



Government of India  
Bhabha Atomic Research Centre  
Design, Manufacturing & Automation Group (DM & AG)  
**Division of Remote Handling and Robotics (DRHR)**

Ref: DRHR /CBK/INQ/2017/187

Date: August 03, 2017

**Sub: Minor Fabrication - Invitation of Quotation.**

**Manufacture, testing and supply of Electromagnetic Clutch (Qty: 15 Nos.) as per tender specification.**

Dear Sir,

1. Quotations are invited for manufacture, testing and supply of Electromagnetic Clutch (Qty: 15 Nos.) as per tender specification.
2. Taxes and Excise duties if any shall be quoted separately. Form AF/H whichever is applicable shall be provided, if required.
3. Bidder shall quote for above job, with material.
4. The quotation must reach Director RDDG & Head, DRHR, BARC by **21.08.2017** and must be sent in a sealed envelope by speed post or registered post, superscribed with the **reference number & the due date given above.**
5. The address on the envelope should read:  
**Director RDDG, and Head, DRHR  
DRHR, Building, BARC, Trombay,  
Mumbai - 400 085**
6. Director RDDG & Head DRHR, BARC reserves the rights to accept / reject any or all quotations without assigning any reason.
7. Incomplete offer / offer received after the due date shall not be considered.
8. Quotations should be preferably neatly typed and any corrections in the offer are not acceptable.
9. Quotation must also indicate the validity of offer.
10. Quotation received in computer-generated form shall not be acceptable. Quotation must be submitted in printed letterhead, mentioning clearly GST registration No. and PAN No. Submission of Challan and Invoice shall also comply the same, in case work order is placed.

Encl.: Tender specification.

**Director RDDG & Head, DRHR**

**Annexure**  
**Technical Specification**  
**Manufacture, testing and supply of Electromagnetic Clutch (Qty: 15 Nos.)**

Parameter (↓)	Item-1	Item-2	Item-3
<b>1. Type</b>	<b>Bush mounted</b>	<b>Bearing mounted</b>	<b>Bearing mounted</b>
<b>2. Torque Rating (Static)</b>	3 Kg-m (min.)	2.5 Kg-m (min.)	2.5kg-m (min.)
<b>3. Coil Voltage</b>	48 Volts DC		
<b>4. Ambient Temp.</b>	70°C		
<b>5. Quantity</b>	5Nos.	5 Nos.	5 Nos.
<b>6. Overall diameter</b>	Ø110	Ø110	Ø100
<b>7. General Specifications</b>			
7.1 Type	Single disc, Stationary Coil, Dry running, Electromagnetic type		
7.2 Mounting	Bush mounted	Bearing mounted	Bearing mounted
7.3 Mounting Direction	Horizontal		
7.4 Release time	100 msec or less (without any external component in the clutch circuit)		
7.5 Duty Cycle	Continuous		
7.6 Thermal Class of insulation	Class-H (180°C)		
7.7 Plating on soft iron parts	High quality zinc passivation or flash chrome plating (ensuring uniform coating thickness)		
7.7 Friction liner	Ferrodo HDM-6 with brass woven wire or better		
7.8 Armature release	High quality spring for quick release		
7.9 Speed	100 RPM (max) when energized & 4500 RPM (max) when de energized		
7.10 Hub Material	SS 304		
7.11 Matching shaft Dia. For coupling	20 mm dia. With key-way (6x6x20 parallel key) Final details will be given after placing PO		
7.12 Clutch coil	Coil housed in the clutch housing should be potted using Epoxy Resin for sealing purpose.		
7.13 Coil end termination	Fiber glass flexible wires with sleeve sealed with the housing & about 500 mm long.		

**Note:**

1. Offer must clearly indicate whether the supplier is dealer or manufacturer.
2. Item 'make' or 'part no.' should be given in the offer.
3. Following additional technical details should be given in the offer:
  - a) Dimensional details/ drawing indicating maximum allowable gap between armature and the plate.
  - b) Coil wattage rating.
  - c) Temperature rise of the coil under continuous operation.
  - d) Type of friction linear used and its technical data.
  - e) Dynamic torque rating of the clutch at 100 rpm & 1000 rpm.
  - f) Voltage at which clutch gets engaged at no load and full rated load.
  - g) Voltage at which clutch gets disengaged.
4. After placing the WO, supplier is required to submit detailed dimensional drawing and the same will be approved by the purchaser before starting the manufacture.
5. In the event of WO, initially supplier is required to manufacture one assembly and arrange following tests in the presence of our representative:
  - a) Insulation resistance of the coil (It should be minimum 100 MΩ using 500 Volts Megger).

- b) High voltage testing as per BIS.
- c) Heat run test (by measuring coil resistance): temperature rise should be well within specified limit.
- d) Static torque measurements with coil under HOT & COLD condition.
- e) Any other tests, if necessary.

Clearance for manufacture of EM clutch assemblies shall be given subject to satisfactory test results on sample piece. After clearance for production all the EM clutches shall be subjected for coil resistance measurement, IR test, HV test, static torque measurement (at Hot & cold condition) in presence of our representative. Acceptance is subjected to satisfactory results.

- 6. Offer must indicate the delivery period.
- 7. In general, it takes about three months time for processing the purchase case file. Therefore, the offer must be submitted for minimum of three month's validity from the due date.
- 8. Item should be supplied with a guarantee certificate for minimum of one year period from the date of supply.
- 9. Incomplete offer is liable to be rejected.

**Director RDDG & Head, DRHR**