Department of Mechanical Engineering, Indian Institute of Technology Delhi

Date: 10/07/2013

Sub: Notice Inviting Quotations for Rheometer

Quotations are invited for the purchase of rheometer to measure dynamic viscosity and shear strength of all liquids including magnetorheological(MR) fluids. Interested suppliers are required to submit sealed quotations (separate technical and financial) as par the specifications given below.

Technical Specification of desired Rheometer	
ITEM	Specification
Drive motor	synchronous motor / asynchronous motor /brushless dc motor
Torque range	10nNm to 200mnm
Torque resolution	better than or equal to 1 nNm
Support bearing	air bearing
Speed range	0.0001 to 300 rad/s
Frequency range	0.0001 to 600 rad/s
Angular(strain) resolution	10nrad
Measurement types	rotational , oscillatory & transient
Oscillatory modes	direct strain amplitude & control stress
Gap control (standard)	automatic gap compensation
Connection system	screwless, quick and automatic fitting
Air compressor	100psi, 5cfm oil free
Air dryer	multistage membrane type with micro filters
Temperature controller	circulator (temperature range : 0 to 100°C , accuracy : 1°C)
Rheology Software	
Software features	Software to characterize the rheological parameters such as: • elastic (g'), loss (g"), complex modulus (g*), tan δ as a function of time, temperature, frequency, strain and stress in shear mode. • complex viscosity as a function of time, temperature, frequency, strain and stress. • elastic(e'), loss(e"), complex modulus(e*), tan δ as a function of time, temperature, frequency, strain and stress in linear mode. • visco-elastic properties in variation to temperature / magnetic - field upto 1 Tesla. • magneto sweep in linear range.
Compatibility with existing magneto rheological device (MRD)	
• The rheometer should be compatible with the magneto rheological device (MRD) available with the department (Refer Fig.1). • The MRD should be operated/ programmed through the rheometer software for all the rheological analysis. **Magnetic flux density of MRD : 1 Tesla, Temperature range : upto 70 ° C.**	

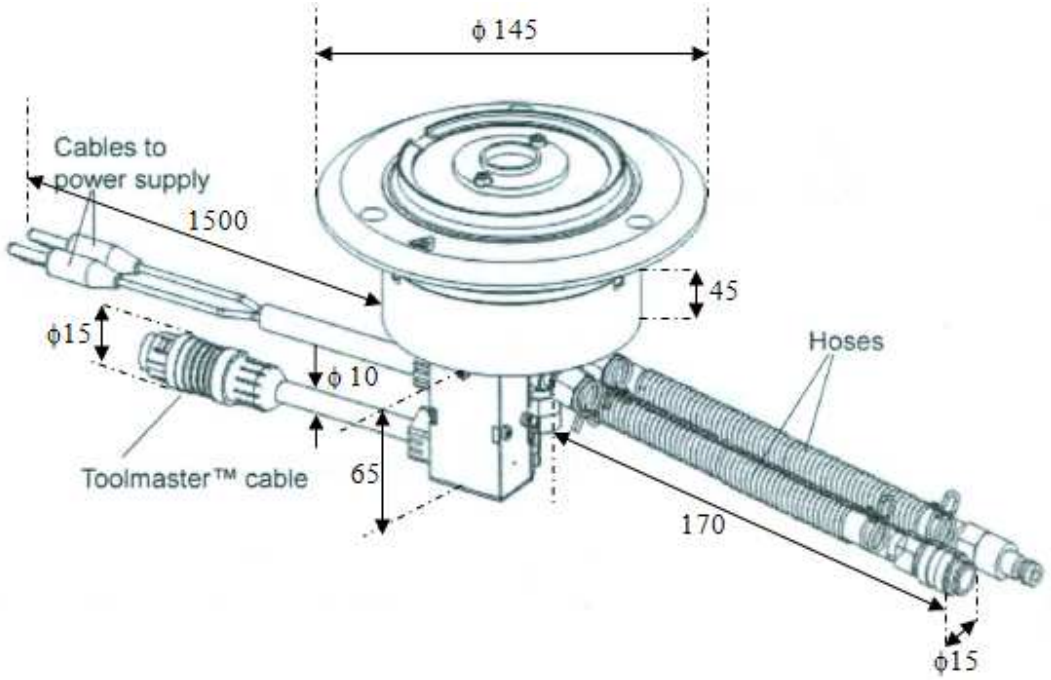

Fig. 1 Magnetorheological Device Cell (MRD)

Details of MRD cell has been provided in figure 1. Sealed quotations are to be submitted in separate envelops labeled “technical quotation” and “financial quotation”. Both these quotations should be further enclosed in an outer envelope, which should also be sealed and addressed to

Dr. Harish Hirani
Room No. 354, Block II,
Department of Mechanical Engineering,
Indian Institute of Technology Delhi
Hauz Khas, New Delhi-110016

Quotations should reach the above office by **5.00 P.M** on **July 31, 2013.** If there is any need of clarifications please contact Mr. Chiranjit Sarkar (M: 09582183980).

Terms and Conditions

- Quote should be valid for at least four months.
- Institute reserve the right to accept or reject without assigning any reason.
- Payment will be made on the basis of an invoice after delivery and satisfactory installation.
- Technical quotations must include the following.
  1. The name of organizations with copy of supply order where the equipment has been supplied in last three years in India.
  2. Address of the technical offices in India with telephone and fax numbers.
  3. The type of device available in India.
  4. Agent ship and Proprietary certificate from the principal if applicable.
- Financial quotations must include the following.
  1. Cost of the equipment in foreign currency if the item is to be imported.

2. Cost should be based on FOB.
3. Comprehensive warranty period.
4. Details of AMC after warranty period.
5. Cost for the installation if it is required.
6. Delivery period after receipt of the purchase order.
7. Quotation must include all taxes.