10	±14.5	±23	+ 7 −13	+16 −13
250	315	−190 −222	−110 −142	− 56 − 88	−17 −40	−17 −49	0 −23	0 −32	0 −52	0 − 81	0 −130	0 −210	±11.5	±16	±26	+ 7 −16	±16
315	400	−210 −246	−125 −161	− 62 − 98	−18 −43	−18 −54	0 −25	0 −36	0 −57	0 − 89	0 −140	0 −230	±12.5	±18	±28.5	+ 7 −18	±18
400	500	−230 −270	−135 −175	− 68 −108	−20 −47	−20 −60	0 −27	0 −40	0 −63	0 − 97	0 −155	0 −250	±13.5	±20	±31.5	+ 7 −20	±20
500	630	−260 −304	−145 −189	− 76 −120	−22 −54	−22 −66	0 −32	0 −44	0 −70	0 −110	0 −175	0 −280	±16	±22	±35	–	–
630	800	−290 −340	−160 −210	− 80 −130	−24 −60	−24 −74	0 −36	0 −50	0 −80	0 −125	0 −200	0 −320	±18	±25	±40	–	–
800	1,000	−320 −376	−170 −226	− 86 −142	−26 −66	−26 −82	0 −40	0 −56	0 −90	0 −140	0 −230	0 −360	±20	±28	±45	–	–

*Δ_{dmp}: Variation of tolerance of average bore diameter in plane

Unit: μm

k 5	k 6	k 7	m 5	m 6	m 7	n 5	n 6	p 6	r 6	r 7	Classification of shaft (mm) Over	Incl.	(Reference) Δ_{dmp}* of bearing (class 0)
+ 6 + 1	+ 9 + 1	+13 + 1	+ 9 + 4	+12 + 4	+ 16 + 4	+13 + 8	+ 16 + 8	+ 20 + 12	+ 23 + 15	+ 27 + 15	3	6	0 − 8
+ 7 + 1	+10 + 1	+16 + 1	+12 + 6	+15 + 6	+ 21 + 6	+16 +10	+ 19 + 10	+ 24 + 15	+ 28 + 19	+ 34 + 19	6	10	0 − 8
+ 9 + 1	+12 + 1	+19 + 1	+15 + 7	+18 + 7	+ 25 + 7	+20 +12	+ 23 + 12	+ 29 + 18	+ 34 + 23	+ 41 + 23	10	18	0 − 8
+11 + 2	+15 + 2	+23 + 2	+17 + 8	+21 + 8	+ 29 + 8	+24 +15	+ 28 + 15	+ 35 + 22	+ 41 + 28	+ 49 + 28	18	30	0 − 10
+13 + 2	+18 + 2	+27 + 2	+20 + 9	+25 + 9	+ 34 + 9	+28 +17	+ 33 + 17	+ 42 + 26	+ 50 + 34	+ 59 + 34	30	50	0 − 12
+15 + 2	+21 + 2	+32 + 2	+24 +11	+30 +11	+ 41 + 11	+33 +20	+ 39 + 20	+ 51 + 32	+ 60 + 41	+ 71 + 41	50	65	0 − 15
									+ 62 + 43	+ 73 + 43	65	80	
+18 + 3	+25 + 3	+38 + 3	+28 +13	+35 +13	+ 48 + 13	+38 +23	+ 45 + 23	+ 59 + 37	+ 73 + 51	+ 86 + 51	80	100	0 − 20
									+ 76 + 54	+ 89 + 54	100	120	
+21 + 3	+28 + 3	+43 + 3	+33 +15	+40 +15	+ 55 + 15	+45 +27	+ 52 + 27	+ 68 + 43	+ 88 + 63	+103 + 63	120	140	0 − 25
									+ 90 + 65	+105 + 65	140	160	
									+ 93 + 68	+108 + 68	160	180	
+24 + 4	+33 + 4	+50 + 4	+37 +17	+46 +17	+ 63 + 17	+51 +31	+ 60 + 31	+ 79 + 50	+106 + 77	+123 + 77	180	200	0 − 30
									+109 + 80	+126 + 80	200	225	
									+113 + 84	+130 + 84	225	250	
+27 + 4	+36 + 4	+56 + 4	+43 +20	+52 +20	+ 72 + 20	+57 +34	+ 66 + 34	+ 88 + 56	+126 + 94	+146 + 94	250	280	0 − 35
									+130 + 98	+150 + 98	280	315	
+29 + 4	+40 + 4	+61 + 4	+46 +21	+57 +21	+ 78 + 21	+62 +37	+ 73 + 37	+ 98 + 62	+144 +108	+165 +108	315	355	0 − 40
									+150 +114	+171 +114	355	400	
+32 + 5	+45 + 5	+68 + 5	+50 +23	+63 +23	+ 86 + 23	+67 +40	+ 80 + 40	+108 + 68	+166 +126	+189 +126	400	450	0 − 45
									+172 +132	+195 +132	450	500	
+32 0	+44 0	+70 0	+58 +26	+70 +26	+ 96 + 26	+76 +44	+ 88 + 44	+122 + 78	+194 +150	+220 +150	500	560	0 − 50
									+199 +155	+225 +155	560	630	
+36 0	+50 0	+80 0	+66 +30	+80 +30	+110 + 30	+86 +50	+100 + 50	+138 + 88	+225 +175	+255 +175	630	710	0 − 75
									+235 +185	+265 +185	710	800	
+40 0	+56 0	+90 0	+74 +34	+90 +34	+124 + 34	+96 +56	+112 + 56	+156 +100	+266 +210	+300 +210	800	900	0 −100
									+276 +220	+310 +220	900	1,000	

Appendix Table 7 Dimensional Tolerances of Housing Bores

Classification of shaft (mm)		Tolerance range class of bore														
Over	Incl.	E 6	F 6	F 7	G 6	G 7	H 6	H 7	H 8	H 9	H 10	JS 5	JS 6	JS 7	J 6	J 7
10	18	+ 43 + 32	+ 27 + 16	+ 34 + 16	+17 + 6	+ 24 + 6	+11 0	+ 18 0	+ 27 0	+ 43 0	+ 70 0	± 4	± 5.5	± 9	+ 6 − 5	+10 − 8
18	30	+ 53 + 40	+ 33 + 20	+ 41 + 20	+20 + 7	+ 28 + 7	+13 0	+ 21 0	+ 33 0	+ 52 0	+ 84 0	± 4.5	± 6.5	±10.5	+ 8 − 5	+12 − 9
30	50	+ 66 + 50	+ 41 + 25	+ 50 + 25	+25 + 9	+ 34 + 9	+16 0	+ 25 0	+ 39 0	+ 62 0	+100 0	± 5.5	± 8	±12.5	+10 − 6	+14 −11
50	80	+ 79 + 60	+ 49 + 30	+ 60 + 30	+29 +10	+ 40 + 10	+19 0	+ 30 0	+ 46 0	+ 74 0	+120 0	± 6.5	± 9.5	±15	+13 − 6	+18 −12
80	120	+ 94 + 72	+ 58 + 36	+ 71 + 36	+34 +12	+ 47 + 12	+22 0	+ 35 0	+ 54 0	+ 87 0	+140 0	± 7.5	±11	±17.5	+16 − 6	+22 −13
120	180	+110 + 85	+ 68 + 43	+ 83 + 43	+39 +14	+ 54 + 14	+25 0	+ 40 0	+ 63 0	+100 0	+160 0	± 9	±12.5	±20	+18 − 7	+26 −14
180	250	+129 +100	+ 79 + 50	+ 96 + 50	+44 +15	+ 61 + 15	+29 0	+ 46 0	+ 72 0	+115 0	+185 0	±10	±14.5	±23	+22 − 7	+30 −16
250	315	+142 +110	+ 88 + 56	+108 + 56	+49 +17	+ 69 + 17	+32 0	+ 52 0	+ 81 0	+130 0	+210 0	±11.5	±16	±26	+25 − 7	+36 −16
315	400	+161 +125	+ 98 + 62	+119 + 62	+54 +18	+ 75 + 18	+36 0	+ 57 0	+ 89 0	+140 0	+230 0	±12.5	±18	±28.5	+29 − 7	+39 −18
400	500	+175 +135	+108 + 68	+131 + 68	+60 +20	+ 83 + 20	+40 0	+ 63 0	+ 97 0	+155 0	+250 0	±13.5	±20	±31.5	+33 − 7	+43 −20
500	630	+189 +145	+120 + 76	+146 + 76	+66 +22	+ 92 + 22	+44 0	+ 70 0	+110 0	+175 0	+280 0	±16	±22	±35	–	–
630	800	+210 +160	+130 + 80	+160 + 80	+74 +24	+104 + 24	+50 0	+ 80 0	+125 0	+200 0	+320 0	±18	±25	±40	–	–
800	1,000	+226 +170	+142 + 86	+176 + 86	+82 +26	+116 + 26	+56 0	+ 90 0	+140 0	+230 0	+360 0	±20	±28	±45	–	–
1,000	1,250	+261 +195	+164 + 98	+203 + 98	+94 +28	+133 + 28	+66 0	+105 0	+165 0	+260 0	+420 0	±23.5	±33	±52.5	–	–

*Δ_{Dmp}: Variation of tolerance of average outside diameter in plate

Unit: μm

K 5	K 6	K 7	M 5	M 6	M 7	N 5	N 6	N 7	P 6	P 7	R 7	Classification of basic size (mm) Over	Incl.	(Reference) Δ_{Dmp}* of bearing (class 0)
+ 2 − 6	+ 2 − 9	+ 6 − 12	− 4 −12	− 4 − 15	0 − 18	− 9 − 17	− 9 − 20	− 5 − 23	− 15 − 26	− 11 − 29	− 16 − 34	10	18	0 − 8
+ 1 − 8	+ 2 −11	+ 6 − 15	− 5 −14	− 4 − 17	0 − 21	− 12 − 21	− 11 − 24	− 7 − 28	− 18 − 31	− 14 − 35	− 20 − 41	18	30	0 − 9
+ 2 − 9	+ 3 −13	+ 7 − 18	− 5 −16	− 4 − 20	0 − 25	− 13 − 24	− 12 − 28	− 8 − 33	− 21 − 37	− 17 − 42	− 25 − 50	30	50	0 − 11
+ 3 −10	+ 4 −15	+ 9 − 21	− 6 −19	− 5 − 24	0 − 30	− 15 − 28	− 14 − 33	− 9 − 39	− 26 − 45	− 21 − 51	− 30 − 60	50	65	0 − 13
											− 32 − 62	65	80	
+ 2 −13	+ 4 −18	+ 10 − 25	− 8 −23	− 6 − 28	0 − 35	− 18 − 33	− 16 − 38	− 10 − 45	− 30 − 52	− 24 − 59	− 38 − 73	80	100	0 − 15
											− 41 − 76	100	120	
+ 3 −15	+ 4 −21	+ 12 − 28	− 9 −27	− 8 − 33	0 − 40	− 21 − 39	− 20 − 45	− 12 − 52	− 36 − 61	− 28 − 68	− 48 − 88	120	140	(150 max.) 0 − 18 (Over 150) 0 − 25
											− 50 − 90	140	160	
											− 53 − 93	160	180	
+ 2 −18	+ 5 −24	+ 13 − 33	−11 −31	− 8 − 37	0 − 46	− 25 − 45	− 22 − 51	− 14 − 60	− 41 − 70	− 33 − 79	− 60 −106	180	200	0 − 30
											− 63 −109	200	225	
											− 67 −113	225	250	
+ 3 −20	+ 5 −27	+ 16 − 36	−13 −36	− 9 − 41	0 − 52	− 27 − 50	− 25 − 57	− 14 − 66	− 47 − 79	− 36 − 88	− 74 −126	250	280	0 − 35
											− 78 −130	280	315	
+ 3 −22	+ 7 −29	+ 17 − 40	−14 −39	− 10 − 46	0 − 57	− 30 − 55	− 26 − 62	− 16 − 73	− 51 − 87	− 41 − 98	− 87 −144	315	355	0 − 40
											− 93 −150	355	400	
+ 2 −25	+ 8 −32	+ 18 − 45	−16 −43	− 10 − 50	0 − 63	− 33 − 60	− 27 − 67	− 17 − 80	− 55 − 95	− 45 −108	−103 −166	400	450	0 − 45
											−109 −172	450	500	
0 −32	0 −44	0 − 70	−26 −58	− 26 − 70	− 26 − 96	− 44 − 76	− 44 − 88	− 44 −114	− 78 −122	− 78 −148	−150 −220	500	560	0 − 50
											−155 −225	560	630	
0 −36	0 −50	0 − 80	−30 −66	− 30 − 80	− 30 −110	− 50 − 86	− 50 −100	− 50 −130	− 88 −138	− 88 −168	−175 −255	630	710	0 − 75
											−185 −265	710	800	
0 −40	0 −56	0 − 90	−34 −74	− 34 − 90	− 34 −124	− 56 − 96	− 56 −112	− 56 −146	−100 −156	−100 −190	−210 −300	800	900	0 −100
											−220 −310	900	1,000	
0 −47	0 −66	0 −105	−40 −87	− 40 −106	− 40 −145	− 66 −113	− 66 −132	− 66 −171	−120 −186	−120 −225	−250 −355	1,000	1,120	0 −125
											−260 −365	1,120	1,250	

Appendix Table 8 Basic Tolerance Values

Classification of basic size (mm)		Tolerance class (IT)																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14[1)]	15[1)]	16[1)]	17[1)]	18[1)]
Over	Incl.	Basic tolerance value (μm)											Basic tolerance value (mm)						
–	3	0.8	1.2	2	3	4	6	10	14	25	40	60	0.10	0.14	0.26	0.40	0.60	1.00	1.40
3	6	1	1.5	2.5	4	5	8	12	18	30	48	75	0.12	0.18	0.30	0.48	0.75	1.20	1.80
6	10	1	1.5	2.5	4	6	9	15	22	36	58	90	0.15	0.22	0.36	0.58	0.90	1.50	2.20
10	18	1.2	2	3	5	8	11	18	27	43	70	110	0.18	0.27	0.43	0.70	1.10	1.80	2.70
18	30	1.5	2.5	4	6	9	13	21	33	52	84	130	0.21	0.33	0.52	0.84	1.30	2.10	3.30
30	50	1.5	2.5	4	7	11	16	25	39	62	100	160	0.25	0.39	0.62	1.00	1.60	2.50	3.90
50	80	2	3	5	8	13	19	30	46	74	120	190	0.30	0.46	0.74	1.20	1.90	3.00	4.60
80	120	2.5	4	6	10	15	22	35	54	87	140	220	0.35	0.54	0.87	1.40	2.20	3.50	5.40
120	180	3.5	5	8	12	18	25	40	63	100	160	250	0.40	0.63	1.00	1.60	2.50	4.00	6.30
180	250	4.5	7	10	14	20	29	46	72	115	185	290	0.46	0.72	1.15	1.85	2.90	4.60	7.20
250	315	6	8	12	16	23	32	52	81	130	210	320	0.52	0.81	1.30	2.10	3.20	5.20	8.10
315	400	7	9	13	18	25	36	57	89	140	230	360	0.57	0.89	1.40	2.30	3.60	5.70	8.90
400	500	8	10	15	20	27	40	63	97	155	250	400	0.63	0.97	1.55	2.50	4.00	6.30	9.70
500	630	–	–	–	–	–	44	70	110	175	280	440	0.70	1.10	1.75	2.80	4.40	7.00	11.00
630	800	–	–	–	–	–	50	80	125	200	320	500	0.80	1.25	2.00	3.20	5.00	8.00	12.50
800	1,000	–	–	–	–	–	56	90	140	230	360	560	0.90	1.40	2.30	3.60	5.60	9.00	14.00
1,000	1,250	–	–	–	–	–	66	105	165	260	420	660	1.05	1.65	2.60	4.20	6.60	10.50	16.50
1,250	1,600	–	–	–	–	–	78	125	195	310	500	780	1.25	1.95	3.10	5.00	7.80	12.50	19.50
1,600	2,000	–	–	–	–	–	92	150	230	370	600	920	1.50	2.30	3.70	6.00	9.20	15.00	23.00
2,000	2,500	–	–	–	–	–	110	175	280	440	700	1,100	1.75	2.80	4.40	7.00	11.00	17.50	28.00
2,500	3,150	–	–	–	–	–	135	210	330	540	860	1,350	2.10	3.30	5.40	8.60	13.50	21.00	33.00

Note [1)] Tolerance classes from IT14 to IT18 can not be applied to basic size 1 mm or less.

Appendix Table 9 SI Unit Conversion Tables

Force

N	dyn	kgf
1	1×10^{5}	$1.019\ 72\times10^{-1}$
1×10^{-5}	1	$1.019\ 72\times10^{-6}$
9.806 65	$9.806\ 65\times10^{5}$	1

Moment of force (torque)

N · m	mN · m	μN · m	kgf · m	kgf · cm	gf · cm
1	1×10^{3}	1×10^{6}	$1.019\ 72\times10^{-1}$	$1.019\ 72\times10$	$1.019\ 72\times10^{4}$
1×10^{-3}	1	1×10^{3}	$1.019\ 72\times10^{-4}$	$1.019\ 72\times10^{-2}$	$1.019\ 72\times10$
1×10^{-6}	1×10^{-3}	1	$1.019\ 72\times10^{-7}$	$1.019\ 72\times10^{-5}$	$1.019\ 72\times10^{-2}$
9.806 65	$9.806\ 65\times10^{3}$	$9.806\ 65\times10^{6}$	1	1×10^{2}	1×10^{5}
$9.806\ 65\times10^{-2}$	$9.806\ 65\times10$	$9.806\ 65\times10^{4}$	1×10^{-2}	1	1×10^{3}
$9.806\ 65\times10^{-5}$	$9.806\ 65\times10^{-2}$	$9.806\ 65\times10$	1×10^{-5}	1×10^{-3}	1

Stress

Pa or N/m^2	MPa or N/mm^2	kgf/mm^2	kgf/cm^2
1	1×10^{-6}	$1.019\ 72\times10^{-7}$	$1.019\ 72\times10^{-5}$
1×10^{6}	1	$1.019\ 72\times10^{-1}$	$1.019\ 72\times10$
$9.806\ 65\times10^{6}$	9.806 65	1	1×10^{2}
$9.806\ 65\times10^{4}$	$9.806\ 65\times10^{-2}$	1×10^{-2}	1

Remark 1 Pa = 1 N/m^2, 1 MPa = 1 N/mm^2

Pressure

Pa	kPa	MPa	bar	kgf/cm^2	atm	mmH_2O	mmHg or Torr
1	1×10^{-3}	1×10^{-6}	1×10^{-5}	$1.019\ 72\times10^{-5}$	$9.869\ 23\times10^{-6}$	$1.019\ 72\times10^{-1}$	$7.500\ 62\times10^{-3}$
1×10^{3}	1	1×10^{-3}	1×10^{-2}	$1.019\ 72\times10^{-2}$	$9.869\ 23\times10^{-3}$	$1.019\ 72\times10^{2}$	7.500 62
1×10^{6}	1×10^{3}	1	1×10	$1.019\ 72\times10$	9.869 23	$1.019\ 72\times10^{5}$	$7.500\ 62\times10^{3}$
1×10^{5}	1×10^{2}	1×10^{-1}	1	1.019 72	$9.869\ 23\times10^{-1}$	$1.019\ 72\times10^{4}$	$7.500\ 62\times10^{2}$
$9.806\ 65\times10^{4}$	$9.806\ 65\times10$	$9.806\ 65\times10^{-2}$	$9.806\ 65\times10^{-1}$	1	$9.678\ 41\times10^{-1}$	1×10^{4}	$7.355\ 59\times10^{2}$
$1.013\ 25\times10^{5}$	$1.013\ 25\times10^{2}$	$1.013\ 25\times10^{-1}$	1.013 25	1.033 23	1	$1.033\ 23\times10^{4}$	$7.600\ 00\times10^{2}$
9.806 65	$9.806\ 65\times10^{-3}$	$9.806\ 65\times10^{-6}$	$9.806\ 65\times10^{-5}$	1×10^{-4}	$9.678\ 41\times10^{-5}$	1	$7.355\ 59\times10^{-2}$
$1.333\ 22\times10^{2}$	$1.333\ 22\times10^{-1}$	$1.333\ 22\times10^{-4}$	$1.333\ 22\times10^{-3}$	$1.359\ 51\times10^{-3}$	$1.315\ 79\times10^{-3}$	1.359 51×10	1

Remark 1 Pa = 1 N/m^2

Kinematic viscosity

m^2/s	cSt	St
1	1×10^{6}	1×10^{4}
1×10^{-6}	1	1×10^{-2}
1×10^{-4}	1×10^{2}	1

Remark 1 cSt = 1 mm^2/s, 1 St = 1 cm^2/s

Appendix Table 10 Inch-Millimeter Conversion Table

Inch		Inches										
		0	1	2	3	4	5	6	7	8	9	10
		mm										
0	0	**0**	**25.4000**	**50.8000**	**76.2000**	**101.6000**	**127.0000**	**152.4000**	**177.8000**	**203.2000**	**228.6000**	**254.0000**
1/64	0.015625	0.3969	25.7969	51.1969	76.5969	101.9969	127.3969	152.7969	178.1969	203.5969	228.9969	254.3969
1/32	0.03125	0.7938	26.1938	51.5938	76.9938	102.3938	127.7938	153.1938	178.5938	203.9938	229.3938	254.7938
3/64	0.046875	1.1906	26.5906	51.9906	77.3906	102.7906	128.1906	153.5906	178.9906	204.3906	229.7906	255.1906
1/16	0.0625	1.5875	26.9875	52.3875	77.7875	103.1875	128.5875	153.9875	179.3875	204.7875	230.1875	255.5875
5/64	0.078125	1.9844	27.3844	52.7844	78.1844	103.5844	128.9844	154.3844	179.7844	205.1844	230.5844	255.9844
3/32	0.09375	2.3812	27.7812	53.1812	78.5812	103.9812	129.3812	154.7812	180.1812	205.5812	230.9812	256.3812
7/64	0.109375	2.7781	28.1781	53.5781	78.9781	104.3781	129.7781	155.1781	180.5781	205.9781	231.3781	256.7781
1/8	0.125	**3.1750**	**28.5750**	**53.9750**	**79.3750**	**104.7750**	**130.1750**	**155.5750**	**180.9750**	**206.3750**	**231.7750**	**257.1750**
9/64	0.140625	3.5719	28.9719	54.3719	79.7719	105.1719	130.5719	155.9719	181.3719	206.7719	232.1719	257.5719
5/32	0.15625	3.9688	29.3688	54.7688	80.1688	105.5688	130.9688	156.3688	181.7688	207.1688	232.5688	257.9688
11/64	0.171875	4.3656	29.7656	55.1656	80.5656	105.9656	131.3656	156.7656	182.1656	207.5656	232.9656	258.3656
3/16	0.1875	4.7625	30.1625	55.5625	80.9625	106.3625	131.7625	157.1625	182.5625	207.9625	233.3625	258.7625
13/64	0.203125	5.1594	30.5594	55.9594	81.3594	106.7594	132.1594	157.5594	182.9594	208.3594	233.7594	259.1594
7/32	0.21875	5.5562	30.9562	56.3562	81.7562	107.1562	132.5562	157.9562	183.3562	208.7562	234.1562	259.5562
15/64	0.234375	5.9531	31.3531	56.7531	82.1531	107.5531	132.9531	158.3531	183.7531	209.1531	234.5531	259.9531
1/4	0.25	**6.3500**	**31.7500**	**57.1500**	**82.5500**	**107.9500**	**133.3500**	**158.7500**	**184.1500**	**209.5500**	**234.9500**	**260.3500**
17/64	0.265625	6.7469	32.1469	57.5469	82.9469	108.3469	133.7469	159.1469	184.5469	209.9469	235.3469	260.7469
9/32	0.28125	7.1438	32.5438	57.9438	83.3438	108.7438	134.1438	159.5438	184.9438	210.3438	235.7438	261.1438
19/64	0.296875	7.5406	32.9406	58.3406	83.7406	109.1406	134.5406	159.9406	185.3406	210.7406	236.1406	261.5406
5/16	0.3125	7.9375	33.3375	58.7375	84.1375	109.5375	134.9375	160.3375	185.7375	211.1375	236.5375	261.9375
21/64	0.328125	8.3344	33.7344	59.1344	84.5344	109.9344	135.3344	160.7344	186.1344	211.5344	236.9344	262.3344
11/32	0.34375	8.7312	34.1312	59.5312	84.9312	110.3312	135.7312	161.1312	186.5312	211.9312	237.3312	262.7312
23/64	0.359375	9.1281	34.5281	59.9281	85.3281	110.7281	136.1281	161.5281	186.9281	212.3281	237.7281	263.1281
3/8	0.375	**9.5250**	**34.9250**	**60.3250**	**85.7250**	**111.1250**	**136.5250**	**161.9250**	**187.3250**	**212.7250**	**238.1250**	**263.5250**
25/64	0.390625	9.9219	35.3219	60.7219	86.1219	111.5219	136.9219	162.3219	187.7219	213.1219	238.5219	263.9219
13/32	0.40625	10.3188	35.7188	61.1188	86.5188	111.9188	137.3188	162.7188	188.1188	213.5188	238.9188	264.3188
27/64	0.421875	10.7156	36.1156	61.5156	86.9156	112.3156	137.7156	163.1156	188.5156	213.9156	239.3156	264.7156
7/16	0.4375	11.1125	36.5125	61.9125	87.3125	112.7125	138.1125	163.5125	188.9125	214.3125	239.7125	265.1125
29/64	0.453125	11.5094	36.9094	62.3094	87.7094	113.1094	138.5094	163.9094	189.3094	214.7094	240.1094	265.5094
15/32	0.46875	11.9062	37.3062	62.7062	88.1062	113.5062	138.9062	164.3062	189.7062	215.1062	240.5062	265.9062
31/64	0.484375	12.3031	37.7031	63.1031	88.5031	113.9031	139.3031	164.7031	190.1031	215.5031	240.9031	266.3031
1/2	0.5	**12.7000**	**38.1000**	**63.5000**	**88.9000**	**114.3000**	**139.7000**	**165.1000**	**190.5000**	**215.9000**	**241.3000**	**266.7000**
33/64	0.515625	13.0969	38.4969	63.8969	89.2969	114.6969	140.0969	165.4969	190.8969	216.2969	241.6969	267.0969
17/32	0.53125	13.4938	38.8938	64.2938	89.6938	115.0938	140.4938	165.8938	191.2938	216.6938	242.0938	267.4938
35/64	0.546875	13.8906	39.2906	64.6906	90.0906	115.4906	140.8906	166.2906	191.6906	217.0906	242.4906	267.8906
9/16	0.5625	14.2875	39.6875	65.0875	90.4875	115.8875	141.2875	166.6875	192.0875	217.4875	242.8875	268.2875
37/64	0.578125	14.6844	40.0844	65.4844	90.8844	116.2844	141.6844	167.0844	192.4844	217.8844	243.2844	268.6844
19/32	0.59375	15.0812	40.4812	65.8812	91.2812	116.6812	142.0812	167.4812	192.8812	218.2812	243.6812	269.0812
39/64	0.609375	15.4781	40.8781	66.2781	91.6781	117.0781	142.4781	167.8781	193.2781	218.6781	244.0781	269.4781
5/8	0.625	**15.8750**	**41.2750**	**66.6750**	**92.0750**	**117.4750**	**142.8750**	**168.2750**	**193.6750**	**219.0750**	**244.4750**	**269.8750**
41/64	0.640625	16.2719	41.6719	67.0719	92.4719	117.8719	143.2719	168.6719	194.0719	219.4719	244.8719	270.2719
21/32	0.65625	16.6688	42.0688	67.4688	92.8688	118.2688	143.6688	169.0688	194.4688	219.8688	245.2688	270.6688
43/64	0.671875	17.0656	42.4656	67.8656	93.2656	118.6656	144.0656	169.4656	194.8656	220.2656	245.6656	271.0656
11/16	0.6875	17.4625	42.8625	68.2625	93.6625	119.0625	144.4625	169.8625	195.2625	220.6625	246.0625	271.4625
45/64	0.703125	17.8594	43.2594	68.6594	94.0594	119.4594	144.8594	170.2594	195.6594	221.0594	246.4594	271.8594
23/32	0.71875	18.2562	43.6562	69.0562	94.4562	119.8562	145.2562	170.6562	196.0562	221.4562	246.8562	272.2562
47/64	0.734375	18.6531	44.0531	69.4531	94.8531	120.2531	145.6531	171.0531	196.4531	221.8531	247.2531	272.6531
3/4	0.75	**19.0500**	**44.4500**	**69.8500**	**95.2500**	**120.6500**	**146.0500**	**171.4500**	**196.8500**	**222.2500**	**247.6500**	**273.0500**
49/64	0.765625	19.4469	44.8469	70.2469	95.6469	121.0469	146.4469	171.8469	197.2469	222.6469	248.0469	273.4469
25/32	0.78125	19.8438	45.2438	70.6438	96.0438	121.4438	146.8438	172.2438	197.6438	223.0438	248.4438	273.8438
51/64	0.796875	20.2406	45.6406	71.0406	96.4406	121.8406	147.2406	172.6406	198.0406	223.4406	248.8406	274.2406
13/16	0.8125	20.6375	46.0375	71.4375	96.8375	122.2375	147.6375	173.0375	198.4375	223.8375	249.2375	274.6375
53/64	0.828125	21.0344	46.4344	71.8344	97.2344	122.6344	148.0344	173.4344	198.8344	224.2344	249.6344	275.0344
27/32	0.84375	21.4312	46.8312	72.2312	97.6312	123.0312	148.4312	173.8312	199.2312	224.6312	250.0312	275.4312
55/64	0.859375	21.8281	47.2281	72.6281	98.0281	123.4281	148.8281	174.2281	199.6281	225.0281	250.4281	275.8281
7/8	0.875	**22.2250**	**47.6250**	**73.0250**	**98.4250**	**123.8250**	**149.2250**	**174.6250**	**200.0250**	**225.4250**	**250.8250**	**276.2250**
57/64	0.890625	22.6219	48.0219	73.4219	98.8219	124.2219	149.6219	175.0219	200.4219	225.8219	251.2219	276.6219
29/32	0.90625	23.0188	48.4188	73.8188	99.2188	124.6188	150.0188	175.4188	200.8188	226.2188	251.6188	277.0188
59/64	0.921875	23.4156	48.8156	74.2156	99.6156	125.0156	150.4156	175.8156	201.2156	226.6156	252.0156	277.4156
15/16	0.9375	23.8125	49.2125	74.6125	100.0125	125.4125	150.8125	176.2125	201.6125	227.0125	252.4125	277.8125
61/64	0.953125	24.2094	49.6094	75.0094	100.4094	125.8094	151.2094	176.6094	202.0094	227.4094	252.8094	278.2094
31/32	0.96875	24.6062	50.0062	75.4062	100.8062	126.2062	151.6062	177.0062	202.4062	227.8062	253.2062	278.6062
63/64	0.984375	25.0031	50.4031	75.8031	101.2031	126.6031	152.0031	177.4031	202.8031	228.2031	253.6031	279.0031

Appendix Table 11 Hardness Conversion Table

Rockwell	Vickers	Brinell		Rockwell		Shore
C scale 1,471.0 N (150 kgf)		Standard steel ball	Tungsten carbide steel ball	A scale 588.4 N (60 kgf)	B scale 980.7 N (100 kgf)	
68	940			85.6		97
67	900			85.0		95
66	865			84.5		92
65	832		739	83.9		91
64	800		722	83.4		88
63	772		705	82.8		87
62	746		688	82.3		85
61	720		670	81.8		83
60	697		654	81.2		81
59	674		634	80.7		80
58	653		615	80.1		78
57	633		595	79.6		76
56	613		577	79.0		75
55	595	–	560	78.5		74
54	577	–	543	78.0		72
53	560	–	525	77.4		71
52	544	500	512	76.8		69
51	528	487	496	76.3		68
50	513	475	481	75.9		67
49	498	464	469	75.2		66
48	484	451	455	74.7		64
47	471	442	443	74.1		63
46	458	432	432	73.6		62
45	446	421		73.1		60
44	434	409		72.5		58
43	423	400		72.0		57
42	412	390		71.5		56
41	402	381		70.9		55
40	392	371		70.4	–	54
39	382	362		69.9	–	52
38	372	353		69.4	–	51
37	363	344		68.9	–	50
36	354	336		68.4	(109.0)	49
35	345	327		67.9	(108.5)	48
34	336	319		67.4	(108.0)	47
33	327	311		66.8	(107.5)	46
32	318	301		66.3	(107.0)	44
31	310	294		65.8	(106.0)	43
30	302	286		65.3	(105.5)	42
29	294	279		64.7	(104.5)	41
28	286	271		64.3	(104.0)	41
27	279	264		63.8	(103.0)	40
26	272	258		63.3	(102.5)	38
25	266	253		62.8	(101.5)	38
24	260	247		62.4	(101.0)	37
23	254	243		62.0	100.0	36
22	248	237		61.5	99.0	35
21	243	231		61.0	98.5	35
20	238	226		60.5	97.8	34
(18)	230	219		–	96.7	33
(16)	222	212		–	95.5	32
(14)	213	203		–	93.9	31
(12)	204	194		–	92.3	29
(10)	196	187			90.7	28
(8)	188	179			89.5	27
(6)	180	171			87.1	26
(4)	173	165			85.5	25
(2)	166	158			83.5	24
(0)	160	152			81.7	24

Appendix Table 12 Viscosity Conversion Table

Kinematic viscosity mm^2/s	Saybolt SUS (second)		Redwood R (second)		Engler E (degree)
	100 °F	210 °F	50 °C	100 °C	
2	32.6	32.8	30.8	31.2	1.14
3	36.0	36.3	33.3	33.7	1.22
4	39.1	39.4	35.9	36.5	1.31
5	42.3	42.6	38.5	39.1	1.40
6	45.5	45.8	41.1	41.7	1.48
7	48.7	49.0	43.7	44.3	1.56
8	52.0	52.4	46.3	47.0	1.65
9	55.4	55.8	49.1	50.0	1.75
10	58.8	59.2	52.1	52.9	1.84
11	62.3	62.7	55.1	56.0	1.93
12	65.9	66.4	58.2	59.1	2.02
13	69.6	70.1	61.4	62.3	2.12
14	73.4	73.9	64.7	65.6	2.22
15	77.2	77.7	68.0	69.1	2.32
16	81.1	81.7	71.5	72.6	2.43
17	85.1	85.7	75.0	76.1	2.54
18	89.2	89.8	78.6	79.7	2.64
19	93.3	94.0	82.1	83.6	2.76
20	97.5	98.2	85.8	87.4	2.87
21	102	102	89.5	91.3	2.98
22	106	107	93.3	95.1	3.10
23	110	111	97.1	98.9	3.22
24	115	115	101	103	3.34
25	119	120	105	107	3.46
26	123	124	109	111	3.58
27	128	129	112	115	3.70
28	132	133	116	119	3.82
29	137	138	120	123	3.95
30	141	142	124	127	4.07
31	145	146	128	131	4.20
32	150	150	132	135	4.32
33	154	155	136	139	4.45
34	159	160	140	143	4.57
35	163	164	144	147	4.70
36	168	170	148	151	4.83
37	172	173	153	155	4.96
38	177	178	156	159	5.08
39	181	183	160	164	5.21
40	186	187	164	168	5.34
41	190	192	168	172	5.47
42	195	196	172	176	5.59
43	199	201	176	180	5.72
44	204	205	180	185	5.85
45	208	210	184	189	5.98
46	213	215	188	193	6.11
47	218	219	193	197	6.24
48	222	224	197	202	6.37
49	227	228	201	206	6.50
50	231	233	205	210	6.63
55	254	256	225	231	7.24
60	277	279	245	252	7.90
65	300	302	266	273	8.55
70	323	326	286	294	9.21
75	346	349	306	315	9.89
80	371	373	326	336	10.5
85	394	397	347	357	11.2
90	417	420	367	378	11.8
95	440	443	387	399	12.5
100	464	467	408	420	13.2
120	556	560	490	504	15.8
140	649	653	571	588	18.4
160	742	747	653	672	21.1
180	834	840	734	757	23.7
200	927	933	816	841	26.3
250	1,159	1,167	1,020	1,051	32.9
300	1,391	1,400	1,224	1,241	39.5

Remark 1 mm^2/s = 1 cSt (centistokes)

Appendix Table 13 Mechanical Properties of Metal Materials (reference)

(1) Modulus of longitudinal elasticity, elastic limit, and ultimate strength

Material	Main components and others	Specific gravity	Modulus of longitudinal elasticity (GPa)	Elastic limit σ_e (MPa)	Ultimate strength (MPa)		
					Tensile K_t	Compression K_c	Shear K_s
Gray cast iron (FC150)		7.1–7.3	69	29	118	590	108
(FC200)		7.1–7.3	98	88	137– 216	740	206
(FC250)		7.1–7.3	103	88	176– 314	880	206
White heart malleable cast iron	Residual carbon: 1.6% or less	7.1–7.3	158	196	314– 392	820	382
Black heart malleable cast iron		7.2–7.6	158	196	274– 392	820	382
Carbon steel	General	7.7–7.8	196–216	176–245	314– 830	–	–
Extra mild steel	C 0.05–0.15%	7.8	196	118	Over 372	Virtually identical to tensile strength, provided buckling can be ignored	0.8 K_t
Mild steel	C 0.15–0.25%	7.8	204	157	372– 392		0.75 K_t
Middle hard steel	C 0.25–0.40%	7.8	206	245–294	490– 590		0.75 K_t
Hard steel	C 0.40–0.50%	7.8	216	343	590– 690		0.7 K_t
Maximum hard steel	C 0.50–0.65%	7.8	216	372	690– 830		0.65 K_t
Mild steel	C 0.18% hot rolling	7.8	206	176	421		314
Hard steel	Oil hardening, tempering at 700 °C	7.8	206	343	590		461
Tool steel	C 0.60–1.50% hardening	7.8	216	441	660		820
Cast steel	General	7.8–7.9	206–211	176–245	343– 600	343–600	284–382
Cast steel (mild)	C 0.15–0.22%	7.8–7.9	206	196	363– 431	363–431	284
Cast steel (middle hard)	C 0.22–0.30%	7.8–7.9	211	225	392– 490	392–490	333
Cast steel (hard)	C 0.30–0.40%	7.9	211	245	490– 590	490–590	382
Nickel steel	C 0.25–0.35% Ni 2–5%	7.85	206–216	333	640– 830	640	401
Chrome steel	C 0.13–0.48% Cr 0.9–1.2%	7.85	206–216	–	780– 980	–	–
Nickel chrome steel	C, Ni, Cr included	7.85	206–216	–	740– 980	–	382–500
Chromium molybdenum steel	C, Cr, Mo included	7.85	206–216	–	830– 980	–	–
Manganese steel	C 0.2–0.46% Mn 1–1.4%	7.85	206–216	–	440–1,080	–	–
Spring steel		7.86	216	735	1,080–1,670	1,670	–
Stainless steel	C, Cr, Ni included	7.75	206–216	–	620	–	410
Brass casting	Cu 60% Zn 40%	8.5	69	–	176– 216	108	147
Brass (forged plate)	Cu 60% Zn 40%	8.4	78– 98	–	274– 392	314	206
Brass (forged rod)	Cu 60% Zn 40%	8.4	82	–	520	314	314
Phosphor bronze casting	Cu 90% Sn 10% P 0.1%	8.8	93–103	–	196– 294	137	176
Phosphor bronze (forging)	Cu 90% Sn 10% P 0.1%	8.8	132	–	294– 980	206	382
Tin		7.28	39– 54	–	27	–	–
Lead		11.34	15– 17	–	20	–	–
Zinc		7.1	78–127	–	78– 176	–	–

(2) Allowable stress

Unit: MPa

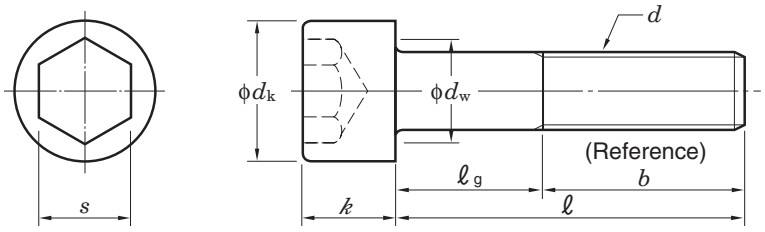
Material	Tensile K_t			Compression K_c		Bending K_b			Shear K_s			Torsion K_d		
	a	b	c	a	b	a	b	c	a	b	c	a	b	c
Cast iron (cast)	29– 34	20– 23	10–12	88– 98	59– 65	45– 59	30– 39	15–20	29– 34	20–23	10–12	26– 34	18–23	88–118
Cast iron (machined)	29– 34	20– 23	10–12	88– 98	59– 65	55– 71	–	–	29– 34	20–23	10–12	26– 34	18–23	88–118
Malleable cast iron	44– 69	29– 46	15–23	59– 88	39– 59	44– 98	29– 46	15–23	–	–	–	29– 39	20–26	10– 13
Cast steel	59–118	39– 78	20–39	88–147	59– 98	74–118	49– 78	25–39	47– 94	31–63	16–31	47– 94	31–63	16– 31
Mild steel	98–157	66–105	32–52	98–157	66–105	88–147	59– 98	35–49	78–127	52–85	26–42	78–137	52–91	26– 46
Middle hard steel	118–176	78–118	39–59	118–176	78–118	118–176	78–118	39–59	94–137	63–94	31–47	88–137	59–94	29– 47
Nickel steel	118–176	78–118	39–59	118–176	78–118	118–176	78–118	39–59	94–137	63–94	31–47	88–137	59–92	29– 47
Carbon steel casting	88–118	59– 78	29–39	88–118	59– 78	88–118	59– 78	29–39	71– 93	47–63	24–31	35– 47	24–31	12– 16
Brass (rolled)	10– 59	26– 35	13–20	39– 59	26– 39	39– 59	26– 39	13–20	34– 47	21–31	11–16	31– 47	21–31	11– 16
Bronze	29– 39	20– 26	10–13	29– 39	20– 26	29– 39	20– 26	10–13	–	–	–	–	–	–
Phosphor bronze	59– 88	39– 59	20–29	59– 88	39– 59	59– 88	39– 59	20–29	44– 69	29–46	15–23	44– 69	29–46	15– 23
Aluminum casting	10– 12	7– 8	2– 4	–	–	15– 20	10– 13	5– 7	–	–	–	–	–	–

Remarks 1. a is applicable in the case of static load, b is applicable in the case of dynamic load, and c is applicable to in the case of repeated load.

2. Bending allowable stress K_b and torsional allowable stress K_d of cast iron are applicable when the cross section is round and safety factor is within the range of 5 to 6.

Appendix Table 14 (1) Hexagon Socket Head Cap Screws (abstract from JIS B 1176: 2014)

M 1.6 – 24



Allowance of bolt length (ℓ)

Unit: mm

Bolt length (ℓ) Over	Bolt length (ℓ) Incl.	Allowance of length
–	3	±0.2
3	6	±0.24
6	10	±0.29
10	16	±0.35
16	30	±0.42
30	50	±0.5
50	80	±0.6
80	120	±0.7
120	180	±0.8
180	240	±0.9
240	300	±1

(1) Parts class A M 1.6–24

Unit: mm

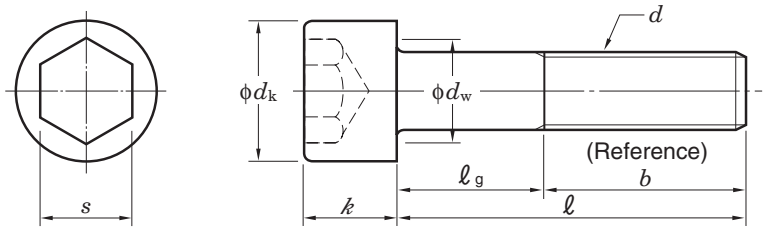
Nominal designation d / Coarse screw thread pitch	M 1.6	M 2	M 2.5	M 3	M 4	M 5	M 6	M 8	M 10	M 12	(M 14)	M 16	M 20	M 24
	0.35	0.4	0.45	0.5	0.7	0.8	1	1.25	1.5	1.75	2	2	2.5	3
Head dia. d_k	3	3.8	4.5	5.5	7	8.5	10	13	16	18	21	24	30	36
Head height k	1.6	2	2.5	3	4	5	6	8	10	12	14	16	20	24
Bearing surface dia. d_w (min.)	2.72	3.4	4.18	5.07	6.53	8.03	9.38	12.33	15.33	17.23	20.17	23.17	28.87	34.81
Nominal size of hexagon socket s	1.5	1.5	2	2.5	3	4	5	6	8	10	12	14	17	19
Thread length b (reference)	15	16	17	18	20	22	24	28	32	36	40	44	52	60

Nominal length ℓ	Body length ℓ_g (max.)													
	M 1.6	M 2	M 2.5	M 3	M 4	M 5	M 6	M 8	M 10	M 12	(M 14)	M 16	M 20	M 24
2.5														
3														
4														
5														
6														
8														
10														
12														
16														
20		4												
25		8	7											
30		12	10	8										
35			15	13	11									
40			20	18	16	12								
45				23	21	17	13							
50				28	26	22	18	14						
55					31	27	23	19						
60					36	32	28	24	20					
65						37	33	29	25	21				
70						42	38	34	30	26				
80						52	48	44	40	36	28			
90							58	54	50	46	38	30		
100							68	64	60	56	48	40		
110								74	70	66	58	50		
120								84	80	76	68	60		
130									90	86	78	70		
140									100	96	88	80		
150										106	98	90		
160										116	108	100		
180											128	120		
200											148	140		

Remarks 1. Priority is given to the nominal sizes of screws without parentheses.
2. Nominal lengths (ℓ) to be recommended for the nominal sizes of screw are within the range enclosed by bold lines in the column of "Body length ℓ_g". In the column of "Body length ℓ_g", thread of the screw with length shorter than that indicated under dotted lines should be continuous. For the continuous thread stud screw, the incomplete thread portion length under the neck of the screw should be approximately three times the thread pitch.
3. The sides of the head of screw should be single or double knurled. The d_k values in the table are the maximum values without knurls.
4. Roundness or chamfers on the bearing surface should be provided between the diameter of the head (d_k) and the diameter of bearing surface (d_w), and the surface should be free from burrs.

Appendix Table 14 (2) Hexagon Socket Head Cap Screws (abstract from JIS B 1176: 2014)

M 30 – 48



Allowance of bolt length (ℓ)

Unit: mm

Bolt length (ℓ) Over	Bolt length (ℓ) Incl.	Allowance of length
–	3	±0.2
3	6	±0.24
6	10	±0.29
10	16	±0.35
16	30	±0.42
30	50	±0.5
50	80	±0.6
80	120	±0.7
120	180	±0.8
180	240	±0.9
240	300	±1

(2) Parts class A M 30–48 Unit: mm

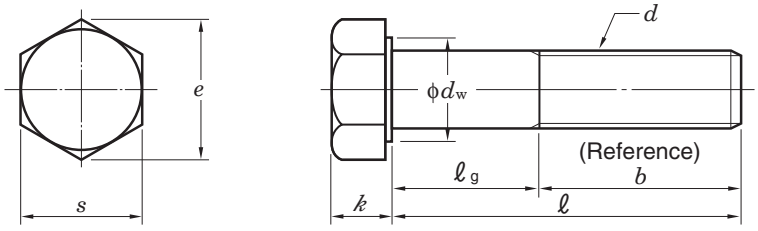
Nominal designation d	Coarse screw thread pitch	M 30	M 36	M 42	M 48
		3.5	4	4.5	5
Head dia. d_k		45	54	63	72
Head height k		30	36	42	48
Bearing surface dia. d_w (min.)		43.61	52.54	61.34	70.34
Nominal size of hexagon socket s		22	27	32	36
Thread length b (reference)		72	84	96	108

Nominal length ℓ	M 30	Body length ℓ_g (max.) M 36	M 42	M 48
45				
50		M 36		
55				
60			M 42	
65				
70				M 48
80				
90				
100	M 30			
110	38	M 36		
120	48	36		
130	58	46	M 42	
140	68	56	44	
150	78	66	54	M 48
160	88	76	64	52
180	108	96	84	72
200	128	116	104	92
220			124	112
240			144	132
260			164	152
280			184	172
300			204	192

Remarks
1. Priority is given to the nominal sizes of screws without parentheses.
2. Nominal lengths (ℓ) to be recommended for the nominal sizes of screw are within the range enclosed by bold lines in the column of "Body length ℓ_g". In the column of "Body length ℓ_g", thread of the screw with length shorter than that indicated under dotted lines should be continuous. For the continuous thread stud screw, the incomplete thread portion length under the neck of the screw should be approximately three times the thread pitch.
3. The sides of the head of screw should be single or double knurled. The d_k values in the table are the maximum values without knurls.
4. Roundness or chamfers on the bearing surface should be provided between the diameter of the head (d_k) and the diameter of bearing surface (d_w), and the surface should be free from burrs.

Appendix Table 15 (1) Hexagon Head Bolts (abstract from JIS B 1180: 2014)

Parts class A M 1.6 – 24



Allowance of bolt length (ℓ)

Unit: mm

Bolt length (ℓ) Over	Bolt length (ℓ) Incl.	Allowance of length
–	16	±0.35
16	30	±0.42
30	50	±0.5
50	80	±0.6
80	120	±0.7
120	150	±0.8

(1) Parts class A M 1.6–24

Unit: mm

Nominal designation d		M 1.6	M 2	M 2.5	M 3	(M 3.5)	M 4	M 5	M 6	M 8	M 10	M 12	(M 14)	M 16	(M 18)	M 20	(M 22)	M 24
	Coarse screw thread pitch	0.35	0.4	0.45	0.5	0.6	0.7	0.8	1	1.25	1.5	1.75	2	2	2.5	2.5	2.5	3
	Fine thread	–	–	–	–	–	–	–	–	**M 8 × 1**	**M 10 × 1**	**M 12 ×1.5**	–	**M 16 ×1.5**	–	**M 20 ×1.5**	–	**M 24 × 2**
		–	–	–	–	–	–	–	–	–	(M 10 ×1.25)	(M 12 ×1.25)	(M 14 ×1.5)	–	(M 18 ×1.5)	(M 20 × 2)	(M 22 ×1.5)	–
Bearing surface dia. d_w (min.)		2.27	3.07	4.07	4.57	5.07	5.88	6.88	8.88	11.63	14.63	16.63	19.64[1)]	22.49	25.34	28.19	31.71	33.61
Width across flats s (max.)		3.2	4	5	5.5	6	7	8	10	13	16	18	21	24	27	30	34	36
Width across corners e (min.)		3.41	4.32	5.45	6.01	6.58	7.66	8.79	11.05	14.38	17.77	20.03	23.36	26.75	30.14	33.53	37.72	39.98
Head height k (basic)		1.1	1.4	1.7	2	2.4	2.8	3.5	4	5.3	6.4	7.5	8.8	10	11.5	12.5	14	15
Thread length b (reference)	$\ell \leq 125$	9	10	11	12	13	14	16	18	22	26	30	34	38	42	46	50	54
	$125 < \ell \leq 150$	–	–	–	–	–	–	–	–	–	–	–	40	44	48	52	56	60

Note 1) The value shall be 19.37 for M14×1.5.

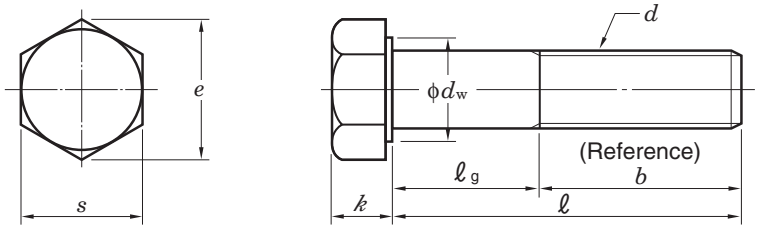
Nominal length ℓ	Body length ℓ_g (max.)																		
	M 1.6	M 2	M 2.5	M 3	(M 3.5)	M 4	M 5	M 6	M 8	M 10	M 12	(M 14)	M 16	(M 18)	M 20	(M 22)	M 24	M24×2
12	3																	
16	7	6	5	M 3	(M 3.5)													
20		10	9	8	7	M 4	M 5											
25			14	13	12	11	9	M 6										
30				18	17	16	14	12										
35					22	21	19	17	M 8									
40						26	24	22	18	M 10								
45							29	27	23	19	M 12							
50							34	32	28	24	20							
55								37	33	29	25	(M 14)						
60								42	38	34	30	26	M 16					
65									43	39	35	31	27	(M 18)				
70									48	44	40	36	32	28	M 20			
80									58	54	50	46	42	38	34	(M 22)	M 24	
90										64	60	56	52	48	44	40	36	M24×2
100										74	70	66	62	58	54	50	46	46
110											80	76	72	68	64	60	56	56
120											90	86	82	78	74	70	66	66
130												90	86	82	78	74	70	70
140												100	96	92	88	84	80	80
150													106	102	98	94	90	90

As for the bolts with nominal length within this area, standards of continuous thread stud hexagon head bolt (parts class A) should be observed.

Remarks 1. Priority is given to the nominal sizes of screws without parentheses.
2. Nominal lengths (ℓ) to be recommended for the nominal sizes of screw are within the range enclosed by bold lines.
3. Body length ℓ_g (maximum) should be found by the following formula : ℓ_g (maximum) = Nominal length (ℓ) – Thread length (b)

Appendix Table 15 (2) Hexagon Head Bolts (abstract from JIS B 1180: 2014)

Parts class B M 16 – 64



Allowance of bolt length (ℓ)

Unit: mm

Bolt length (ℓ) Over	Bolt length (ℓ) Incl.	Allowance of length
–	80	±1.5
80	120	±1.75
120	180	±2
180	240	±2.3
240	300	±2.6
300	400	±2.85
400	500	±3.15

(2) Parts class B M 16–64

Unit: mm

Nominal designation d		M 16	(M 18)	M 20	(M 22)	M 24	(M 27)	M 30	(M 33)	M 36	(M 39)	M 42	(M 45)	M 48	(M 52)	M 56	(M 60)	M 64
	Coarse screw thread pitch	2	2.5	2.5	2.5	3	3	3.5	3.5	4	4	4.5	4.5	5	5	5.5	5.5	6
	Fine thread	M 16 ×1.5	–	M 20 ×1.5	–	M 24 × 2	–	M 30 × 2	–	M 36 × 3	–	M 42 × 3	–	M 48 × 3	–	M 56 × 4	–	M 64 × 4
		–	(M 18 ×1.5)	(M 20 × 2)	(M 22 ×1.5)	–	(M 27 × 2)	–	(M 33 × 2)	–	(M 39 × 3)	–	(M 45 × 3)	–	(M 52 × 4)	–	(M 60 × 4)	–
Bearing surface dia. d_w (min.)		22	24.85	27.7	31.35	33.25	38	42.75	46.55	51.11	55.86	59.95	64.7	69.45	74.2	78.66	83.41	88.16
Width across flats s (max.)		24	27	30	34	36	41	46	50	55	60	65	70	75	80	85	90	95
Width across corners e (min.)		26.17	29.56	32.95	37.29	39.55	45.2	50.85	55.37	60.79	66.44	71.3	76.95	82.6	88.25	93.56	99.21	104.86
Head height k (basic)		10	11.5	12.5	14	15	17	18.7	21	22.5	25	26	28	30	33	35	38	40
Thread length b (reference)	$\ell \le 125$	38	42	46	50	54	60	66	–	–	–	–	–	–	–	–	–	–
	$125 < \ell \le 200$	44	48	52	56	60	66	72	78	84	90	96	102	108	116	–	–	–
	$200 < \ell \le 500$	–	–	–	69	73	79	85	91	97	103	109	115	121	129	137	145	153

Nominal length ℓ	Body length ℓ_g (max.)																		
	M 16	(M 18)	M 20	(M 22)	M 24	(M 27)	(M27×2)	M 30	M30×2	(M 33)	M 36	(M 39)	M 42	M42×3	(M 45)	M 48	M48×3	(M 52)	M 56	(M 60)	M 64
65		(M 18)																			
70			M 20																		
80				(M 22)	M 24																
90						(M 27)															
100						40	(M27×2)	M 30													
110						50	50	44	M30×2												
120						60	60	54	54	(M 33)											
130						64	64	58	58	52	M 36										
140						74	74	68	68	62	56	(M 39)									
150						84	84	78	78	72	66	60	M 42	M42×3							
160	116	112	108	104	100	94	94	88	88	82	76	70	64	64	(M 45)	M 48					
180		132	128	124	120	114	114	108	108	102	96	90	84	84	78	72	M48×3	(M 52)			
200			148	144	140	134	134	128	128	122	116	110	104	104	98	92	92	84	M 56		
220				151	147	141	141	135	135	129	123	117	111	111	105	99	99	91	83	(M 60)	
240					167	161	161	155	155	149	143	137	131	131	125	119	119	111	103	95	M 64
260						181	181	175	175	169	163	157	151	151	145	139	139	131	123	115	107
280								195	195	189	183	177	171	171	165	159	159	151	143	135	127
300								215	215	209	203	197	191	191	185	179	179	171	163	155	147
320										229	223	217	211	211	205	199	199	191	183	175	167
340											243	237	231	231	225	219	219	211	203	195	187
360											263	257	251	251	245	239	239	231	223	215	207
380												277	271	271	265	259	259	251	243	235	227
400													291	291	285	279	279	271	263	255	247
420													311	311	305	299	299	291	283	275	267
440														331	325	319	319	311	303	295	287
460																339	339	331	323	315	307
480																359	359	351	343	335	327
500																			363	355	347

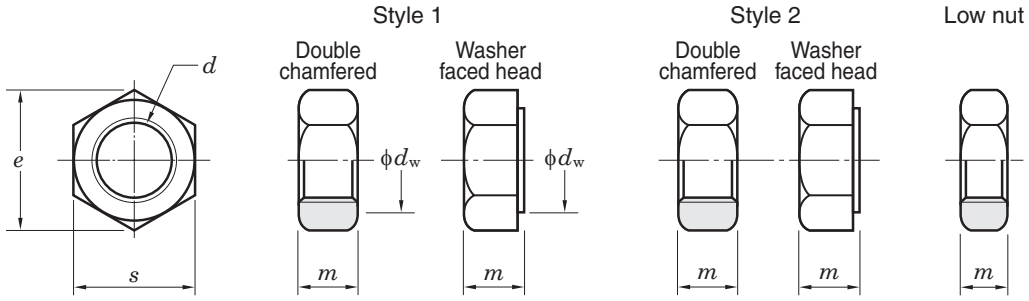
As for the bolts with nominal length within this area, standards of (1) parts class A should be observed.

As for the bolts with nominal length within this area, standards of continuous thread stud hexagon head bolt (parts class A or B) should be observed.

Remarks 1. Priority is given to the nominal sizes of screws without parentheses.
2. Nominal lengths (ℓ) to be recommended for the nominal sizes of screw are within the range enclosed by bold lines.
3. Body length ℓ_g (maximum) should be found by the following formula : ℓ_g (maximum) = Nominal length (ℓ) – Thread length (b)

Appendix Table 16 (1) Hexagon Head Nuts (abstract from JIS B 1181: 2014)

Parts class A M 1.6 – 16
Parts class B M 18 – 64



(1) Parts class A M 1.6–16

Unit: mm

Coarse thread designation d		M 1.6	M 2	M 2.5	M 3	(M 3.5)	M 4	M 5	M 6	M 8	M 10	M 12	(M 14)	M 16
Coarse screw thread pitch p		0.35	0.4	0.45	0.5	0.6	0.7	0.8	1	1.25	1.5	1.75	2	2
Bearing surface dia. d_w (min.)	Style 1	2.40	3.10	4.10	4.60	5.00	5.90	6.90	8.90	11.60	14.60	16.60	19.60	22.50
	Style 2	–	–	–	–	–	–	6.90	8.90	11.60	14.60	16.60	19.60	22.50
	Low nut (double chamfer)	2.40	3.10	4.10	4.60	5.10	5.90	6.90	8.90	11.60	14.60	16.60	19.60	22.50
Width across flats s (max.)		3.20	4.00	5.00	5.50	6.00	7.00	8.00	10.00	13.00	16.00	18.00	21.00	24.00
Width across corners e (min.)		3.41	4.32	5.45	6.01	6.58	7.66	8.79	11.05	14.38	17.77	20.03	23.36	26.75
Height m	Style 1	1.30	1.60	2.00	2.40	2.80	3.20	4.70	5.20	6.80	8.40	10.80	12.80	14.80
	Style 2	–	–	–	–	–	–	5.10	5.70	7.50	9.30	12.00	14.10	16.40
	Low nut (double chamfer)	1.00	1.20	1.60	1.80	2.00	2.20	2.70	3.20	4.00	5.00	6.00	7.00	8.00

Remarks 1. Priority is given to the nominal sizes of screws without parentheses.
2. Unless otherwise specified, nuts shall be without flange.

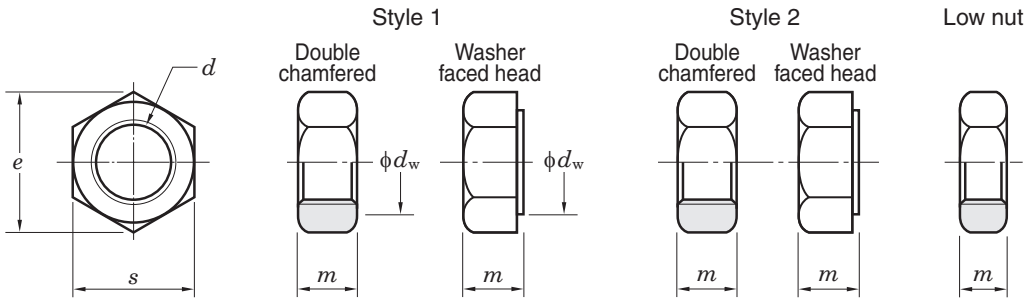
Unit: mm

Fine thread designation $D \times P$		M 8×1	M 10×1	M 12×1.5	–	M 16×1.5
		–	(M 10 ×1.25)	(M 12 ×1.25)	(M 14 × 1.5)	–
Bearing surface dia. d_w (min.)	Style 1	11.63	14.63	16.63	–	22.49
	※when applied	–	14.63	16.63	19.64	–
	Style 2	11.63	14.63	16.63	–	22.49
	※when applied	–	14.63	16.63	19.64	–
	Low nut (double chamfer)	11.63	14.63	16.63	–	22.49
	※when applied	–	14.63	16.63	24.85	–
Width across flats s (max.)		13.00	16.00	18.00	21.00	24.00
Width across corners e (min.)		14.38	17.77	20.03	23.36	26.75
Height m	Style 1	6.80	8.40	10.80	–	14.80
	※when applied	–	8.40	10.80	12.80	–
	Style 2	7.50	9.30	12.00	–	16.40
	※when applied	–	9.30	12.00	14.10	–
	Low nut (double chamfer)	4.00	5.00	6.00	–	8.00
	※when applied	–	5.00	6.00	7.00	–

Remarks 1. Priority is given to the nominal sizes of screws without parentheses.
2. Unless otherwise specified, nuts shall be without flange.

Appendix Table 16 (2) Hexagon Head Nuts (abstract from JIS B 1181: 2014)

Parts class A M 1.6 – 16
Parts class B M 18 – 64



(2) Parts class B M 18–64

Unit: mm

Coarse thread designation d		(M 18)	M 20	(M 22)	M 24	(M 27)	M 30	(M 33)	M 36	(M 39)	M 42	(M 45)	M 48	(M 52)	M 56	(M 60)	M 64
Coarse screw thread pitch p		2.5	2.5	2.5	3	3	3.5	3.5	4	4	4.5	4.5	5	5	5.5	5.5	6
Bearing surface dia. d_w (min.)	Style 1	24.90	27.70	31.40	33.30	38.00	42.80	46.60	51.10	55.90	60.00	64.70	69.50	74.20	78.70	83.40	88.20
	Style 2	–	27.70	–	33.20	–	42.70	–	51.10	–	–	–	–	–	–	–	–
	Low nut (double chamfer)	24.90	27.70	31.40	33.20	38.00	42.80	46.60	51.10	55.90	60.00	64.70	69.50	74.20	78.70	83.40	88.20
Width across flats s (max.)		27.00	30.00	34.00	36.00	41.00	46.00	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00	90.00	95.00
Width across corners e (min.)		29.56	32.95	37.29	39.55	45.20	50.85	55.37	60.79	66.44	71.30	76.95	82.60	88.25	93.56	99.21	104.86
Height m	Style 1	15.80	18.00	19.40	21.50	23.80	25.60	28.70	31.00	33.40	34.00	36.00	38.00	42.00	45.00	48.00	51.00
	Style 2	–	20.30	–	23.90	–	28.60	–	34.70	–	–	–	–	–	–	–	–
	Low nut (double chamfer)	9.00	10.00	11.00	12.00	13.50	15.00	16.50	18.00	19.50	21.00	22.50	24.00	26.00	28.00	30.00	32.00

Remarks 1. Priority is given to the nominal sizes of screws without parentheses.
2. Unless otherwise specified, nuts shall be without flange.

Unit: mm

Fine thread designation $D \times P$		–	M 20×1.5	–	M 24×2	–	M 30×2	–	M 36×3	–	M 42×3	–	M 48×3	–	M 56×4	–	M 64×4
		(M 18 ×1.5)	(M 20 × 2)	(M 22 ×1.5)	–	(M 27 × 2)	–	(M 33 × 2)	–	(M 39 × 3)	–	(M 45 × 3)	–	(M 52 × 4)	–	(M 60 × 4)	–
Bearing surface dia. d_w (min.)	Style 1	–	27.70	–	33.25	–	42.75	–	51.11	–	59.95	–	69.45	–	78.66	–	88.16
	※when applied	24.85	27.70	31.35	–	38.00	–	46.55	–	55.86	–	64.70	–	74.20	–	83.41	–
	Style 2	–	27.70	–	33.25	–	42.75	–	51.11	–	–	–	–	–	–	–	–
	※when applied	24.85	27.70	31.35	–	38.00	–	46.55	–	–	–	–	–	–	–	–	–
	Low nut (double chamfer)	–	27.70	–	33.25	–	42.75	–	51.11	–	59.95	–	69.45	–	78.66	–	88.14
	※when applied	24.85	27.70	31.35	–	38.00	–	46.55	–	55.86	–	64.70	–	74.20	–	83.41	–
Width across flats s (max.)		27.00	30.00	34.00	36.00	41.00	46.00	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00	90.00	95.00
Width across corners e (min.)		29.56	32.95	37.29	39.55	45.20	50.85	55.37	60.79	66.44	71.30	76.95	82.60	88.25	93.56	99.21	104.86
Height m	Style 1	–	18.00	–	21.50	–	25.60	–	31.00	–	34.00	–	38.00	–	45.00	–	51.00
	※when applied	15.80	18.00	19.40	–	23.80	–	28.70	–	33.40	–	36.00	–	42.00	–	48.00	–
	Style 2	–	20.30	–	23.90	–	28.60	–	34.70	–	–	–	–	–	–	–	–
	※when applied	17.60	20.30	21.80	–	26.70	–	32.50	–	–	–	–	–	–	–	–	–
	Low nut (double chamfer)	–	10.00	–	12.00	–	15.00	–	18.00	–	21.00	–	24.00	–	28.00	–	32.00
	※when applied	9.00	10.00	11.00	–	13.50	–	16.50	–	19.50	–	22.50	–	26.00	–	30.00	–

Remarks 1. Priority is given to the nominal sizes of screws without parentheses.
2. Unless otherwise specified, nuts shall be without flange.

Appendix Table 17 Ball Bearing Units Interchange Guide

17.1 Pillow Block Units

	FYH · JTEKT	ASAHI	NTN
With pressed steel cover	UCP2··C	UCP2··C	S-UCP2··D1
	UCP2··CD	UCP2··E	SM-UCP2··D1
With cast iron cover	UCP2··FC	CUCP2··C	C-UCP2··D1
	UCP2··FCD	CUCP2··CE	CM-UCP2··D1
	UCP3··C	CUCP3··C	C-UCP3··D1
	UCP3··CD	CUCP3··CE	CM-UCP3··D1
Thick Pillow Block Units	UCIP2··	UCIP2··	UCIP2··
	UCIP3··	UCIP3··	UCIP3··
Tapped-Base Pillow Block Units	UCPA2··	UCPA2··	UCUP2··D1
High-Base Pillow Block Units	UCPH2··	UCPH2··	UCHP2··D1
Light Pillow Block Units	BLP2··	BLLP··	ASPB2··
	ALP2··		AELPB2··
Compact Pillow Block Units	UP0··	UP0··	
Corrosion resistant series Pillow Block Units	UCSP2··S6	MUCP2··	
	UCSPA2··S6	MUCPA2	
	USP0··S6		
Stamped Steel Pillow Block Units	SBPP2··	BPP··	ASPP2··
	SAPP2··		AELPP2··

17.2 Flange Units

	FYH · JTEKT	ASAHI	NTN
With pressed steel cover	UCF2··C	UCF2··C	S-UCF2··D1
	UCF2··D	UCF2··E	SM-UCF2··D1
	UCFC2··C	UCFC2··C	S-UCFC2··D1
	UCFC2··D	UCFC2··E	SM-UCFC2··D1
	UCFL2··C	UCFL2··C	S-UCFL2··D1
	UCFL2··D	UCFL2··E	SM-UCFL2··D1
With cast iron cover	UCF2··FC	CUCF2··C	C-UCF2··D1
	UCF2··FD	CUCF2··CE	CM-UCF2··D1
	UCF3··C	CUCF3··C	C-UCF3··D1
	UCF3··D	CUCF3··CE	CM-UCF3··D1
	UCFC2··FC	CUCFC2··C	C-UCFC2··D1
	UCFC2··FD	CUCFC2··CE	CM-UCFC2··D1
	UCFS3··C	CUCFS3··C	C-UCFS3··D1
	UCFS3··D	CUCFS3··CE	CM-UCFS3··D1
	UCFL2··FC	CUCFL2··C	C-UCFL2··D1
	UCFL2··FD	CUCFL2··CE	CM-UCFL2··D1
	UCFL3··C	CUCFL3··C	C-UCFL3··D1
	UCFL3··D	CUCFL3··CE	CM-UCFL3··D1
Adjustable 2-Bolt Flange Units	UCFA2··	UCFA2··	UCFA2··D1
3-Bolt Flange Units	UCFB2··	UCFK2··	UCFH2··D1
Light 2-Bolt Flange Units	BLF2··	BLFL··	ASFB2··
	ALF2··		AELFB2··
Compact 2-Bolt Flange Units	UFL0··	UFL0··	
Corrosion resistant series 4-Bolt Flange Units	UCSF2··S6	MUCF2	
Corrosion resistant series 2-Bolt Flange Units	UCSFL2··S6	MUCFL2··	
Stamped steel plate Flange	SBPF2··	BPF··	ASPF2··
	SAPF2··		AELPF2··
	SBPFL2··	BPFL··	ASPFL2··
	SAPFL2··		AELPFL2··

17.3 Take-Up Units

	FYH · JTEKT	ASAHI	NTN
With pressed steel cover	UCT2··C	UCT2··C	S-UCT2··D1
	UCT2··CD	UCT2··E	SM-UCT2··D1
With cast iron cover	UCT2··FC	CUCT2··C	C-UCT2··D1
	UCT2··FCD	CUCT2··CE	CM-UCT2··D1
	UCT3··C	CUCT3··C	C-UCT3··D1
	UCT3··CD	CUCT3··CE	CM-UCT3··D1
Corrosion resistant series Take-Up Units	UCST2··S6	MUCT2	
Take-Up Units with frame	UCTH2····	UCT2···WB	UCT2···D1
	UCTL2····	UCTL2··+WL··	UCL2··D1
	UCTU2····	UCTU2··+WU··	UCM2··D1
	UCTU3····	UCTU3··+WU··	UCM3··D1
Steel Plate Frame Take-Up Units	SBPTH2····		
	SBNPTH2·····	BTAW201,X	ASPT2·····

17.4 Other Units

	FYH · JTEKT	ASAHI	NTN
Hanger Units	UCHA2··	UCECH2··	UCHB2··D1

17.5 Ball Bearing Inserts

	FYH · JTEKT	ASAHI	NTN
Ball bearing inserts	UC2··	UC2··	UC2··D1
	UK2··	UK2··	UK2··D1
	NA2··	UG2··+ER	UEL2··D1
	SB2··	B··	AS2··
	SA2··		AEL2··
Cylindrical O. D.	RB2··	UR2·· *1	
	ER2··	SER2·· *1	UCS2··LN *1

*1 Width of the outer ring for these items differs from that of others.

17.6 Special Specification Items

	FYH · JTEKT	ASAHI	NTN
Grease (heat temperature)	D1K2	HR5	HT2
(cold temperature)	D2K2	CR2A	CT1
(heat temperature)	D6K2	HR23	
Non-Contact Seal	K3		U
Ductile cast iron	H4		N1
Lubricated type			D1
Non-lubricated type	E4	GOO	

Appendix Table 18 Spherical Roller Bearing Units Interchange Guide

Set Screw Collar Lock 2-Bolt Pillow Block

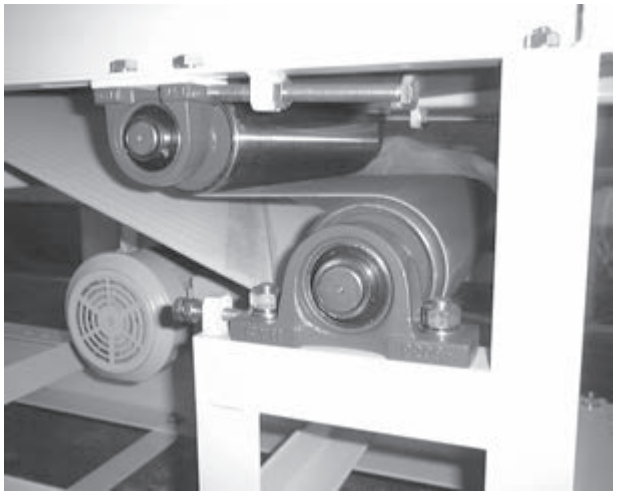
FYH		DODGE	REXNORD	LB	TIMKEN
UNIT NO.	SHAFT SIZE	PART NUMBERS			
XSE2P408-22	1 3/8	P2B-S2-106R & EP2B-S2-106R	–	–	–
XSE2P408-23	1 7/16	P2B-S2-107R & EP2B-S2-107R	ZA2107 & ZEP2107	PB22423H & PEB22423H	–
XSE2P408-24	1 1/2	P2B-S2-108R	ZA2108	PB22424H	–
XSE2P408	40MM	–	–	–	–
XSE2P409-27	1 11/16	P2B-S2-111R & EP2B-S2-111R	ZA2111 & ZEP2111	PB22427H & PEB22427H	–
XSE2P409-28	1 3/4	P2B-S2-112R	ZA2112	PB22428H	–
XSE2P409	45MM	–	–	–	–
XSE2P410-31	1 15/16	P2B-S2-115R & EP2B-S2-115R	ZA2115 & ZEP2115	PB22431H & PEB22431H	QAP10A115S & QAPL10A115S
XSE2P410-32	2	P2B-S2-200R & EP2B-S2-200R	ZA2200 & ZEP2200	PB22432H & PEB22432H	QAP10A200S & QAPL10A200S
XSE2P410	50MM	–	ZA2050MM	PB224M50H & PEB224M50H	QAP10A050S & QAPL10A050S
XSE2P411-35	2 3/16	P2B-S2-203R & EP2B-S2-203R	ZA2203 & ZEP2203	PB22435H & PEB22435H	QAP11A203S & QAPL11A203S
XSE2P411	55MM	–	ZA2055MM	PB224M55H & PEB224M55H	QAP11A055S & QAPL11A055S
XSE2P413-39	2 7/16	P2B-S2-207R & EP2B-S2-207R	ZA2207 & ZEP2207	PB22439H & PEB22439H	QAP13A207S & QAPL13A207S
XSE2P413-40	2 1/2	–	ZA2208 & ZEP2208	PB22440H & PEB22440H	QAP13A208S & QAPL13A208S
XSE2P413	65MM	–	ZA2065MMF & ZEP2065MM	–	QAP13A065S & QAPL13A065S
XSE2P415-43	2 11/16	–	ZEP2211	PEB22443H	QAP15A211S
XSE2P415-44	2 3/4	–	ZEP2212	PEB22444H	QAP15A212S
XSE2P415-47	2 15/16	–	ZEP2215	PEB22447H	QAP15A215S
XSE2P415-48	3	–	ZEP2300	PEB22448H	QAP15A300S
XSE2P415	75MM	–	–	PEB224M75H	QAP15A075S
XS2P415-43	2 11/16	P2B-S2-211R & EP2B-S2-211R	ZA2211	PB22443H	QAPL15A211S
XS2P415-44	2 3/4	–	ZA2212	PB22444H	QAPL15A212S
XS2P415-47	2 15/16	P2B-S2-215R & EP2B-S2-215R	ZA2215	PB22447H	QAPL15A215S
XS2P415-48	3	P2B-S2-300R & EP2B-S2-300R	ZA2300	PB22448H	QAPL15A300S
XS2P415	75MM	–	–	PB224M75H	QAPL15A075S
XSE2P418-55	3 7/16	P2B-S2-307R & EP2B-S2-307R	ZA2307 & ZEP2307	PB22455H & PEB22455H	QAP18A307S & QAPL18A307S
XSE2P418-56	3 1/2	–	ZA2308 & ZEP2308	PB22456H & PEB22456H	QAP18A308S & QAPL18A308S
XSE2P418	90MM	–	–	–	QAP18A090S & QAPL18A090S
XSE2P420-63	3 15/16	–	ZA2315	–	QAP20A315S
XSE2P420-64	4	–	ZA2400	–	QAP20A400S
XSE2P420	100MM	–	–	–	QAP20A100S
XS2P420-63	3 15/16	P2B-S2-315R	–	PB22463H	QAPL20A315S
XS2P420-64	4	–	–	PB22464H	QAPL20A400S
XS2P420	100MM	–	–	PB224M100H	QAPL20A100S

Set Screw Collar Lock 2-Bolt Pillow Block

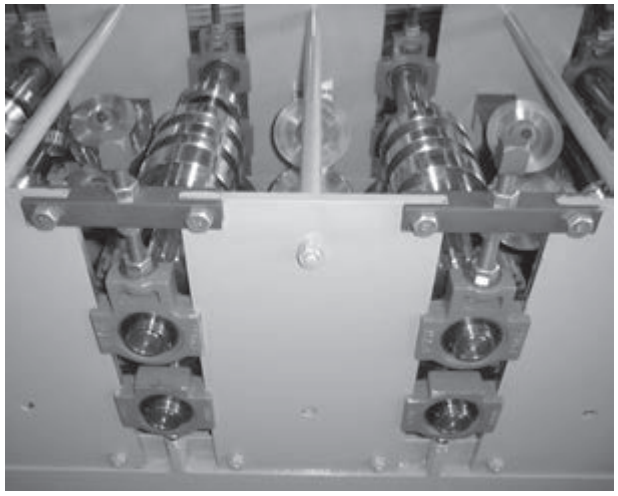
FYH		SEALMASTER	BROWNING	MOLINE
UNIT NO.	SHAFT SIZE	PART NUMBERS		
XSE2P408-22	1 3/8	USRB5000-106	SPB1000 1 3/8	–
XSE2P408-23	1 7/16	USRB5000-107	SPB1000 1 7/16	19121107 & 19221107
XSE2P408-24	1 1/2	USRB5000-108	SPB1000 1 1/2	19121108 & 19221108
XSE2P408	40MM	–	–	–
XSE2P409-27	1 11/16	USRB5000-111	SPB1000 1 11/16	19121111 & 19221111
XSE2P409-28	1 3/4	USRB5000-112	SPB1000 1 3/4	19121112 & 19221112
XSE2P409	45MM	–	–	–
XSE2P410-31	1 15/16	USRB5000-115 & USRBE5000-115	SPB1100 1 15/16	19121115 & 19221115
XSE2P410-32	2	USRB5000-200 & USRBE5000-200	SPB1100 2	19121200 & 19221200
XSE2P410	50MM	–	–	–
XSE2P411-35	2 3/16	USRB5000-203 & USRBE5000-203	SPB1100 2 3/16	19121203 & 19221203
XSE2P411	55MM	–	–	–
XSE2P413-39	2 7/16	USRB5000-207 & USRBE5000-207	SPB1100 2 7/16	19121207 & 19221207
XSE2P413-40	2 1/2	USRB5000-208 & USRBE5000-208	SPB1100 2 1/2	19121208 & 19221208
XSE2P413	65MM	–	–	–
XSE2P415-43	2 11/16	USRBE5000-211	–	–
XSE2P415-44	2 3/4	USRBE5000-212	–	–
XSE2P415-47	2 15/16	USRBE5000-215	–	–
XSE2P415-48	3	USRBE5000-300	–	–
XSE2P415	75MM	–	–	–
XS2P415-43	2 11/16	USRB5000-211	SPB1000 2 11/16	19121211 & 19221211
XS2P415-44	2 3/4	USRB5000-212	SPB1000 2 3/4	19121212 & 19221212
XS2P415-47	2 15/16	USRB5000-215	SPB1000 2 15/16	19121215 & 19221215
XS2P415-48	3	USRB5000-300	SPB1000 3	19121300 & 19221300
XS2P415	75MM	–	–	–
XSE2P418-55	3 7/16	USRB5000-307 & USRBE5000-307	SPB1100 3 7/16	19121307 & 19221307
XSE2P418-56	3 1/2	USRB5000-308 & USRBE5000-308	SPB1100 3 1/2	19121308 & 19221308
XSE2P418	90MM	–	–	–
XSE2P420-63	3 15/16	USRB5000-315 & USRBE5000-315	SPB1100 3 15/16	19121315 & 19221315
XSE2P420-64	4	USRB5000-400 & USRBE5000-400	SPB1100 4	19121400 & 19221400
XSE2P420	100MM	–	–	–
XS2P420-63	3 15/16	–	–	–
XS2P420-64	4	–	–	–
XS2P420	100MM	–	–	–

Usage Examples

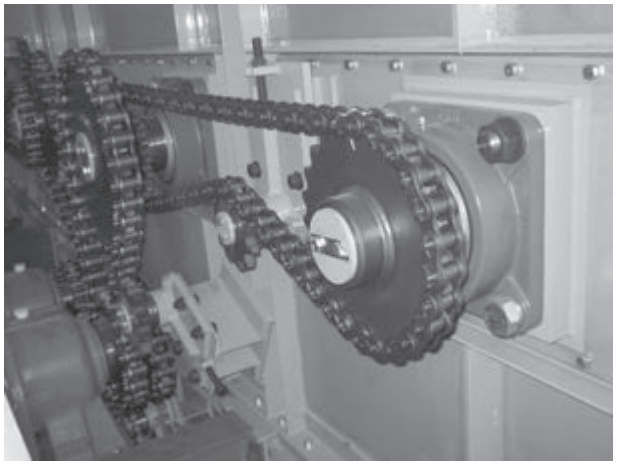
Conveyor line



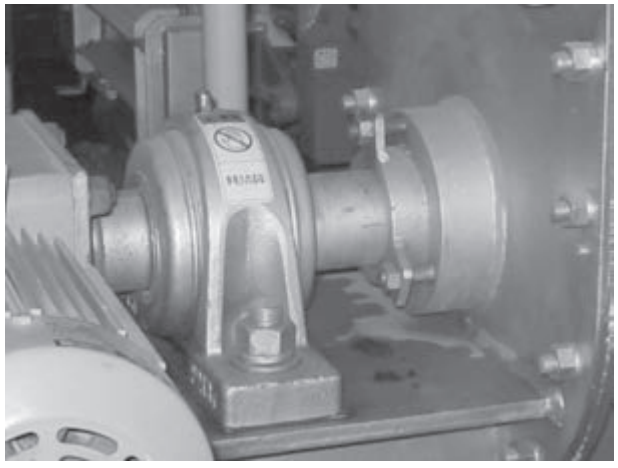
Corrugated sheet roll forming machine



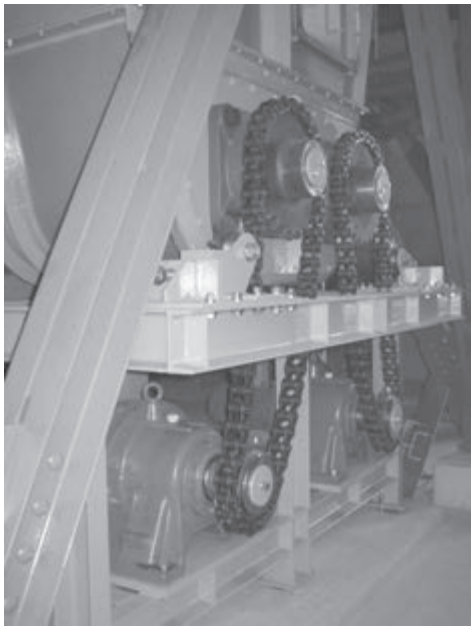
Compost processing system



Incinerator ash screw conveyor



Discharge feeder



Main Applications

FYH bearing units are widely used in various applications, depending on operating conditions and requirements.

Typical applications include:
· Conveyors in distribution and logistics centers
· Woodworking machinery
· Blowers and fans
· Textile machinery
· Agricultural machinery
· Construction and civil engineering machinery
· Packaging machinery
· Heat treatment equipment and furnaces
· Wastewater treatment facilities

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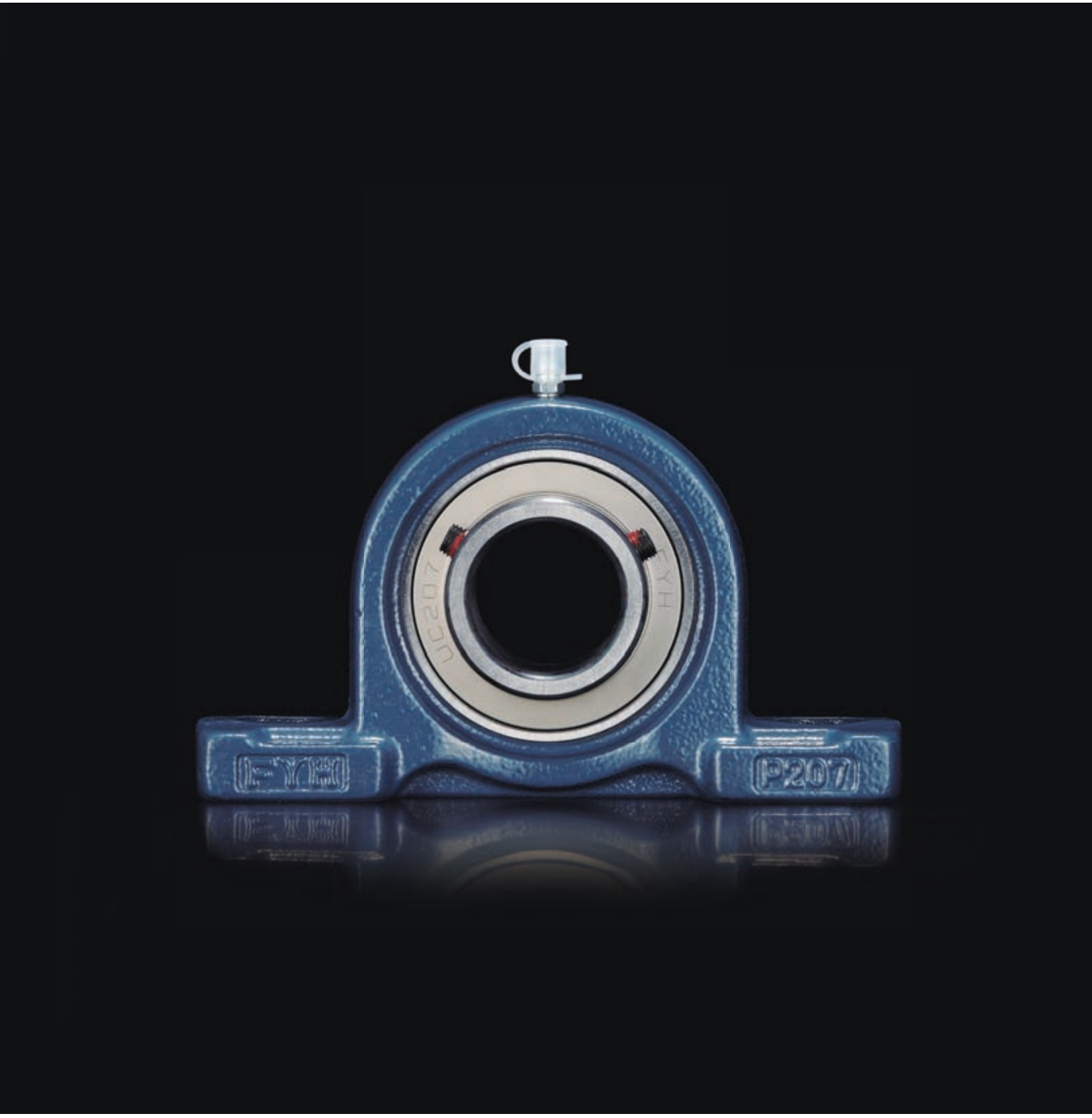

ISO 9001
JIS Q 9001
MS
CM004
ISO 14001
JIS Q 14001
MS
CM004

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ساعت کاری: شنبه تا پنج‌شنبه، ۹:۰۰ تا ۱۸:۰۰

SCAN TO VISIT

تماس با کارشناس فروش

مشاهده محصولات در سایت

برای استعلام قیمت، اعلام موجودی و ثبت سفارش تکی و عمده یاتاقان FYH با کارشناسان محرک چرخش تماس بگیرید.

تمامی حقوق کاتالوگ متعلق به سازنده FYH است

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