



**Expression of Interest
For
Manufacturing and Supply of 3 Phase squirrel cage
induction motor for
Steam Turbine Application**

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Description

3 Phase induction motor is fraction horse power three phase squirrel cage induction motor for driving speeder gear, start-up device, gear for loading device and over speed trip test device.

Scope of work:

Scope of work will include the manufacturing and supply of 3-Phase squirrel cage induction motor in line with BHEL standard ST15002.

Codes and standards: The design, manufacturing and testing etc. of the motor shall conform to the latest revision of the following standards and other latest applicable IS or any international standard ensuring equal or better quality.

IS:325- Specification of 3-phase induction motor.

IS:2223- Dimension of flange mounted A.C induction motor.

IS:4029- Guidline for testing

IS:4691-Ledger for protection provided by enclosure for rotating electrical machine

Rating & Performance-

1. The motor rating shall be 0.12KW.
2. The motor shall be capable of giving rated output without reduction in the expected life span when operated continuously in the system having following particulars-
 - I. Rated voltage- 415V(3-Phase, Solidly earthed).
 - II. Frequency-50Hz
 - III. Variation in voltage- $\pm 10\%$ of rated value
 - IV. Variation in frequency- $\pm 5\%$ of rated value
 - V. Combined voltage and frequency variation- 10% (absolute sum)
3. Direction of Rotation- Both direction (reversible duty)
4. Full load speed- 2750 rpm
5. Type of duty: Short time (Duty type S4-25%DC -600C/h)

Starting requirement-

1. Motor shall be suitable for full voltage direct on line starting.
2. Motor shall be capable of starting and accelerating to the rated speed along with driven equipment without exceeding the acceptable winding temperature even when supply voltage drops down to 85% of rated voltage.



3. Motor shall be capable of withstanding electrodynamic stress and heating imposed if it is started at 110% of the rated voltage.
4. Starting torque shall be min. 210% of full load torque.
5. The locked rotor withstand time under hot condition at 110% of rated voltage shall be at least 2 sec more than the starting time with the driven equipment at minimum permissible voltage.

Insulation and winding:

Winding shall be of copper. The insulation shall be of class F. The winding shall be suitable for successful operation in hot and humid tropical climate with ambient of 50°C. The insulation shall be fungicidal and tropical treatment as per IS:3202. The stator winding shall be suitable for heating and elimination of moisture during idle period of motor by connecting any two terminal to 240V, 1 Phase, 50Hz power supply, motor shall be suitable for rewinding.

Enclosure and Ventilation: Totally enclosed fan cooled (TEFC) with degree of protection IP55.

Bearing: Greasing (on-load) shall be possible without dismantling operation. Bearing lubricant shall not find access to motor. Alternatively sealed type bearing shall be provided.

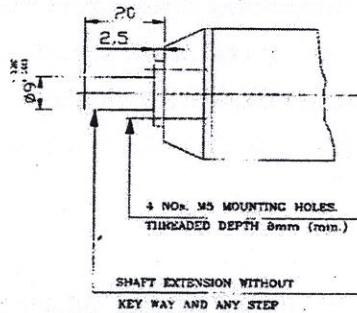
Terminal Box: Weather proof construction designed for outdoor services. To eliminate dust and water, gasket of neoprene or approved equivalent shall be provided at cover joint between terminal box and cover frame. The terminal box shall be capable of being turned through 360° in steps of 90°. The terminals shall be stud type with necessary plain washer, spring washer and check nut. Suitable cable glands and lugs shall be provided. Size shall be :

Stud size- M6

Dimension shaft extension and coupling to driven equipment- The motor construction shall be suitable for easy disassembly and re-assembly. The motor shall be flange mounted type and shall have frame size and dimension same as flange designation F 65 C as per IS:2223 but with the shaft extension and mounting hole as shown in following sketch-



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Brake:

- The motor shall consist of built in brake which shall remain engaged as long as motor current remain switched off. The brake shall be released when motor current is switched on.
- Power supply for break shall be taken from motor terminal. If rectifier is required for brake supply, the same shall be mounted in motor terminal box.
- Rectifier shall be suitable for operating at temperature up to 70°C.

Tests:

- Routine test as per IS 325 shall be carried out.
- Type test on motor of same frame size shall be carried out as per IS 325. In case of same has been carried out within last five years then type test report of same shall be furnished.
- Brake functioning test shall be carried out.

Qualification Criteria

The parties meeting the below mentioned technical criteria shall be considered for further development of vendor for 3-phase squirrel cage induction motor for Steam Turbine sets as per the BHEL specification / Drawings / Technical delivery conditions.

Technical Criteria:

- The Vendor should be a regular Supplier of 3-phase squirrel cage induction motor (in final condition) to Power plant equipment manufacturer(OEM)/Industrial application and Vendor should have supplied at least Five (5) nos. of "3-phase squirrel cage induction motor" during the last 3 years.



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In support of above supply experience, supplier has to furnish the following:

- A. At least 1 no. copy of Un-Priced Purchase Orders executed with details as per Table-1. However, if total quantity is less than 5 nos. in one PO then vendor to submit multiple POs to justify the supply of 5 nos. of quantity.

Table-1


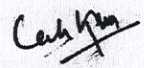
Sl. No.	Name of Customer	Detailed Address	Name, Phone no. and email - Id of contact person	Purchase order No.	Date of Supply	Details of items (Technical detail)	Qty.

- B. Test certificate (as given below) for 3-phase squirrel cage induction motor for any one of the submitted PO. The submitted test certificate should have co-relation with the PO.
- Routine test report
 - Type test report
 - Brake functioning test report
- 2) Acceptance certificate/dispatch documents from customer for any one of the submitted PO.

Selection of Supplier/ Manufacturer / Company:

Based on the information provided under this EOI, the prospective Supplier/ Manufacturer / Company shall be technically shortlisted. The short listed Supplier/ Manufacturer / Company will further be evaluated on the basis of terms and conditions defined in the enquiry.

Pre-bid clarification meeting can be held with the short listed parties regarding scope, confidentiality requirements and deliverables, physical checking of facilities at vendor works.

Prepared by	Approved by
	
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