

<TABLE 2.3> Unit to. examples

Style	Part No.			Style No.		Ceuter No.	Inside diameter No.	Shaft diameter (mm)	Shaft mounting method
	Unit	Bearing	Housing	Bearing	Housing				
Pillow block(P)	UCP 205	UC 205	P 205	UC	P	2	05	25	Wrench bolt Adapter, Eccentric self-locking collar
	UKP 206	UK 206	P 206	UK	P	2	06	30	
	HCP 208	HC 208	P 208	HC	P	2	08	40	
Flange unit(F)	UCF 308	UC 308	F 308	UC	F	3	08	40	Wrench bolt
Round piloted flange unit(FC)	UCFC 210	UC 210	FC 210	UC	FC	2	10	50	Wrench bolt
Square piloted flang unit(FS)	UCFSX 05	UCX 05	FSX 05	UC	FS	X	05	25	Wrench bolt
Oval flange unit(FL)	SAFL 204	SA 204	FL 204	SA	FL	2	04	20	Eccentric self-locking collar
Take-up unit(T)	UCT 212	UC 212	T 212	UC	T	2	12	60	Wrench bolt Adapter
	UKT 310	UK 310	T 310	UK	T	3	10	50	
Cartridge unit(C)	UCC 215	UC 215	C 215	UC	C	2	15	75	Wrench bolt

Remark : The style discrimination is based on KS B2050(rolling bearing unit bearing housing) standards.

### 3. Special purpose ball bearing units

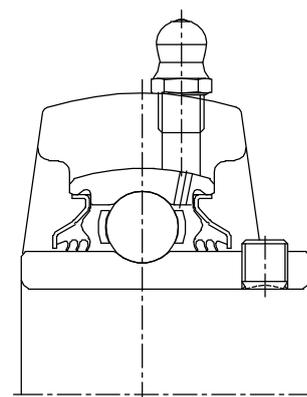
#### 3.1 Blower unit(classification J5)

Ball bearing units for use in high speed blowers must not generate large amounts of heat, vibration or noise at high rotation speeds. Therefore, unit ball bearings for blowers must be of a high accuracy and low noise design.

Unit ball bearings for blowers(classification J5) are standardized by JIB. The best technology and designs are used by JIB in producing the bearing units for blowers. Therefore, the bearings made for blower use are the best products made by JIB with the highest quality in surface roughness, orbital shape and bearing rotation accuracy.

#### 3.2 Triple structure seal

Triple structure seal unit is composed of a special lubricant seal structure made of synthetic rubber which is attached to a stamped steel shield. The combined piece is then attached to the outer race of the bearing. The specially designed triple lip system can effectively prevent dust and moisture from entering the bearing and therefore extend the life of the bearing. The mechanical assembly and handling of the triple structure seal unit is equivalent to the regular bearing since the seal and the bearing form a one piece structure. This triple structure seal is a new method that can be operated safely for extended periods in comparison with the double protection method seal because it does not have the locking side pressure of the double protection method.



[FIGURE 3.1] Triple structure seal unit(L3)

#### 3.3 Unit for anti-oxidation and anti-corrosion

This unit is suitable for anti-oxidation and anti-corrosion by coating the standard bearing with Alkali black layer and also, the bearing life is lengthen. UC, SA and SB bearings are generally applied, and other bearings are applied on demand. (On demand product)



[FIGURE 3.2] Unit for anti-oxidation and anti-corrosion

### 3.4 Heat resistant and cold resistant units (classification EN1 and EN2)

The ball bearing unit operating temperature range depends on the quality of the grease and on the quality of the oil seal rubber material used in the bearing. Normal operation temperature range for JIB ball bearing unit is from -20°C to 100°C. Heat resistant or cold resistant units should be used in high or low temperature environments outside the normal operating temperature range.

The unit is supplied with fluorine grease and seal in the equipments like a heat treatment facility and special surrounding, clean room, like PDP, semi-conductor, and so on. JIB manufactures the following standardized heat and cold resistant bearings shown in Table 3.1.

<TABLE 3.1> Heat resistant and cold resistant units

Classification	No.	Operating temperature range	Lubricating grease	Oil seal rubber material	Bearing clearance	
					UC	UK
Cold resistant	EN1	-30°C ~ +180°C	Super Lube(SYNCO)	Fluoric runbber	Normal	C3
Heat resistant	EN2	-30°C ~ +180°C	Super Lube(SYNCO)	Fluoric runbber	C4	C5
Chromium resistant	ENC2	-20°C ~ +280°C	Carbaflo 2371(FUCHS)	Fluoric runbber	C4	C5

## 4. Ball bearing unit materials

### 4.1 Bearing material

The bearing material for the orbital races and the rotating ball must meet the following requirements.

- 1) Strong against fatigue and repeated stress
- 2) High strength with high hardness number, elasticity, and yield point
- 3) Good internal wear resistance
- 4) High resistance against shock loads

5) Minimum change in dimension and shape due to aging  
Typically in Japan and in other developed countries, high carbon chromium steel that exceeds the above requirements is used in bearings. Among the various high carbon chromium steels, the most widely used is the STB2 (SUJ2) which is also used by JIB in producing bearings.

<TABLE 4.1.1> Chemical composition of high carbon chromium bearing steel(KS D 3525)

Name	Chemical composition (%)								
	C	Si	Mn	P	S	Cr	Ni	Cu	Mo
STB2	0.95~1.10	0.15~0.35	Under 0.50	Under 0.025	Under 0.025	1.30~1.60	Under 0.25	Under 0.25	Under 0.08
STB3	0.95~1.10	0.40~0.70	0.090~1.15	Under 0.025	Under 0.025	0.90~1.20	Under 0.25	Under 0.25	Under 0.08

Remark : STB2 and STB3 are equivalent to JIS'S SUJ2 and SUJ3, respectively

### 4.2 Housing material

The housing material used is Class 3 (GC20) from KS D 4301.

Gray cast-iron steel is widely used for machine parts because the vibration absorbing capacity is greater than other metals.

<TABLE 4.2.1> Mechanical properties of gray cast-iron steel(KS D 4301)

Type	No.	Thickness (mm)	Diameter of testing bar(mm)	Tensile strength (Kg/mm)	Travers breaking test		hardness (HB)
					Maximum load(Kg)	Deflection(mm)	
Class3	GC200	over 4 ~ 8	13	over 24	over 200	over 2.0	under 255
		over 8 ~ 15	20	over 22	over 450	over 3.0	under 235
		over 15 ~ 30	30	over 20	over 900	over 4.5	under 223
		over 30 ~ 50	45	over 17	over 2,000	over 6.5	under 217

<TABLE 4.2.2> Chemical components of cold rolling steel plate(KS D 3512)

No.	Chemical composition (%)						
	C	Si	Mn	P	S	Ni	Cr
SPCC	Under 0.12	—	Under 0.50	Under 0.040	Under 0.045	—	—