

Fire Testing Technology Limited

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LARGE SCALE HORIZONTAL FIRE RESISTANCE TEST FURNACE

**BS 476 (20-24) – BS EN 1363 (1-2) – BS EN 1364 (2 – BS EN 1365 (2-4) BS EN 1366 (1-3) --
ASTM E 119 – ASTM E 814 – ASTM E 1966 - UL 263 – UL 1709 – UL 1479 – UL 2079 - UL10 (B-
C) -- ISO 834(1, 5-7, 9) – ISO 6944 (1-2) – ISO 3008**

The fire resistance of a material forming part of an assembly is an invaluable tool in assessing the performance of construction elements relied upon in regulations.

The FTT Horizontal Fire Resistance Test Furnace is the apparatus needed to evaluate the fire resistance of a horizontal construction assembly, column, or support, and provides a method of quantifying the ability of a material, in a horizontal orientation, 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 FTT system features:

A Fire Resistance Test Furnace with an internal chamber measuring 3000mm(W) x 4000mm(H) x 1000mm(D)

- The capability to carry out both load-bearing and non-load bearing tests on Horizontal Test Specimens and beams that are mounted in customized restraint frames.
- A Furnace refractory lining comprised of insulating fire bricks, refractory castables and mineral boards. A removable roof is lined with profiled bricks and anchored with refractories cast in situ.
- The furnace casing is made of mild steel plates reinforced with steel C-Channels, I-beams and steel sections to counter structural distortion due to heat.
- A specimen restraint frame is mounted on the front end of the furnace and secured by a minimum of 4 sets of clamps.
- Furnace walls 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.
- 4 sets of viewing ports made of heat resistant quartz glass are provided at strategic locations on the long side wall. These enable the operator to view the complete test specimen during a fire test.
- A sliding door made of light weight alumina is enclosed within an 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 are supplied. Every burner has a flame supervision unit to ensure that all combustion units operate on a fail safe mode at all times.

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

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- A Furnace Combustion Control Panel is 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.

LP Gas Industrial Refractory Luminous Nozzle Mix Burners

In the upright furnace position, 10 burners are installed on the left side of the furnace wall and the other 10 burners are installed on the right hand side.

Each burner is designed to use liquefied petroleum gas and all of the necessary flame safety systems, intermittent pilot systems, and temperature sensors are incorporated.

Lifting Frame and Restraint Frames for Test Specimens

Two units of Frames are supplied for mounting 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 into the furnace.

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 metres. The Stack extends to a minimum of 3 metres 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 all furnace control information on the computer screen.

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