

NATIONAL INSTITUTE OF TECHNOLOGY
KURUKSHETRA-136119

No. MED/NITK/17/07/755

Dated: 14/02/17

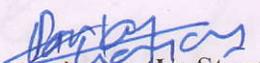
M/s INSTITUTE WEBSITE

Sub: INVITATION OF QUOTATIONS FOR AUTOMATED HIGH TEMPERATURE FOUR BALL TESTER WITH BALL-ON-DISC SETUP.

1. You are invited to submit your most competitive quotation for the following goods:

Sr.No.	Brief Description & Specifications of Goods	Quantity
1.	Automated High Temperature Four Ball Tester with Ball-On-Disc Setup	01 Nos.
(Detailed Specifications are attached)		

2. Necessary literature of the goods may please be sent to facilitate to take decision.
3. All duties taxes and other levies payable by the Institute shall be included in the total price. This Institute does not issue Form C or D.
4. Payment will be made Online through RTGS/NEFT within 30 days after receipt of material in good condition and according to specifications. The Bank detail for making online payment may be indicated in the quotation.
5. The supplier shall deposit Earnest Money alongwith the Quotation amounting to Rs. 36000 /- in shape of Accounts Payee Demand Draft, Fixed Deposit Receipt, Bankers Cheque or Bank Guarantee from any commercial Bank in favour of the Director, National Institute of Technology, Kurukshetra. The Quotations without Earnest Money shall be rejected, the EMD will remain valid for a period of 45 days beyond the final validity period of quotation.
6. Performance Security @ 05% of the total value of the equipment may be furnished in shape of Demand Draft, Fixed Deposit Receipt or Bank Guarantee from any Commercial Bank in favour of the Director, NIT Kurukshetra valid upto 60 days after the date of completion of warranty .
7. The items must be supplied within delivery period or delivery period extended by the Institute on the request of the supplier on genuine grounds otherwise the penalty for delayed period @ 0.5% of the amount shall be charged for every week or part thereof and the maximum 10%..
8. The goods are not required exclusively for Research Purpose. The Duties are payable by the Institute.
9. The quotation should remain valid for a period not less than 60 days from the date of submission.
10. The right of accepting or rejecting any quotation and to cancel the bidding process and reject all quotations without assigning any reason is reserved with the Institute.
11. The due date for receipt of quotation is 27.02.2017 and will be opened on next working day. Please quote on the top of the envelope our Ref. No. and due date of opening.

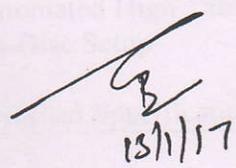
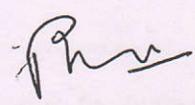
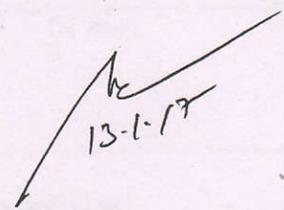

Deputy Registrar (I/c Stores)

Name of Equipment and Specifications	
Automated High Temperature Four Ball Tester with Ball-on-Disk Set-up	
Four ball tester should be able to characterize the lubricants for wear preventive, extreme pressure and frictional properties. It should have an automated pneumatic loading, data acquisition system, and result comparison features. It must also be equipped with ball on disc arrangement as an additional unit in order to evaluate the wear resistance of ball material used in four ball tester and also to enhance the functional capabilities of the equipment by allowing multiple testing on the integrated setup.	
Technical Specifications and Features Required :	
Ball size	12.7 mm Diameter
Speed range	300 to 3000 RPM
Speed Accuracy	±1%
Frictional Torque	0 to 16 Nm
Maximum Axial Load	10,000 N
Load Accuracy	±2N up to 1000 N ±0.5% above 1000 N
Temperature (oil)	Ambient to 120° C
Scar Range	100 to 4000 µm
Power requirement	415V / 3 Phase /50Hz

Instrument shall have the following capabilities:

1. Pneumatic loading system (Computer controlled)
2. Suitable Air compressor system for Pneumatic Loading arrangement.
3. Digital Image Acquisition System along with software (to measure wear scar range)
4. Data acquisition system along with data acquisition software.
5. Electronic controller to control machine electronically
6. Instrument shall have the following capabilities (Monitoring system):
 - a. Frictional Torque (Acquire & Store)
 - b. Load (Acquire & Store)
 - c. Temperature (Display)
 - d. RPM (Display)
7. Determination of EP (extreme pressure) and WP (Wear preventive).
8. Compliance to ASTM standards i.e. D 2783, D2596, D 2266, D 4172, D 5183 and IP 239.
9. Advanced reporting tool for comparison of multiple test results in a single window.
10. Instrument must be CE/ISO certified. Certificate must be submitted along with offer.
11. ACACA signal processing algorithm technology to evaluate true wear properties.
12. Branded Desktop computer system along with original window and software.
13. Steel/test balls (12.7mm Diameter), AISI E52100 steel balls, a minimum of 200-nos.(hardened to 64-66 HRC minimum) must be provided along with instrument.
14. Ball pot must be supplied 2-nos. along with temperature facility up to 120 Deg. C.
15. Safety interlocks to ensure safe operations at all times within manufacture's permissible maximum limits shall be provided.
16. Ball-on-Disk Set-up must contain mentioned features (As per ASTM G-99) :
 - Disk Size : 165mm X 8mm
 - Ball Dia. : 6,8,10,12 mm (along with suitable holders, each dia. contains spate hold)
 - Pin Dia. : 6,8,10,12 mm (along with suitable holders, each dia. contains spate hold)
 - Wear track diameter : up to 140 mm (variable)
 - Load : 5- 200 N (in steps of 5N , Dead weight loading arrangement with loading pen)
 - Friction force : 0-200N with least count 1N
 - Wear measurement range : 0 to 2000 µm

- Sliding velocity: 0.5 to 10 m/sec.
 - Lubrication system with pump facility
 - Environment Chamber for wear testing under inert gas.
17. Tool-kit, spares, and necessary accessories.
 18. Warranty 1 year standard.
 19. Installation and training must be provided free of cost.
 20. Vendor must have supplied at least three machines to reputed/ Government organization.
 21. Vendor must be CE/ISO certified. Certification letter must be enclosed with offer.
 22. If found necessary, a team of experts may visit the site before placing the purchase order so as to ensure the quality and compliance of the equipment with the aforesaid specifications.
 23. If found necessary, the institute may invite feedback from a suitable number of institutes/organizations/universities using the equipment procured from the concerned supplier. This feedback, along with the price quotations and technical compliance report submitted by the suppliers, may be given due consideration during the decision making process.

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