Cone Calorimeter

I. Application scope:

Cone Calorimeter measures heat release rate(H.R.R), smoke release, ignition time, oxygen consumption, carbon monoxide and carbon dioxide generation and mass loss rate when specimen is exposed to resource of conical heater.

The name of Cone Calorimeter is derived from the conical heater as used by Dr. Vytenis Babrauskas to inspect test specimen (100mm x 100mm) with flux up to 100kW/m2 for the bench scale oxygen depletion of his development. Cone Calorimeter test is based on the theory that pure combustion calories are in proportion to a necessary amount of oxygen for combustion and 13.1 MJ/kg is generated whenever oxygen 1kg is consumed, and heat emission, ignition time, oxygen consumption, CO and CO2 generation, and flow of ignited gases as generated from test materials are measured.

II. Standards compliant:

ASTM：ASTM D6113，ASTM E1354，ASTM E1740，ASTM F1550
BS：BS 476-15
ISO：ISO 5660
EN：EN 45545-2: 2013
GB：GB/T 16172：2007

III. Main parameters:

Cone Calorimeter with movable analysis cabinet, can be connected with a large heat release rate test system such as ISO 9705, EN 13823 etc, complied with ISO 5660, ASTM E1354,BS 476 Part 15 etc. testing standards.

Integrated test body and 19 inches analysis cabinet, embedded PC 15 Inch Touch screen computer, for the whole control and automatic testing.

Conical heater rated power 5000W, the heat output of 0 ~ 100kW/m2, using PID temperature controller, while the radiation cone can be horizontal or vertical.

Exposed to the central part of the surface of the sample 50 x 50mm range, radiation at the center of the deviation is not more than 2%.

The sample weighing range 0 ~ 3000g; accuracy: 0.1g.

Auto Split Shutter automatically opened to transmit radiation to the sample.

ABB EL3020 Paramagnetic oxygen analyzer, using the method of paramagnetic change to measure the concentration of oxygen in the gas. Concentration range of 0-25%.

Smoke density analysis using laser system, the system consists of a 0.5mW He Ne laser, the main detector and auxiliary detector.

The exhaust system consists of the fan, the smoke collection cover, the exhaust pipe and orifice plate flow meter and so on. Exhaust fan flow rate of 0 ~ 50g/s, precision 0.1g/s.

Ring sampler have been installed from the smoke collecting hood at 685 mm, with 12 holes.

The exhaust flow rate should be determined by measuring the pressure difference on both sides of the sharp edge orifice 350 mm above the fan, the inner diameter of the sharp edge orifice plate is 57mm + 1mm.

ABB SCC-S Gas sampling system comprises sampling pump, filter, cold trap, waste water discharge, water filters and CO2 filters;

Portable water cooling system without need for waterworks and plumbing when using the Heat Flux meter (for ISO 5660).

In order to calibrate the response of the whole test system, the use of a square opening brass calibration burner, used to measure the value of C- coefficient.

The data acquisition system be able to record oxygen analyzer, orifice meter, thermocouple and other instruments of the output.

Dimension: 1800mm (W) x 900mm x (H) x 2600mm (D)

Weight:350kg