

DH603

Total Hydrogen Determinator

Specification Sheet

Instrument Range* (based on 1 g sample)	Hydrogen: 0.1 µg/g to 2500 µg/g
Precision**	0.02 µg/g or 2% RSD, whichever is greater
Calibration	Standards, multi-point, gas dose
Detection Method	Thermal Conductivity
Sample Size	Residual: Strip or tubular samples up to 0.9 in x 4 in (23 mm x 102 mm)
Chemical Reagents	• Sodium Hydroxide on Inert Base • Anhydrous Magnesium Perchlorate • Copper Metal
Gas Requirements	Carrier: Nitrogen, 99.99% pure, 30 psi (2.1 bar) ±10%; 60 psi (4.1 bar) ±10% with Diffusible Option Gas Dose: Helium, 99.99% pure, 30 psi (2.1 bar) ±10%
Gas Flows	Operational: 3 L/min Stand-By: 0.25 L/min
Furnace Range	Resistance heated; near-ambient to 1100 °C (2012 °F); Programmable setpoints and ramp rates
Environmental Conditions	Operating Temperature: 15 °C to 35 °C (59 °F to 95 °F) Relative Humidity: 20% to 80%, non-condensing
Electrical Power Requirements	230 V~, 50/60 Hz, single phase, 30 A; 23600 Btu/h ^{††}
Sound Pressure	56 dBA excluding vacuum (max reading at operator's level per IEC/EN 61010-1)
Physical Dimensions[†]	33 in H x 22.5 in W x 27.5 in D (84 cm x 57 cm x 70 cm)
Weight (approx.)	284 lb (129 kg)
Shipping Weight (approx.)	299 lb (136 kg)

Part Numbers

DH603DC	DH603 Determinator with software, external PC, and diffusible piercer
DH603C	DH603 Determinator with software and external PC

Options

633-103-358	Inert Gas Regulator
751-350-110	L-250 Balance
619-995	Bar Code Reader (USB)
625-515	Upgrade Kit (Piercer)

*Range may be extended by reducing or increasing sample mass.

**Based on gas dose.

[†]Allow a 6 in (15 cm) minimum access area around all units.

^{††}Average output based on nominal operating parameters.



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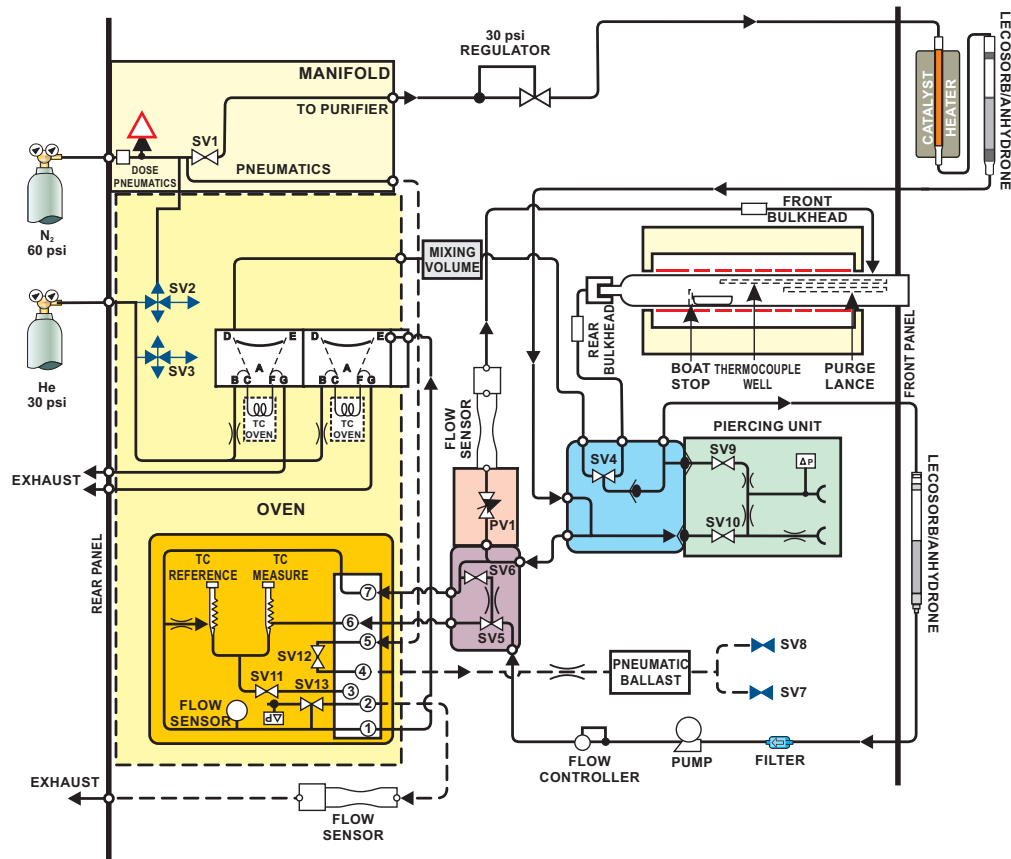
Theory of Operation

The DH603 determines the amount of residual (total) hydrogen—or diffusible and residual hydrogen with the optional piercer—in iron and ferrous alloys with a single instrument. The determinator features a user-friendly operating system and advanced furnace control.

Residual (total) hydrogen determination involves placing a pre-weighed sample into the furnace, allowing the hydrogen to be evolved by hot extraction into the flowing gas stream. Samples may be collected using a LECO vacuum pin tube or a similar technique. The hydrogen content is measured by a thermal conductivity detector. Final results are displayed in parts-per-million.

Diffusible and residual hydrogen determination involves placing a sampler in the optional piercing unit, which punctures the sampler, allowing the diffused molecular hydrogen to be purged into the carrier gas stream. The hydrogen is measured by a thermal conductivity detector. The sampler is then removed from the piercing unit and the outer shroud is removed, exposing a pin sample for residual hydrogen analysis. The sample is then weighed and placed into the resistance furnace, allowing the residual hydrogen to be introduced into the carrier gas stream by hot extraction. The hydrogen content is measured by a thermal conductivity detector. Final results are displayed in parts-per-million.

Flow Diagram



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

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