

Technical specification for LT Motor – (Project specific requirements from OPGCL Tender)

The motor characteristics shall match the requirements of the driven equipment so that adequate starting, accelerating, pull up, break down and full load torques are available for the intended service.

RANGE OF VARIATION of A.C. Supply

Voltage: +/- 10%

Combined Volt & frequency: 10%(absolute sum)

Frequency: +3 to -5%

Motors shall be designed to keep torsional and rotational natural frequencies of vibration at least 25 percent above the motor rated speed ranges to avoid resonant vibration over the operating speed range of the equipment-motor unit.

The motor shall be capable of operating satisfactorily at full load for 5 minutes without injurious heating with 75% rated voltage at motor terminals.

The motor shall be designed to withstand any torsional and/or high current stresses, which may result, without experiencing any deterioration in the normal life and performance characteristics.

Motor Terminal Box

Motor terminal box shall be detachable type and located in accordance with Indian Standards clearing the motor base- plate / foundation

Terminal box shall be capable of being turned 360 deg. in steps of **180** Deg., unless otherwise approved.

The terminal box shall be split type with removable cover with access to connections and shall have the same degree of protection as motor.

Terminals shall be stud or lead wire type, substantially constructed and thoroughly insulated from the frame.

The terminals shall be clearly identified by phase markings, with corresponding direction of rotation marked on the non-driving end of the motor.

The terminal box shall be capable of withstanding maximum system fault current for a duration of 0.25 sec.

Separate terminal boxes shall be provided for RTDs and Space heaters.

Rating Plate

In addition to the minimum information required by IS, the following Information shall be shown on motor rating plate:

a) Temperature rise in Deg.C under rated condition and method of measurement.

- b) Degree of protection (IP No.).
- c) Bearing identification no. and recommended lubricant.
- d) Location of insulated bearings.

General

Accessories shall be furnished, as listed below, or if otherwise required by driven equipment specification or application.

Space Heater

Motor of rating 30 KW and above shall be provided with thermostatically controlled space heaters, suitably located for easy removal or replacement. Space heater exceeding 1200W shall be 3 phase.

The space heater shall be rated 240 V, 1 phase 50 Hz and sized to maintain the motor internal temperature above dew point when the motor is idle.

Accessory Terminal Box

All accessory equipment such as space heater, temperature detector, current transformers etc., shall be wired to and terminated in terminal boxes, separate from and independent of motor (power) terminal box.

Accessory terminal box shall be complete with double compression brass glands and pressure type

Drain Plug

Motor shall have drain plugs so located that they shall drain the water, resulting from the condensation or other causes from all pockets of the motor casing.

Lifting Provisions

Motor weighing 25 Kg. or more shall be provided with eyebolt or other adequate provision of lifting.

TESTS

Upon completion, each motor shall be subject to standard routine tests as per IS11EC at the manufacturer's works. In addition to the following, any special test called for the driven equipment specification shall be performed.

- a) Insulation resistance test.
- b) No load test.
- c) Reduced voltage running up test.
- d) High voltage test.

Type test certificate for L.T. Motor shall be furnished for approval.

Type test certificate of any equipment, if so desired by the Buyer, shall be furnished for Buyers review.

Type test to be conducted on the identical motor in the last 5 years or after the last design change, whichever is earlier.

Otherwise, the equipment shall have to be type tested, free of charge, to prove the design.

DRAWINGS, DATA & MANUALS

Drawings, data & manuals for the motors shall be submitted as indicated below:

Along with the bid

- a) List of the motors
- b) Individual motor data sheet as per format of the proposal data sheets.
- c) Scheme & write up on forced lubrication system, if any
- d) Type test report

After Award of the Contract

Dimensional General Arrangement drawing

Foundation Plan & Loading

Cable end box details

Space requirement for rotor removal

Thermal withstand curves hot & cold

Starting and speed torque characteristics at 80% & 100% voltage

Complete motor data

Erection & Maintenance Manual

Efficiency curves.

List of motors

Test reports