HYDROCLEAR

Fuel-Cell Grade Hydrogen Purifier

Industrial & Energy-Scale Hydrogen Infrastructure

Leman Instruments

DESCRIPTION:

Unlike Leman Instruments' laboratory gas generators, HYDROCLEAR targets industrial and energy-infrastructure customers: it purifies hydrogen from large-capacity electrolyzers and industrial generators up to fuel-cell grade, closing the purity gap left by the high-flow, industrial-purity electrolyzers now dominating the green hydrogen market.

Installed downstream of any high-flow H2 source, HYDROCLEAR polishes feed gas from 95–99.9995% purity up to >99.99999% (7N), removing O2, N2/Ar, CO, CO2, moisture and hydrocarbons down to the ppb level.

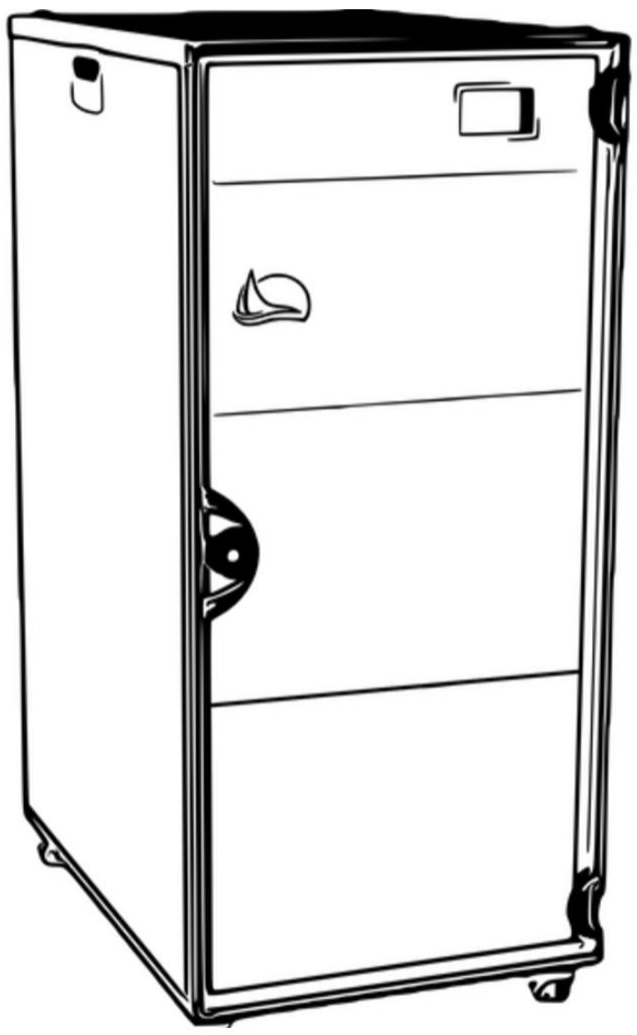
Based on Leman's PULSE Smart PSA technology — the same purification core proven in the HYDRO70 line, scaled to industrial flow — purification runs continuously with no consumables, no caustic solution and no scheduled bed replacement. Output pressure is regulated electronically from 0.5 to 10 bar.

Models purify from 100 to 600 L/min H2 per train, with parallel trains available for higher flow. Each instrument is equipped with high-performance communication interfaces (Ethernet) to create a flexible gas network with local or central control.



APPLICATION TYPES:

- Hydrogen refueling stations
- Green H2 storage and power-to-gas
- Ammonia and methanol synthesis purge-gas recovery
- Refinery purge-gas recovery
- Hydrogen-cooled power generators



FEATURES:

- Reduces operation costs. Return on investment within 1 year, then free H2.
- Fuel-cell grade H2 available 24/7 at constant 7N purity. No contamination.
- Independent purification stage. Fits downstream of any high-flow H2 generator; consumes no water and manufactures nothing.
- No handling, no storage, no consumables, no caustic solution.
- Very safe operation: internal leak test, automatic shut-down, over-pressure valve.
- Modular parallel trains; local or remote control via Ethernet.

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MODELS	HYDROCLEAR-100 HYDROCLEAR-300 HYDROCLEAR-600
H2 Outflow @1013 / 20°C	-100: up to 100 L/min -300: up to 300 L/min -600: up to 600 L/min
Outlet H2 purity	>99.99999% (7N) · TNMHC<10ppb · CH4<10ppb · BTEX<4ppb · Benzene<3ppb · O2<25ppb · N2<10ppb · meets ISO 14687 / SAE J2719 Grade D
Feed H2 purity	95% to 99.9995% (up to 4.5N)
Outlet Dew point	≤ -80°C
Outlet Pressure	From 0.5 to 10 bar, adjustable by software (7 to 145 psig)
Dimensions	W 55cm · H 120cm · D 80cm (varies with model)
Net weight (kg)	80 to 120 kg (176 to 264 lbs)

H2 feed requirement	Dry H2 without humidity, equivalent to 99.5% purity or higher
Sound pressure	<50dB(A), measured at 1m
Manual control	Through a 7" TFT-LCD color display with touchscreen, located on the front panel. Display of major parameters, functioning status and alarms. Intuitive navigation to functions by menus and sub-menus.
Remote control	• RS485 (Mod-Bus), USB • Through Ethernet 10/100 network • Logbook download by USB
H2 outlet fitting	Stainless steel 1/2" OD compression (other on request)
Power supply	Automatic switching from 90VAC to 260VAC, 47 to 63 Hz
Power consumption	Maximum 250W (at full flow)
Certification	CE (Machinery, PED, EMC Directives)

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