

**GOVERNMENT OF INDIA  
BHABHA ATOMIC RESEARCH CENTRE  
CHEMICAL TECHNOLOGY GROUP  
Control Systems Development Division**

**NOTICE INVITING TENDER**

Tender Ref. No. CSDD/AA/2021/809

Date :- 15/12/2021

Sealed quotations are invited on behalf of President of India by Head, CSDD/ BARC for the following work from contractors having adequate experience and capabilities to execute such magnitude and quality of similar works and who have similar experience with different units of Department of Atomic Energy (DAE).

Name of work: **Fabrication, winding, assembly and supply of PM motor and miscellaneous items as per given specifications and Drawing.**

Quantity: **1 Set.**

1. Period of completion: 2 months from the date of issue of work order.
2. The vendors may contact on Telephone No. 25596679 (Mr. Abhishek Agarwal, e-mail id: [agabhi@barc.gov.in](mailto:agabhi@barc.gov.in)) for submission of application for tender/issuance of enquiry.
3. Sealed envelope should super-scribe the above reference number and due date. Also name of the work shall be displayed on the envelope.
4. Sealed Quotations should be submitted only through registered post/speed post through Indian Postal Service. Address on the envelope shall read  
The Head, Control Systems Development Division, ChTG  
Bhabha Atomic Research Centre,  
CEL-5, Trombay, Mumbai-400085  
Attn: Abhishek Agarwal, Scientific Officer –E
5. Please mention GST No., PAN no. etc on original quotation.
6. Tender documents will be issued from 20.12.2021 to 30.12.2021 between 10:00 hrs to 16:00 hrs (only on working days).
7. Sealed quotations will be accepted at our office via **speed post** through India Post only on or before 31.12.2021 and the quotations will be opened on next working day. Hand delivered quotations will be NOT be accepted.

The Head, Control Systems Development Division, B.A.R.C. reserves the right to accept or reject any or all quotations without assigning any reason.

*Abhishek*  
Abhishek Agarwal  
Scientific Officer (E)  
(For and on behalf of The President of India)

वैज्ञानिक अधिकारी (ई) / Scientific Officer (E)  
नियंत्रण प्रणाली विकास प्रभाग,  
Control Systems Development Division,  
रसायन प्रौद्योगिकी ग्रुप / Chemical Technology Group,  
भा. प. अ. कें. मुंबई / B.A.R.C., Mumbai - 400 085.

# **TECHNICAL SPECIFICATIONS FOR THE FABRICATION, WINDING, ASSEMBLY AND SUPPLY OF PM MOTOR & MISCELLANEOUS ITEMS**

## **1. Scope**

- a) This section covers the technical specifications for:
  - i. Supply, Testing, Wirecutting of silicon steel stampings for stator and rotor and Wirecutting of magnet blocks.
  - ii. Aluminum casting of rotor.
  - iii. Winding of stator as per given specifications.
  - iv. Fabrication of shaft for motor.
  - v. Complete assembly of fabricated stator, rotor and shaft along with bearing in the motor housing/frame as mentioned in the specification.
  - vi. Electrical testing of assembled motor as per specifications.
  - vii. Manufacturing of Aluminium set as per drawing.
  - viii. Inspection and delivery at Chemical Technology Division Stores, BARC, assembled motor as per details furnished herewith.
- b) All raw materials required for the above mentioned work shall be provided by the bidder.
- c) The selection of raw materials for fabrication should be according to the specification mentioned. Standards, specified and otherwise, where ever applicable shall be strictly followed.
- d) All the testing facility required shall be provided by the bidder at his works.

## **2. Motor dimension & Quantity**

Sl.No.	Description	Quantity (Nos.)
1	One complete set of assembled motor in the specified housing	1 Set.
2.	One aluminum set as per attached drawing	1 Set.

## **3. Stampings**

- a) Material: The Silicon Steel sheets to be procured by the purchaser shall be of electrical sheet steel of 0.23mm thick, M3 grade or better.
- b) Dimension: The Sheets shall be wirecut as per the drawings.
- c) Stack length: 120mm
- d) Rotor should be die casted and filled by aluminum (except location specified for insertion of magnets) just like cage structure of induction motor with aluminum end ring of thickness 20 mm at both ends.
- e) Cleaning: Stampings shall be thoroughly cleaned of rust etc. by any suitable means.
- f)

#### **4. Wirecutting**

- a) Wirecutting of the Silicon Steel Sheet should be done by wire of suitable thickness according to the attached drawing and dimensions so that entire stator and rotor can be obtained from one single stack.
- b) Wirecutting of permanent magnet blocks (demagnetized pieces) should be done as per the given drawings and in the orientation as specified in the drawing
- c) Dimensions should be obtained within the tolerance of 5 microns.
- d) Proper fixtures have to be made by the bidder for Wirecutting of the Sheets.

#### **5. Shaft**

Should be made as the given drawing and proper tolerances should be given at bearing location to properly fit the bearings (bearing supply in the scope of vendor)

#### **6. Raw material grade and testing**

- a) Stamping grade: electrical sheet steel of 0.23mm thick, M3 grade or better.
- b) Magnet block grade: Demagnetized pieces of NdFeB magnets of N40SH grade and magnetization direction should be along the thickness of material.
- c) Shaft grade: EN8 or better
- d) Housing: standard housing of 112M frame size (foot mounted) to be procured and used for the assembly of motor.
- e) Test Certificate of the raw material from the original manufacturer should be provided.
- f) Core loss testing facility of raw material, to qualify and inspect the sheets procured, should be provided by the vendor

#### **7. Rotor stamping and casting**

Wirecut rotor stampings should be riveted properly and should be casted with aluminum covering rotor slots. After casting shaft to be inserted in rotor. Wirecut magnet pieces will be supplied separately and will be assembled at bidder's place.

#### **8. Winding of stator**

Stator should be wound as per the winding diagram attached and gauge as mentioned in the winding diagram.

#### **9. Assembly of motor**

Final rotor and wound stator should be properly assembled in the 112M foot mounted frame, with suitable bearing and fan for cooling at one end.

- 10.** One aluminum set to manufactured as per the dimensions in the drawing attached.

## **11. Testing and inspection**

- a) All inspection facilities, service and access to the works shall be provided by the successful bidder to the purchaser, to facilitate inspection of raw material / stamping / after annealing.
- b) The purchaser reserves the right to inspect any machinery, equipment/ tools, instruments, gauges used to process the components and to reject the use of any of them, if found unsuitable/inappropriate for achieving the required quality and workmanship of these components that might lead to heavy rejection at any stage of subsequent processing / manufacturing operations at purchaser's end.
- c) 100% inspection shall be carried out at each stage of manufacturing with inspection reports traceable to the corresponding component number, to help verify that the workmanship, dimensions, electrical parameters, surface finish, cleanliness etc. are in accordance with the applicable documents and drawings.
- d) All inspection shall be made at vendor's works.

**12. Ordered quantities:** 1 Set. (As mentioned in Para No.2)

### **13. Delivery period:**

Delivery shall be completed within 60 days from the date of issue of work order.

**14. Place of delivery:** CTD Stores, BARC, Trombay, Mumbai-85

### **15. Packing**

The packing shall be soft enough, not to impair the surface finish of the Stampings during subsequent transport, handling and storage.

### **16. Guarantee**

The complete assembly of motor supplied shall be guaranteed against defective manufacturing and packing; for a period of 12 months from the date of supply.