

Technical Specifications

TCC 918 – Cone Calorimeter

Measurement method	Reaction-to-fire tests - Heat release rate (cone calorimeter method) and smoke production rate (dynamic measurement) according to ISO 5660-1 and ASTM E 1354
Heating unit	<ul style="list-style-type: none"> ▪ Double-walled, stainless steel with mineral wool insulation ▪ Electric heating element: 5.0 kW ▪ Total dimensions: Ø = 107 mm, H = 65 mm
Load cell	<ul style="list-style-type: none"> ▪ Load cell with bracket, stainless steel ▪ Weighing range: 0 – 8.2 kg ▪ Weighing resolution and accuracy: 0.01 g/±0.01 g
Exhaust fan	With collector, stainless steel; dimensions: 400 x 400 x 330 mm ³
Burner	<ul style="list-style-type: none"> ▪ Robust methane gas burner for calibration ▪ Mass flow controller for methane* ▪ Software-controlled magnetic valve ▪ Centering adapter for safety adjustment and easy use
Igniter	<ul style="list-style-type: none"> ▪ Robust pneumatic mechanism for fast moving (software-controlled) ▪ Electric spark for precise ignition of burning gases ▪ Variable pulse width and duration adjustable by the software to investigate the ignition behavior of the sample
Measuring tube	<ul style="list-style-type: none"> ▪ Stainless steel, Ø 114 mm, with gas sampling probe ▪ 2 thermocouples and orifice assembly for differential pressure ▪ Adapter for optical measuring section and FT-IR coupling ▪ Special design for easy assembly in case of maintenance
Sample holder	<ul style="list-style-type: none"> ▪ Stainless steel, frame for sample adjustment for defined distance to the cone heater ▪ Inner Dimensions (W x D x H): 100 x 100 x 50 mm³
Cold trap for test gas	<ul style="list-style-type: none"> ▪ Effective Peltier cooler for gas cooling without mechanical parts ▪ Cooling to -10°C for effective drying without toxic drying agent
Light measuring system	<ul style="list-style-type: none"> ▪ Protection windows with reduced condensation effects by airflow (compressed air) ▪ He-Ne laser light source (0.5 mW) and radiation hardened housing (laser glass 2) ▪ Silicone photo detector with aluminum housing and mounting flange, black anodized ▪ Data acquisition system with two separate and synchronized ADC channels for fast operational readiness and high stability
Gas conditioning	<ul style="list-style-type: none"> ▪ 2 Particle filters, main filter for 2 µm and secondary filter for 0.1 µm particle size ▪ Automatic software-controlled condensate pump
Gas analyzer	<ul style="list-style-type: none"> ▪ SIEMENS ULTRAMAT/OXYMAT 6E ▪ Measuring components: CO₂, O₂, CO ▪ Measuring range: 0 - 100% for O₂ ▪ Automatic calibration of the gas analyzer by software-controlled gas valves ▪ Full integration into the TCC computer system and operation via TCC touch panel
Software	<ul style="list-style-type: none"> ▪ Integrated computer with touch panel for parameter definition and visualization (19") ▪ Second touch panel for digital switches and parameter display (10") ▪ TCC software for easy operation and full gas analyzer control by digital interfaces ▪ Movable keyboard section, optional operation via network (WiFi or LAN) by additional Windows PC
Instrument dimensions	<ul style="list-style-type: none"> ▪ Industrial cabinet W x D x H: 1550 x 620 x 2700 mm³ ▪ Weight: approx. 450 kg
Power supply	380/400 V, 50/60 Hz, 32 A

* Burner gas to be provided by the user