



INDIAN INSTITUTE OF TECHNOLOGY KANPUR
DEPARTMENT OF CIVIL ENGINEERING
 STRUCTURAL ENGINEERING LABORATORY

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15 February 2012

Enquiry no. CE/STR/2011-12/Feb/01

High Force Compression Testing System

We would like to purchase a high force compression testing system for our Structural Engineering Laboratory capable to perform compression tests as per the relevant tests standards (e.g. ASTM C39/42, IS 516 etc.) on concrete cubes/cylinders/blocks and masonry blocks/prisms . Following are the basic technical specifications required for the proposed system:

Load Frame

- Force capacity of **3000 - 3500 kN**
- Maximum stroke length of actuator : **75 mm**
- Vertical test space (up to **400 mm with test fixtures like compression platens etc.**) to accommodate standard cubes/cylinders and masonry prisms
- Sufficiently large frame stiffness (with minimum longitudinal stiffness of **10 MN/mm**)
- Must be resistance to eccentric loading induced by test specimens (maximum allowable eccentricity 5% of the maximum width of the specimen)
- Compression platens, bearings surfaces must meet the minimum 55 HRC hardness specifications and flatness of 0.0125 mm in 150 mm
- Concentric circles must be scribed on platens surface for easy mounting of test specimens of different sizes
- Rugged and strong safety enclosure for protection against high velocity impact from the specimen fragments
- Additional features like flexural test facility

Closed loop digital servo hydraulic controller, software and hydraulic power supply

- Rugged closed-loop servo controller operations (preferably @ 500 Hz) for **strain/load /displacement** controlled testing for a large range of material's stiffness and rates of loading.
- AC signal conditioning shall be used for strain and load signals for reducing noise and measurement accuracy must be better than +/- 1% of the entire range of load and strain.
- Online data acquisition for force, displacement and strain (simultaneous sampling) and options for additional input channels (total 04 channels) having signal conditioners modules for strain gage bridge and dc voltage based sensors (e.g. extensometers, and LVDT's).

- Test software having capability to perform the tests as per relevant IS/ ASTM/BS standards, online data recording & display.
- Desirable features of the software:
 - **User configurable** test programs
 - Generation of **customized test reports** (html/pdf format) to be exported through e-mail/web
 - Special features like video recording of test along with test data and analysis of test results including replay of past test results for comparison.
- The hydraulic power supply pump should automatically adjust the flow rate depending on the test requirements and must be air cooled and suitable to work at higher ambient temperatures (up to 42⁰ C) without any requirement for additional cooling. Proper filters (easily replaceable) of suitable size shall be provided with facility of filter dirty indication for ease in maintenance.

In addition to above mentioned general basic requirements the proposed high force compression testing system must also comply to the standard specifications of ASTM C1716/C1716M - 11. Kindly send your offer for the above mentioned system mentioning the following:

1. Cost of the item including free installation, training, and service for three years
2. Cost of additional optional accessories/add-on modules must be mentioned separately
3. The price should be quoted on ex-works (for Indian manufacturer) and FOB basis (for overseas manufacturer) along with maximum possible **educational discount**
4. The freight/shipping/ documentation etc. costs are to be mentioned separately
5. Technical specifications in detail
6. Warranty & Delivery period
7. Proprietary certificate, if applicable
8. Terms and conditions of supply and after sales service
9. Any other relevant details

An early reply latest by 28 February 2012 will be highly appreciated.

For any further information/clarifications in this regard, please write back to us at the following emails: dcrai@iitk.ac.in or kunwar@iitk.ac.in.

Thanking you,

Sincerely

Durgesh C. Rai

The last date for the submission of quotation has been extended up to 05 March 2012