YUYANG INDUSTRIAL CO., LIMITED

China Manufacturer of Fire Testing Equipment

BS 476 Part 20&22 Building Material Fire Tester and Structures Fire Resistance Test Furnace

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- **Product Details:**
- Place of Origin: **China**
- Brand Name: **YUYANG**
- Certification: **BS 476-20&22 GB/T9978.1-2008**

- Model Number: **YY518**
- **Payment & Shipping Terms:**
- Minimum Order Quantity: **1 set**
- Price: **Negotiation**
- Packaging Details: **Plywood Box**
- Delivery Time: **35 work days**
- Payment Terms: **T/T L/C Western Union**
- Supply Ability: **3 sets per quarter**
- Share to：

BS 476 Part 20&22 Building Materials and Structures Fire Resistance Test Furnace

Ⅰ. Application:

The test furnace refers to BS476 part 20 and 22 (vertical/horizontal), GB9978-2008 standard, is to assess the behavior of a specimen of an element of building construction when subjected to defined heating and pressure conditions. The method provides a means of quantifying the ability of an element to withstand exposure to high temperatures, by setting criteria by which the loadbearing capacity, the fire containment (integrity) and the thermal transmittance (insulation) functions can be adjudged.
A representative sample of the elements is exposed to a laboratory test for the determination of fire resistance of elements of construction.

1. Standard:
BS476-20: Fire Tests on Building materials and structures – Part 20. Method of test for determination of the fire resistance of elements of construction (General principles)
BS476-22: Fire tests on building materials and structures-Part 22: Method for determination of the fire resistance of non-loadbearing elements of construction
GB/T9978.1-2008: Fire-resistance tests-Elements of building construction-Part 1: General requirements

2. Test Function:

The sample exposed to high temperature and pressure conditions, the test samples within the specified time bearing weight, integrity and insulation.

3. Protect System

Monitor the pressure difference value of measurement device and ambient atmospheric pressure values.

The equipment has the function of electric safety protection alarm, over-temperature protection and alarm function, and the protective cover with the impact of the test explosion.

4.Sample Work Station:

- It offers 3 sets;
- It's easy to operate and convenient to move.

Ⅱ. Technical Parameters:

1. Test Furnace:

⑴ Test Furnace structure and size:

- Vertical furnace 3.1*3.1*1.2m(W*H*D), biggest sample size 3*2.8m(W*H)
- Comply with EN1363-1
- The test furnace is made of brick, steel structure and fireproof insulation material.

2. Voltage Supply:

AC 380V ±10%, 50Hz

3. Power:

The test furnace comply with ISO9705, output power is 300KW.

4. Burner system:

⑴Gas flow: 0-100 m^3/h

⑵ Gas max pressure: 3000Pa

⑶ Air flow: 5000m^3/h

⑷ Air max pressure: 4000Pa

5. Test temperature control:

⑴ furnace temperature control meets the require of T-T0=345lg(8t+1)

Temperature control deviation:

0min<t≤10min:d≤15%

10min<t≤30min:d≤10%

t>30min:d≤5%

⑵ testing device accuracy:

Furnace temperature: ±15℃

Sample inside temperature: ±10℃

Sample backfire temperature: ±4℃

⑶ Timing range: 0-300 minutes, accuracy: <±1s

6. Furnace pressure meets

(1) Test after 5 minutes, the furnace shall meet the following positive pressure conditions:

Components - in the furnace 3m heights, 100mm from the surface of the specimen, furnace pressure 15Pa ± 5Pa;

(2) Test after 10 minutes, the furnace shall meet the following positive pressure conditions:

Components - 3m in the furnace height, 100mm from the surface of the specimen, furnace pressure 17Pa ± 3Pa.

(3) The sample of the landing door can be kept at a constant pressure over the whole height by the fire surface, the pressure value at the ridge should be kept within 2 ± 2Pa, and the pressure gradient inside the furnace should be 8 Pa per meter;

(4) furnace pressure measurement range: 0-100Pa, measurement accuracy: ≤ ± 3Pa

7. Temperature sensor

The performance, quantity and location of the thermocouple in the heating furnace meet the requirements of EN16341-1;

a) Furnace temperature ± 15 ℃, adopts diameter 1mm thermocouple;

b) The specimen backfire surface temperature ± 4 ℃, diameter 0.5mm thermocouple. Copper plate with thermocouple: diameter 120mm, thickness 0.50mm;

c) Armored Platinum Rhodium Platinum S-value thermocouple accuracy class: II level

d) Armored nickel-chromium-nickel-silicon K thermocouple accuracy class: II level

Gas and air systems

1. Gas and vaporization equipment

(1) Combustion gas source: propane and liquefied gas, 200KG / H electronically controlled gasification gasified furnace, 8-10 bottles, 4-5 is used, 4-5 is standby, which are equipped with automatic gas switching valve.

(2) The DN48 seamless steel pipe for gas supply pipe should be equipped with corresponding pressure reducing valve, safety valve and so on.

(3). Configuration of gas-saving device, equipped with flammable gas leakage alarm device.
Note: Laboratory gas to build a gas station room, size of about L5000 × W4000 × H2300.
2. Air source system
(1) Using high-pressure centrifugal fan + inverter to regulate flow and pressure;
(2) Configure appropriate switching valve, gate valve and pressure gauge and DN75 seamless steel pipe.

Environmental protection, fire alarm device
1. Flue gas spray, environmental protection system
Flue gas into the spray chamber after smoke and dust filtered and discharged outdoors, including white metal smoke exhaust pipe, adjustable centrifugal exhaust fan, stainless steel metal mesh, dust removal device, catalytic oxidation device, stainless steel spray booth, Pumps and control systems.
Processing capacity: ≥5000 m³/ h, flue gas treatment per hour 4000 ~ 12000 cubic meters.
2. Fire alarm monitoring system (user-owned)
Monitor the temperature, flue gas, gas leakage and device abnormalities in the test site. Once an abnormality occurs, it should alarm in real time and can take appropriate protective operation automatically, such as cutting off the gas valve.
Ⅲ. Control Analysis System (Software System)
Test control system consists of pressure sampling system, temperature sampling control system, signal acquisition system, computer system, together with the design of a reasonable test and sampling circuit.
1. When the system detects the signal of the safety problem, the system can be fed back in real time to take the emergency safety shut down automatically.
2. Thermocouple electrical signals generated by the temperature transmitter or directly to the recorder or computer, the test process, the average temperature, single-point temperature, the amount of leakage should be able to readily display.
3. Convenient to achieve the beginning of the test project, the test process control, test parameter settings, various types of test data through the sensor sampling sent to the computer, the computer automatically calculated and processed can be stored or printed into a table (graph). Software can be automatically controlled by the temperature curve program, and record the temperature of the furnace, furnace pressure, the test temperature and other data back.

4. Computer control system, including the brand of computers and 19-inch LCD monitors, laser printers, the system provides query capabilities. System automatically test the sample number and temperature curve, the data stored in the system's database; and can enter the test sample number, test date and other inquiries. Equipped with standard RS-232 interface or USB interface

Ⅳ. Instrument main device

1. Infrared heat flux meter (optional)
(1) Domestic heat flux meter.
(2) Functional requirements
Cooling water temperature range: 10 ~ 30 ℃;
Cooling water flow:> 10L / hour
Test range kW / m²: 50 kW / m²
Reaction time: <250ms (63%),
Maximum measurable value: 150% of range
Output signal:> 5mV At working range
Spectral range: up to 50.000nm
Perspective: 180 degrees
Emissivity:> 0.95
2. Integrity measuring instrument
Provide cotton pad frame and slit measurement probe, in line with 5.5.5 GB / T9978.1-2008 requirements.
Available in two sizes of slit probes:
± 0.1mm in diameter 6mm;
± 0.2mm in diameter 25mm;
Its structure requirements:
The pad frame and gap measurement probe are cylindrical stainless steel rods with a length of insulated handle.
3. T-sensor and differential pressure gauge
The sensor has high temperature resistance. The total set furnace pressure monitoring and analysis device with Siemens brand.


Mains 3-Phase 63A
Burner 8
power
Burner 4
power
Burner 7
power
Burner 3
power
Burner 6
power
Burner 2
power
Burner 5
power
Burner 1
power