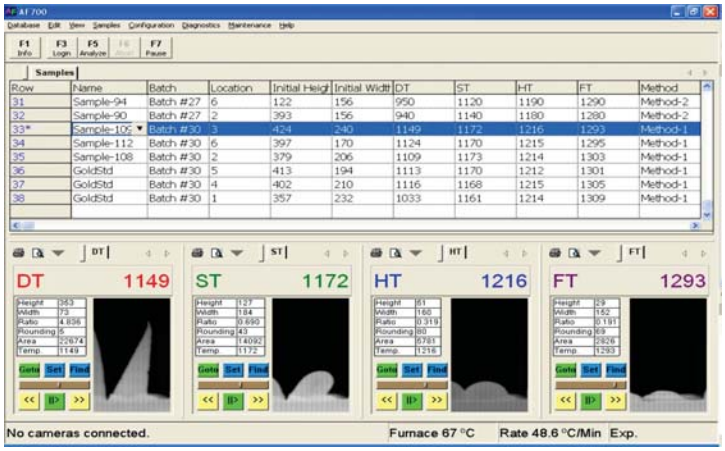
AF700

Ash Fusion

This state-of-the-art instrument offers you ASTM- and ISO-compliant techniques for automatically determining fusibility temperatures in coal and coke ash samples. Improved operational controls, automatic critical temperature measurement capability, digital archiving ability, integrated safety features, and increased instrument robustness are all a part of the AF700's advanced design.



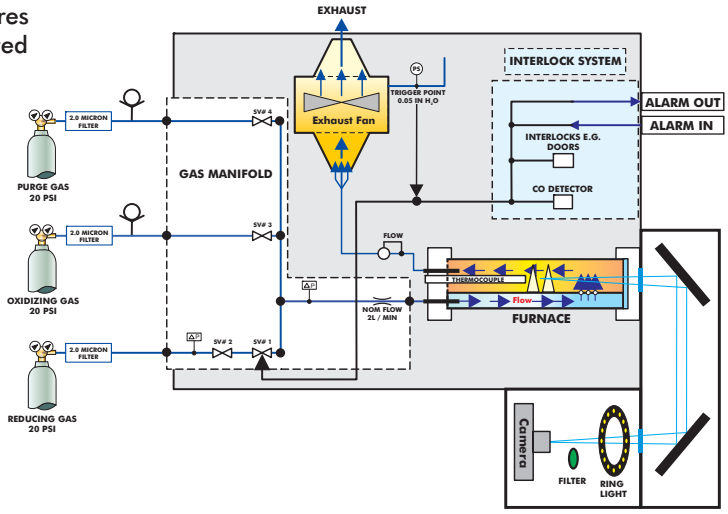
Prepared ash cones are mounted on the ceramic tray then placed in the static horizontal furnace, which features an integrated viewing system and integrated camera. User-friendly operating software allows for seamless data and image management. Optional dual-configuration allows for simultaneous analysis of up to 12 samples.

Delivering the Right Results

How It Works

LECO's AF700 is an ash fusibility determinator that automatically monitors ash cone deformation temperatures in coal ash and coke ash. Prepared ash cones are mounted on a ceramic tray and placed into a high-temperature, rampable furnace. The user selects an analytical method with a predefined furnace atmosphere (oxidizing or reducing) and a ramp rate (°C/minute) for the furnace. Next, a digital camera collects images after the furnace temperature reaches the method-defined starting point. Predefined ash fusibility temperatures (IT, ST, HT, and FT) may be automatically determined using Image Recognition Functions (IRF) within the software. In addition, IRF allows the option of analysis to be automatically terminated after all deformation points have been reached for all samples—increasing throughput and furnace lifetime. A complete image history for all analyzed samples is digitally archived for easy retrieval and review on DVD, CD-RW, or hard drive. Archived images may be used to make subjective determinations of deformation temperatures.

Flow Diagram



Temperature Range	400 °C to 1500 °C (750 °F to 2730 °F)
Temperature Precision	1064 °C ±5 °C (99.98% pure gold wire sample melting point)
Temperature Ramp Rate	Programmable from 4 °C to 20 °C/minute
Temperature Display	°C, °F, or °K
Maximum Sample Load	6 samples per analysis
Ash Fusibility Determination	Automatic or manual (IT, ST, HT, FT)
Analysis Time	4 hours typical cycle time (depending on ramp rate and temperature range)
Image Collection	Digital (up to 20 frames/minute)
Image Resolution	1280 x 1024 pixels
Gas Requirements	
Purge:	Nitrogen, 99.5%, 2.5 lpm at 25 psi (1.7 bar) ±10%
Oxidizing:	Air, 2.5 lpm at 25 psi (1.7 bar) ±10%; (source must be oil and water free)
Reducing:	CO and CO_2 mixtures, 2.5 lpm at 25 psi (1.7 bar) ±10%
Ventilation	Built-in 160 CFM/furnace
Exhaust	4 in diameter (10.2 cm) active exhaust hose capable of handling 160 CFM flow, with no back pressure
Safety	Built in CO monitor with auditory alarm, gas flow stopped on alarm
Physical Dimensions	38 in H x 13 in W x 32 in D (97 x 33 x 81 cm)
Weights (approximate)	
Instrument:	198 lb (90 kg)
Shipping:	249 lb (113 kg)
Electrical Requirements	215 to 260 V~ (at max load), 50/60 Hz, single phase, 30 A; 23,600 Btu/hr*
Environmental Conditions	
Operating Conditions:	15 °C to 35 °C (59 °F to 95 °F)
Relative Humidity:	20% to 80%, non-condensing
Sound Pressure Level	60 dBa (max reading at operator's level per IEC/EN 61010-1)

Part Numbers	
AF700SC	AF700 with external PC tower, operating software, and flat-panel monitor
AF700DC	AF700 Dual Furnace Configuration, operating software, and flat-panel monitor

**Average output based on nominal operating parameters*
Specifications and part numbers may change. Consult LECO for latest information.

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Delivering the Right Results

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