



राष्ट्रीय प्रौद्योगिकी संस्थान श्रीनगर

NATIONAL INSTITUTE OF TECHNOLOGY SRINAGAR

(An autonomous Institute of National Importance under the aegis of Ministry of Education, Govt. of India)

हजरतबल, श्रीनगर, जम्मू-कश्मीर, 190006, भारत

Hazratbal, Srinagar Jammu and Kashmir, 190006, INDIA

Order No.: NIT/CPU/21/1950

Dated: 08-09-2021

With reference to the bid no. GEM/2021/B/1384695 Dated 03-08-2021, pre bid conference for the purchase of Triaxial Equipment for Engineering Geology Lab of Civil Engineering Department was held on 13-08-2021. The specifications were discussed in detail in the meeting and some technical and commercial parameters have been revised accordingly. The revised technical specifications have been duly vetted by the technical committee members.

Approval is hereby granted for the revised technical specifications which is annexed to this file at Annexure A.


Officer In Charge
Central Purchase Unit

27/7075
27**Civil Engineering Department**No.: NIT/Civil/21/613,
Dated: 10-0-2021**Minutes of Pre-Bid Meeting**


With reference to the GeM Bid no Gem/2021/B/1384695, dated 03/08/2021 for the purchase of Rock Triaxial Testing System, a pre-bid meet was held on 13-08-2021 at 02:30 pm through virtual mode (google meet).

Following members attended the meeting as per schedule:

S. No	Member Name	Role
1	Prof. F.A. Mir	O/C CPU
2	Dr. Shahid Saleem	Coordinator GeM
3	Dr. Ritesh S. Ingale	Lab Incharge (Engineering Geology)
4	Dr. R.P. Shukla	Assistant Professor (CED)
5	Mr. Ganganpreet Singh	Representative Aimil Limited
6	Mr. Kandarp Bhatt	Representative Aimil Limited
7	Mr Junaid Danish	Representative Aimil Limited

Representatives of Aimil Limited participated in the meeting and sought some clarification. The commercial and technical specifications were discussed. In the meeting the representatives requested for the minor changes in the technical specifications. These changes were discussed in detail by the purchaser committee and accordingly the minor changes in the technical specifications were incorporated. The revised technical specifications can be found at Annexure A. Moreover, the representatives also requested for the changes in delivery period from 45 days to 84 days. Being the nature of equipment-higher ended, the delivery date is accordingly fixed at 84 days.

Other terms and conditions are same as issued earlier in the Standard Bidding Document


Mr. Ganganpreet Singh
Mr. Kandarp Bhatt
Dr. R.P. Shukla
Dr. Ritesh S. Ingale
Prof. F.A. Mir
Dr. Shahid Saleem

Upld on
23/8/21

MODIFIED SPECIFICATIONS

Name of the Equipment: Rock Triaxial Testing System

Ref. Standards:

ISRM 1983, IS 13047, IS 1586: IS NO:1968, 9179: 1979, IS 10782 1983,
IS 13047: 1991 Method for determination of strength of rock materials in triaxial compression
Is 1586: 1968 Methods for Rockwell hardness test (Band C scales)
IS 9179: 1979 Method for preparation of rock for specimen for laboratory testing.

ASTM Standards:

ASTM D 2664-95A standard test method for triaxial compressive strength of undrained rock core specimens without pore pressure measurements
4543 Practice for Preparing Rock Core Specimens and Determining Dimensional and Shape Tolerances
2E 4 Practices for Force Verification of Testing Machines
3E 122 Practice for Choice of Sample Size to Estimate a Measure of Quality for a Lot or Process

Description of the specifications:

Rock Static triaxial Testing System with data Acquisition and analysis software

Axial loading should have the following items

1. Compression Loading Frame 1000 KN Capacity with Electrical Pumping unit and digital indicator controller.

Rock static Triaxial testing system Rock Sample with data Acquisition and analysis software

Axial loading should have the following items

1. Compression Loading Frame 1000 KN Capacity with Electrical Pumping unit and digital indicator controller.

Feature

- Automatic Loading rate control minimum (0.3kN/SEC)
- Should be suitable for specimen strength between 50mpa to 150mpa
- It should be Suitable for Triaxial as well as Unconfined compression test
- Should be come with In-house National Accreditation Board for testing and calibration laboratories (NABL) Certificate
- It should be operable through PC, as well as through digital indicator controller.
- The machine should have an accuracy of $\pm 1\%$ from 10% to 100% of the maximum capacity.
- Should have Overload protection facility
- **Auto close/release dump valve**
- Inbuilt SMPS should be provided to ensure constant input voltage to the Machine

Digital Indicator Controller

- It should facilitate **Automatic Pace Rate Control, Data Logging,**
- Pace Deviation Bar Graph
- Automatic Stress Determination and Display
- Configurable Engineering Unit for machine selection
- Predefined Machine Capacities for each engineering unit. Specific capacity can be selected from the drop-down menu
- Flexible Calibration Points. Calibration can be done on 5 to 10 points
- Peak Load, Peak Stress, Unique Record No. is displayed
- User can set break point
- Data Download through USB in ASCII format
- Data storage up to 2000 records
- Peak Stress Calculation based on sample type and shape
- Password protection should be for system & calibration setup

Compression Loading frame:

- **Capacity** -1000KN
- **Resolution**-0.1KN
- **Clearance between upper and lower platens (Min)**- 390 mm
- **Min. distance between side plates** -260mm
- **Platen size. (min.)**- 222mm dia.
- **Ram stroke**-50mm
- **It should be suitable for sample sizes (Cylinder) HQ,PQ,NQ2,NQ**
- The loading frame should be fully welded construction with a top crosshead, base, and solid side plates
- Precision ground hydraulic piston fixed to the base.
- Oil Seal should be Teflon
- The machine's platens are hardened, ground, and polished
- the upper platen should be self-aligning action
- Metal door with a Perspex window should be available for Operator's safety
- Paint Should be Powder Coated
- Spacers should be provided for adjustment of the test height of the sample

Electrical pumping unit:

Should be 0.5 hp, 1 Ph, 220V AC motor driven two-speed hydraulic pump to allows the fast approach of the platens, for daylight closure, and also allows the automatic, precise control over the load application and should be bonded strain gauge based Pressure transducer.

2. Confining Pressure should have the following item:

Digital Constant Pressure System, 600 kg/cm² - 1No

It should be designed to provide confining pressure up to 600 Bar. The system consists of an oil pump, continuously driven by an electric motor during the entire period of operation to maintain the desire pressure. The unit provides continuous variable pressure up to 600 bar, which can be increased or decreased simple by turning control knob.

- Range: 0-600 Kg/Cm Sq.
- Steps of Pressure: 1 Kg/Cm Sq.
- Accuracy: + 1% of indicated Load.
- Suitable for operation on 220V, 50 Hz, Single Phase, AC supply.

Triaxial Hoek Cell

Hoek Cell for Triaxial Testing

It should be comprising of Steel body having top and bottom caps screwed on to the main body. A urethane rubber sleeve incorporating U-shaped seals to form a pressurization chamber for the hydraulic fluid is mounted within the cell. Plunger & spherical seat – duly hardened & ground are provided for self-alignment & application of axial load.

Should be supply with the following Q- Series sizes

- PQ
- BQ
- HQ
- NQ2

8 Channel data Acquisition system with software - 1No

- Robust, stand alone with 16-bit resolution and inbuilt LCD Display
- Keypad for datalogger configuration
- Configurable windows-based software
- Capable for displaying different parameters in different channels simultaneously
- 8 channels (1 for Confining pressure and other for strain measurement)
- Power supply 230 V 50 Hz
- RS 232 Communication
- It should be integrated with Digital indicator Controller

Data Analysis software for Rock Triaxial and Unconfined Compressive strength testing – 1No each

- User friendly.
- Manage project information
- manage sample information
- Manual Data entry.
- Save your data in specific project file for future use.
- Open project file in application.
- Print report.
- Automatic calculation.
- Automatic draw graph
- Display Value of c & ϕ
- Display Value of Unconfined Compressive strength

Compulsory Accessories

- **Strain Gauges Disposal Type - Qty 500 Nos**
- **Urethane Rubber sleeves - 100 Nos**

Desktop PC for Data Processing and Analysis with minimum Specifications as follows:

Branded CPU with Intel Core i5 10th generation, min. 3.2 GHz, Intel Series Chipset, 16 GB RAM upgradable to 64 GB or more, 1 TB HDD (Hard Disk Drive. 1 GB Graphics Card; LED Monitor of 19.5" size with inbuilt speakers and Wireless Keyboard and Mouse of HP, DELL, LENOVO or equivalent make.

Operating System: Windows 10 Professional or Higher

With Triaxial Software Module appropriate for Rock Testing (All Features)

UPS (Uninterrupted Power Supply unit) of capacity 600VA of approved brand and make.

All in One Laser Printer of approved make i.e., HP, Cannon or Equivalent.

3 Years Comprehensive Warranty for Parts, Labour and On-site service from OEM/Partner for complete unit.

Following Should be included in the Rock Triaxial System:

1 Week training to be provided after the Installation

Calibration Certificate from NABL Accredited Lab