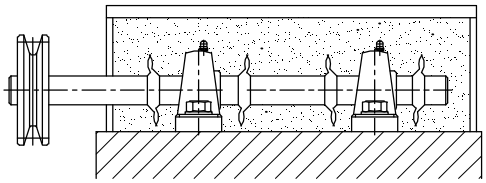
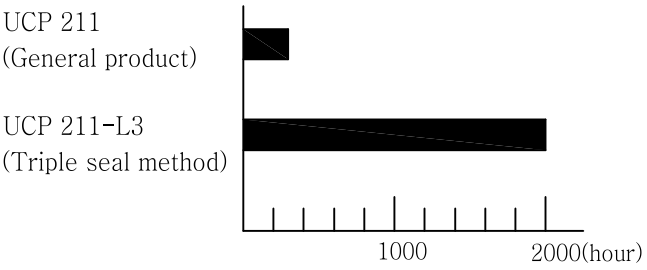
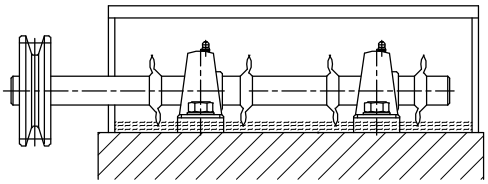
Shaft speed : 700rpm
Test condition : 400mesh GC flour powder
Carrying load : belt tension

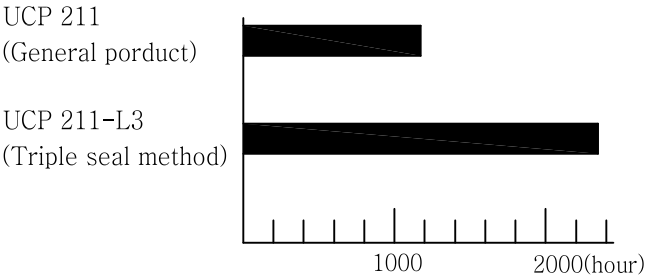




[FIGURE 12.5] Particulate test

Shaft speed : 400rpm
Test of water : tap
Carrying load : belt tension





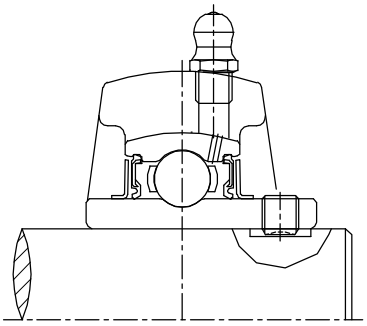
[FIGURE 12.6] Moisture test

In the particulate test, the general product can last for 250 hours without producing any abnormal sound cause by the intrusion of contaminants into the bearing. The triple seal method and the double protection method can last for 2000 hours without any strangeness. In the moisture test, general products can last for 1200 hour without forming rust and the triple seal and the double protection method can last for 2400 hours without forming rust.

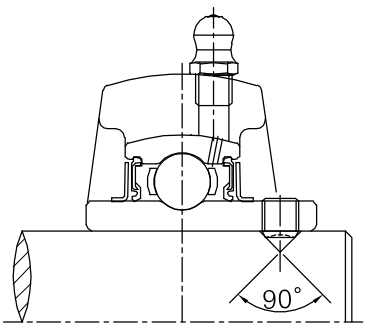
13. Bearing Locking method

13.1 Bolt Locking

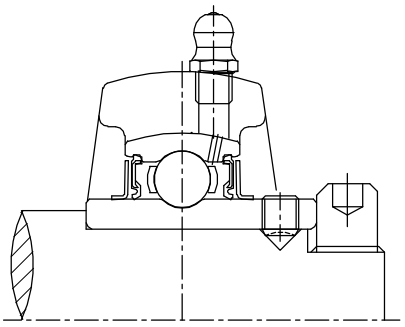
The shaft mounting by bolt method is a simple way of fixing the shaft to the bearing with two hexagonal screws located 120 apart on the inner race of the bearing. In conditions where there are vibrations, repeated reverse shaft direction operation, frequent start and stop operation, or in high axial load condition with high speed rotation, the following locking methods, shown in Figure 13.1 should be used.



Groove is made on the shaft surface.



Pilot drill hole is made on the shaft surface.



Where there is high axial loading, machine a column on the shaft and secure with a nut.

[FIGURE 13.1] Bolt locking methods

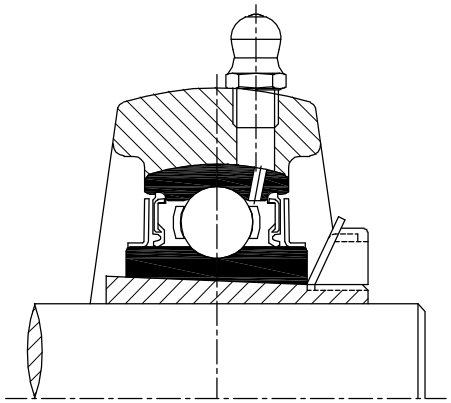
<TABLE 13.1> Bolt type locking torque

mm bolt	inch bolt	Bearing No.			Locking torque (kg-Cm)
M2.5 × 0.35		USB 08			3.5
M 3 × 0.35		USB 000,001			6
M 4 × 0.35		USB 002,003			15
M 5 × 0.5		USB 004~006			30
M 6 × 0.75	1/4 - 28 UNF	UC 201~206	UC X05	UC 305,306	40
M 8 × 1.0	5/16 - 24 UNF	UC 207~210	UC X06~X09	UC 307	90
M 10 × 1.25	3/8 - 24 UNF	UC 211, 212	UC X10, X11	UC 308,309	180
M 12 × 1.5	7/16 - 20 UNF	UC 213~218	UC X12~X17	UC 310~314	280
M 14 × 1.5	9/16 - 18 UNF		UC X18	UC 315,316	350
M 16 × 1.5	5/8 - 18 UNF		UC X20	UC 317~319	600
M 18 × 1.5	5/8 - 18 UNF			UC 320~324	650
M 20 × 1.5	3/4 - 16 UNF			UC 326,328	800

Remark 1) SER 207 is applied with M6×0.75(1/4 -28UNF).
2) Locking torque is applied with Table 13.1 according to eccentric collar bolt.

13.2 Adapter sleeve locking

Adapter sleeve locking method is used with bearing units that have a 1/12 tapered inner race inside diameter. The shaft is locked by inserting the sleeve into the tapered bore followed by the placement of a washer and then a nut which is used to tighten the sleeve over the shaft. The sleeve is initially inserted into the bore and then gently tapped with a wooden hammer. The nut is at first tightened by hand and then further tightened with a spanner by 2/5 to 3/5 turn of the nut. After the nut is tightened, the metal teeth on the washer should be bent and placed in the grooves on the nut. If the metal teeth are not bent properly, the shaft is not squeezed enough by the sleeve for firm locking. This can lead the bearing to slip, slide, creep and hammer. Conversely, if the nut is over tightened, the radial clearance inside the bearing is reduced which can then lead to excessive heat generation and burning of high load contact areas. Therefore, the nut should never be over tightened



[FIGURE 13.2] Adapter sleeve locking method

<TABLE 13.2> Adapter locking torque (unit : kg-cm)

Bearing part No.	Locking toruqe	Bearing part No.	Locking toruqe	Bearing part No.	Locking toruqe
UK 205	180	UK 305	250	UK 319	6400
UK 206	280	UK 306	400	UK 320	8000
UK 207	380	UK 307	600	UK 322	10000
UK 208	480	UK 308	750	UK 324	13000
UK 209	580	UK 309	1050	UK 326	16000
UK 210	680	UK 310	1350	UK 328	18000
UK 211	900	UK 311	1600		
UK 212	1200	UK 312	1900		
UK 213	1400	UK 313	2400		
UK 215	1600	UK 315	3400		
UK 216	1900	UK 316	3900		
UK 217	2200	UK 317	4400		
UK 218	2600	UK 318	5400		

13.3 Eccentric self locking collar locking

The eccentric self locking collar mounting method uses an eccentrically locking collar on the inside inner race outer circumference. This shaft locking method is simpler to use than both the bolt locking method or the adapter sleeve mounting method because the rotating shaft is used to generate the shaft locking force. The self-locking feature of the collar works by converting the rotation of the shaft into a contact force between the eccentric collar, the inner race and the shaft.