

Open invitation to tender for the supply of scientific equipment

**Thermal chamber for integration with servo-hydraulic testing machine for static
and dynamic tests**

CIG 9511570BDC

PERFORMANCE SPECIFICATIONS

DEFINITIONS

Tenderer	The first classified tenderer in the ranking list of evaluation of the Offers ratified by UniTrento
Contractor	The subject winning the Tender, with whom UniTrento shall sign the Contract
Equipment	Thermal chamber for integration with servo-hydraulic testing machine for static and dynamic tests
Specifications	This document defines the technical characteristics of the Supply
Special Specifications	The document containing the general conditions of the Contract to be stipulated between UniTrento and the Successful Bidder
Competitor	Each of the entities, whether single or grouped, who will submit an Offer for the Tender
Contract	The contract that will be stipulated between UniTrento and the Successful Bidder
DICAM	Department of Civil Environmental Mechanical Engineering of the University of Trento
Director of Execution of the Contract	The natural person, designated by UniTrento, with the task of representing it in the management of the contractual relationship.
Tender Rules and Regulations	The document providing tenderers with the information necessary for the preparation and presentation of the Offer as well as the evaluation and award criteria
Tender Documents	The following documents: Tender Notice, Tender Specification, Special Tender Specifications, and their annexes, which together provide the Tenderers with the criteria for admission to the Tender, the information necessary for the preparation and presentation of the Offer, the criteria for the evaluation of the Offers and the selection of the Tenderer.
Supply	The object of the tender
Lead Contractor	For grouped or grouping Competitors, the component who assumes the role of leader of the group being formed or constituted
Offer	The technical and economic offer that each Tenderer must submit in order to participate in the Tender
Manager Contractor	The natural person indicated by the Contractor for the management of the Contract with the function of coordinating and guaranteeing the smooth operation of the Supply
Person in charge of the Tender Procedure Manager	Roberto Margoni , pec: ateneo@pec.unitn.it
UniTrento	L'Università degli Studi di Trento

FOREWORD

The subject of these specifications is the supply of a thermal chamber compatible with the servo-hydraulic machine for both static and dynamic axial and fatigue tests, MTS Landmark model 370.50, owned by UniTrento, whose characteristics are as follows:

- MTS load frame model 370.50
- Vertical test space 345 - 2002 mm (13.6 - 78.8 inches)
- Column spacing 762 mm (30 inches)
- Actuator mounted on the cross beam
- Nominal actuator force: 500 kN (110 Kip)
- Actuator stroke length 150 mm (6 inches)
- Annular end thrust bearings
- Close-coupled hydraulic service distributor (HSM); 114 l/min (30 gal/min)
- 3 micron filter
- Close-coupled 1 l accumulator
- Accumulator certification CE
- MTS servo valve model 252.21; 4 l/min (1 gal/min)
- Manual servo valve closure 252.xx
- Second servo valve included
- MTS servo valve model 252.26; 63 l/min (17 gal/min)
- Manual shut-off servo valve 252.xx
- MTS load cell model 661.23H-01; 500 kN (110 kip)
- Hydraulic lifters and blocks
- FabCel® insulation plates
- Support for remote controller hand control

GENERAL FEATURES

The test system described in the introduction shall permit testing at elevated temperatures, allowing heating of the test specimens, tested by means of the equipment in the laboratory. In detail, the thermal chamber must be fully integrated with the servo-hydraulic machine for static and dynamic axial tests and fatigue tests, MTS Landmark 370.50 recently purchased. The chamber configuration will have to be such to allow the MTS Landmark 370.50 machine to work fully while the heat treatment is in progress.

1. MINIMUM TECHNICAL CHARACTERISTICS OF THE SYSTEM

Failure to comply with even one of these minimum requirements will result in the exclusion of the bid from the Tender. The minimum technical characteristics, all included in the contract price, are as follows:

A. General system configuration

The thermal chamber must be coupled with the MTS Landmark Model 370.50 testing machine. The following requirements are therefore mandatory:

- The specimens placed under load in the MTS Landmark model 370.50 testing machine shall be able to be heated by the thermal chamber without the elements comprising the MTS testing machine being altered by the presence of the thermal chamber and the temperature applied during the test;
- 380 V three-phase power supply.

B. Machine features

- Possibility of manually loading the machine;
- Possibility of testing elements with a cross-sectional area equal to or greater than 300 mm x 300 mm;
- Maximum external dimensions of the machine: width 750 mm, height 1400 mm;
- Possibility to move the machine by means of trolleys equipped with wheels;
- Possibility of testing cruciform specimens by means of two side openings that can be closed so that elements with cross-sectional dimensions equal to or greater than 300 mm x 300 mm can be passed through;
- Heating process from room temperature;
- Possibility of setting
 - o the ISO 834 temperature curve;
 - o a user-defined temperature curves;
- Natural cooling;
- Possibility to control and monitor sample and thermal chamber temperature via thermocouples;
- Possibility of fume extraction in the case of tests on wooden elements (for details regarding the outlet position of the pipe see Appendix A);
- Thermally insulated smoke exhaust pipe;
- Flue gas disposal pipe equipped with flexible connection to the thermal chamber or alternatively with a release system to allow the movement of the two elements of the thermal chamber;
- Fume treatment system equipped to allow the disposal of fumes deriving from tests on wooden elements containing industrial adhesives (e.g. PUR polyurethane and formaldehyde-based resins, such as MUF melamine and RF resorcinol);
- Temperature range: room temperature to 1010°C;
- Cooling devices for internal chamber surfaces.

C. Control electronics

- Customised controller and recorder, with the possibility for the user to preset heating profiles for later use;
- Programmable Logic Controller (PLC) and stand-alone personal computer with Windows 10 64-bit operating system and software for controlling, recording and saving fire test data;
- Human-Machine-Interface to operate the machine.

D. Warranty

24 months or any improved term offered from the issue of the certificate of satisfactory performance of the test system as a whole, including:

- full warranty (i.e. including spare parts and any repair-related charges such as labour and personnel per diem) on the entire delivery;
- annual maintenance of the controller and heating system. In particular, if refractory bricks are used, their possible replacement for the first two years;
- annual calibration of all transducers supplied by a laboratory with ACCREDIA accreditation or an equivalent certification body member of the European co-operation for Accreditation (EA);
- all software updates released during the proposed 36-month extension period.

E. Installation and Calibration

Installation and trial test of the equipment at the DICAM LPMS laboratory. The calibration of the instruments must be certified by a laboratory with ACCREDIA accreditation or an equivalent certification body member of the European co-operation for Accreditation (EA).

F. Training

Training on the use of the test system as a whole and of the individual components, on the use of the software and on the main applications. The training shall last at least 16 hours and be completed within one month after the trial test.

G. Documentation

Provision of detailed manuals, in digital or paper format, in Italian or English, on the test system as a whole and on the individual components.

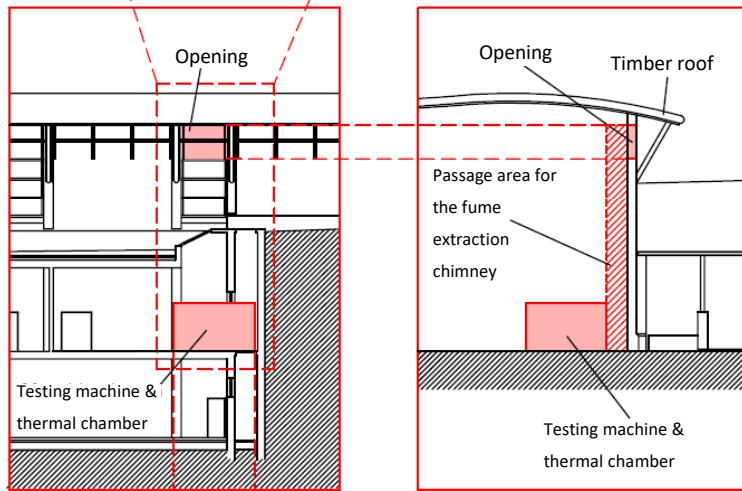
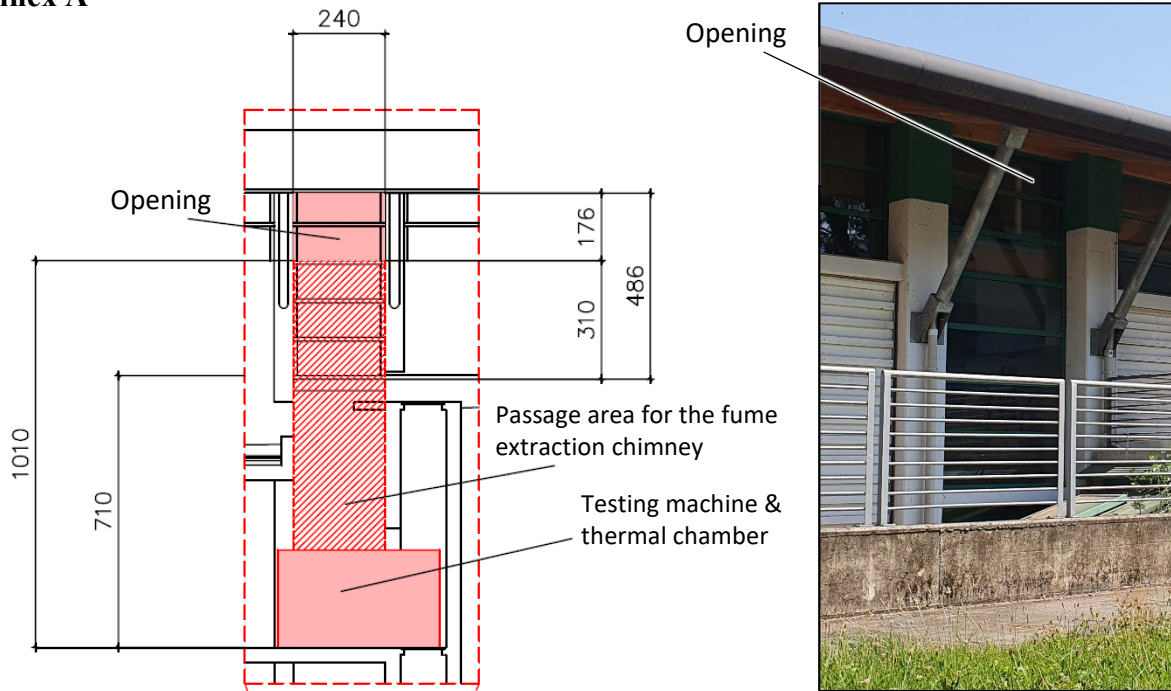
H. Options

Option to activate the routine periodic maintenance service for the equipment, for 36 month, where necessary upon expiry of the 24-month warranty period or any improved term offered, comprising the following services:

- full warranty (i.e. including spare parts and any charges related to the repair, such as labour and personnel *per diem*) on the entire supply;
- annual maintenance of the controller and heating system. In particular, if refractory bricks are used, their possible replacement;
- annual calibration of all transducers supplied by a laboratory with ACCREDIA accreditation or an equivalent certification body member of the European co-operation for Accreditation (EA);
- all software updates released during the months of the proposed extension period.

ANNEXES

Annex A



SOUTH ELEVATION

SECTION A-A

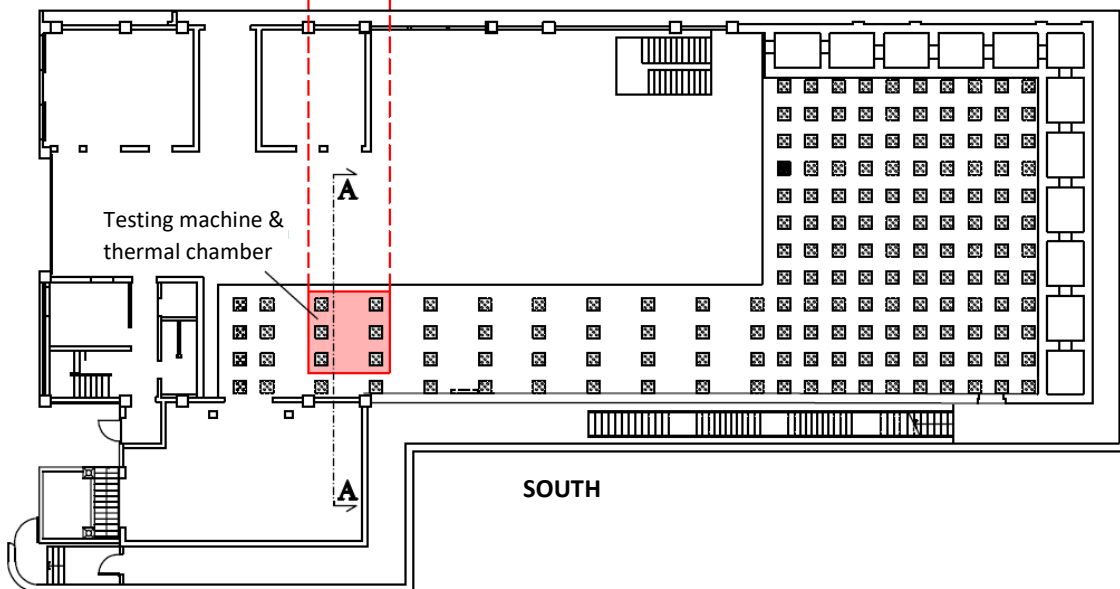


Photo - Identification of opening for smoke exhaust - South view of the building

