

















NTN[®]






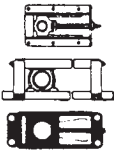
Bearing Units



CAT. NO. **2400-XI/E**

Dimension Table

HOUSING				Page		Page		Page		Page		Page		Page
BEARING														
Set screw type		UC2 F-UC2	414 430	UCP2 UCPL2 UCPG2 F-UCPM2 F-UCPR2 UCIP2 UCIPG2 UCPE2	62 80 84 88 90 92 98 110	UHP2	100		UCF2	120	UCFC2	150	UCFL2 UCFLG2 F-UCFM2 F-UCFLR2 UCFE2	164 178 182 184 198
		UC3	420	UCP3 UCPG3 UCIP3 UCIPG3	68 86 94 98				UCF3 UCFG3 UCFS3 UCFSG3	126 140 142 148			UCFL3 UCFLG3	170 180
		UCX	426	UCPX	74				UCFX	132	UCFCX	156	UCFLX	176
		AS2	432	ASPL2 ASPB2	112 108		ASPP2 ASRPP2	116 118					ASFB2 ASFD2	194 196
Eccentric locking collar type		UEL2	440	UEL2 UELPL2	242 252	UELHP2 UELUP2	256 258		UELFU2 UELF2	274 278	UELFC2	294	UELFLU2 UELFL2	298 302
		UEL3	444	UEL3	246				UELF3 UELFS3	282 288			UELFL3	306
		AEL2 JEL2	450 454	AELPL2 JELPL2 AELPB2	260 264 268		AELPP2 AELRPP2	270 272					AELFD2 AELFB2 JELFD2	314 312 315
		UK2	462	UKP2	346				UKF2	358	UKFC2	374	UKFL2	382
Adapter type		UK3	466	UKP3	350				UKF3 UKFS3	362 370			UKFL3	386
		UKX	470	UKPX	354				UKFX	366	UKFCX	378	UKFLX	390
	Other bearings					AR2	436	REL2	458	UCS2	474	UCS3	478	ASS2

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UCFA2	186			UCHB2	208	UCT2	212	UCC2	234	UCT2	408
UCFH2	190					UCTG2	230			UCL2	410
						UCT3	218	UCC3	236	UCM3	412
						UCTG3	232				
						UCTX	224	UCCX	239		
		ASPF2	200							ASPT2	241
		ASRPF2	202								
		ASPFL2	204								
		ASRPFL2	206								
						UELT2	328	UELC2	338		
						UELT3	332	UELC3	340		
		AELPF2	316							AELPT2	344
		AELRPF2	320								
		AELPFL2	322								
		AELRPFL2	324								
		JELPF2	318							JELPT2	345
		JELPFL2	326								
						UKT2	392	UKC2	404		
						UKT3	396	UKC3	405		
						UKTX	400	UKCX	407		
UELS2	488	UELS3	492	AELS2	498	JELS2	502	CS2	506	Farm implement bearings	508
								CS3	507		

Technical
Data

Set screw type


























Eccentric locking
collar type

Adapter type

Ball bearings












Set screw type (1)

Page

Pillow blocks	Pillow blocks cast housing		UCP2 UCP3 UCPX	62 68 74	
	Pillow blocks cast housing low center height		UCPL2 ASPL2	80 112	
	Pillow blocks (Steel series)		UCPG2 UCPG3	84 86	
	Pillow blocks (Stainless series)		F-UCPM2	88	
	Pillow blocks (Plastic housing series)		F-UCPR2	90	
	Thick pillow blocks cast housing		UCIP2 UCIP3	92 94	
	Thick pillow blocks (Steel series)		UCIPG2, 3	98	
	Pillow blocks cast housing high center height		UCHP2	100	
	Narrow pillow blocks cast housing		UCUP2	104	
	Light pillow blocks cast housing		ASPB2	108	
	Pillow blocks ductile cast housing		UCPE2	110	
	Pillow blocks pressed steel housing		ASPP2 ASRPP2	116 118	
	Flanged units	Square flanged units cast housing		UCF2 UCF3 UCFX	120 126 132
		Square flanged units (Steel series)		UCFG2 UCFG3	138 140
		Square flanged units cast housing w/ spigot joint		UCFS3	142
Square flanged units w/ spigot joint (Steel series)			UCFSG3	148	
Round flanged units cast housing w/ spigot joint			UCFC2 UCFCX	150 156	
Round flanged units w/ spigot joint (Steel series)			UCFCG2	162	
Rhombus flanged units cast housing			UCFL2 UCFL3 UCFLX	164 170 176	
Rhombus flanged units (Steel series)			UCFLG2 UCFLG3	178 180	
Rhombus flanged units (Stainless series)			F-UCFM2	182	
Rhombus flanged units (Plastic housing series)			F-UCFLR2	184	
Modified rhombus flanged units cast housing			UCFA2	186	
Modified flanged units cast housing			UCFH2	190	
Light rhombus flanged units cast housing			ASFB2 ASFD2	194 196	












Set screw type (2)

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Flanged units	Rhombus flanged units ductile cast housing		UCFE2	198
	Round flanged units pressed steel housing		ASPF2 ASRPF2	200 202
	Rhombus flanged units pressed steel housing		ASPF2 ASRPF2	204 206
Hanger units	Hanger units cast housing		UCHB2	208
Take-up units	Take-up units cast housing		UCT2 UCT3 UCTX	212 218 224
	Take-up units (Steel series)		UCTG2 UCTG3	230 232
Cartridge units	Cartridge units cast housing		UCC2 UCC3 UCCX	234 236 239
Stretcher units	Mini stretcher units		ASPT2	241
	Take-up stretcher units		UCT2	408
	Type L stretcher units		UCL2	410
	Type M stretcher units		UCM2 UCM3	411 412






Eccentric locking collar type (1)

Page

Pillow blocks	Pillow blocks cast housing		UELPL2 UELPL3	242 246	
	Pillow blocks cast housing low center height		UELPL2 AELPL2 JELPL2	252 260 264	
	Pillow blocks cast housing high center height		UELHP2	256	
	Narrow pillow blocks cast housing		UELUP2	258	
	Light pillow blocks cast housing		AELPB2	268	
	Pillow blocks pressed steel housing		AELPP2 AELRPP2	270 272	
	Flanged units	Square flanged units cast housing		UELFU2 UELF2 UELF3	274 278 282
		Square flanged units cast housing w/ spigot joint		UELFS3	288
Round flanged units cast housing w/ spigot joint			UELFC2	294	
Rhombus flanged units cast housing			UELFU2 UELFL2 UELFL3	298 302 306	
Light rhombus flanged units cast housing			AELFB2	312	
			AELFD2 JELFD2	314 315	








Eccentric locking collar type (2)

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Flanged units	Round flanged units pressed steel housing		AELPF2 316 JELPF2 318 AELRPF2 320
	Rhombus flanged units pressed steel housing		AELPFL2 322 AELRPFL2 324 JELPFL2 326
	Take-up units	Take-up units cast housing	
Cartridge units	Cartridge units cast housing		UEL2 338 UEL3 340
Stretcher units	Mini stretcher units		AELPT2 344 JELPT2 345






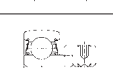
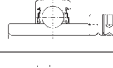

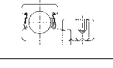
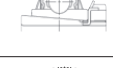

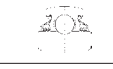





Adapter type

Page

Pillow blocks	Pillow blocks cast housing		UKP2 346 UKP3 350 UKPX 354
Flanged units	Square flanged units cast housing		UKF2 358 UKF3 362 UKFX 366
	Square flanged units cast housing w/ spigot joint		UKFS3 370
	Round flanged units cast housing w/ spigot joint		UKFC2 374 UKFCX 378
	Rhombus flanged units cast housing		UKFL2 382 UKFL3 386 UKFLX 390
	Take-up units	Take-up units cast housing	
Cartridge units	Cartridge units cast housing		UKC2 404 UKC3 405 UKCX 407

Ball bearings

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		AR2 436
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Eccentric locking collar type		UEL2 440 UEL3 444
		AEL2 450
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		REL2 458
		UELS2 488 UELS3 492
		AELS2 498
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Adapter type		UK2 462 UK3 466 UKX 470
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Farm implement bearings		AS (Square bore) 508
		AC (Round bore) 516
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Bearings with solid grease

(For food machinery)



Overview

“Solid grease” is a lubricant essentially composed of lubricating grease and ultra-high polymer polyethylene. Solid grease has the same viscosity as ordinary grease at normal temperature, but as a result of a special heat treatment process, this grease solidifies retaining a large proportion of the lubricant in it. Thanks to this solidification, the grease does not easily leak from the bearing, even when the bearing is subjected to strong vibrations or centrifugal force, helping to extend bearing life.

Table 1 Major components in solid greases

Solid grease (code)	Resin	Lubricant	Operating temperature range (°C)
General-purpose solid grease (LP03)	Ultra-high polymer polyethylene ①	Li-mineral oil grease	-20 ~ +80 (Constant use:+60 and less)
Food-grade solid grease (LP09)	Ultra-high polymer polyethylene ①	Ultra-high polymer polyethylene ②	-10 ~ +100 (Constant use:+80 and less)

① Conforms to FDA standard.

② Conforms to H-1 standard of NSF.

Features

1. Reduced lubricant leakage

Because the base oil is retained in a solid mixture, it is less likely to leak out of the bearing. During operation, temperature rise and/or centrifugal force will cause a gradual release of the base oil into the raceway groove. Eliminating grease leakage from the bearing ensures a consistent supply of lubricant and prevents contamination of the surrounding environment.

2. Superior lubrication

Bearings with solid grease resist grease leakage prolonging bearing life in applications where high centrifugal force or vibration are present. The solid lubricant does not emulsify when exposed to water also extending both grease and bearing life.

3. Low torque characteristics

The running torque of spot-pack bearings with solid grease is lower than that of bearings using standard lubricants. With conventional greases, a shearing resistance is created as the grease is channeled out of the raceway groove. Spot-pack bearings with solid grease do not experience shear resistance resulting in a lower running torque.

4. Sealing effect

Though solid grease protects a bearing against ingress of foreign matters (water, dust, etc.), it is not a sufficient means as a sealing device. Therefore, for applications that need reliable sealing performance, we recommend the use of contact type rubber seals (deep groove ball bearings, bearing units) or other seals (other bearing types).



Bearings with solid grease for food machinery

Bearing units stainless series

(Stainless bearings + Stainless steel housing)



Guards against corrosion

NTN bearing units in the stainless series feature ball bearings inserted into housings made of stainless that provide superior resistance to corrosion as compared to standard series cast iron units. This series is especially useful in a wide variety of applications because of the rust free properties of the housing.

Please refer to **Table 2** for materials of stainless series.

Maintains a clean operating environment

The solid grease lubricant in the ball bearing, solely developed by NTN, reduces leakage from the bearing, significantly reducing environmental pollution.

Also this grease will not homogenize when water penetrates into the bearing raceway.

Note) It is not the bearing for clean room

Table 2 Materials

Parts		Materials
Bearing	Raceways	Martensite stainless steel (equivalent to SUS440C)
	Rolling element	Martensite stainless steel (SUS440C)
	Slinger, Retainer	Austenite stainless steel (SUS304)
	Rubber seal	Nitril rubber
	Set screw (W shape screw head)	Martensite stainless steel (SUS410)
Bearing housing		Austenite stainless steel casting (SCS13)
Cover		Austenite stainless steel (SUS304)

Note) Please refer to P14~P15 for the physical property for each material

Bearings with food solid grease for food machinery

The bearings with solid grease type P-09 boasts a high degree of safety because its heat-solidifying grease for food machinery is composed of food-grade lubricating grease that complies with the NSF's H-1 standard (permitting accidental contact with food) and super molecular weight polyethylene approved according to an FDA (US Food and Drug Administration) standard.

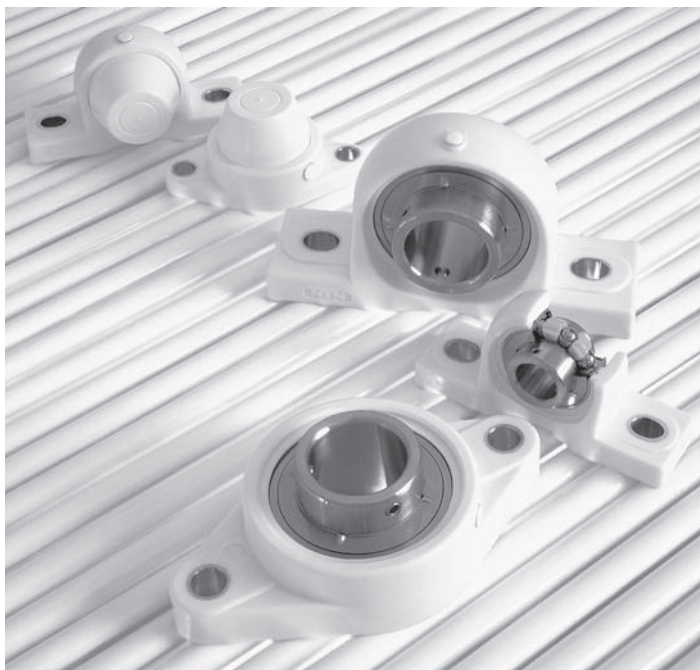
Interchangeability

The basic dimensions are the same as current NTN units and are also compatible with units from other manufacturers ISO standard.

The dimension tables for this series are shown on following pages. Pillow types are shown on page 88-89, Rhombus flange types are shown on page 182-183, The bearings are shown on page 430-431. There are specifications of the grease for food machinery and for heat-resistance in the stainless series bearing unit. Please consult NTN about the details.

Bearing units plastic housing series

(Stainless bearings + Glass fiber reinforced plastic housing)



Guards against corrosion

NTN bearing units in the plastic series feature ball bearings inserted into housings made of plastics that provide superior resistance to corrosion as compared to standard series cast iron units. This series is especially useful in a wide variety of applications because of the nonmagnetic and rust free properties of the housing.

Please refer to **Table 3** for materials of plastic series.

Maintains a clean operating environment

The solid grease lubricant in the ball bearing, solely developed by NTN, reduces leakage from the bearing, significantly reducing environmental pollution. Also, the housing will not stain, nor is there paint to peel and contaminate the environment.

Note) It is not the bearing for clean room

Table 3 Materials

Parts		Materials
Bearing	Raceways	Martensite stainless steel (equivalent to SUS440C)
	Rolling element	Martensite stainless steel (SUS440C)
	Slinger, Retainer	Austenite stainless steel (SUS304)
	Rubber seal	Nitryl rubber
	Set screw (W shape screw head)	Martensite stainless steel (SUS410)
Bearing housing	Housing	Glass reinforced Polyester
	Sleeve for set bolt	Austenite stainless steel (SUS 304)
	Nut for grease fitting	Austenite stainless steel (SUS 304)
Cover		Polypropylene
Plug		Polyethylene

Note) Please refer to P14~P15 for the physical property for each material

Light weight

Weight is reduced more than 30% to 60% over standard series units.

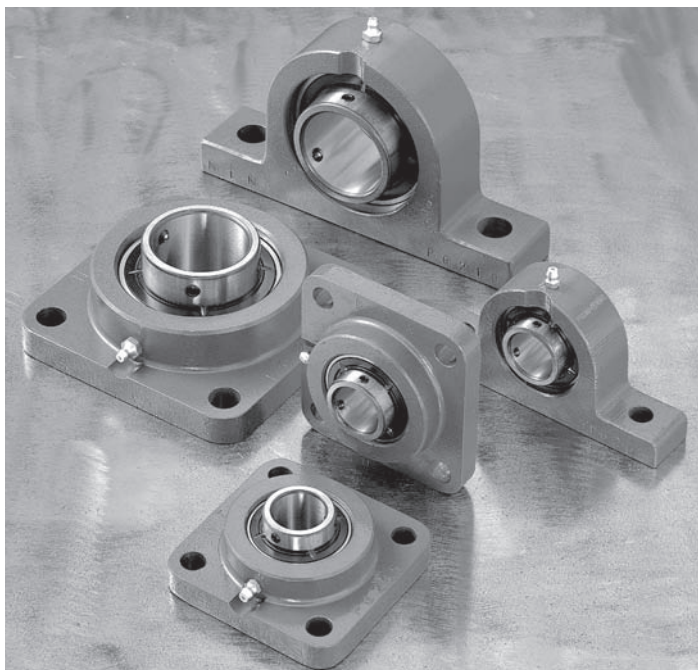
Water resistant

The glass filled polyester housing not only reduces corrosion but offers better water resistance.

The dimension tables for this series are shown on following pages. Pillow types are shown on page 90-91. Rhombus flange types are shown on page 184-185. The bearings are shown on page 430-431. There are specifications of the grease for food machinery and for heat-resistance in the stainless series bearing unit. Please consult NTN about the details.

Note) Over tightening the setting bolt may deform the plastic housing. Use the tightening torque guideline listed in **Table 11.1(2)** (P51).

Bearing units steel series (Rolled steel housing for general structures)



Superior Housing Strength

Made of precision gas cut rolled steel, NTN steel housings offer superior strength characteristics when compared to cast iron and cast steel housings.

The housing material is SS400 of JIS G3101 (Mechanical properties of general structural rolled steel). please refer **Table 3.3** (page 14) for mechanical property.

Consistent Microstructure

The rolled steel microstructure is more consistent than cast iron or cast steel, reducing the risk of housing fracture under severe conditions.

Interchangeability

Rolled steel housing dimensions are consistent with cast units, allowing them to be interchanged with NTN standard housings and other manufacturers ISO standard.

In general, if both cast iron and steel series housings are within the same size range, the steel housings are considered safer. This is because they require a lower safety factor than ductile or cast iron housings (Please refer to **Table 4**). In addition, the design and shape of the steel series provides higher strength. (Solid base etc.)

Table 4 Safety factor

Material		Static load	Pepeated load		Impact load
			Pulsating	Reversed	
SS400	Rolled steel for structure	3	5	8	12
FC200	Gray cast iron	4	6	10	15
FCD450	Ductile cast iron	4	6	10	15
SC450	Cast steell	4	6	10	15

Table 5 Material strength

Material		Tensil strength ^{*1} (N/mm ²)
SS400	Rolled steel for structure	400
FC200	Gray cast iron	200 ^{*2}
FCD450	Ductile cast iron	450 ^{*2}
SC450	Cast steell	450 ^{*2}

*1 Minimum value of material standard

*2 Respective casting pouring sample

Applications

NTN rolled steel housings provide superior strength to cast steel and cast iron. Their ability to resist impact loads makes them suitable for applications involving heavy loads and vibration. Possible applications for NTN rolled steel housings include but are not limited to conveyors, trucks and overhead cranes at steel mills, mining machinery and pollution control equipment.

Housing shape

There are various shapes for steel series. The dimension tables for this series are shown on following pages. Pillow types are shown on page 84-87. Thick pillow types are shown on page 98-99. Square flange types are shown on page 138-141. Square flange with spigot joint types are shown on page 148-149. Round flange with spigot joint types are shown on page 162-163. Rhombus flange type are shown on page 178-181. Take-up types are shown on page 230-233.

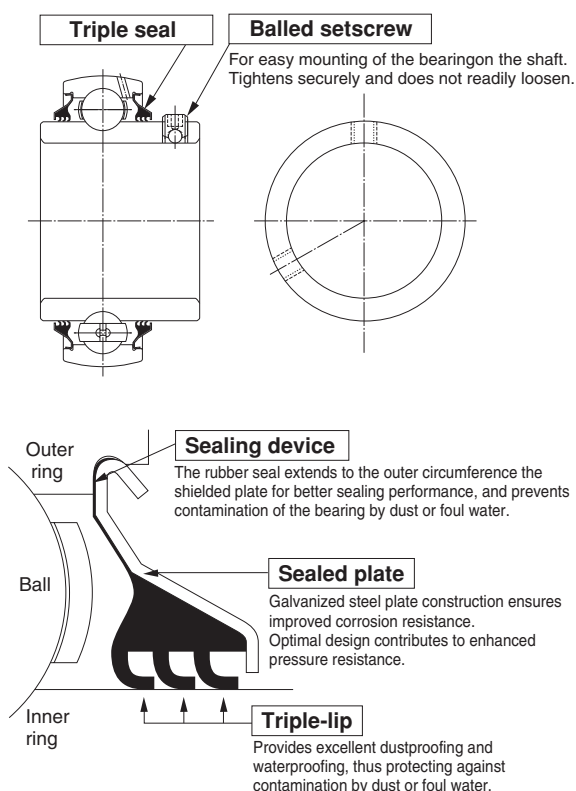
NTN Triple-Sealed Bearings for Bearing Units

These reliable triple-sealed bearings are dustproof and waterproof.

They ensure a longer bearing life even when exposed to heavy airborne dust and splashes of foul water.



1. Construction



Types

- **Low torque triple-sealed bearing**

(Cylindrical-bore, set screw type)

UC201D1LLJ through UC208D1LLJ
UC305D1LLJ through UC320D1LLJ

- **High torque triple-sealed bearing**

(Cylindrical-bore, set screw type)

UC201D1LLS through UC212D1LLS
(Square-bore type for agricultural machines)
1AS-11/8, 4AS09-11/4, etc.

2. Features

Better dustproofing and waterproofing ensure a longer bearing life.

Triple-sealed bearings feature a secure bearing seal with three lips. This special seal offers reliable dustproofing and waterproofing superior to those of standard bearings used in bearing units. In addition, it ensures a longer service life, even when exposed to heavy airborne dust and splashes of foul water. (Patent pending)

Reduces maintenance cost.

A bearing life longer than that of a standard bearing unit configurations means extended maintenance intervals, greatly reduced maintenance costs (of inspection, relubrication, replacement, etc.), and increased availability of machinery.

Decreases price of the bearing unit and contributes to more compact machinery.

The triple-sealed bearing unit replaces conventional covered bearing units in certain operating conditions, greatly decreasing the cost of bearing units. In addition, if the cover is not required, the machinery can be made more compact.

Secure balled setscrew

The triple-sealed bearing is mounted on the shaft with NTN's unique balled setscrew, which features an embedded ball in its tip. Compared with knurled cup point or cup-point setscrews, the balled setscrew provides much greater resistance to loosening, as it does not readily loosen due to vibration or impact.

Interchangeability

The triple-sealed bearing unit conforms to the JIS (Japanese Industrial Standard) for UC-type bearings. It is not only ready to use as a relubricable bearing, but it also replaces the conventional bearing units of NTN and other manufacturers. It therefore serves as a ready replacement for existing bearing units.

In the meantime, the relubricatable type is recommended to minimize the wear of the seal lip.

3. Allowable Operating Temperature Range and Speed

The triple-sealed bearing can be used in a temperature range of -15°C to 100°C.

- Allowable speed

Triple-sealed bearing unit $\cdots d_n$ value : 36000

High-torque triple-sealed bearing unit $\cdots d_n$ value : 21000

1. Construction

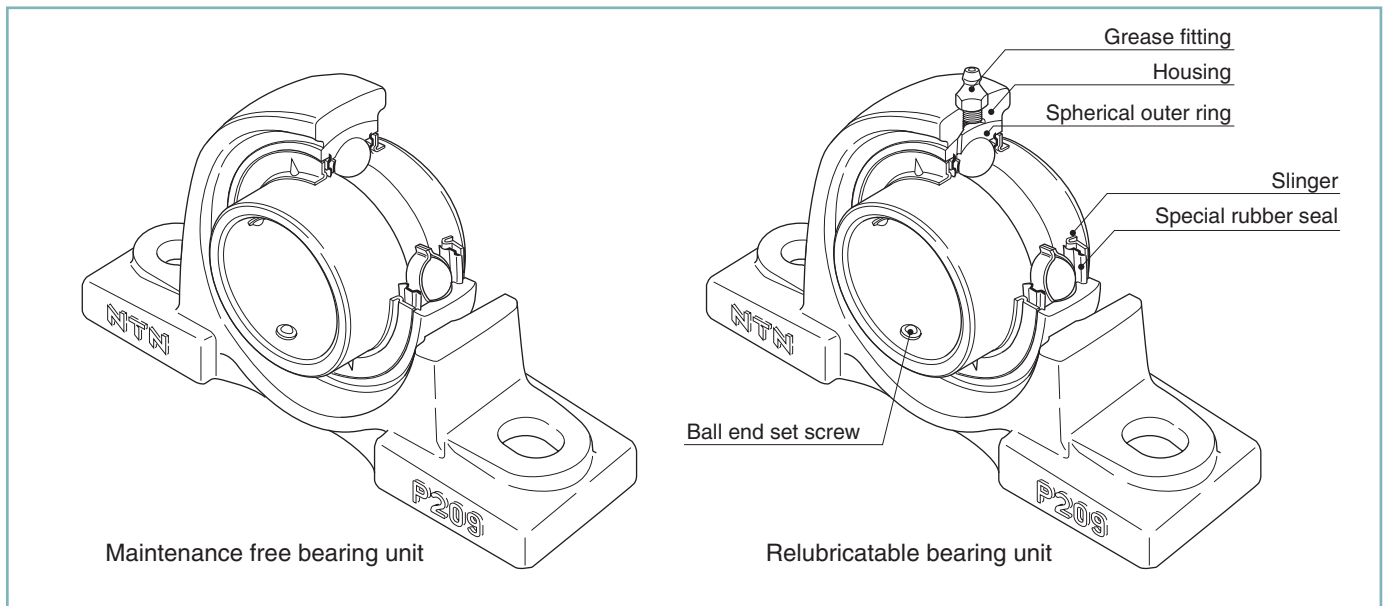
The NTN bearing unit is a combination of a radial ball bearing, seal, and a housing of high-grade cast iron or pressed steel, which comes in various shapes.

The outer surface of the bearing and the internal surface of the housing are spherical, so that the unit is self-aligning.

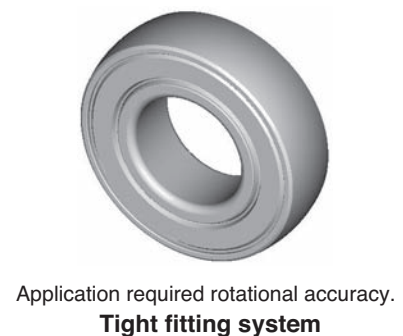
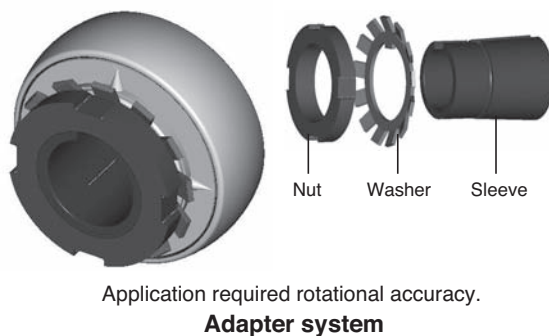
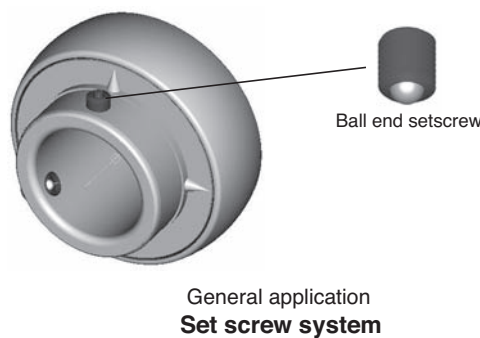
The inside construction of the ball bearing for the unit is such that steel balls and retainers of the same type as in series 62 and 63 of the NTN deep groove ball bearing are used. A duplex seal consisting of a combination of an oil-proof synthetic rubber seal and a slinger, unique to NTN, is provided on both sides.

Depending on the type, the following methods of fitting to the shaft are employed:

- (1) The inner ring is fastened onto the shaft in two places by set screws.
- (2) The inner ring has a tapered bore and is fitted to the shaft by means of an adapter.
- (3) In the eccentric locking collar system the inner ring is fastened to the shaft by means of eccentric grooves provided at the side of the inner ring and on the collar.



Mounting system for bearing unit (Please refer to P56 ~ P59 for Mounting bearing unit on the shaft)



2. Design Features and Advantages

2.1 Maintenance free type

The NTN Maintenance free bearing unit contains a high-grade lithium-based grease, good for use over a long period, which is ideally suited to sealed-type bearings. Also provided is an excellent sealing device, unique to NTN, which prevents any leakage of grease or penetration of dust and water from outside.

It is designed so that the rotation of the shaft causes the sealed-in grease to circulate through the inside space, effectively providing maximum lubrication. The lubrication effect is maintained over a long period with no need for replenishment of grease.

To summarize the advantages of the NTN maintenance free bearing unit:

- (1) As an adequate amount of good quality grease is sealed in at the time of manufacture, there is no need for replenishment. This means savings in terms of time and maintenance costs.
- (2) Since there is no need for any regreasing facilities, such as piping, a more compact design is possible.
- (3) The sealed-in design eliminates the possibility of grease leakage, which could lead to stained products.

2.2 Relubricatable type

The NTN relubricatable type bearing unit has an advantage over other similar units being so designed as to permit regreasing even in the case of misalignment of 2° to the right or left. The hole through which the grease fitting is mounted usually causes structural weakening of the housing.

However, as a result of extensive testing, in the NTN bearing unit the hole is positioned so as to minimize this adverse effect. In addition, the regreasing groove has been designed to minimize weakening of the housing.

While the NTN maintenance free type bearing unit is satisfactory for use under normal operating conditions in-doors, in the following circumstances it is necessary to use the relubricatable type bearing unit:

- (1) Cases where the temperature of the bearing rises above 100°C, 212°F:
- (2) Cases where there is excessive dust, but space does not permit using a bearing unit with a cover.
- (3) Cases where the bearing unit is constantly exposed to splashes of water or any other liquid, but space does not permit using a bearing unit with a cover.
- (4) Cases in which the humidity is very high, and the machine in which the bearing unit is used is run only intermittently.
- (5) Cases involving a heavy load of which the C_r/P_r value is about 10 or below, and the speed is 10 rpm or below, or the movement is oscillatory.
- (6) Cases where the number of revolutions is relatively high and the noise problem has to be considered; for example, when the bearing is used with the fan of an air conditioner.

2.3 Special sealing feature

2.3.1 Standard bearing units

The sealing device of the ball bearing for the NTN bearing unit is a combination of a heat-resistant and oil-proof synthetic rubber seal and a slinger of an exclusive NTN design.

The seal, which is fixed in the outer ring, is steelreinforced, and its lip, in contact with the inner ring, is designed to minimize frictional torque.

The slinger is fixed to the inner ring of the bearing with which it rotates. There is a small clearance between its periphery and the outer ring.

These two types of seals on both sides of the bearing prevent grease leakage, and foreign matter is prevented from entering the bearing from outside.

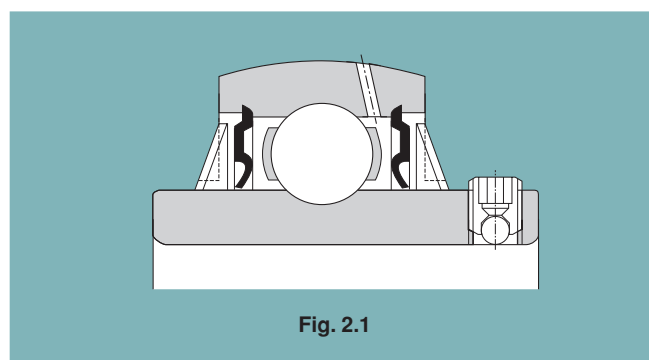


Fig. 2.1

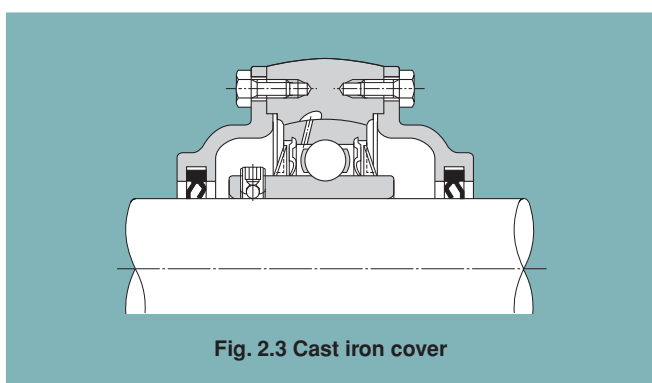
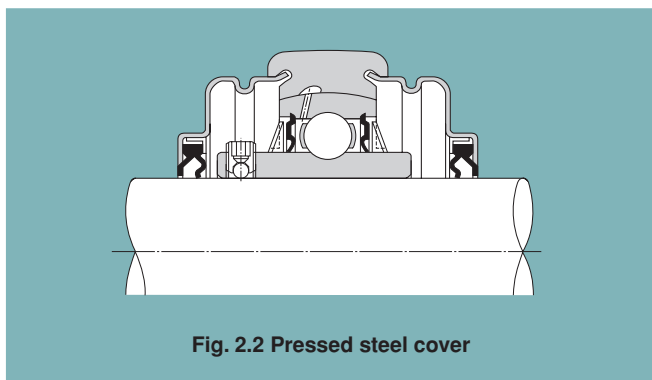
2.3.2 Bearing units with covers

The NTN bearing unit with a cover consists of a standard bearing unit and an outside covering for extra protection against dust. Special consideration has been given to its design with respect to dust-proofing.

Sealing devices are provided in both the bearing and the housing, so that units of this type operate satisfactorily even in such adverse environments as flour mills, steel mills, foundries, galvanizing plants and chemical plants, where excessive dust is produced and/or liquids are used. They are also eminently suitable for outdoor environments where dust and rain are inevitable, and in heavy industrial machinery such as construction and transportation equipment.

The rubber seal of the cover contacts with the shaft by its two lips, as shown in **Fig. 2.2** and **2.3**. By filling the groove between the two lips with grease, an excellent sealing effect is obtained and, at the same time, the contacting portions of the lips are lubricated. Furthermore, the groove is so designed that when the shaft is inclined the rubber seal can move in the radial direction.

When bearing units are exposed to splashes of water rather than to dust, a drain hole (5 to 8 mm, 0.2 to 0.3 inches in diameter) is provided at the bottom of the cover, and grease should be applied to the side of the bearing itself instead of into the cover.



2.4 Secure fitting

Fastening the bearing to the shaft is effected by tightening the ball-end set screw, situated on the inner ring. This is a unique NTN feature which prevents loosening, even if the bearing is subjected to intense vibrations and shocks.

2.5 Self-aligning

With the NTN bearing unit, the outer surface of the ball bearing and the inner surface of the housing are spherical, thus this bearing unit has self-aligning characteristic. Any misalignment of axis that may arise from poor workmanship on the shaft or errors in fitting will be properly adjusted.

2.6 Higher rated load capacity

The bearing used in the unit is of the same internal construction as those in NTN bearing series 62 and 63, and is capable of accommodating axial load as well as radial load, or composite load. The rated load capacity of this bearing is considerably higher than that of the corresponding self-aligning ball bearings used for standard plummer blocks.

2.7 Light weight yet strong housing

Housings for NTN bearing units come in various shapes. They consist of either high-grade cast iron, one-piece casting, or of precision finished pressed steel, the latter being lighter in weight. In either case, they are practically designed to combine lightness with maximum strength.

2.8 Easy mounting

The NTN bearing unit is an integrated unit consisting of a bearing and a housing.

As the bearing is prelubricated at manufacture with the correct amount of high-grade lithium base, it can be mounted on the shaft just as it is. It is sufficient to carry out a short test run after mounting.

2.9 Accurate fitting of the housing

In order to simplify the fitting of the pillow block and flange type bearing units, the housings are provided with a seat for a dowel pin, which may be utilized as needed.

2.10 Bearing replaceability

The bearing used in the NTN bearing unit is replaceable. In the event of bearing failure, a new bearing can be fitted to the existing housing.

3. Material

3.1 Raceway and rolling element materials

Materials with high hardness and appropriate toughness are used for the inner rings, outer rings and balls of the insert bearings since large compression forces and repetitive stresses are applied to a small contact. In general Cold-rolled steel is used for the cages. For special applications, stainless steel is also available for use in the insert bearings.

3.2 Housing materials

The most common materials used in NTN bearing unit housings are cast iron or steel plate, with cast iron being the standard.

For special applications, materials such as spheroidal graphite iron, structural steel, stainless steel cast iron or

plastic resin are also available for use in the housings. The chemical resistance properties of glass-fiber reinforced resin are shown in **Table 3.5**.

3.2.1 Cast iron housing

NTN uses gray cast iron as the standard material for cast iron housings.

Among metallic materials cast iron has a high damping capacity, which is an ideal characteristic for mechanical components. This means cast iron, exhibits superior performance when absorbing vibration, compared with other materials. Additionally cast iron is suitable for high temperatures of up to 300C°.

3.2.2 Steel plate housing

Cold-rolled steel sheet or hot-rolled mild steel sheet is used for steel plate housings.

Table 3.1 JIS G 5501 Mechanical properties of gray iron product

Code of material	Mechanical properties of separately casted test piece material	
	Tensile strength N/mm ²	Brinell hardness HB
FC200	Min. 200	Max. 232

Table 3.2 JIS G 5502 Mechanical properties of nodular graphite cast iron

Code of material	Mechanical properties of separately casted test piece material			
	Tensile strength N/mm ²	0.2% Proof stress N/mm ²	Elongation %	(Reference) Hardness HB
FCD450-10	Min. 450	Min. 280	Min. 10	140 - 210

Table 3.3 JIS G 3101 Mechanical properties of general structural rolled steel

Code of material	Mechanical properties			
	Steel thickness mm	Yield point or Proof stress N/mm ²	Tensile strength N/mm ²	Elongation % Test piece in ()
SS400	Over 16 Incl. 40	Min. 235	400 - 510	21 (No. 1A)
	Over 40 Incl. 100	Min. 215		23 (No. 4)
	Over 100	Min. 205		

Table 3.4 JIS G 5152 Mechanical properties of stainless cast steel product

Code of material	Mechanical properties of separately casted test piece material			
	Tensile strength N/mm ²	0.2% Proof stress N/mm ²	Elongation %	Hardness HB
SCS13	Min. 440	Min. 185	Min. 30	Max. 183

Table 3.5 Water and chemical resistance of glass fiber reinforcing resin housing (PBT)

	Chemicals	Temperature °C	Deterioration ratio ¹⁾ %			Chemicals	Temperature °C	Deterioration ratio ¹⁾ %		
			Number of days soaked					Number of days soaked		
			30 days	90 days				30 days	90 days	
Acid	Hydrochloric acid, 10%	23	89	85	Organic solvent	Ethyl alcohol	23	99	96	
	Sulfuric acid, 36%	23	97	97		Methyl alcohol	23	91	82	
		60	84	60		Isopropyl alcohol	23	100	100	
	Acetic acid 10%	23	88	88		Acetone	23	86	74	
Alkaline	Potassium hydroacid, 5%	23	88	10		Methyl Ethyl Keton	23	90	80	
	Sodium hydroacid, 10%	23	※	※		Ethyl acetate	23	96	86	
	Ammonia hydroacid, 10%	23	96	87		Methylene chloride	23	54	54	
Oil	Motor oil	23	100	100		ethylene glycole	23	100	100	
	Brake oil	23	100	100		Sodium	Zinc chrolide 10%	23	97	94
	Gasoline (Regular)	23	100	100			Calcium chrolide 10%	23	98	98
		60	93	90	Sodium chrolide 5%		23	97	97	

Remarks 1) Deterioration (%) is the strength after test divided by the strength before test.

The ※ symbol indicates that results could not be measured as the test piece dissolved.

Remarks 2) The values listed in the table are not guaranteed as they are the result of soaking without operating stresses on the sample. Because this strength data is general, it does not apply under all operating conditions. Actual housing strength will vary depending on the type and concentration of liquid, temperature, load, etc.

Table 3.6 Anti-Corrosion capability

NTN recommends ratings of ◎ to ○ for optimum corrosion resistance. ◎ ○ △ ▲ ×
excellent ← → poor

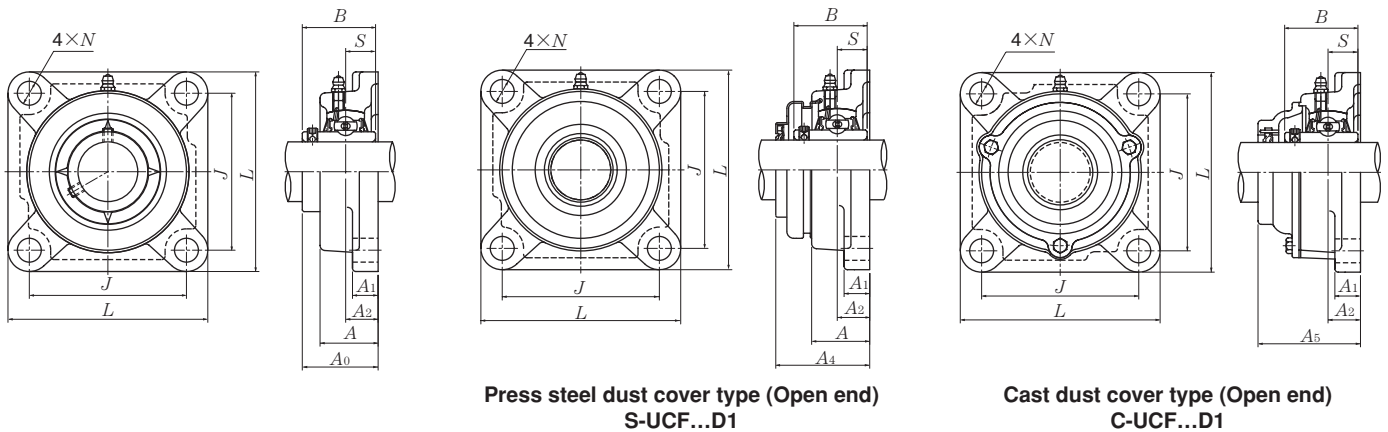
Materials	Condition	Atmosphere		Water		Acid		
		Dry	Wet	Natural water	Sodium water	Nitric acid	Sulfuric acid	Hydrochloric acid
Martensite stainless steel	SUS440C, SUS410	○	△	△	▲	▲	×	×
Austenite stainless steel	SUS304, SCS13	◎	◎	◎	○	◎	○	△
Polyester plastics		◎	◎	◎	◎	▲	○	○
Polypropylene, polyethylene		◎	◎	◎	◎	○	○	○
High carbon steel	SUJ2	△	▲	▲	×	×	×	×
Carbon steel, Cast iron		▲	×	×	×	×	×	×

Remarks: This data is obtained by observation of the surface conditions of materials.

Note that these anti-corrosion capabilities are altered by anti-corrosion surface treatment.

Not recommended for use in liquid.

Square flanged units cast housing Set screw type

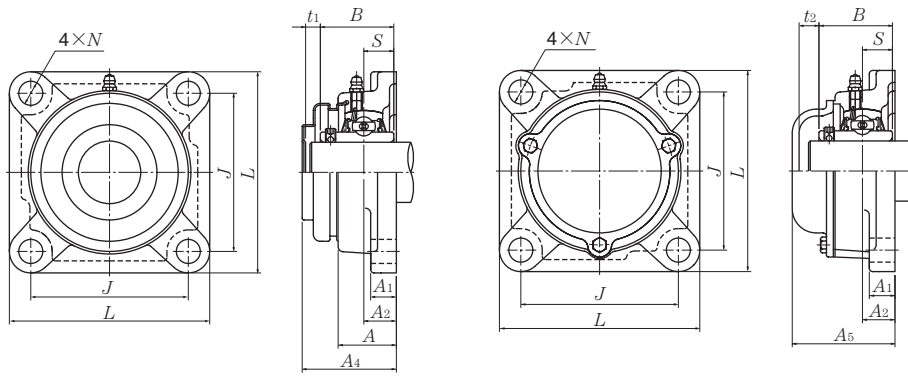


Press steel dust cover type (Open end)
S-UCF...D1

Cast dust cover type (Open end)
C-UCF...D1

Shaft dia. mm inch	Unit number ¹⁾	Nominal dimensions									Bolt size mm inch	Bearing number
		<i>L</i>	<i>J</i>	<i>A</i> ₂	<i>A</i> ₁	<i>A</i>	<i>N</i>	<i>A</i> ₀	<i>B</i>	<i>S</i>		
12 1/2	UCF201D1 UCF201-008D1	86 3 3/8	64 2 33/64	15 19/32	11 7/16	25.5 1	12 15/32	33.3 1 5/16	31 1.2205	12.7 0.500	M10 3/8	UC201D1 UC201-008D1
15 9/16 5/8	UCF202D1 UCF202-009D1 UCF202-010D1	86 3 3/8	64 2 33/64	15 19/32	11 7/16	25.5 1	12 15/32	33.3 1 5/16	31 1.2205	12.7 0.500	M10 3/8	UC202D1 UC202-009D1 UC202-010D1
17 1 1/16	UCF203D1 UCF203-011D1	86 3 3/8	64 2 33/64	15 19/32	11 7/16	25.5 1	12 15/32	33.3 1 5/16	31 1.2205	12.7 0.500	M10 3/8	UC203D1 UC203-011D1
20 3/4	UCF204D1 UCF204-012D1	86 3 3/8	64 2 33/64	15 19/32	11 7/16	25.5 1	12 15/32	33.3 1 5/16	31 1.2205	12.7 0.500	M10 3/8	UC204D1 UC204-012D1
25 1 3/16 7/8 1 5/16 1	UCF205D1 UCF205-013D1 UCF205-014D1 UCF205-015D1 UCF205-100D1	95 3 3/4	70 2 3/4	16 5/8	13 1/2	27 1 1/16	12 15/32	35.8 1 13/32	34.1 1.3425	14.3 0.563	M10 3/8	UC205D1 UC205-013D1 UC205-014D1 UC205-015D1 UC205-100D1
30 1 1/16 1 1/8 1 3/16 1 1/4	UCF206D1 UCF206-101D1 UCF206-102D1 UCF206-103D1 UCF206-104D1	108 4 1/4	83 3 17/64	18 45/64	13 1/2	31 1 7/32	12 15/32	40.2 1 37/64	38.1 1.5000	15.9 0.626	M10 3/8	UC206D1 UC206-101D1 UC206-102D1 UC206-103D1 UC206-104D1
35 1 1/4 1 5/16 1 3/8 1 7/16	UCF207D1 UCF207-104D1 UCF207-105D1 UCF207-106D1 UCF207-107D1	117 4 19/32	92 3 5/8	19 3/4	15 19/32	34 1 11/32	14 35/64	44.4 1 3/4	42.9 1.6890	17.5 0.689	M12 7/16	UC207D1 UC207-104D1 UC207-105D1 UC207-106D1 UC207-107D1
40 1 1/2 1 9/16	UCF208D1 UCF208-108D1 UCF208-109D1	130 5 1/8	102 4 1/64	21 53/64	15 19/32	36 1 13/32	16 5/8	51.2 2 1/64	49.2 1.9370	19 0.748	M14 1/2	UC208D1 UC208-108D1 UC208-109D1
45 1 5/8 1 11/16 1 3/4	UCF209D1 UCF209-110D1 UCF209-111D1 UCF209-112D1	137 5 13/32	105 4 9/64	22 55/64	16 5/8	38 1 1/2	16 5/8	52.2 2 1/16	49.2 1.9370	19 0.748	M14 1/2	UC209D1 UC209-110D1 UC209-111D1 UC209-112D1

Remarks: 1) These numbers indicate relubricatable type. If maintenance free type is needed, please order without suffix "D1".
Note: Please refer to page 44 for size of grease fitting.

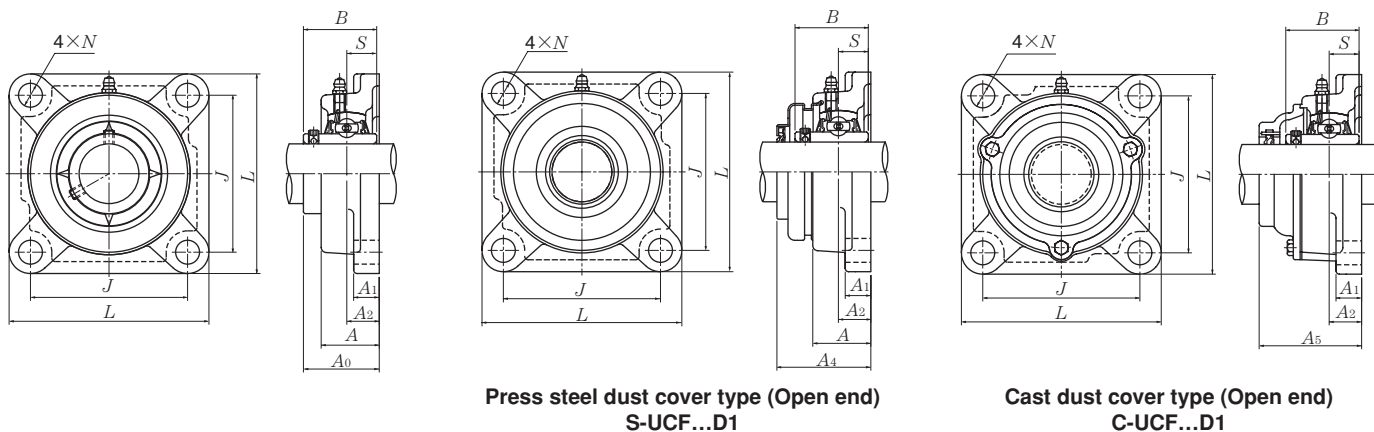


Press steel dust cover type (Close end)
SM-UCF...D1

Cast dust cover type (Close end)
CM-UCF...D1

Housing number ¹⁾	Unit number ¹⁾ pressed steel dust cover type	Unit number ¹⁾ cast dust cover type	Nominal dimensions				Mass (approx.)		
			mm		inch		kg		lb
			t_1	t_2	A_4	A_5	UCF	S(SM)	C(CM)
F204D1	S(SM)-UCF201D1	C(CM)-UCF201D1	5	8	40.5	46	0.6	0.6	0.8
F204D1	S(SM)-UCF201-008D1	C(CM)-UCF201-008D1	$1\frac{3}{64}$	$\frac{5}{16}$	$1\frac{19}{32}$	$1\frac{13}{16}$	1.3	1.3	1.8
F204D1	S(SM)-UCF202D1	C(CM)-UCF202D1	5	8	40.5	46	0.6	0.6	0.8
F204D1	S(SM)-UCF202-009D1	C(CM)-UCF202-009D1	$1\frac{3}{64}$	$\frac{5}{16}$	$1\frac{19}{32}$	$1\frac{13}{16}$	1.3	1.3	1.8
F204D1	S(SM)-UCF202-010D1	C(CM)-UCF202-010D1	$1\frac{3}{64}$	$\frac{5}{16}$	$1\frac{19}{32}$	$1\frac{13}{16}$	1.3	1.3	1.8
F204D1	S(SM)-UCF203D1	C(CM)-UCF203D1	5	8	40.5	46	0.6	0.6	0.8
F204D1	S(SM)-UCF203-011D1	C(CM)-UCF203-011D1	$1\frac{3}{64}$	$\frac{5}{16}$	$1\frac{19}{32}$	$1\frac{13}{16}$	1.3	1.3	1.8
F204D1	S(SM)-UCF204D1	C(CM)-UCF204D1	5	8	40.5	46	0.6	0.6	0.7
F204D1	S(SM)-UCF204-012D1	C(CM)-UCF204-012D1	$1\frac{3}{64}$	$\frac{5}{16}$	$1\frac{19}{32}$	$1\frac{13}{16}$	1.3	1.3	1.8
F205D1	S(SM)-UCF205D1	C(CM)-UCF205D1	7	11	44.5	51	0.8	0.8	0.9
F205D1	S(SM)-UCF205-013D1	C(CM)-UCF205-013D1							
F205D1	S(SM)-UCF205-014D1	C(CM)-UCF205-014D1							
F205D1	S(SM)-UCF205-015D1	C(CM)-UCF205-015D1	$\frac{9}{32}$	$\frac{7}{16}$	$1\frac{3}{4}$	2	1.8	1.8	2.0
F205D1	S(SM)-UCF205-100D1	C(CM)-UCF205-100D1							
F206D1	S(SM)-UCF206D1	C(CM)-UCF206D1	7	11	49	56	1.1	1.1	1.3
F206D1	S(SM)-UCF206-101D1	C(CM)-UCF206-101D1							
F206D1	S(SM)-UCF206-102D1	C(CM)-UCF206-102D1							
F206D1	S(SM)-UCF206-103D1	C(CM)-UCF206-103D1	$\frac{9}{32}$	$\frac{7}{16}$	$1\frac{15}{16}$	$2\frac{7}{32}$	2.4	2.4	2.9
F206D1	S(SM)-UCF206-104D1	C(CM)-UCF206-104D1							
F207D1	S(SM)-UCF207D1	C(CM)-UCF207D1	8	10	55	59	1.5	1.5	1.8
F207D1	S(SM)-UCF207-104D1	C(CM)-UCF207-104D1							
F207D1	S(SM)-UCF207-105D1	C(CM)-UCF207-105D1							
F207D1	S(SM)-UCF207-106D1	C(CM)-UCF207-106D1	$\frac{5}{16}$	$\frac{25}{64}$	$2\frac{5}{32}$	$2\frac{5}{16}$	3.3	3.3	4.0
F207D1	S(SM)-UCF207-107D1	C(CM)-UCF207-107D1							
F208D1	S(SM)-UCF208D1	C(CM)-UCF208D1	8	9	62	66	1.7	1.8	2.2
F208D1	S(SM)-UCF208-108D1	C(CM)-UCF208-108D1	$\frac{5}{16}$	$\frac{23}{64}$	$2\frac{7}{16}$	$2\frac{19}{32}$	3.8	4.0	4.9
F208D1	S(SM)-UCF208-109D1	C(CM)-UCF208-109D1							
F209D1	S(SM)-UCF209D1	C(CM)-UCF209D1	8	12	63	70	2.1	2.2	2.6
F209D1	S(SM)-UCF209-110D1	C(CM)-UCF209-110D1							
F209D1	S(SM)-UCF209-111D1	C(CM)-UCF209-111D1	$\frac{5}{16}$	$\frac{15}{32}$	$2\frac{15}{32}$	$2\frac{3}{4}$	4.6	4.9	5.7
F209D1	S(SM)-UCF209-112D1	C(CM)-UCF209-112D1							

Square flanged units cast housing Set screw type



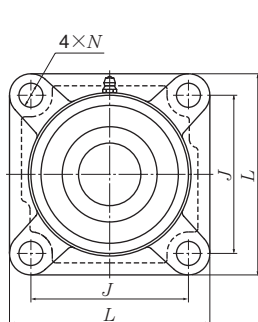
Press steel dust cover type (Open end)
S-UCF...D1

Cast dust cover type (Open end)
C-UCF...D1

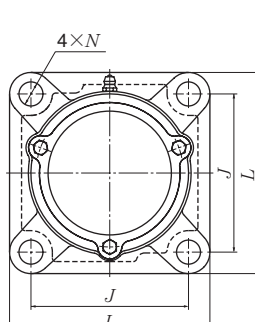
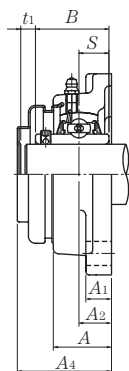
Shaft dia. mm inch	Unit number ¹⁾	Nominal dimensions									Bolt size mm inch	Bearing number
		L	J	A ₂	A ₁	A	N	A ₀	B	S		
50 1 ¹³ / ₁₆ 1 ⁷ / ₈ 1 ¹⁵ / ₁₆ 2	UCF210D1	143	111	22	16	40	16	54.6	51.6	19	M14 1/2	UC210D1
	UCF210-113D1											UC210-113D1
	UCF210-114D1											UC210-114D1
	UCF210-115D1											UC210-115D1
	UCF210-200D1										UC210-200D1	
55 2 2 ¹ / ₁₆ 2 ¹ / ₈ 2 ³ / ₁₆	UCF211D1	162	130	25	18	43	19	58.4	55.6	22.2	M16 5/8	UC211D1
	UCF211-200D1											UC211-200D1
	UCF211-201D1											UC211-201D1
	UCF211-202D1											UC211-202D1
	UCF211-203D1										UC211-203D1	
60 2 ¹ / ₄ 2 ⁵ / ₁₆ 2 ³ / ₈ 2 ⁷ / ₁₆	UCF212D1	175	143	29	18	48	19	68.7	65.1	25.4	M16 5/8	UC212D1
	UCF212-204D1											UC212-204D1
	UCF212-205D1											UC212-205D1
	UCF212-206D1											UC212-206D1
	UCF212-207D1										UC212-207D1	
65 2 ¹ / ₂ 2 ⁹ / ₁₆	UCF213D1	187	149	30	22	50	19	69.7	65.1	25.4	M16 5/8	UC213D1
	UCF213-208D1											UC213-208D1
	UCF213-209D1											UC213-209D1
70 2 ⁵ / ₈ 2 ¹¹ / ₁₆ 2 ³ / ₄	UCF214D1	193	152	31	22	54	19	75.4	74.6	30.2	M16 5/8	UC214D1
	UCF214-210D1											UC214-210D1
	UCF214-211D1											UC214-211D1
	UCF214-212D1											UC214-212D1
75 2 ¹³ / ₁₆ 2 ⁷ / ₈ 2 ¹⁵ / ₁₆ 3	UCF215D1	200	159	34	22	56	19	78.5	77.8	33.3	M16 5/8	UC215D1
	UCF215-213D1											UC215-213D1
	UCF215-214D1											UC215-214D1
	UCF215-215D1											UC215-215D1
	UCF215-300D1										UC215-300D1	
80 3 ¹ / ₁₆ 3 ¹ / ₈ 3 ³ / ₁₆	UCF216D1	208	165	34	22	58	23	83.3	82.6	33.3	M20 3/4	UC216D1
	UCF216-301D1											UC216-301D1
	UCF216-302D1											UC216-302D1
	UCF216-303D1											UC216-303D1

Remarks: 1) These numbers indicate relubricatable type. If maintenance free type is needed, please order without suffix "D1".

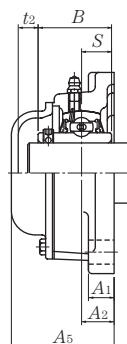
Note: Please refer to page 44 for size of grease fitting.



Press steel dust cover type (Close end)
SM-UCF...D1

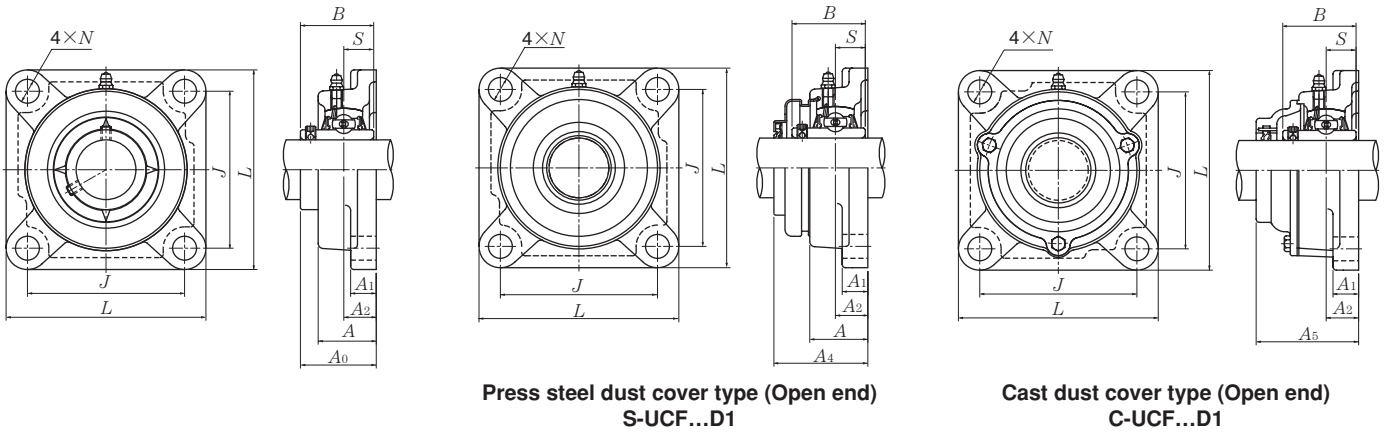


Cast dust cover type (Close end)
CM-UCF...D1



Housing number ¹⁾	Unit number ¹⁾ pressed steel dust cover type	Unit number ¹⁾ cast dust cover type	Nominal dimensions				Mass (approx.)		
			mm		inch		kg		lb
			t_1	t_2	A_4	A_5	UCF	S(SM)	C(CM)
F210D1	S(SM)-UCF210D1	C(CM)-UCF210D1	8	12	65.5	72	2.5	2.5	3.0
F210D1	S(SM)-UCF210-113D1	C(CM)-UCF210-113D1							
F210D1	S(SM)-UCF210-114D1	C(CM)-UCF210-114D1	$\frac{5}{16}$	$\frac{15}{32}$	$2\frac{19}{32}$	$2\frac{27}{32}$	5.5	5.5	6.6
F210D1	S(SM)-UCF210-115D1	C(CM)-UCF210-115D1							
F210D1	S(SM)-UCF210-200D1	C(CM)-UCF210-200D1							
F211D1	S(SM)-UCF211D1	C(CM)-UCF211D1	10	11	71	75	3.3	3.4	4.0
F211D1	S(SM)-UCF211-200D1	C(CM)-UCF211-200D1							
F211D1	S(SM)-UCF211-201D1	C(CM)-UCF211-201D1	$\frac{25}{64}$	$\frac{7}{16}$	$2\frac{25}{32}$	$2\frac{15}{16}$	7.3	7.5	8.8
F211D1	S(SM)-UCF211-202D1	C(CM)-UCF211-202D1							
F211D1	S(SM)-UCF211-203D1	C(CM)-UCF211-203D1							
F212D1	S(SM)-UCF212D1	C(CM)-UCF212D1	8	12	80	86	3.9	4.1	4.8
F212D1	S(SM)-UCF212-204D1	C(CM)-UCF212-204D1							
F212D1	S(SM)-UCF212-205D1	C(CM)-UCF212-205D1	$\frac{5}{16}$	$\frac{15}{32}$	$3\frac{25}{32}$	$3\frac{3}{8}$	8.6	9.0	11
F212D1	S(SM)-UCF212-206D1	C(CM)-UCF212-206D1							
F212D1	S(SM)-UCF212-207D1	C(CM)-UCF212-207D1							
F213D1	S(SM)-UCF213D1	C(CM)-UCF213D1	11	15	83.5	90	5.5	5.6	6.4
F213D1	S(SM)-UCF213-208D1	C(CM)-UCF213-208D1							
F213D1	S(SM)-UCF213-209D1	C(CM)-UCF213-209D1	$\frac{7}{16}$	$\frac{19}{32}$	$3\frac{9}{32}$	$3\frac{17}{32}$	12	12	14
F214D1	—	C(CM)-UCF214D1	—	16	—	98	6.3	—	7.4
F214D1	—	C(CM)-UCF214-210D1							
F214D1	—	C(CM)-UCF214-211D1	—	$\frac{5}{8}$	—	$3\frac{27}{32}$	14	—	16
F214D1	—	C(CM)-UCF214-212D1							
F215D1	—	C(CM)-UCF215D1	—	17	—	102	6.6	—	7.9
F215D1	—	C(CM)-UCF215-213D1							
F215D1	—	C(CM)-UCF215-214D1	—	$\frac{21}{32}$	—	$4\frac{1}{32}$	15	—	17
F215D1	—	C(CM)-UCF215-215D1							
F215D1	—	C(CM)-UCF215-300D1							
F216D1	—	C(CM)-UCF216D1	—	16	—	106	7.9	—	9.3
F216D1	—	C(CM)-UCF216-301D1							
F216D1	—	C(CM)-UCF216-302D1	—	$\frac{5}{8}$	—	$4\frac{3}{16}$	17	—	21
F216D1	—	C(CM)-UCF216-303D1							

Square flanged units cast housing Set screw type

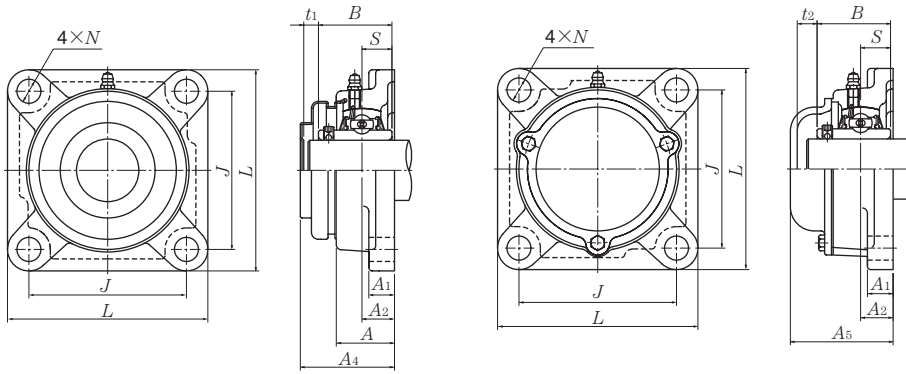


Press steel dust cover type (Open end)
S-UCF...D1

Cast dust cover type (Open end)
C-UCF...D1

Shaft dia. mm inch	Unit number ¹⁾	Nominal dimensions									Bolt size mm inch	Bearing number
		<i>L</i>	<i>J</i>	<i>A₂</i>	<i>A₁</i>	<i>A</i>	<i>N</i>	<i>A₀</i>	<i>B</i>	<i>S</i>		
85 3 ¹ / ₄	UCF217D1 UCF217-304D1	220	175	36	24	63	23	87.6	85.7	34.1	M20	UC217D1 UC217-304D1
3⁵/₁₆ 3⁷/₁₆	UCF217-305D1 UCF217-307D1	8 ²¹ / ₃₂	6 ⁵⁷ / ₆₄	1 ²⁷ / ₆₄	1 ⁵ / ₁₆	2 ¹⁵ / ₃₂	2 ²⁹ / ₃₂	3 ²⁹ / ₆₄	3.3740	1.343	3/4	UC217-305D1 UC217-307D1
90 3 ¹ / ₂	UCF218D1 UCF218-308D1	235	187	40	24	68	23	96.3	96	39.7	M20	UC218D1 UC218-308D1
		9 ¹ / ₄	7 ²³ / ₆₄	1 ³⁷ / ₆₄	1 ⁵ / ₁₆	2 ¹¹ / ₁₆	2 ²⁹ / ₃₂	3 ⁵¹ / ₆₄	3.7795	1.563	3/4	

Remarks: 1) These numbers indicate relubricatable type. If maintenance free type is needed, please order without suffix "D1".
Note: Please refer to page 44 for size of grease fitting.

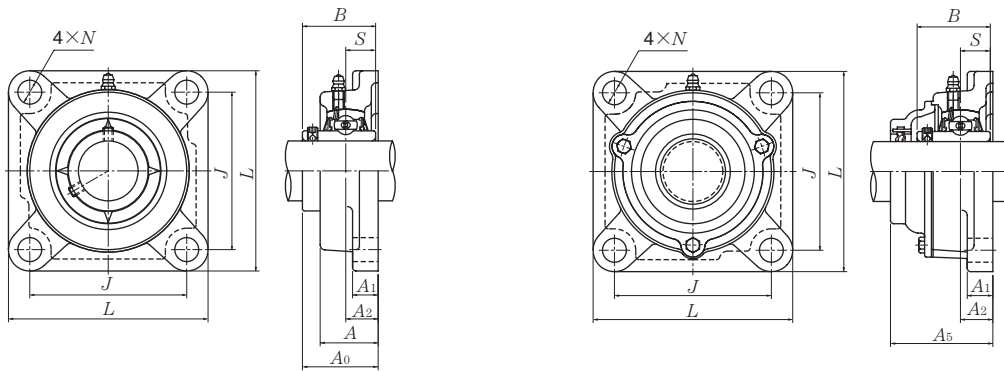


Press steel dust cover type (Close end)
SM-UCF...D1

Cast dust cover type (Close end)
CM-UCF...D1

Housing number ¹⁾	Unit number ¹⁾ pressed steel dust cover type	Unit number ¹⁾ cast dust cover ty	Nominal dimensions				Mass (approx.)		
			mm		inch		kg		lb
			t ₁	t ₂	A ₄	A ₅	UCF	S(SM)	C(CM)
F217D1	—	C(CM)-UCF217D1	—	20	—	114	9.8	—	12
F217D1	—	C(CM)-UCF217-304D1	—	25/32	—	4 1/2	22	—	26
F217D1	—	C(CM)-UCF217-305D1	—	25/32	—	4 1/2	22	—	26
F217D1	—	C(CM)-UCF217-307D1	—	25/32	—	4 1/2	22	—	26
F218D1	—	C(CM)-UCF218D1	—	19	—	122	12	—	13
F218D1	—	C(CM)-UCF218-308D1	—	3/4	—	4 13/16	26	—	29

Square flanged units cast housing Set screw type

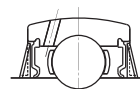
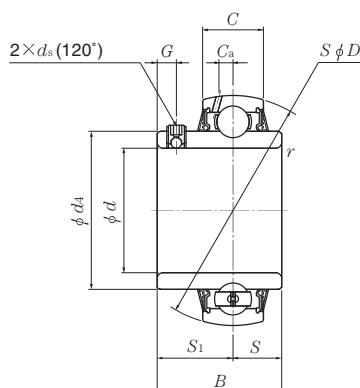


Cast dust cover type (Open end)
C-UCF...D1

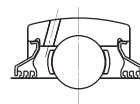
Shaft dia.	Unit number ¹⁾	Nominal dimensions									Bolt size	Bearing number
		mm		inch								
mm inch		L	J	A ₂	A ₁	A	N	A ₀	B	S	mm inch	
25 13/16 7/8 15/16 1	UCF305D1 UCF305-013D1 UCF305-014D1 UCF305-015D1 UCF305-100D1	110 4 11/32	80 3 5/32	16 5/8	13 1/2	29 1 5/32	16 5/8	39 1 17/32	38 1.4961	15 0.591	M14 1/2	UC305D1 UC305-013D1 UC305-014D1 UC305-015D1 UC305-100D1
30 1 1/16 1 1/8 1 3/16	UCF306D1 UCF306-101D1 UCF306-102D1 UCF306-103D1	125 4 29/32	95 3 47/64	18 45/64	15 19/32	32 1 1/4	16 5/8	44 1 47/64	43 1.6929	17 0.669	M14 1/2	UC306D1 UC306-101D1 UC306-102D1 UC306-103D1
35 1 1/4 1 5/16 1 3/8 1 7/16	UCF307D1 UCF307-104D1 UCF307-105D1 UCF307-106D1 UCF307-107D1	135 5 5/16	100 3 15/16	20 25/32	16 5/8	36 1 13/32	19 3/4	49 1 59/64	48 1.8898	19 0.748	M16 5/8	UC307D1 UC307-104D1 UC307-105D1 UC307-106D1 UC307-107D1
40 1 1/2 1 9/16	UCF308D1 UCF308-108D1 UCF308-109D1	150 5 29/32	112 4 13/32	23 29/32	17 21/32	40 1 9/16	19 3/4	56 2 13/64	52 2.0472	19 0.748	M16 5/8	UC308D1 UC308-108D1 UC308-109D1
45 1 5/8 1 11/16 1 3/4	UCF309D1 UCF309-110D1 UCF309-111D1 UCF309-112D1	160 6 5/16	125 4 59/64	25 63/64	18 23/32	44 1 23/32	19 3/4	60 2 23/64	57 2.2441	22 0.866	M16 5/8	UC309D1 UC309-110D1 UC309-111D1 UC309-112D1
50 1 13/16 1 7/8 1 15/16	UCF310D1 UCF310-113D1 UCF310-114D1 UCF310-115D1	175 6 7/8	132 5 13/64	28 1 7/64	19 3/4	48 1 7/8	23 29/32	67 2 41/64	61 2.4016	22 0.866	M20 3/4	UC310D1 UC310-113D1 UC310-114D1 UC310-115D1
55 2 2 1/16 2 1/8 2 3/16	UCF311D1 UCF311-200D1 UCF311-201D1 UCF311-202D1 UCF311-203D1	185 7 9/32	140 5 33/64	30 1 3/16	20 25/32	52 2 1/16	23 29/32	71 2 51/64	66 2.5984	25 0.984	M20 3/4	UC311D1 UC311-200D1 UC311-201D1 UC311-202D1 UC311-203D1

Remarks: 1) These numbers indicate relubricatable type. If maintenance free type is needed, please order without suffix "D1".
Note: Please refer to page 44 for size of grease fitting.

Ball bearings Set screw type



Standard: Seal + Slinger

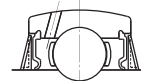
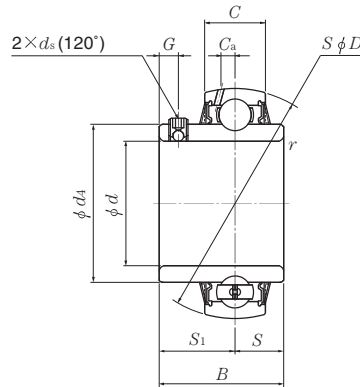
Triple Sealed
UCxxD1LLJ
Example : UC205D1LLJ

Shaft dia. mm inch	Bearing number	Nominal dimensions										
		d	D	B	C	r_s mm min.	S	inch S_1	G	ds	d_4	C_a
12 1/2	UC201D1	12	47	31	17	0.6	12.7	18.3	4.5	M5×0.8	29.6	3.8
	UC201-008D1	0.5000	1.8504	1.2205	0.6693	0.024	0.500	0.720	0.177	No.10-32UNF	1.1654	0.150
15 9/16 5/8	UC202D1	15	47	31	17	0.6	12.7	18.3	4.5	M5×0.8	29.6	3.8
	UC202-009D1	0.5625	1.8504	1.2205	0.6693	0.024	0.500	0.720	0.177	No.10-32UNF	1.1654	0.150
	UC202-010D1	0.6250										
17 11/16	UC203D1	17	47	31	17	0.6	12.7	18.3	4.5	M5×0.8	29.6	3.8
	UC203-011D1	0.6875	1.8504	1.2205	0.6693	0.024	0.500	0.720	0.177	No.10-32UNF	1.1654	0.150
20 3/4	UC204D1	20	47	31	17	1	12.7	18.3	4.5	M5×0.8	29.6	3.8
	UC204-012D1	0.7500	1.8504	1.2205	0.6693	0.039	0.500	0.720	0.177	No.10-32UNF	1.1654	0.150
25 13/16 7/8 15/16 1	UC205D1	25	52	34.1	17	1	14.3	19.8	5	M5×0.8	33.9	4
	UC205-013D1	0.8125	2.0472	1.3425	0.6693	0.039	0.563	0.780	0.197	No.10-32UNF	1.3346	0.157
	UC205-014D1	0.8750										
	UC205-015D1	0.9375										
UC205-100D1	1.0000											
30 1 1/16 1 1/8 1 3/16 1 1/4	UC206D1	30	62	38.1	19	1	15.9	22.2	5	M6×0.75	40.8	4.9
	UC206-101D1	1.0625	2.4409	1.5000	0.7480	0.039	0.626	0.874	0.197	1/4-28UNF	1.6063	0.193
	UC206-102D1	1.1250										
	UC206-103D1	1.1875										
	UC206-104D1	1.2500										
UC206-104D1	1.2500											
35 1 1/4 1 5/16 1 3/8 1 7/16	UC207D1	35	72	42.9	20	1.5	17.5	25.4	6	M6×0.75	46.8	5.4
	UC207-104D1	1.2500	2.8346	1.6890	0.7874	0.059	0.689	1.000	0.236	1/4-28UNF	1.8425	0.213
	UC207-105D1	1.3125										
	UC207-106D1	1.3750										
	UC207-107D1	1.4375										
UC207-107D1	1.4375											
40 1 1/2 1 9/16	UC208D1	40	80	49.2	21	1.5	19	30.2	8	M8×1	53	6
	UC208-108D1	1.5000	3.1496	1.9370	0.8268	0.059	0.748	1.189	0.315	5/16-24UNF	2.0866	0.236
	UC208-109D1	1.5625										
45 1 5/8 1 11/16 1 3/4	UC209D1	45	85	49.2	22	1.5	19	30.2	8	M8×1	57.5	6.1
	UC209-110D1	1.6250	3.3465	1.9370	0.8661	0.059	0.748	1.189	0.315	5/16-24UNF	2.2638	0.240
	UC209-111D1	1.6875										
	UC209-111D1	1.6875										
UC209-112D1	1.7500											

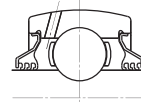
Remarks: 1) For inch series bearings, the f_0 factor for calculating equivalent radial load is the same as the metric series.

Basic load ratings		Factor ¹⁾	Mass (approx.)
N dynamic C_i	lbf static C_{or}	f_0	kg lb
12 800	6 650	13.2	0.21
2 890	1 500		0.46
12 800	6 650	13.2	0.20
2 890	1 500		0.44
			0.42
12 800	6 650	13.2	0.18
2 890	1 500		0.39
12 800	6 650	13.2	0.17
2 890	1 500		0.39
14 000	7 850	13.9	0.20
			0.53
3 150	1 770		0.51
			0.46
			0.44
19 500	11 300	13.8	0.32
			0.82
4 400	2 540		0.77
			0.73
			0.66
25 700	15 300	13.8	0.46
			1.21
5 750	3 450		1.15
			1.08
			1.01
29 100	17 800	14.0	0.64
6 550	4 000		1.52
			1.46
32 500	20 400	14.1	0.68
			1.76
7 350	4 600		1.68
			1.57

Ball bearings Set screw type



Standard: Seal + Slinger

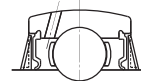
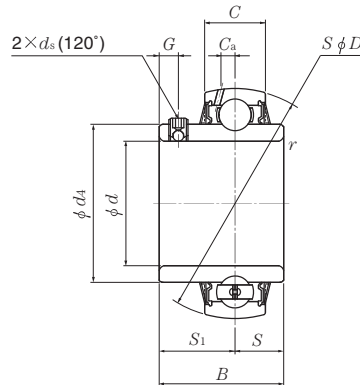
Triple Sealed
UCxxD1LLJ
Example : UC205D1LLJ

Shaft dia. mm inch	Bearing number	Nominal dimensions										
		<i>d</i>	<i>D</i>	<i>B</i>	<i>C</i>	<i>r_s</i> mm min.	<i>S</i>	inch <i>S₁</i>	<i>G</i>	<i>ds</i>	<i>d₄</i>	<i>C_a</i>
50	UC210D1	50	90	51.6	24	1.5	19	32.6	9	M8×1	62.4	6.1
$1\frac{13}{16}$	UC210-113D1	1.8125										
$1\frac{7}{8}$	UC210-114D1	1.8750	3.5433	2.0315	0.9449	0.059	0.748	1.283	0.354	$\frac{5}{16}$ -24UNF	2.4567	0.240
$1\frac{15}{16}$	UC210-115D1	1.9375										
2	UC210-200D1	2.0000										
55	UC211D1	55	100	55.6	25	2	22.2	33.4	9	M8×1	69	6.5
2	UC211-200D1	2.0000										
$2\frac{1}{16}$	UC211-201D1	2.0625	3.9370	2.1890	0.9843	0.079	0.874	1.315	0.354	$\frac{5}{16}$ -24UNF	2.7165	0.256
$2\frac{1}{8}$	UC211-202D1	2.1250										
$2\frac{3}{16}$	UC211-203D1	2.1875										
60	UC212D1	60	110	65.1	27	2	25.4	39.7	10	M10×1.25	77	7.3
$2\frac{1}{4}$	UC212-204D1	2.2500										
$2\frac{5}{16}$	UC212-205D1	2.3125	4.3307	2.5630	1.0630	0.079	1.000	1.563	0.394	$\frac{3}{8}$ -24UNF	3.0315	0.287
$2\frac{3}{8}$	UC212-206D1	2.3750										
$2\frac{7}{16}$	UC212-207D1	2.4375										
65	UC213D1	65	120	65.1	32	2	25.4	39.7	10	M10×1.25	82.5	7.3
$2\frac{1}{2}$	UC213-208D1	2.5000	4.7244	2.5630	1.2598	0.079	1.000	1.563	0.394	$\frac{3}{8}$ -24UNF	3.2480	0.287
$2\frac{9}{16}$	UC213-209D1	2.5625										
70	UC214D1	70	125	74.6	33	2	30.2	44.4	12	M10×1.25	87	7.7
$2\frac{5}{8}$	UC214-210D1	2.6250										
$2\frac{11}{16}$	UC214-211D1	2.6875	4.9213	2.9370	1.2992	0.079	1.189	1.748	0.472	$\frac{3}{8}$ -24UNF	3.4252	0.303
$2\frac{3}{4}$	UC214-212D1	2.7500										
75	UC215D1	75	130	77.8	34	2	33.3	44.5	12	M10×1.25	93	8
$2\frac{13}{16}$	UC215-213D1	2.8125										
$2\frac{7}{8}$	UC215-214D1	2.8750	5.1181	3.0630	1.3386	0.079	1.311	1.752	0.472	$\frac{3}{8}$ -24UNF	3.6614	0.315
$2\frac{15}{16}$	UC215-215D1	2.9375										
3	UC215-300D1	3.0000										
80	UC216D1	80	140	82.6	35	2.5	33.3	49.3	12	M10×1.25	98.1	8
$3\frac{1}{16}$	UC216-301D1	3.0625										
$3\frac{3}{8}$	UC216-302D1	3.1250	5.5118	3.2520	1.3780	0.098	1.311	1.941	0.472	$\frac{3}{8}$ -24UNF	3.8622	0.315
$3\frac{3}{16}$	UC216-303D1	3.1875										

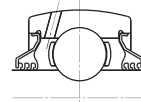
Remarks: 1) For inch series bearings, the f_0 factor for calculating equivalent radial load is the same as the metric series.

Basic load ratings		Factor ¹⁾	Mass (approx.)	
N dynamic C_i	lbf static C_{or}	f_0	kg lb	
35 000	23 200	14.4	0.78 2.03	
7 900	5 200		1.92 1.81 1.69	
43 500	29 200		14.3	1.04 2.71
9 750	6 550	2.60 2.46 2.34		
52 500	36 000	14.3		1.46 3.66
11 800	8 150		3.50 3.33 3.17	
57 500	40 000		14.4	1.86 4.26 4.09
12 900	9 000	14.5		2.10 5.09
62 000	44 000			4.87 4.65
66 000	49 500		14.7	2.34 5.73
14 900	11 100	5.49 5.25 4.98		
72 500	53 000	14.6		2.78 6.57
16 300	11 900		6.28 6.00	

Ball bearings Set screw type



Standard: Seal + Slinger


 Triple Sealed
 UCxxD1LLJ
 Example : UC205D1LLJ

Shaft dia.	Bearing number	Nominal dimensions										
		<i>d</i>	<i>D</i>	<i>B</i>	<i>C</i>	<i>r_s</i> mm min.	<i>S</i>	inch <i>S₁</i>	<i>G</i>	<i>ds</i>	<i>d₄</i>	<i>C_a</i>
85	UC217D1	85	150	85.7	36	2.5	34.1	51.6	12	M12×1.5	106.4	7.9
3¼	UC217-304D1	3.2500										
3⅝	UC217-305D1	3.3125	5.9055	3.3740	1.4173	0.098	1.343	2.031	0.472	½-20UNF	4.1890	0.311
3⅞	UC217-307D1	3.4375										
90	UC218D1	90	160	96	37	2.5	39.7	56.3	12	M12×1.5	111.6	8.7
3½	UC218-308D1	3.5000	6.2992	3.7795	1.4570	0.098	1.563	2.217	0.472	½-20UNF	4.3937	0.343

Remarks: 1) For inch series bearings, the f^0 factor for calculating equivalent radial load is the same as the metric series.

Basic load ratings		Factor ¹⁾	Mass (approx.)
N dynamic C_i	lbf static C_{or}	f_0	kg lb
83 500	64 000	14.7	3.54
			7.92
18 700	14 300		7.60
			6.97
96 000	71 500	14.5	4.40
21 600	16 100		9.88