

### Stephenson Gobin

#### Electromagnetic Type 51 Flange Mounted Clutches

- Installation
- Operation
- Maintenance



#### Installation Section

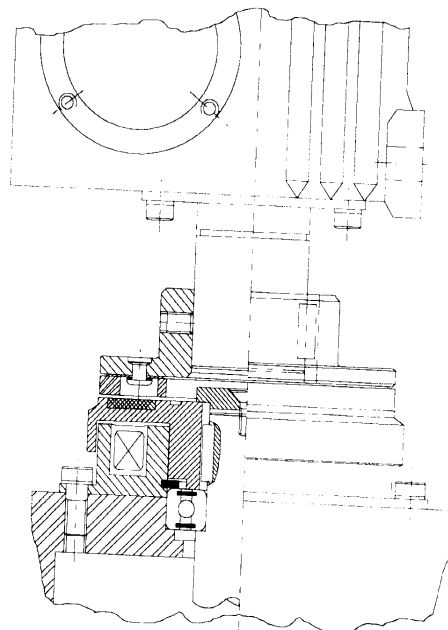
##### Clutch Type 51 F.M. (Flange Mounted Field).

F.M. clutches are the simplest type comprising a clutch field, rotor, and armature all supplied separately.

- i) The field should be mounted to a stationary surface, perpendicular to the axis of the shaft, using dimensions 'a1' or 'e4' to ensure good concentricity with the shaft. Often a standard series 6000 ball-bearing can be made to protrude from its housing to form a male spigot for dimension 'e4'. A circlip groove is machined in all flange mounted fields to enable the location of such a bearing. Acceptable maximum eccentricity values are as follows : up to and including Size 11 - 0.05mm, Size 12 and over - 0.10mm
- ii) The rotor should be pushed onto the shaft using a key to B.S.3673 for torsional locking. The axial position of the rotor relative to the field is controlled by dimension 'h1' using a shoulder or circlip and spacers. The rotor should be clamped axially using either a screw in the shaft end or a circlip and spacers.
- iii) Armature Installation.  
**For C.L. Armatures.** the customer furnished pulley or sprocket must be counterbored observing dimensions n2, v and k to clear the fastener heads allowing the armature spring to lie flat against the pulley flange. The air-gap 'g' can be set using spacers which may be removed for subsequent wear adjustment. Always use Schnorr type shakeproof washers and a thread locking compound fastening the armature spring assembly to the customer's pulley

**For C.C. Armatures (co-axially split shafts).** the input and output shaft must be concentric within 0.05mm for sizes up to and including Size 11, and 0.08mm for Size 12 and over. The armature is mounted on the input/output shaft using a key to B.S.3673 for torsional locking and the set-screw provided for axial location and setting of the air-gap 'g'.

**For C.E. Armatures.** some form of axial clamping using a tapped hole in the shaft end or screw thread machined onto the shaft is strongly recommended. This method is used by us and it forms a satisfactory method of holding all related clutch and brake parts firmly in position. An acceptable method of mounting pulleys, sprockets, or plate-wheels to the C.E. armature is to use the tapped holes 'u6'. This avoids set-screws, keys, or tapered locking elements and enables easy dismantling of the pulley.



■ Clutch F.M.C.C.

MOUNTING EXAMPLE

#### Installation Section

##### Bedding-in (all Clutch/Brake Devices)

The torque of clutches and brakes of the type we manufacture is affected by the average coefficient of friction across the faces of the armature and the clutch/brake, and the clamping pressure at the interface of these parts. This effective pressure is increased if the surfaces are in good intimate contact when engaged.

The degree of intimate contact is controlled to a minimum level during production by grinding the opposing faces in contact. This increases during normal operation where some slip occurs naturally, the amount of slip depends upon the magnitude of the load, speed, and cycle rate thus increasing the torque. We consider bedding-in to be essential and in most cases inevitable. If maximum torque is required immediately after installation then this process can be accelerated by lowering the operating voltage to 40/50% of the nominal value. This induces artificial slip during operation and results in an increase in the degree of contact.

Care must be taken not to slip the device excessively as this will lead to an undesirable thermal overload causing electrical failure. Thermal overload may be avoided by cycling the unit 'on and off', allowing enough time for cooling between the periods of slip.

