Ash Fusibility Test Furnace - CAF G5

General Information

The CAF G5 is a furnace designed to test ash fusibility, and optionally, the increasingly popular determination of biomass or solid recovered fuels testing.

The coal ash fusibility test furnace conforms to the Standards ISO 540:2008; ASTM D 1857 / D1857M - 04 (2010); DIN 51730:2007-09; DD CEN/TS 15370-1:2006 (biomass) and PD CEN/TR 15404:2010 (solid recovered fuels (SRF)).

The CAF G5's automatic and continuous recording of digital images allows laboratory technicians to carry out other tasks while the test is in progress, reviewing results later. The new CAF G5 greatly enhances the quality of the recorded images and test results increasing efficiency in laboratories.

The maximum temperature of 1600 °C enables both biomass and coal testing. An optional work tube integrated lighting system is also available when testing low 'initial deformation' temperature of SRF or biomass samples.

Product Advantages

- Analysis software which can be used in fully automatic or manual modes
- Software zoom function to enable accurate post-test analysis of individual samples with improved resolution
- One configurable grid assigned to each test piece
- Temperature controller program set up within the software
- Space saving embedded computer with Windows 7 Embedded Professional software runs future proof firmware
- Default software settings and individual analysis form for coal ash, biomass and SRF
- An optional work tube integrated lighting system when testing low initial deformation temperature of biomass or SRF samples
- Lightweight insulation allows quick cooling permitting multiple tests to be completed during the day
- Automated digital image capture of samples. The frequency of images recorded is set by customer preference, from every 1 °C increment to every 20 °C. The maximum interval for auto analysis is 5°C.

Features

Temperature Range	Up to 1600 °C (1600 °C required for some biomass samples)
Temperature Precision	± 3 °C above 800 °C
Temperature Ramp Rate	7 °C per minute
Temperature Control	Digital multiple PID terms with gain scheduling and multi offset parameters
Temperature Display	°C
Work Tube dimensions	79 mm internal diameter

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Tube material	Mullite
Heating Elements	Silicon carbide x 6
Maximum Sample Load	12
Conforms to Standards	BS ISO 540:2008; ASTM D 1857 / D1857M - 04 (2010); DIN 51730:2007-09; DD CEN/TS 15370-1:2006; PD CEN/TR 15404:2010
Ash Fusibility Determination	Automatic or Manual (Coal & coke: DT, ST, H, FT) (Biomass / SRF: IST, DT, HT, FT)
Analysis Time	3 runs per working day (including cool down times)
Image Collection	Digital - up to 1 frame per 1 °C rise in temperature
Image Resolution	1280 x 1024 pixels
Gas Requirements: Purge	N2 or CO2
Gas Requirements: Oxidising	O2 or Air
Gas Requirements: Reducing	CO + CO2 or H2 + CO2
Ventilation	Forced air ventilation
Exhaust	Pipe to be vented into a separate fume hood
Safety	Fail safe gas system and CO alarm supplied
Physical Dimensions (mm)	790 (h) x 505 (w) x 765 (case depth) x 970 (overall depth)
Weight (kg) (furnace)	84
Power supply	380 - 415 V, 50/60 Hz two phase 25 A/phase or 220 - 240 V, 50/60 Hz single phase 50 A
Power switching	Solid state relays
Maximum power consumption (kW)	7
Environment Conditions - Operating Conditions	5 °C - 40 °C
Environment Conditions - Relative Humidity	maximum 80 % up to 31 °C decreasing linearly to 50 % at 40 °C
Overtemperature protection	Digital with single high alarm relay

Function Principle

View inside 1600 °C tube furnace with integral SiC elements External link to embedded PC & software Flow meters for oxidising, reducing gas flow (dependant on the requirements of the standards) 79 mm inner diameter work tube allows more than 6 samples Digital camera for fast and accurate image recording Gas tight seal for efficient use of gases & safety of operator Automatic temperature programmer

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with multiple PID control Gas inlets for reducing, oxidising & purge gasses
Oxidising or reducing gas selection switch Work tube integrated light for use when testing low ‘initial deformation' temperature of biomass and SRF samples (optional)