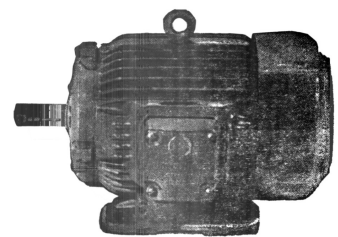


- 4.1.1 The bearings are prelubricated and maintenance free. Operating conditions permitting, unsealed bearings should be cleaned at intervals of about 10000 operating hours, with trichloroethylene or clean petrol.
- While lubricating please see that the bearings are well lubricated and about one third of the space within bearing covers is filled with grease. Over filling of grease is not recommended.
- While regreasing motors with regreasing bearing, keep the grease outlet open and fill grease when the motor is running so that old grease/excess grease will flow out.
- 4.1.2 Balmer Lawrie LL3 and Shell-MP 3 are recommended for use in Motors, Mixing of grease should be avoided.
- 4.1.3 When the motor is opened protect bearings from foreign particles and dirt by wrapping them with clean paper or polythene sheet.
- 4.1.4 During reassembly of motor ensure that wavy washer and brass washers are kept in their position and bearing covers are secured properly. These washers are specially designed to provide adequate preloading on the bearings.
- 4.1.5 Clean the entire path of the cooling air on the motor at regular intervals.
- 4.1.6 The temperature of the motor, judged by hand feeling, could be misleading. In the case of suspected overheating the actual temperature should be measured with thermometer and should be compared with the permissible temperature rise according to the temperature class of the motor.
- 4.1.7 Overheating of the motor may be due to over loading of motor, too low or too high supply voltages, frequency fluctuations, over greasing of bearings, foreign material in the air gap between stator and rotor. Necessary corrective action is to be taken accordingly.
- 4.1.8 When ordering spare parts state the motor type, machine number, type of construction as shown in the rating plate, part description given in the part list and number of units required.
- 5.0 Special additional installation instructions of IP55/IP56 construction motors.

- 5.1 Conduit entries are fitted with threaded plugs and are sealed. Open the plug and clean threads before fitting cable gland. Use double compression gland and seat the threads of glands with sealing cement. This will ensure IP55/IP56 Protection of the cable entry.
- 5.2 After the cable connection fix the T. Box properly Ensure that the rubber gasket provided is not dislocated or distorted and fixing screws are fully tightened.
- 5.3 Wherever possible it is recommended to cover the motor from direct heating by the sun. Provide a canopy over the motor.
- 5.4 The motor shaft is provided with oil seals/V rings on the both ends Drain plugs are provided on front and back sides (ref. drg. no. 95018) During periodic inspection say once in 3 months open the drain plugs and drain out condensed water if any.
- 5.5 While replacing oil seals make sure that oil seals are not distorted, the springs are in their position and the lip of the oil seals is free. Apply small amount of grease to the lip. V rings can be replaced by first removing the M.S. Cap. The new V ring is to be fitted such that the lip just rests against the end shield face ( Excessive pressure will lead to premature failure of the V ring Replace the M.S. Cap
- 5.6 Whenever the motor is opened and reassembled ensure that all joints faces are properly cleaned and gasket cement is applied properly at all joints (ref. drg. no. 95018).
- 5.7 Recommended gasket cements Anabond 681 of Anabond Ltd.

INST - 1 (B)

**Bharat Bijlee Limited**  
**INDUCTION MOTORS**  
**Installation & Maintenance Instructions**



**BHARAT BIJLEE LIMITED**  
 Regd. Office : Electric Mansion, 6th Floor,  
 Appasaheb Marathe Marg,  
 Prabhadevi, Mumbai - 400 025.  
 Kalwa Factory : P. B. No. 100, Thane Belapur Road,  
 Kalwa, Thane - 400 601. Maharashtra.

- 1.0 Receiving and Storing of motors
- 1.1 Make sure that right type of motor as ordered by you has arrived and it is not damaged in transit, in case of any such problem report immediately to our office.
- 1.2 Store the motor in a clean dry place if it is not to be installed immediately.
- 2.0 Installation and mounting of motors
- 2.1.0 Before installation and mounting observe the following.
- 2.1.1 See that the motor rotates freely by turning the shaft by hand.
- 2.1.2 Replace the grease charge of bearings if the motor has been stored for longer than 18 months.
- 2.1.3 Check the insulation resistance by applying a D.C. voltage of 500 V. If it is low due to moisture dry out the stator winding till the insulation resistance increases above one megaohm by any of the accepted methods. (Ref. IS900-1992)
- 2.1.4 Remove anticorrosion coating on the shaft with petrol, white spirit or kerosene. Do not scrape the coating.
- 2.1.5 See that the machined surface or motor feet (or flange face) and also the surface on which the motor is mounted is clean and perfectly in level.
- 2.1.6 The coupling parts to be fitted on the motor shaft are to be properly balanced. The bore and key way are to be machined accurately. The recommended tolerance for the bore diameter is H7.
- 2.1.7 The coupling parts or pulley must be carefully fitted by means of special tackle for which a tapped hole is provided at shaft end. Blow must be avoided since they might damage bearings. The tackle can also be used for removal of coupling (See Fig. 1)
- 2.1.8 While using Non-flexible coupling it should be noted the shafts of the motor and the driven machine must be in perfect alignment and axes should coincide. Inaccurate alignment results in stresses on bearings and noisy running.

- 2.1.9 See that screws for fixing the motor (or flange) to the foundation are secured properly.
- 2.1.10 Install the motor such that the cooling air has free access and can pass unobstructed to our office.
- 3.0 Electrical Connections
- 3.1.0 While doing electrical connection ensure following points.
- 3.1.1 Use appropriate size of cables for connecting the motor.
- 3.1.2 The supply voltage should be same as given in the rating plate. Unless otherwise specified the tolerances is 10% of the rated voltage
- 3.1.3 Connect the motor in accordance with the connection (Star or Delta) given in the rated plate and connection diagram given inside the Terminal box cover.
- 3.1.4 Connect earth terminal effectively for protection. This is very important to ensure safety. Local electrical code must be followed.
- 3.1.5 Normally 3 phase motors upto 2HP have their winding connected in Star (Y) These motors have three terminals and are meant for direct on line starting only.
- 3.1.6 Motors above 2HP have windings suitable for delta (D) connection. These motors can be started with a Y-D starter or direct on Line starter using connecting links as shown in the connection diagram.
- 3.1.7 While connecting the cables to motor terminals please ensure that the cable is properly secured and clamped and it does not exert any tension on terminals. A heavy load or tension by the cable can break the terminals.
- 3.1.8 Motors must be installed as per the local electrical code/regulations by an authorised person. Motors must be protected against overload and short circuit conditions.
- 4.0 MAINTENANCE
- 4.1.0 During maintenance please not the following points.

