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Organisation Chain :	Indian Institute of Technology Ropar
Tender ID :	2022_IITRP_681754_1
Tender Ref No :	1691-21
Tender Title :	Tender for Supply and Installation of Servo-Controlled Hydraulic Actuator
Corrigendum Type :	Retender

Corrigendum Document Details

Corr.No.	Corrigendum Title	Corrigendum Description	Corrigendum Reason	Published Date	Document Name	Doc Size(in KB)
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No. 1691-21/CV-10179/ISIRD-II//PS/   04.05.2022

CORRIGENDUM

Reference Tender Notice No. 1691-21/CV-10179/ISIRD-II//PS/ & Tender id. 2022_IITRP_681754_1 for "Tender for Supply and Installation of Servo-Controlled Hydraulic Actuator". In order to bring more clarity to the specifications (Annexure-A) the following clarifications have been made in the specifications and those are attached at (Annexure-A1).

The tender has been re-tendered as follows:

Last Date and Time for Uploading of Bids	18.05.2022 (15:00 Hrs)
Date and Time of Opening of Technical Bids	18.05.2022 (15:30 Hrs)

The other details and terms & conditions also remain unchanged.

Registrar

Annexure-A1

Clarification on Actuator Placement and Load/Displacement Protocol for Tender Ref. Number 1691-21, Tender ID. 2022_IITRP_681754_1

1. Actuator Placement:

The actuator will be mounted (horizontally or vertically) on a reaction wall or frame at one end. Another end of the actuator will be attached to the specimens using a tie rods-based mechanical arrangement (see Fig. 1). The following points are to be noted in this regard:

1. The actuator and the control or hydraulic unit should operate at 5 meters distance. Meaning, the piping, wiring, and other wired or wireless connections should be designed such that the actuator mounted or placed up to 5 meters distance should be operational comfortably.
2. The actuator will be placed as used in the Civil Engineering Workshop at IIT Ropar Main Campus. A vendor who wishes to visit the lab facility may contact IIT Ropar/ Indenter for assistance.
3. The abovesaid workshop has a 10-ton crane for the lifting and movement of objects. The actuator will also be handled using the same crane. Therefore, the actuator should be provided with a hook to lift and move the actuator within the laboratory.
4. The control and hydraulic units should be provided with Castor wheels and breaking arrangements to facilitate movement and stability whenever required.
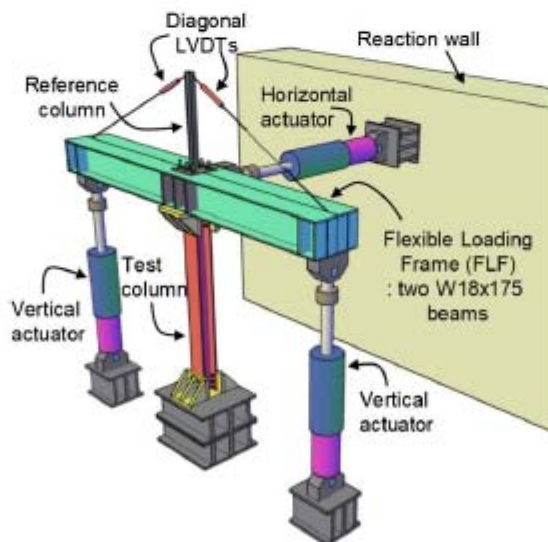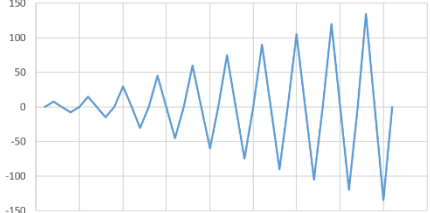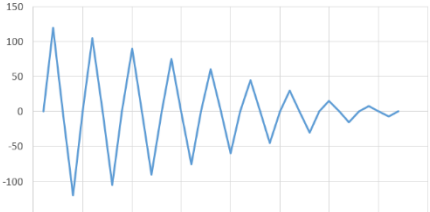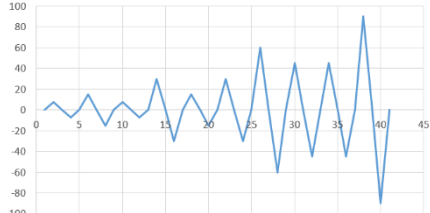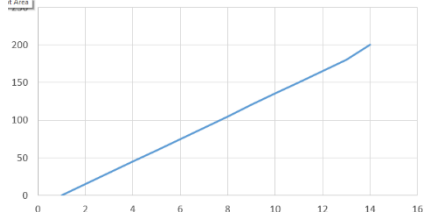

Fig. 1 Representative Figure to Explain Mounting of Actuator (Source: Internet)

2. Load/Displacement Protocol:

The actuator will be used to apply cyclic or monotonic slow strain displacement control loading on the RC specimens. Various possible load histories (not limited to) are listed below in Table 1. Other cyclic patterns provided by the vendors will be appreciated. The following points are to be noted in this regard:

1. The rate of displacement will vary between 0.05mm/sec to 5mm/sec. The Frequency range (0.01to 5Hz) mentioned in the technical specs of the Tender may be ignored if that causes any confusion as far as the actuator output is considered.
2. The amplitude of each cycle will be predefined, and the controller should facilitate manuals and automatic displacement applications. By Manual, we mean the displacement history will not be predefined in the actuator software; instead, the actuator will be started, and a displacement rate will be entered manually, the plunger then will be moved into either a positive or negative direction, and the movement of plunger will be paused when the desired magnitude is reached. By Automatic, we mean the loading rate, cyclic amplitude, and all other details will be pre-loaded in the controller interface, and the test will then be started.
3. The amplitude of any cycle may vary from as low as ±1 mm to as high as ± 200mm (the specified plunger travel length in the original Tender)
4. The controller should facilitate a change in the rate of displacement at any point during the teasing. It should also allow a pause of testing (plunger) for some time to capture the failure of specimens.

Table 1: Displacement/Load history plots

Loading Type	Representative Plot
Quasi-static Sinusoidal Triangular Increasing Amplitude	
Quasi-static Sinusoidal Triangular Decreasing Amplitude	
Quasi-static Sinusoidal Triangular Random Amplitude	
Quasi Static Monotonic.	

3. Other:

Other doubts that were brought to our notice by vendors are being listed to bring more clarity on tendered requirements.

Query-1: Normally, the test system consists of a Hydraulic power pack, Hydraulic service manifold, and Servo Controller along with software & workstation; however, the technical specification is silent on some of the requirements.

Clarification: We have specified our requirement with the actuator and mentioned that the hydraulic actuator, a hydraulic power pack unit, and other accessories to conduct static and pseudo-static testing on large-scale specimens are required. Basically, all the accessories, including software, work interface, hardware, hydraulic powerpack, service manifold, piping, servo valves, control unit, safety features, sensors, load cell, LVDT, and everything which is required to ensure the safe, accurate, and desirable performance of actuator will be necessary. We have emphasized our requirement with the actuator and not on the accessories, making the tender redundant. During the installation, demonstration, and even after post-installation, the system's performance will be judged by the actuator's performance, which eventually means the performance of all the accessories. I hope that clarifies.

Query-2: Also, you have asked for the Data Acquisition system & need further clarification as there is not much data on DAQ required.

Clarification: DAQ is needed to record the reading of inbuilt LVDT, load-cell, pressure sensor, temp sensors, and other sensors in the actuator.

Query-3: What is the maximum amplitude required at 0.01Hz & 5 Hz Frequency. Also let us know if you need any specific range for both amplitude & Frequency (mm & Hz).

Clarification: Please refer to point 2.1 [The rate of displacement will vary between 0.05mm/sec to 5mm/sec. The Frequency range (0.01to 5Hz) mentioned in the technical specs of the Tender may be ignored if that causes any confusion as far as the actuator output is considered]