

## 4 BALL TESTER

**INDUSTRIAL TRIBOLOGY MACHINE DYNAMICS AND MAINTENACE ENGINEERING CENTRE, INDIAN INSTITUTE OF TECHNOLOGY, DELHI.**

**Notice inviting quotations (NIQ)-(Last date for submission 16.03.2014 - 1-00 PM)**

### **SPECIFICATIONS FOR FOUR BALL TESTER**

**To determine properties of lubricants confirming to**

- **ASTM D 2783**
- **ASTM D 2266**
- **D 4172**
- **D 5183**

#### **Functions-**

1. Online data acquisition of frictional torques, co-efficient of friction  $\mu$ , normal load, T with efficient software such as Lab view
2. Wear preventive (WP) &
3. in extreme pressure (EP)

#### **Specifications**

Speeds: 100 to 10,000 RPM (continuously variable)

Load: Up to 12 kN ( $\pm 2$ N)

Test Ball Size: 12.7 mm

Temperature: Up to 200 deg. C ( $\pm 1$  °C)

(The size of the machine should be small & X-Y dimensions should not be preferably larger than 60 cm x 60 cm).

1. Adequate protection against power failure, leakage current, and short circuit failure should be provided in the system

#### **Terms and Conditions**

1. All quoted models must be compatible with Indian power supply: 220 Volts/50Hz for single phase and 440 V/50 Hz for three phase supply.
2. The Technical and commercial quotations must be submitted separately in sealed envelope with a subject (Quotation for **4 BALL TESTER**) written on that.

#### **Technical bid must contain the following:**

- (a) Quotation should be directly from the Original manufacturer or authorized sales agent.

- (b) Sole agency certificate (if applicable) and its validity from Foreign Principals (in case of foreign manufacturer),
- (c) **Proprietary certificate** (if applicable, for any component or instrument quoted).
- (d) Delivery period should be specifically mentioned and should be as small as possible.
- (e) Details on installation, commissioning and training of the equipment must be specified.
- (f) State service support for the equipment in India, specifically in Delhi; give details of service centres with address, telephone numbers and name of service engineers available, response time during warranty and afterwards.
- (g) **Certificate of compliance (with signature) with deviations from specification (if any) must be attached.** Without this, quotation will not be considered.
- (h) **Original brochures and original specification sheets (from equipment manuals)** directly obtained from the principal manufacturer of the quoted model must be enclosed along with supporting data.

**The Financial Bid must contain the following:**

- (a) Prices of the quoted model should be FOB Delhi and include all taxes, delivery, installation and onsite training charges. Please note that IIT Delhi is exempted from central excise and custom duty.
- (b) The products will be used for educational purposes. Any applicable academic institution discounts should be offered and stated.
- (c) Guarantee or warranty conditions must be clearly specified; exemptions if any must be clearly stated. Charges for additional **comprehensive warranty for 2 years should be quoted separately.**
- (d) Service charges per visit and AMC after one year of warranty period must be specified.
- (e) Validity of quotation must be till 90 days,
- (f) Mode of payment is through LC only for foreign purchases (any kind of advance payment clause should be avoided). Name and address of the company on whose name the LC is to be opened should be clearly mentioned.
- (g) Supplier must submit TIN number/PAN number as applicable.

3. Institute reserves the right to order equipment with better quality over lower price and to accept or reject any or all the quotations without assigning reasons thereof.

4. The Technical Bid and Financial Bid must be sealed in separate envelopes, placed inside an outer cover envelope, and then sealed and submitted by **16 March 2014 1 pm** Indian standard time to the following address:

Attn of:

Prof. Jayashree Bijwe

ITMMEC-Indian Institute of Technology. Delhi

Hauz Khas, New Delhi 110016

[Email-ibijwe@gmail.com](mailto:Email-ibijwe@gmail.com)

Telephone- 011-26591280 (O) 9818444679(M)