

Fire Testing Technology Limited

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VERTICAL FIRE RESISTANCE TEST FURNACE

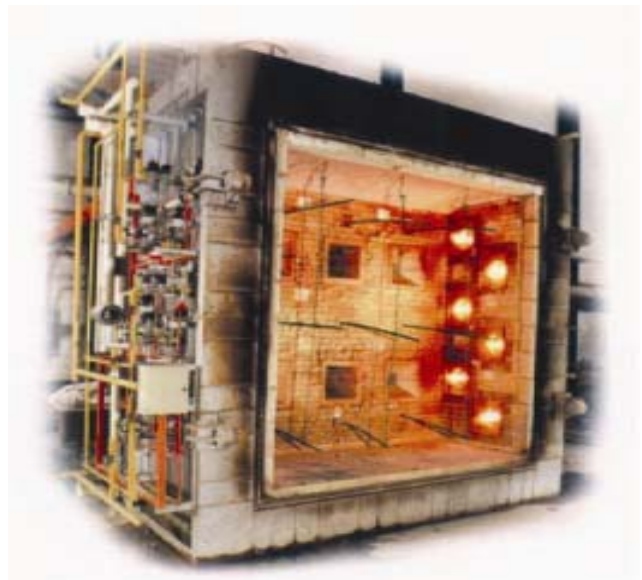
BS 476 (20-23) – BS EN 1363 (1-2) – BS EN 1364 (1) – BS EN 1365 (1) BS EN 1366 (1-3) - BS EN 1634-1 – ASTM E 119 – ASTM E 814 - UL10 (B-C) - UL 263 – UL 1709 - UL10 (B-C) – UL 1479 – UL 2079 – ISO 834 (1, 4, 8) - ISO 3008 – ISO 3009.

The fire resistance properties of a material provide invaluable information to assess the behaviour of a specimen and its assemblies.

The FTT Vertical Fire Resistance Test Furnace provides a method of quantifying the ability of products and materials, in a vertical orientation, to withstand exposure to high temperatures. The furnace can be used for evaluating the fire resistance of products such as walls, doors, dampers, joints, and penetration seals. This is done by evaluating a number of functions including; the load-bearing capacity, the fire containment and the thermal transmittance of the assemblies being tested.

The FTT system features:

- A Fire Resistance Test Furnace with an internal chamber measuring 3000mm(W) x 3000mm(H) x 1300mm(D)
- The capability to carry out test on Vertical Test Specimens that are mounted on custom made restraint frames.
- Refractory lining is comprised of insulating fire bricks, refractory castables and mineral boards.
- A roof lined with profiled bricks and anchored with refractories cast in situ.
- A casing 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 mounted on the front end of the furnace and secured by a minimum of 4 sets of door clamps.
- A 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.
- 4 sets of viewing ports made of heat resistant quartz glass are provided at strategic locations on the long side wall. This will 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.
- 12 sets of Special Luminous Flame Burners. Every burner has a flame supervision unit to ensure that all combustion units operate on a fail safe mode at all times.
- 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, as 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.



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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LP Gas Industrial Refractory Luminous Soft Flame Burners

In the upright furnace position, 6 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 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 vertical 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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