

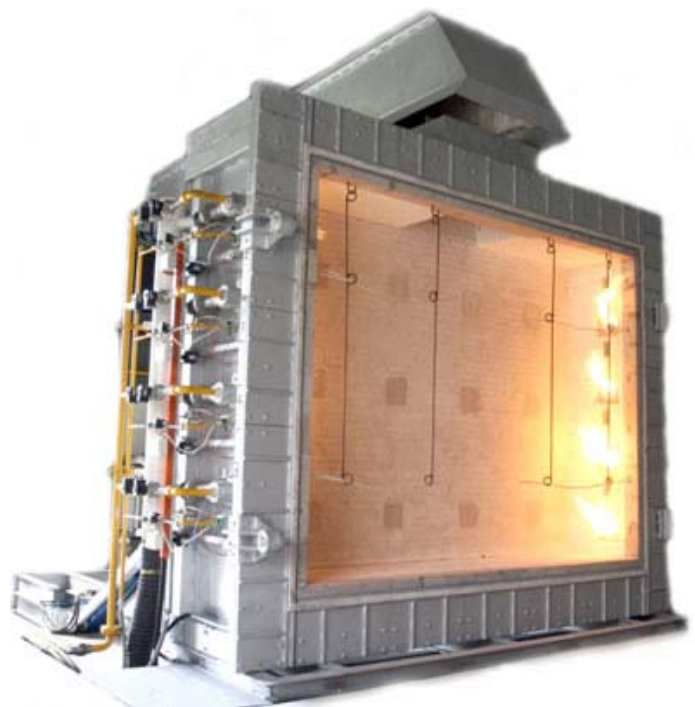
LARGE SCALE HYDRAULIC TILTING FIRE RESISTANCE TEST FURNACE FOR VERTICAL & HORIZONTAL TEST SPECIMENS

BS 476 (20-24) – BS EN 1363 (1-2) – BS EN 1364 (1-2) – BS EN 1365 (1-4) BS EN 1366 (1-3) - BS EN 1634-1 – ASTM E 119 – ASTM E 814 – ASTM E 1966 - UL 263 – UL 1709 - UL10 (B-C) – UL 1479 – UL 2079 - ISO 834 (1, 4-9) - ISO 6944 (1-2) – ISO 3008 – ISO 3009.

The performance of walls, columns, floors and other building elements when exposed to fire conditions is of extreme importance in insuring safety to both the public and neighbouring structures. In order to acquire information on this performance, it is necessary to measure the fire-resistive properties of the materials and assemblies in question.

The FTT Hydraulic Tilting Fire Resistance Test Furnace For Vertical & Horizontal Test Specimens is the apparatus needed to evaluate the fire resistance of a horizontal or vertical construction assembly, column, or support, and provides a method of quantifying the ability of products such as doors and dampers, and building materials to withstand exposure to high temperatures.

This is done by evaluating a number of performance elements such as; the load bearing capacity, the ability to provide fire containment and the thermal transmittance of the materials and systems.



The unique ability of the FTT Furnace to test both Horizontal and Vertical test specimens provides the most efficient way to maximize your test equipment budget. The FTT system features:

- A Fire Resistance Test Furnace with an internal chamber measuring 3000mm(W) x 4000mm(H) x 1000mm(D)
- The capability of carrying out test on vertical and horizontal test specimens that are mounted on custom made restraint frames.
- A Hydraulic Tilting System is provided to enable the Furnace to be positioned either upright for testing items such as walls and doors, or on a horizontal plane for testing floors and ceilings.
- A furnace refractory lining comprised of insulating fire bricks, refractory castables and mineral boards. The roof is lined with profiled bricks and anchored with cast refractories in situ.
- A furnace casing made of mild steel plates reinforced with steel C-Channels, I-Beams and steel sections to counter structural distortion due to heat steel casing lined with mineral fibreboard on the cold face and refractory insulating bricks anchored back to the wall with high temperature cast in-situ blocks, on the hot face.

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- 4 sets of viewing ports made of heat resistant quartz glass are placed at strategic locations on the long side wall. This will enable the operator to view the complete test specimen during a fire test.
- A light weight alumina fibreboard sliding door enclosed within the insulated, air-cooled frame. This will Shield off the furnace heat when the viewing ports are not in use.
- 20 sets of Refractory Nozzle Mix Burners. Each burner will have a flame supervision unit to ensure that all combustion units operate on a fail safe mode at all times. 10 burners are installed on each of the left side and right side of the furnace wall. Each burner is designed to use liquefied petroleum gas.
- A Furnace Combustion Control Panel designed to operate on both fully automatic and manual control modes. Automatic ignition of the burners is through the use of one push button switch. This fires up the burners based on a preset heating curve, such as that described in BS 476 Parts 20-24, EN 1363 and the IMO Hydrocarbon Curve. Manual burner control enables individual burners to be ignited at will.

Lifting and Restraint Frames for Test Specimens

Two units of Frames are provided for mounting vertical specimens and another two units for horizontal specimens. The refractory lining is made of pre-cast refractory blocks anchored to the steel frame. These frames are non load bearing frames. A separate customized lifting frame with two side hooks is provided to lift the specimen restraint frame to the furnace. This allows easy placement of the vertical and horizontal restraint frames on the furnace.

Furnace Tilting Mechanism

A hydraulic tilting system comprising twin hydraulic cylinders is supplied. This device enables the user to position the furnace in an upright position in order to carry out vertical fire resistance tests or to lower the furnace to a horizontal plane, allowing horizontal tests to be carried out.

Refractory Lined Connecting Duct And Exhaust Stack

The Chimney/Stack is constructed of 9mm thick mild steel and is refractory lined for the first 6 meters. The Stack extends to a minimum of 3 meters above the factory roof level or in accordance to the local Code requirements.

Combustion Air Blower to Furnace Burners

The combustion air system is pre-piped and tested before dispatch.

Temperature Sensors and Manometer

The system is supplied with 9 Type K thermocouples and plate thermometers, a pressure manometer and an ambient thermocouple assembly.

PLC System

The PLC System is comprised of a Siemens PLC CPU and Siemens compatible remote I/O. The fire resistance data management software is custom written to accept and save data collected during the tests and is configured to meet the heating requirements of BS 476 Parts 20 - 22, EN 1363 and IMO Hydrocarbon test curve. Other standard Time-Temperature curves can also be pre-programmed into the system.

The PLC controller incorporates a built-in operator interface, contains the required recording and programming capabilities and includes all necessary motor starters for all motors in the system.

The system is programmed to provide real time heating curves and display real-time furnace control information on the computer screen.

Please visit our web-site (www.fire-testing.com) or contact us directly for any further information on our range of fire testing instrumentation.