

TGA701 Thermogravimetric Analyzer

Specification Sheet



Sample Mass	1 gram (nominal)		
Number of Samples	19 (+1 reference)		
Precision	0.02% RSD (1σ, 1 g inert sample)		
Balance	Resolution 0.0001 g		
Oven Temperature	Ambient (minimum)		
Temperature Control	Minimum: 100 °C Accuracy: 2% of setpoint, or ±2 °C; whichever is greater Stability: 2% of setpoint, or ±2 °C; whichever is greater Maximum: 1000 °C		
Maximum Ramp Rate			
Ambient to 104 °C (219 °F)	15 °C/minute (59 °F/minute)		
104 °C to 1000 °C (219 °F to 832 °F)	50 °C/minute (122 °F/minute)		
Gas Flow Rate	Low: 3.5 lpm Medium High: 8.5 lpm	Medium Low: 5.0 lpm High: 10.0 lpm	Medium: 7.0 lpm
Gas Pressure	Air: 45 psi (3.1 bar)	Nitrogen: 35 psi (2.4 bar)	Oxygen: 35 psi (2.4 bar)
*Air Ventilation Requirements	70 to 160 ft³/min adjustable (33 to 75 l/s)		
*Duct Size	4 in (10 cm)		
*Note: The TGA701 must be vented to an external exhaust. For moisture-only applications in which the furnace temperature does not exceed 150 °C, and the distance from the right side of the TGA701 to the external exhaust is less than 10 feet (3 meters), a passive connection to a 3-inch (75 cm) duct is acceptable.			
Environmental Conditions	Operating Temp: 15 °C to 35 °C (59 °F to 95 °F) Humidity: 20% to 80% non-condensing		
Minimum Gas Purity	Air: Dry, oil-free	Nitrogen: 99.9%	Oxygen: 99.5%
Electrical Power Requirements	230V~ (±10%; at max load), 50/60 Hz, single phase, 25 A; 19,700 Btu/hr†		
Dimensions	20.5 in H x 24 in W x 22 in D (52 cm x 61 cm x 56 cm)		
Weight (approx.)	195 lb (88 kg) Shipping Weight (approx.): 246 lb (112 kg)		
Optional External Blower			
Part Numbers:	621-225G (115 V~)		621-263G (230 V~)
Flow:	140 cfm (65 l/s)		
Power:	115 V~ (±10%), single phase, 60 Hz, 1.6 A 230 V~ (±10%), single phase, 50/60 Hz, 0.6/0.8 A		
Part Numbers			
TGA701S4C	TGA701 with PC tower, operating software, and flat panel monitor		
TGA701D4C	TGA701 Dual Furnace Configuration with PC tower, operating software, and flat panel monitor		

V~ denotes VAC.

[†]Average output based on nominal operating parameters.

Theory of Operation

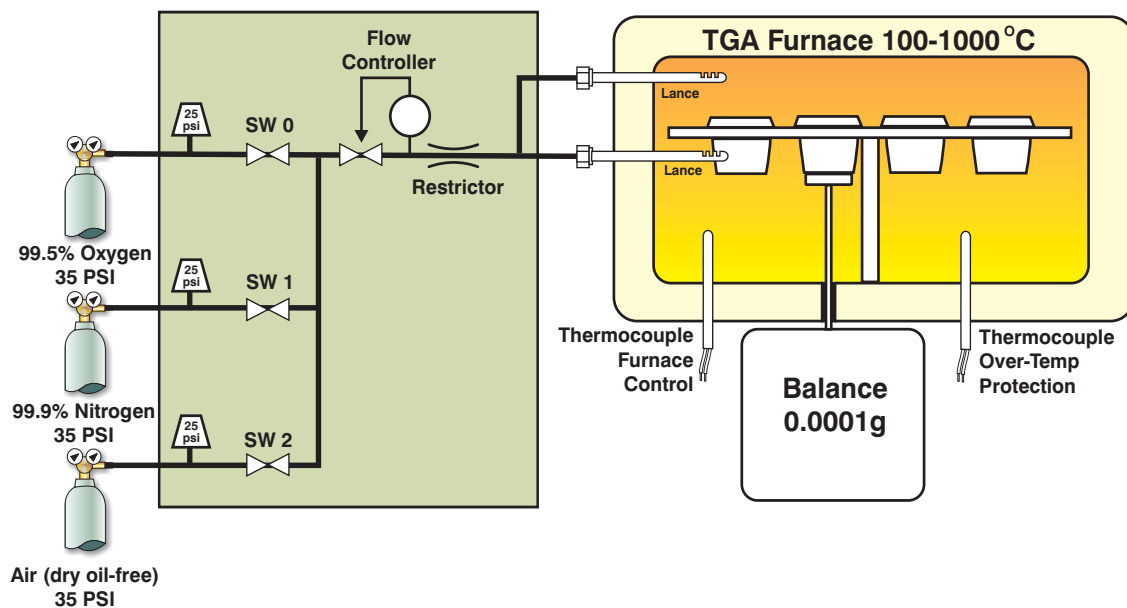
The TGA701 Thermogravimetric Analyzer is used to determine the composition of organic, inorganic, and synthetic materials. It measures weight loss as a function of temperature in a controlled environment. The instrument consists of a computer and a multiple sample furnace that allows up to 19 samples to be analyzed simultaneously.

After an analysis method has been selected, empty crucibles are loaded into the furnace carousel. The analysis method controls the carousel, furnace, and balance operation. On completion of crucible tare, each crucible is presented to the operator for sample loading. The starting sample weight is measured and stored automatically. Once all the crucibles have been loaded, analysis begins. The weight loss of each sample is monitored and the furnace temperature is controlled according to the selected analysis method. The percent weight loss for each sample is reported at the end of each analysis step.

The instrument contains an easy-to-follow menu-driven software program that allows analysis methods to be tailored to satisfy most analytical applications. Temperature, temperature ramp rate, and atmosphere are selectable for each step. Analysis methods can be entered to perform moisture, volatile, ash, or other constituent analysis. Other menus allow on-screen plotting of sample weight loss and temperature. Built-in diagnostic functions can be performed via menu selections.

The key to the automated analysis capability is the LECO multiple sample furnace. The 19-position sample carousel and balance pedestal are located in the furnace. The samples are automatically indexed to the position above the balance pedestal. The carousel is lowered to place a sample crucible onto the pedestal and the weight is recorded. The cycle continues throughout the entire program. All weighing is performed automatically.

Flow Diagram



Specifications and part numbers may change.
Consult LECO for latest information.

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