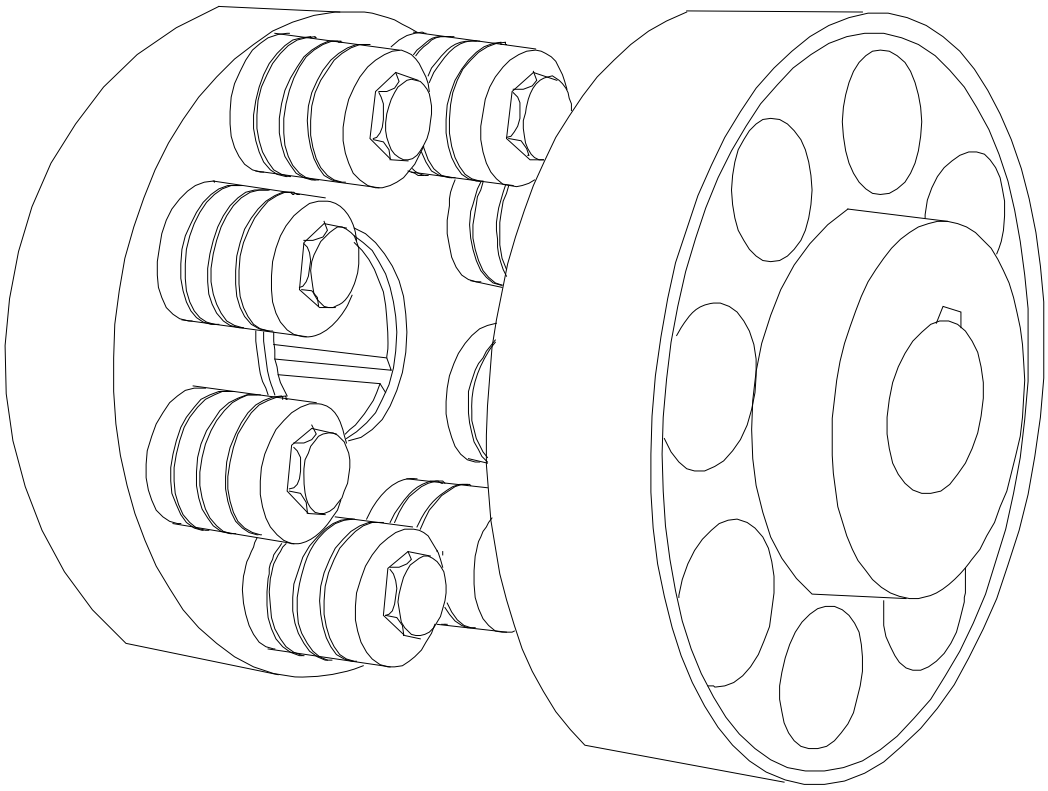
INSTALLATION & MAINTENANCE
CONE RING COUPLINGS
(STANDARD & BRAKE DRUM TYPES)



1.0 INSTALLATION PROCEDURE

1.1 INSTALLATION OF THE HUBS (Parallel Bores)

a) Ensure all parts are clean and free from grit.

b) Check key fit in both shaft and hubs.

c) Install each coupling half on its shaft, the half containing the rubber elements on the driven shaft. For press fits apply an appropriate lubricant to the hub bores and shafts, ensure the hubs are square with the shafts and the keyways are in line before pressing on.

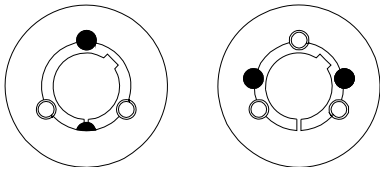
d) Set gap between coupling halves (table 3).

e) Adjust for acceptable shaft alignment as per section 1.3.

Note: use metal shim strips under feet as packing to achieve adjustments.

1.2 INSTALLATION AND REMOVAL OF HUBS WITH TAPER BUSHES

TAPER - LOCK R



1.2.1 TO INSTALL

a) Remove the protective coating from the bore and outside of bush, and bore of hub. After ensuring that the mating tapered surfaces are completely clean and free from oil or dirt, insert the bush in the hub so that the holes line up.

b) Sparingly oil the thread and point of grubscrews, or thread and under head of capscrews. Place the screws loosely in the holes tapped in the hub, shown thus in the diagram O.

c) Clean the shaft. If a key is to be fitted place it in the shaft keyway before fitting the bush. It is essential that it is a parallel key and side fitting only, and has top clearance.

d) Fit the hub and bush to the shaft as one unit, and locate in position desired, remembering that the bush will nip the shaft first and then the hub will be slightly drawn on to the bush.

e) Using a hexagon wrench (Allen key) tighten the screws gradually and alternately until all are pulled up very tightly.

TABLE 2 TIGHTENING TORQUE

COUPLING SIZE		01	03	05	07	08	09	10
SCREW DETAILS	QUANTITY	2	2	2	2	3	3	3
	SIZE BSW	¼"	⅜"	½"	⅝"	½"	¾"	⅞"
TIGHTENING TORQUE (Nm)		5.6	20	50	90	115	190	270

f) Hammer against the large end of the bush using a block or sleeve to prevent damage. The screws will now turn a little more. Repeat this alternate hammering and screw tightening once or twice to achieve maximum grip on the shaft, particularly necessary if a key is not fitted.

g) After the drive has been running under load for a short time, stop and check tightness of screws.

h) Fill the empty holes and screw heads with grease to exclude dirt.

1.2.2 TO REMOVE

a) Slacken all screws by several turns. Remove one (size 08 to 10, remove two) and insert it (them) into the jacking off holes shown thus● in diagram, after oiling thread and point of grub screws or thread and under head of cap screws.

b) Tighten the screw(s) until the bush is loosened in the hub and the assembly is free on the shaft.

c) Remove the assembly from the shaft.

1.3 SHAFT ALIGNMENT

a) Check shaft alignment as follows:-

Errors of alignment fall into categories of angularity (see figure 1) and eccentricity (see figure 2), or a combination of both.

Errors of angularity should be checked for and corrected before errors of eccentricity.

b) ERRORS OF ANGULARITY

If the faces are perfectly true, the angularity can be checked by keeping both shafts stationary and taking measurements with a block gauge and feelers at the four points 1, 2, 3 and 4 as shown in figure 3 (Fig 3a method for standard couplings, and 3b and 3c are methods for the brake drum type coupling). The difference between the readings 1 and 3 will give the error of alignment in the vertical plane over the length of the shaft equal to the diameter of the coupling flanges, and from this the difference in the relative heights of the feet of the motor or other connected machine can be found by proportion. Similarly the difference between the readings 2 and 4 gives the amount of sideways adjustment necessary to correct any errors of alignment in the horizontal plane.

Generally, however , the coupling faces will not be absolutely true and whilst any errors so found could be allowed for in checking angularity by the stationary method an easier method presents itself. This consists in marking the points 1 on both “A” and “B” and rotating both half couplings, keeping the marked points together. By taking measurements each quarterrevolution the errors in the vertical and horizontal planes are again found.

The allowable gap for 5 minutes angular misalignment is given in table 3.

c) ERRORS OF ECCENTRICITY

The procedure for measuring eccentricity is precisely analogous to that used for angularity. In this case, however the measurements are taken in a radial direction and the most convenient and accurate means of doing this utilises a dial indicator suitably clamped to one half coupling, and bearing on the hub or flange of the other, as shown in figure 4 (Fig 4a for standard coupling, and 4b for the brake drum type coupling).

Care must, however, be taken to ensure the support for the dial indicator is sufficiently rigid to prevent the weight of the indicator from causing deflection and, in consequence, inaccurate readings. Extra care should be taken where taper roller bearings are fitted to ensure that alignment is checked with shafts in mid-point position and a final check made with the unit at operating temperature.

The allowable gap for a parallel offset to 5 minutes angular misalignment is given in table 3.

Figure 1

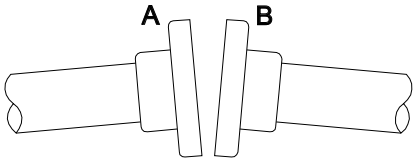


Figure 2

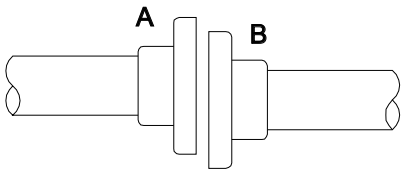
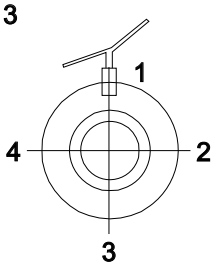
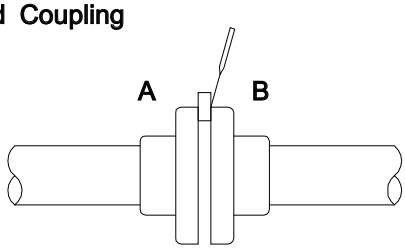


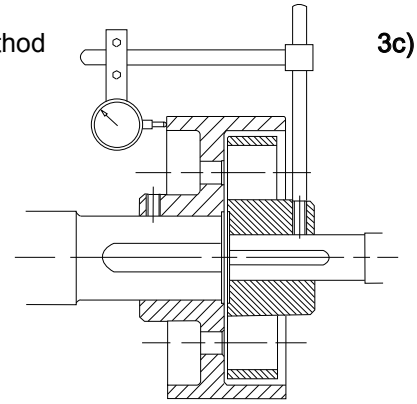
Figure 3



3a) Standard Coupling



3b) Clock Gauge Method for Brake Drum Coupling



3c) Gauge Method for Brake Drum Coupling

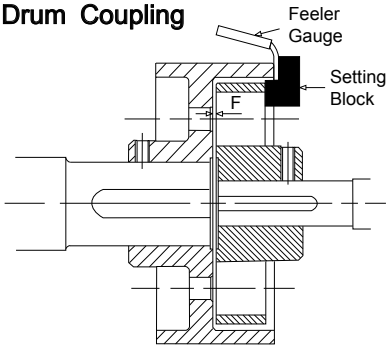
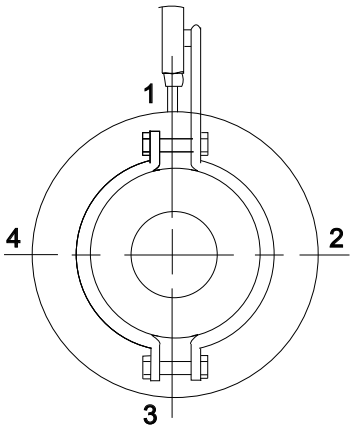
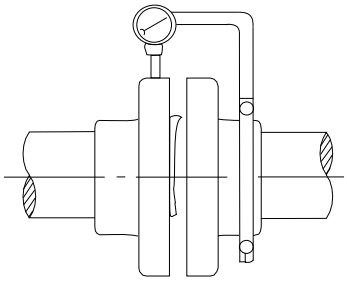


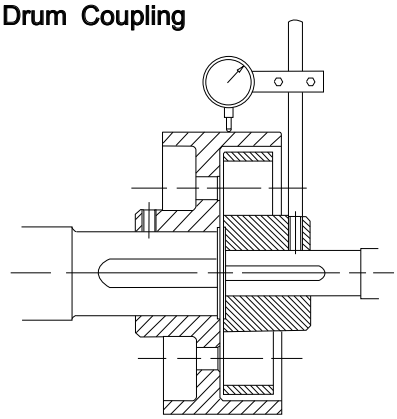
Figure 4



4a) Standard Coupling



4b) Brake Drum Coupling



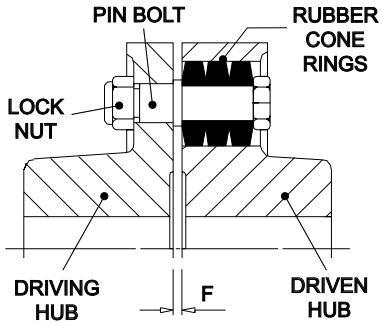


TABLE 3 ALLOWABLE GAP & ERROR

COUPLING SIZE	GAP F (mm)	ANGULAR MISALIGNMENT		PARALLEL MISALIGNMENT	
		mm	INCHES	mm	INCHES
01	3	0.195	0.008	0.022	0.001
02	3	0.214	0.008	0.022	0.001
03	3	0.249	0.010	0.030	0.001
04	3	0.281	0.011	0.030	0.001
05	3	0.313	0.012	0.030	0.001
06	3	0.369	0.015	0.055	0.001
07	3	0.406	0.016	0.055	0.002
08	3	0.480	0.019	0.055	0.002
09	6	0.540	0.021	0.078	0.003
10	6	0.609	0.024	0.078	0.003
11	6	0.665	0.026	0.078	0.003
12	6	0.775	0.031	0.078	0.003

Note: Each of the allowable misalignments are equivalent to an angular misalignment of 5 minutes leaving 50 minutes for misalignment due to thermal growth between the driving and driven machines or distortion of the machines and or foundation under load.

1.4 PIN AND CONE INSTALLATION

a) Ensure that all parts are clean and free from grit.

b) Apply silicon grease to rubber cone rings outer diameter.
Recommended greases are

(i) Shell Silicone Grease
(ii) Dow Corning
(iii) Rocol MX66 Silicone Grease.

c) Align driving and driven half coupling pin holes and insert pin/cone assemblies and torque tighten to the tightening torque given in table 4.

TABLE 4 PIN BOLT TIGHTENING TORQUES

COUPLING SIZE	01 AND 02	03, 04 AND 05	06, 07 AND 08	09, 10, 11 AND 12
TIGHTENING TORQUE (Nm)	15	25	115	200

2.0 MAINTENANCE

2.1 CONE RING INSPECTION

The maintenance required is to inspect the rubber cone ring periodically (every 6 months) for the amount of wear. If the wear on the outside diameter of the cone ring is greater than that recommended in table 5 then the cones should be changed.

TABLE 5 CONE AND PIN DETAILS

		COUPLING SIZE											
		01	02	03	04	05	06	07	08	09	10	11	12
NOMINAL CONE RING DIAMETER AS NEW (mm)		28.2		38.1			50.8			63.5			
RECOMMENDED ALLOWABLE REDUCTION IN DIAMETER (mm)		0.80	0.95	1.05	1.25	1.40	1.60	1.80	2.20	2.45	2.75	3.10	3.60
NUMBER OF PINS	X611 & X613	6	8	6	8	10	8	10	12	10	12	14	18
NUMBER OF CONE RINGS PER PIN		3					4						
PIN PACK PART NO		PP01-02		PP03-05			PP06-08			PP09-12			
QUANTITY OF PIN PACKS REQUIRED (3 PINS PER PACK)		2	3	2	3	4	3	4	4	4	4	5	6
RING PACK PART NO		RP01-02		RP03-05			RP06-08			RP09-12			
QUANTITY OF RINGS REQUIRED (15 IN EACH PACK)		2	2	2	2	3	3	4	4	4	4	4	5

2.2 ALIGNMENT CHECK

With the pins removed an alignment check in accordance with Section 1.3 should be carried out.

2.3 REPLACEMENT OF THE CONES

Two options are available:-
i) Purchase new cone rings to fit onto the existing pins
ii) Purchase of new pin and cone assemblies (part numbers given in table 5 for both).

If option 1 is adopted then pin should be thoroughly cleaned and the shank upon which the cones are seated coated with silicone grease before fitting the new cones.
The pin assemblies are then fitted back into the coupling as detailed in section 1.4.