# Bharat Bijlee Limited

**INST - 2 (A)**

## Special instructions for installation and maintenance of Flame-proof motors.

*(This supplement should be read and followed in continuation with the standard motors manual "INST 1")*

A sealing end box is mandatory in the following cases.

a) All motors for use for Gas Gr. I and Oil Mines.

b) Whenever cable size is more than 1 inch for Gas Gr. II A and II B,

A DGMS identification mark must be fitted on the motor for use for Gas Gr. I or Oil Mines. In case the DGMS mark is not provided please obtain the same from BBL.

1.0 Flame-proof motor is designed and manufactured in accordance with the requirements of IS2148-1981. The construction is approved by C. M. R. I.

No. Modification or alteration to the approved construction of the motor is permitted. For replacement of parts, please consult the manufacturer.

2.0 Each motor must be protected by a motor protection circuit breaker, or any other protective device approved by the concerned authorities

2.1 The cable entry can be made from any one of four directions by turning the terminal box in steps of $90^0$. Do not turn the bottom piece. Lead wires will be damaged if bottom piece is turned..

2.2 Conduits and type of cables (e.g. PVC, PILCDWA, etc.) should strictly correspond to the conduit tapping or cable entry provided on the terminal box.

2.3 For PVC cables when sealing box is not provided, use FLP cable glands. Statutory approval is a must for FLP glands.

2.4 For PVC cables, when sealing box is provided use SIBG glands.

2.5 For PILCDWA cables (used in mines), the cable entry consists of sealing box, adaptor plate, cable gland with lead bush and a cable clamp.

When Assembled make sure that the cable is held firmly in the gland.

2.6 Before supply cable connection, Sealing box (where ever used) shuld be properly filled with solid setting bituminous compound specified for electrical purpose. Compound Retaining Barner is provided in between the Terminal Box and Sealing Box. Drill required size of holes on it and replace/fix carefully such that supply cables can pass through for making terminal connections before compound filling.

2.7 Strip off the insulation properly form the cable ends. The position where the cable insulation is cut should be carefully tapped before making the connections.

2.8 Connections of supply leads to the motor terminals should be made as shown in the connection diagram. The clearances and creepage distance inside the terminal box must be maintained to the maximum

3.0 During assembly of terminal box parts and subsequent routine maintenance, please observe the following points.

3.1 The machined joint faces shall not be refinished, tampered, damaged or coated with varnish or paint.

3..1.1 On all motor a thin coat of Grease should be applied on all motors joints. (Grease Bolmer Lawrie LL3 should be used)

3.2 Replace defective / broken screws by new screws of the original material and tensile strength as per grade. 8.8

3.3 All screws, bolts, nuts etc. used for fixing the parts of flame-proof enclosure are to be provided with spring washers to prevent them from getting loose due to shocks and vibrations, during operation.

3.4 All gaps between mating parts of joints forming flame-proof enclosure are to be thoroughly checked with feeler gauge to ensure that gap clearances are within 0.1 mm.

4.0 Dismantling and reassembling.

4.1.0 Follow the sequence given below.

4.11 Remove the fan cowl and fan, unscrew fixing screws of back endshield and pull out the back endshield with the rotor, in the case of MJ90, MJ100, MJ130. Remove circlip on inside of endshield bearing housing in other motors unscrew the front B.B.C (Where ever provided) fixing screws also before pulling out the back endshield with the rotor, Pull out front endshield after unscrewing the fixing screws.

4.1.2 Press out the back endishield with the bearing in the case of MJ90, MJ100, MJ130. In other frame sizes back endshield can be removed from rotor after removing back outer B.B.cover (where ever provided).

4.1.3 Dismanting of the motor should be done carefully without damaging any of the joint faces components rotor, stator and windings. If any damage is noticed after dismanting, such component should be replaced by the new component. Rectification of damage by metal filling or adhesive filling is not permitted.

4.1.4 Assembly of the motor is to be done in reverse order of dismantling. Care should be taken to follow the instructions given in Clause 3.0

5.0 During rewinding take precaution given below.

5.1 Burning of old winding to remove coils from slot should not be done.

5.2 Cut overhang portion of winding with chisel.

5.3 Heat the body at $130^0$-$140^0$C in the oven for 2 hrs.

5.4 With the help of copper rod and hammer, force out copper wire from the slots and clean slots by filing.

5.5 Stator body should be handled carefully to avoid damage on machined portion of the body. Any damage, burr will result in change of flame path gap.

6 Reassembled carefully as explained in points 3,4.

N.B. : 1) Burning of winding with flame will distort the body. After reassembly flame path gap may increase.

2) Careful handing and correct reassembly shall ensure flame-proofness of the enclosure.

3) It is advisable to give rewinding work to authorised rewinders of BBL.


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