SBI TEST FACILITY

EN 13823

SCOPE

The test equipment SBI DIN EN 13823 allows the determination of the fire behavior of building products under thermal stress by a single burning item (SBI: „Single Burning Item"). The test is for building material classification according to DIN EN 13501-1 for the European classes A2, B, C and D.

PRINCIPLE

Two specimen wings are mounted vertically at a 90° angle to each other on the specimen support carriage. The specimen wings have different widths. In the lower corner formed by the specimen wings, a sand bed burner simulates a burning object, e.g. a burning waste container.

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FEATURES

Electronic gas control and regulation.
Partially automated, software controlled test routine.
Partially automated, software controlled calibration.

COMPONENTS

Test room: :
Supporting structure and outer cladding: steel painted. Inner cladding: aerated concrete blocks. With stair, railing, window and door. Monitor fixture with monitor. Keyboard tray with keyboard and mouse.

Test apparatus according to EN 13823:
Steel painted, partial cladded by calcium silicate panels, auxiliary burner, pilot flames for main- and auxiliary burner.

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Specimen trolley:
Frame steel painted, inner cladding calcium silicate panels, outer cladding steel painted, main burner.

Smoke exhaust pipe double walled:
Inner pipe stainless steel 1.4517, austenitic, diameter 323,9 mm, wall thickness 2 mm.
Outer pipe stainless steel 1.4301, austenitic, diameter 406,4 mm, wall thickness 2 mm.
Insulation 50 mm mineral wool.

Measurement equipment:
3 Thermocouples Type K, Measurement section.
1 Thermocouple Type K, Test room.
1 Thermocouple Type K, Heptane tray.
Bidirectional probe according to EN 13823, stainless steel
Gas probe according to DIN EN 13832, stainless steel.
Optical light measuring system according to DIN 50055, Measuring range optical density 0,000 - 3, 000, accuracy 1 %.

Control cabinet::

- Integrated PC, MS Windows 11, device software pre-installed.
- Gas analyzer O2 (type paramagnetic) and CO2 (type infrared) incl. gas processing (drying and filtering).
- Control unit light measuring system.
- Sensors ambient conditions: Air pressure, Ambient temperature, Air humidity
- Differential pressure transducer, measuring range 0-1 mbar
- Propane pilot flames: Mass flow controllers electronically controlled, 2/2-way magnetic-diaphragm-valve electrical.
- Propane main – and auxiliary burner: Mass flow controllers electronically controlled, 2/2-way magnetic-diaphragm-valve electrical.
- Nitrogen: Solenoid-valve, mass flow control by cylinder valve.
- Calibration gas: Solenoid-valve, mass flow control by cylinder valve.

Calibration accessories:
Heptane tray, stainless steel
Heat flux sensor Type Schmidt-Boelter,
Measuring range 0- 100 W/m^2
Anemometer

DIMENSIONS

Dimensions Width x Depth x Hight:
Approx. 3260 x 4210 x 4500 mm*
Test room inside Width x Depth x Hight:
Approx.3000 x 3000 x 2400 mm*
Weight: approx. 6000 kg*

SUPPLIES

Electricity 230 VAC 50/60 Hz
Propane: purity > 95 %, pressure regulator, inlet-pressure 1 bar.
Nitrogen: Oxygen-free, pressure regulator, inlet-pressure 1 bar.
Calibration gas: CO2- content 5-10 %, pressure regulator, inlet-pressure 1 bar.
Heptane: Purity > 99 %
Water

TO BE PROVIDED BY THE CUSTOMER

Fume extraction system, capacity min. 0,6 m^3/s, adjustable, maximum flue gas temperatures of 400 °C can occur
Leveled (deviation max. ± 5 mm), fire-resistant floor

SPATIAL REQUIREMENTS

Installation room width x depth x hight:
Approx. 5400 x 5000 x 4800 (incl. headroom above platform) mm*
Temperature at installation room 20 ± 10 °C
No other processes withdraw oxygen from test room.

* Subject to change without notice. The actual values can deviate depending on the design.
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