Tender Document

Title: 300t Compression Testing Machine

Sealed quotations are requested from India/ Abroad or their authorized suppliers/dealers/service agents in India for the supply of Items mentioned in this NIQ for **300t Compression Testing Machine.**

Please submit the TECHNICAL and FINANCIAL bids in separate sealed envelopes. Mark the two envelopes as 'Technical Bid for **3000KN Compression Testing Machine**" and "Financial Bid for **3000KN Compression Testing Machine**" . Both Sealed envelopes should be sent in a single sealed envelope with clearly marked as "Quotation for **300KN Compression Testing Machine**". Quote must be submitted in the following format. Other wise the quotation may be considered **disqualified**.

Features:-

- Conforming to Testing Procedures laid down in **IS 516,14858,BS 1881, ASTM C-78** for concrete specimen
- Based on **SERVO HYDRAULIC CLOSED LOOP FEEDBACK** mechanism with closed loop **update rate of 10kHz**
- Fully Computer Controlled operation with User friendly Software
- Controlling on **Load or Displacement** or user supplied strain gage(quarter Bridge) or displacement sensors (half Bridge)
- Facility in the software to study **Post failure behaviors** of specimens
- High speed Data Acquisition card with 100 kHz sampling rate
- Data Logging rate- 50 Data points per channel per second
- Programmable Rate of Loading (Pace Rate), including user input file.
- Start, Stop, Hold operation through computer
- Inching/Release operation to set Sample
- Auto release facility after specimen failure
- Online Plotting of Graphs (Load v/s Displacement, Load v/s Time, Displacement v/s Time) with display of data
- Programmable Data Saving Interval
- Advance Statistical Analysis
- Safety Limits 150% Over Load & Over displacement ranges (Above 50mm)
- Machine Stiffness (Min 500 kN/mm)

The Qoute should reach the following address

Address: Chairman, Purchase of **3000KN Compression Testing Machine**
Structures Lab, Civil Engineering Department,
IIT Delhi, Hauz Khas, New Delhi-110016

Latest by: March, 2009 12:00 Noon IST

Submitted on: 26/2/2010

Detailed Technical Specifications-

S. No.	Parameters	Computer Controlled Servo Hydraulic Compression Testing Machine (Capacity-3000kN)	Compliance
0.	**Typical tests**	1. Compression tests on Cubes size 150mm-300mm & Cylinders 300mm diameter x 300mm height specimen, or User Defined Specimen with maximum height of 600 mm 2. Bending on Concrete specimen of 100mm x 100mm x 600mm for normal concrete or 150mm x 150mm x 700 mm as per IS:516	
1.	Machine Capacity	3000kN	
2.	Load Frame	Stable Steel welded/ 4 Columns structure	
a)	Horizontal Clearance	525mm	
b)	Vertical Clearance	600mm	
c)	Loading Platens	350mm x 350mm with hardness greater than 50HRC as per EN standard	
d)	Minimum Stiffness	**500 kN/mm**	
3.	Load Range	2 (0kN-999.9kN & 1000kN-3000kN)	
4.	Load Resolution	0.1kN up to 999.9kN 1kN from 1000kN to 3000kN	
5.	Load Accuracy	< +/-1% of the Indicated value	
6.	Ram Travel	50mm	
7.	Displacement Measurement	LVDT/ Any other device	
8.	Displacement Resolution	0.001mm	
9.	Actuator Drive	Servo Hydraulic Controlled Hydraulic Cylinder	
10.	Control Mechanism	Fully Computerized Controller based with Data Acquisition Card and dedicated software	
11.	Operating Control Modes	Load Control (Stress Control) Displacement Control (Stroke Control) Control based on Strain Gages as mounted on the specimen (Strain Control) without additional conditioner Control based on Displacement Sensor (Half bridge) as mounted on the specimen (Displacement Control) without additional conditioner	
12.	Rate of Loading	Programmable in all 4 modes as per IS/ASTM Standard	
a)	Load Control	0.5kN/sec. to 10kN/sec.	
b)	Displacement Control	0.01mm/sec. to 1mm/sec.	
c)	Strain Control (user)	Specify as % of Total Value	
d)	Displacement Control (User)	Specify as % of Total Value	

13.	PC Configuration (quote for both option, with discount value mentioned for alternate proposal)	**Required Option:** To be supplied with machine should be braded (ISO Certified) Qurd 2 core Processor (I5/I7) or Intel Xeon Series with minimum 2 processor 16GB RAM, 1 TB HDD, DVD R/W drive, Key Board, Optical Mouse, 22" TFT Screen **Alternative Option** (In case of following, please mention the discount) Intel P-IV Dual Core Processor, 1.8 Ghz or Higher, 1 TB HDD, 8 GB RAM, DVD R/W drive, Key Board, Optical Mouse, 22" TFT Screen	
13a.	Backup System	1 hour for the computer	
14.	Software for Controlling & Analysis	Controlling and On line Data Acquisition to PC through user friendly software and Statistical Analysis of the results obtained.	
		Windows based user friendly software with easy user interface	
		Programmable rate of loading (Pace Rate)	
		Inching (Rapid Approach)/Release operation	
		Computer/Software programmable Safety Limits for Load & Displacement	
		Independent Taring of each channel	
		Auto release/Auto shut down of system facility after sample failure	
		Post Failure Behavior of the specimen	
		Programmable Data Saving Interval	
		Facility to hold machine and restart the loading during the test.	
		Online display of numerical values of Load and Displacement simultaneously	
		Online plotting of data of Load v/s Time, Displacement v/s time and Load v/s Displacement graphs	
		Real time clock for tracking date, time and runs	
		Database of test results	
		Facility to save test data along with order information about the specimen such as age, specimen no., size, dimensions etc. in user defined file/directory	

	Analysis Software	Plotting of following graphs- a) Load v/s Time b) Displacement v/s Time c) Load v/s Displacement d) Stress v/s Strain	
		Calculation of various results (Young's modulus, Maximum strain, Compressive Strength, Flexural Strength etc.)	
		Facility to plot the data for a selected run	
		Comparative analysis using multi graphs	
		Statistical analysis of the test results	
		Batch Summary Report	
		Detailed Summary Report	
		Advance Statistical Analysis	
		Facility to print Test Reports	
		Facility to Export Data to MS Excel	
15.	Additional Input Channels	8 Analog Input Channels (Range- 0 to $\pm$ 5VDC) (in addition to 2 Input channels) to measure Strain (quarter bridge)/ Displacement (half Bridge) without additional conditioner	
16.	Safety Features	It includes- Over Load protection, Over Travel protection, Front door for operator safety, Over heating of the oil, Contamination of the oil etc.	
17.	Flexure Test Attachment	Facility to incorporate Flexure Test Attachment conforming to IS: 516 for testing of beam moulds of 100 x 100 x 500mm and 150 x 150 x 700mm	
17. a)	Additional Load cell	Additional Load cell of **100kN** Capacity with accuracy of **< $\pm$1%** of indicated value to be mounted in the machine for Flexure test	

Checklist for bidders for supporting documentation and information:

1	Offers in duplicate in separate envelopes duly marked Technical Bid and Price Bid	
2	Supporting Technical literature and drawings	
3	Technical compliance statement	
4.	Users list as above highlighting systems of similar nature as supplied and Projects executed for civil application	
5	Copies of any papers and publications using the manufactured system	
6	ISO certificate	
7	Details of after sales service; calibrations etc to be specified in the offer	
8	Drawing and Details of the system	
9	Lab layout along with pre-installation requirements	

SPECIAL TERMS:

- Systems equivalent or Higher may be quoted.
- **International Bid:** Cost should be CIF New Delhi and include cost of delivery, insurance, taxes at other end. Cost to also include cost of installation, demonstration and 1 free servicing. 15% cost would be added to cover cost of Excise Duty, LC and other handling charges.
- **National Bid:** Cost to include cost of deliver, insurance, all taxes, installation, demonstration and 1 free servicing.
- **Quote can be partly International and Partly National.**
- If the **representatives** of the principal/manufacturer are submitting the quotation themselves, a Valid Agency ship/Dealership Certificate authorizing the agent to quote to IITD on behalf of the Principals should be submitted.
- For **Local** service agents for international vendors, service record of such should be provided.
- **Security Deposit**
  8% of the Value of quotation including taxes.
- **Demonstration/Servicing**
  Security Deposit will be returned after successful installation and demonstration of performance.
  Free Servicing after 10 months to check performance within Warrantee.
- **Warrantee(full/partial):**
  One year Full warrantee from the date of installation and acceptance at IIT.
  Three Years Partial Warrantee with only cost of spares as the equipment is expected to run trouble free at least for 3 years if not more. (Problem due mishandling by IITD staff, need not be covered).
  Control Software upgrade free for 3 years
  Control Software upgrade free for any necessary change in system for three years.
  Control Software email support free for 3 years
- **Delivery Time** to be specified.