

Large Scale Calorimeter

라지스케일 칼로리미터, Industrial & real scale calorimeter : Max. 10 ~30 MW, LSC-608, ISO 24473, ISO 9705, EN 13823, EN 50399



Specification

Model	FT-LSC-608
Size	2,000×800×1,800(sampling rack), 600×750×1,800 (control rack)
Size (Control)	600 x 750 x 1600
Power	AC 220V, 50/60Hz, 60A
Weight	about 450kg(sampling rack), about 130kg(control rack)
Exhaust	Min. 2,000 ~ 10,000 m ³ /min
Utilities	Propane Gas, CO(0.8%)/ CO ₂ (8%), Nitrogen Gas, Heptane, Compressed Air, Hood, Duct, Dust Collector

Introduction

FESTEC's Large Scale Calorimeter can be tested for real fires(e.g. warehouses, commodity, furniture, cars. etc.) and a large real scale calorimeter with a range of up to 10MW. Large Scale Calorimeter have the same basic principles as Cone Calorimeter. While the Cone Calorimeter measures the amount of heat release rate(HRR) of approximately 0.5 MW, the Large Scale Calorimeter measures the amount of heat release rate(HRR) of 1 to 10 MW. Also, while the Cone Calorimeter collects certain test materials(100 × 100 mm) for test, FESTEC's Large Scale Calorimeter measures real fire (e.g. fire from a warehouse, the whole office, furniture and a car) likely to occur in the actual situation. For these reasons, this equipment is called Large Scale Calorimeter or Industry Calorimeter. The maximum Heat Release Rate can be measured up to 10~30 MW.

Standard

- ISO 24473 :
 - Fire Tests - Open calorimetry - Measurement of the rate of production of heat and combustion products for fires of up to 40 MW
- ISO 9705 : Room Corner Tests
 - Fire Tests - Full scale room tests for surface products
- EN 13823 :
 - Reaction to fire tests for building products excluding floorings exposed to thermal attack by a single burning item.
- EN 45545 : Railway applications - Fire protection on railway vehicles
- EN 50399 : common test methods for cables under fire conditions

Feature

- Panel displays gas flow diagram to show the gas flow sampled from Measuring Station.
- Gas Flow Diagram is installed the filter to remove the moisture and soot and is made for exchanging easily.
- Each filter can be exchanged from Differential Pressure Transducer.
- The adjustable regulator is able to control the pressure of each sampling gas supplying to gas analysis rack in the panel.
- The humidity meter and sensor is installed to measure moisture of test space.
- The gas sampling pump is able to transfer sampling gas with minimum 40 PSI pressure to the analyser about 50m in length.
- The Gas Sampling Pipe & Instrument Diagram minimize the chemical transformation of sampling gas by corrosion or heat transfer, using corrosion-resisting Teflon Hose.
- To analyze the heat release rate and toxic gas of combustion gas, it is important to maintain the gas element in combustion gas.
- To protect moisture condensation, heated line is installed to keep the temperature outside sampling line.
- The Flange type measuring station is made up Bi-direction Probe, Sampling Probe and Smoke Density Measuring System. And each composition is made of corrosion-resisting materials.
- When measuring heat release rate by oxygen consumption, the bi-directional probe resistant to the blocking is used for measuring flow. That is why solid and liquid particles including soot, tar and so on exist so much in the flow of heat current.
- The heat flux meter and water cooling system is for measuring radiant heat from real ignition source.
- As the method to measure the whole testing items, Heptane is usually used, but Calibration Burner is also used separately. Especially calibration burner is installed to use for net combustion calory verification by oxygen consumption method.

Test Result

- Heat Release Rate
- Smoke production rate
- Soot mass
- Consumption of O₂, CO and CO₂ yield
- Others Toxic Gas by FT-IR