

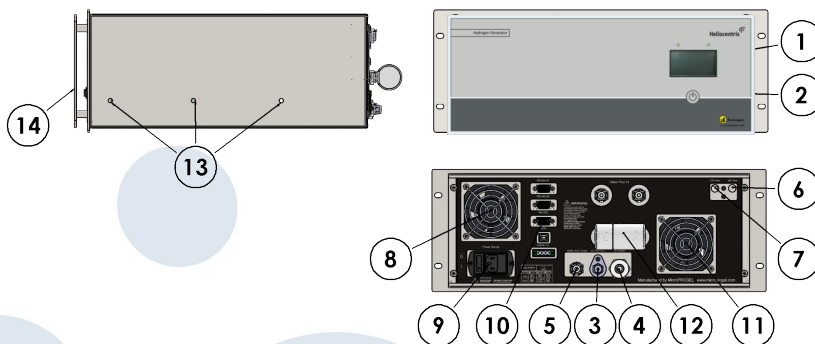
## HG Rack Series



The HG Rack Series series generators use an electrolytic cell with polymeric membrane (PEM) to produce pure hydrogen. The innovative gas drying system is completely maintenance-free and allows continuous operation, 24 hours a day. The exclusive, electronically-controlled gas/liquid separator, automatic checking for internal leaks whenever starting the unit, and constant control of operating parameters guarantee maximum safety.

Up to 20 units can be connected in parallel.

The touch-screen LCD interface provides simple and user-friendly management of all functions on the unit.



- 1 Touch-screen LCD 128x64 pixel
- 2 START/STOP button
- 3 Hydrogen Outlet
- 4 Hydrogen purge
- 5 Water feed connector for filling the tank
- 6 Hydrogen vent
- 7 Oxygen vent
- 8 Cooling fan air outlet
- 9 Power connection and switch
- 10 I/O connectors: RS485 – RS232 – USB – Digital I/O
- 11 Cooling fan air intake
- 12 Water filter
- 13 Holes for sliding rails
- 14 Front handles

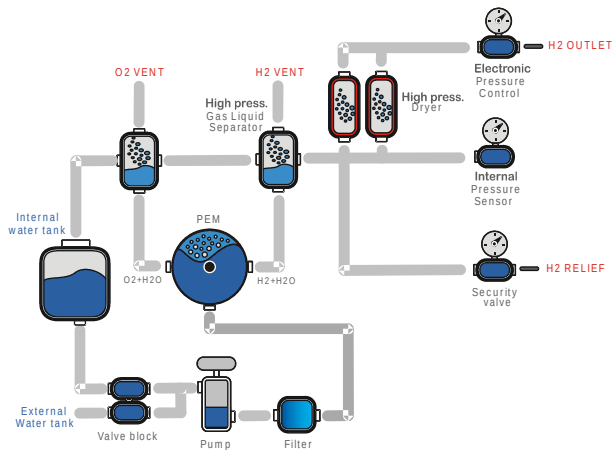
### Main Applications

- Carrier gas for GC and GS-MS
- ICP-MS collision gas
- Flame ionization detector feed gas (FID)
- Refilling metal hydride tanks for use with fuel cells

### Main Features

- **Available Flow-rates:**  
up to 1200 cc/min
- **Outlet pressure:**  
up to 16 bar/232 psi
- **Hydrogen purity:**  
>99.99999%
- **Drying system:**  
Innovative maintenances-free system for continuous 24-hour operation
- **Internal water tank:**  
1.1 litres, with electronic level control and “Autorefill” from external tank, included as standard
- **Dimensions:**  
Standard 19" 4U/5U RACK (40 cm deep)
- **Weight:**  
15 to 22 kg (depending on the model)
- **Certification:**  
CE, ISO9001

## Principle diagram



Hydrogen is produced from distilled water using a polymeric membrane (PEM). No acid or alkaline solutions are used. The drying stage requires no maintenance. A two-column drying system with automatic regeneration ensures the maximum grade of hydrogen purity.

Models		K00-1306 HG 30	K00-1303 HG 72	K00-1304 HG 198
General data				
Electrolytic cell	PEM technology			
H2 purity	>99.99999%			
Outlet pressure	16 bars/232psi			
H2 flow rate cc/min (max)		500	1200	3300
Communication				
RS232		X	X	X
RS485		X	X	X
USB		X	X	X
LAN				
Software functions				
Parallel mode capability		X	X	X
Fill canister function		X	X	X
Water				
Quality	Deionized, ASTM II, <0.1uS			
Supply pressure (Min)	-0.2 bars (1.4 psi)			
Supply pressure (Max)	1 bar (14 psi)			
Supply flow-rate (min,max)	0.2 l/min, 1.5 l/min			
Internal tank capacity	1.1 l			
External tank capacity	5 or 10 l			
Electrical data				
Power supply connection type	IEC320-C13			Triple 4 pole connector
Power supply voltage	100-240Vac 50/60Hz			24V DC
Installed power (max)		450W	560W	50 A
Fuse rating 5x20mm		6.3A 250VAC		ext. power supply
Dimensions	19" RACK 4U – 40cm deep			19" Rack 5U-40 cm deep
Net weight (water tank empty)		22 kg	25 kg	29 kg
Connections				
Hydrogen outlet	1/8" compression fitting			
Water	Quick release push-in fitting			

### Accessories:

Remote Software	K00-1307
Deionizer Water Filter HG30/HG72	L90-0010
Deionizer Water Filter HG198	L90-0011

Heliocentris

## MHS – Metal Hydride Storage Canisters

Compact and safe hydrogen storage at low pressure

ACADEMIA OFFERING

The metal hydride storage canisters from Heliocentris allow safe and compact storage of relatively large amounts of hydrogen at low pressures.

Heliocentris' metal hydride storage canisters can store a multiple amount of hydrogen in comparison to a pressure storage at low pressure.

The metal hydride storage canisters are available in three different dimensions with storage capacities of 200 NI, 400 NI and 800 NI hydrogen at 25 bar filling pressure.

The MHS 200 and MHS 400 storages comply with the Art. 4.3 and the MHS 800 with the category 1 of the pressure equipment directive lowering the barriers of hydrogen usage in contrast to pressure storage devices.

### Technology

The Heliocentris metal hydride storages are equipped with a low temperature AB2 metal alloy on a TiMg base:

- absorb the hydrogen in the alloy lattice after adsorption at the surface
- can store hydrogen at high volume- and low weight density (ideal for stationary application)
- has a low plateau pressures at about room temperature
- has a low thermal conductivity

The canister is designed as a passive surface cooled system. Heat ducting can be applied by the user with air ventilation or water cooling.

### Temperature Handling

The nominal parameters of the canister are defined for a canister surface temperature of 20°C. The absorption/ desorption performance of the storage can be sensitively influenced by thermalizing the canister surface by:

- cooling the storage surface for absorption (filling) by water or air with 5 ... 20°C
- heating the storage surface for a continuously desorption by water or air with 20 ... 50°C
- usage of the ambient air with passive or active ventilation

### Integration, Usage and Safety

An integrated quick coupling allows an easy and safe connection to an individual hydrogen source. The storage is equipped with a pressure and temperature relief valve to avoid dangerous conditions.



MHS 200  
Art.-Nr.  
K00-0648

MHS 400  
Art.-Nr.  
K00-0649

MHS 800  
Art.-Nr.  
K00-0650

MHS 800 MHS 400 MHS 200

# Water purification systems

5P/ 10P

The LNI water purification systems are able to supply purified water for instrumental and analytical purposes matching requirements of every modern laboratories. Conductivity of obtained water does not exceed 0.06  $\mu\text{S}/\text{cm}$ , so it is applicable for PN-EN ISO 3696:1999, ASTM, CLSI, FP standards.

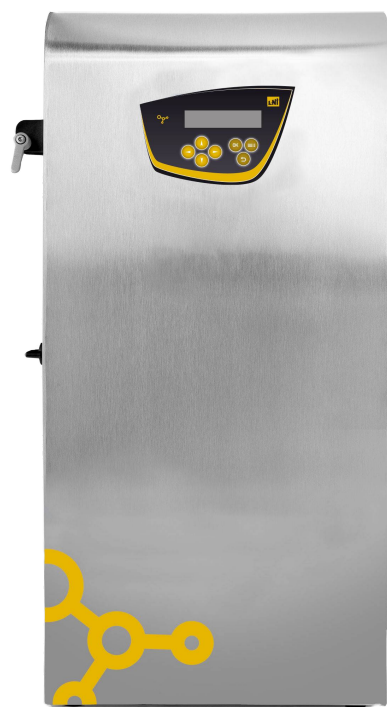
The system is the ideal water purification system for AAS, ICP/MS, IC, HPLC, GC instrumental analyses. Our demineralizers are equipped with a microprocessor control and measurement system. The LCD interface provides simple and user-friendly management of all functions on the unit.

## Main Applications

- AAS
- IC, ICP/MS
- HPLC
- GC

## Main Advantages

- ✓ Water purified in this device fits the PN-EN ISO 3696:1999 standard for class II purity, and microbiological/ physicochemical FP requirements for purified production water
- ✓ Powered by: tap water
- ✓ Efficiency: 5 -12 l/h
- ✓ Purified water intake speed: 1-2 l/min.
- ✓ Conductivity < 0,06  $\mu\text{S}/\text{cm}$
- ✓ Particle filtration: 1  $\mu\text{m}$
- ✓ Low maintenance
- ✓ Reduced foot print



## Specifications

Models:	5P		10P	
General information				
Power	Tap water pressure			
Efficiency	5-7 l/h		10-12 l/h	
Purified water intake speed	1-2 l/min			
Conductivity	< 0.06 µS/cm			
Particles	1 µm			
Dimensions (mm)	232 mm (W) x 510 mm (H) x 443 mm (D)		232 mm (W) x 570 mm (H) x 478 mm (D)	
Housing	Acid-proof stainless steel			
Water purification levels				
Sediment filtration	1 µm			
Module	Integrated (sediment-carbon-softening)			
Demineralization	Mixed ion exchange			
Osmosis	reverse			
Water				
Water outlet pressure	ca. 2 bar, regulator			
Tank capacity	10 L			
Tank dimensions	390 mm (H) x 250 mm (DIA)			
Temperature	5 – 40 °C			
Feed water parameters				
Conductivity	< 1200 µS/cm			
Pressure	> 3.0 bar			
Hardness	< 250 mg CaCO3/l			
Fe	< 0.2 mg/l			
Electrical data				
Supply voltage	230V/50Hz			
Water pump	24V			
Energy Consumption	20-100W			
Connections				
Cold tap water	½” or ¾ fitting			
Connector	RS 232			

### Ordering codes

#### Water purification systems

K00-1310

Demineralizer 5L

K00-1311

Demineralizer 10L

#### Consumables

Prefilter 5um 10"

Module A2 (sediment-carbon-softening)

Ion-exchange cartridge 2000ml H7

Ion-exchange cartridge 5000ml H6

#### Spare parts

Module A2 (sediment-carbon-softening)

Ion-exchange cartridge 2000ml H7

Ion-exchange cartridge 5000ml H6