

BS 476-7 Surface Spread Flame Tester for Measuring the Flame Extension of The Wall



Product introduction

BS 476 Part 7 specifies a method of test for measuring the lateral spread of flame along the surface of the specimen of a product orientated in the vertical position under opposed flow conditions, and a classification system based on the rate and extent of the spread of flame. It provides data suitable for comparing the end-use performances of essentially flat materials, composites or assemblies, which are used primarily as the exposed surfaces of walls and ceilings.

Product parameters

1. The area of the radiant panel is 850mm X 850mm, and the structural support frame is strengthened;
2. The sample holder is perpendicular to the radiant panel, and the standard scale mark above, the critical heat radiant flux can be measured according to the flame propagation distance;
3. Equipped with water-cooling circulation device, the sample holder can be water-cooled to avoid damage caused by long-term high temperature;
4. Equipped with a small flame ignition device, using spark ignition mode;
5. The radiant panel is equipped with a high temperature detecting device. If the radiant panel is turned off, the air source can be automatically cut off;
6. Equipped with water-cooled heat radiation flux sensor, the results can be traced back to the United States NIST;
7. Equipped with electrical control box, can adjust the gas and air flow, and display the heat radiation flux figures;
8. Equipped with PLC and man-machine interface to display the information required for testing.

Features and Application

1. This Apparatus consists of a radiation panel mounted vertically in a surround and supported on a framework.
2. The radiation panel is supplied with a gas-air mixture.
3. The radiation panel is 850mm square for a porous refractory type burner block designed to give efficient combustion of the air-gas-air mixture, with no flaming occurring on the face of the panel under operational conditions.
4. The radiation panel and its surround are supported on a framework so that the center of the panel is about 1250 ± 100 mm above floor level.
5. A specimen holder and a pilot flame arrangement mounted to one side of the apparatus.
6. The specimen holder is comprised of a water-cooled steel frame with water-cooled face plates. The face plates overlap the specimens by 20 ± 2 mm on their top and bottom edges and over the vertical edge adjacent to the radiation panel.
7. A spring loaded clamp is positioned to clamp the specimen against the face plates.
8. The portable water supply to the specimen holder makes the maximum temperature does not exceed 35°C at the outlet from the specimen holder.
9. The specimen holder assembly is located at $90\pm 2^{\circ}$ to the face of the radiation panel and in such a way that the faces of the top and bottom guides of the specimen holder are in the same plane as the inside face of the surround to the radiation panel.
10. The height of the specimen holder is hinged to allow it to be swung horizontally, away from the face of the radiation panel between tests, from the test position to the standby position and vice-versa.
11. The pilot burner is composed of a steel tube.

12. The gas and air supply lines to the radiation panel contain flow meters, pressure regulators, control valves and safety devices.

13. Heat Flux Meter: Range : 0 ~ 50 kw/m²; Surface emissivity : $\epsilon=0.95\pm0.05$.

14. Dummy calibration board with holder, calibrated heat flux meter and mounting.

Product Details of the Surface Spread Flame Tester

The surface flame propagation test device is a BS 6853 series high-speed steel flame retardant tester, which is suitable for British building materials and high-speed steel flame retardant test standards. The standard is BS 476-7. The test method is used to determine the lateral extension of the sample surface and based on the speed. And the extension length determines the burning level. BS 476-7 is primarily used to measure the flame extension of exposed surfaces on walls and ceilings.

The test method is to measure the critical radiant flux by igniting the sample with a small flame by withstanding the gradual change of radiant heat energy. The heat radiant panel measures 850mm X 850mm. The test specimen holder is water cooled and equipped with a perforated calibration plate and a thermal radiant flux sensor to calibrate the thermal radiance flux curve. The test instrument has high requirements on the laboratory site, and the user needs more safety measures before the test instrument can be assembled.

Standard: BS: BS 476-7

Dimension: 1220 mm (W) x 550 mm (D) x 1920 mm (H)

Weight: 210kg

Installation requirements

Electrical: 230 volts Nominal 10 Amps

Ambient Temperature: Operating 10°C to 35°C

Gas Supplies: Propane and air compressor

Testing Room: 400m³