

HCPS – HYDROGEN CONTINUOUS PURIFICATION SYSTEM

The SOF Optoelectronics HCPS is an integration of two H₂-Gas purifier-units and the associated heaters and sensors for automated gas purifying. The product is designed to purify hydrogen at ambient temperature. Power failures will not affect the viability of a purifier bed to remove contamination.

Contaminants, such as moisture, oxygen, carbon monoxide, carbon dioxide, and non-methanated hydrocarbons, are removed from the hydrogen gas to sub-ppb levels through chemisorption and oxidation. The purifier media is a specific mix of inorganic nickel silica.

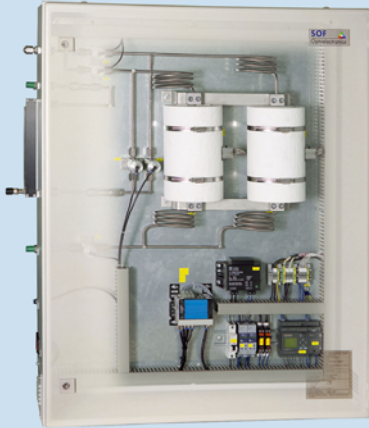
A dual bed system is used to maintain continuous flow. One purification bed is online while the other is in regeneration or in standby mode. The regeneration cycle is SPS-controlled. During the reactivation process, the regenerating bed is heated and a small amount of purified hydrogen is run counter flow through the bed. This drives off all contaminants and leaves the bed ready to purify hydrogen gas. When the bed returns to ambient temperature, it is put in a standby mode and is ready to go back online when the sequence is complete.

TECHNICAL HIGHLIGHTS

- Designed to replace Pd-diffusion gas purifiers or one-way cartridge systems
- Operating without Pd-diffusion membrane
- Removes moisture, oxygen, carbon oxides, and others from hydrogen gas
- Residual oxygen and moisture less than 1ppb (9N)
- Continuous operating without changing of filters or opening of piping
- Insensitive to power supply failures
- Insensitive to unstable gas qualities



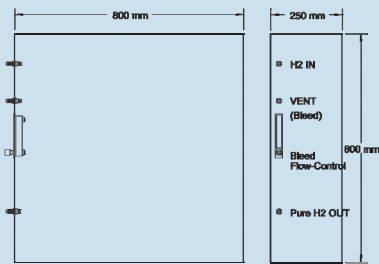
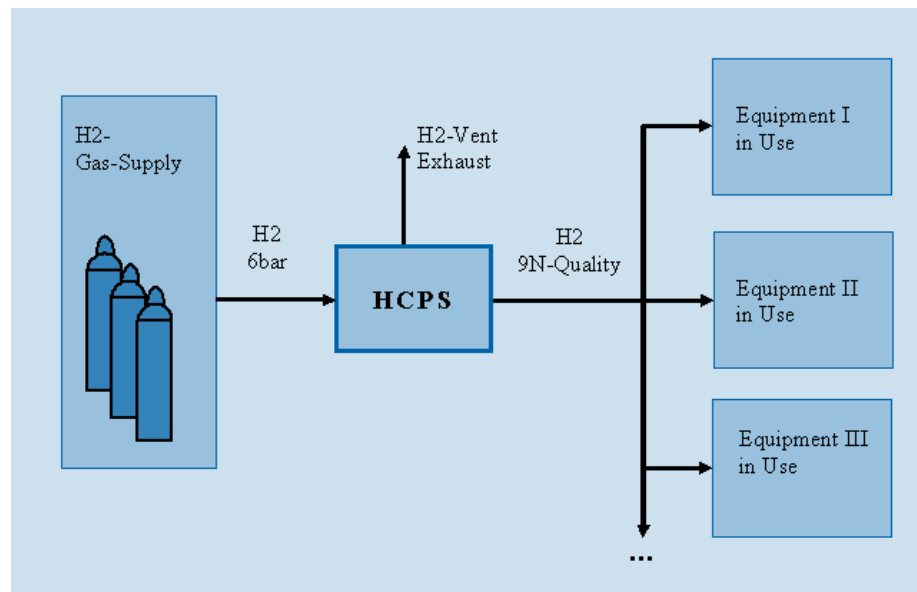
HCPS-60 / HCPS-300



THE INSTALLATION

The HCPS Purification System is a stand-alone system offering in-situ regeneration. The dual bed design guarantees a continuous supply of pure gas. No need to send a purifier back for regeneration or to install an expensive replacement cartridge. More importantly there is no need to interrupt your process. The pre-programmed controller knows when to switch to the fresh purifier and to regenerate the other.

The HCPS can be adapted easily to customers' applications. Only a Hydrogen vent-line and an electrical power-supply of 800 Watt are needed. Standard VCR® fittings are used for connections of gas piping.



DIMENSIONS

SPECIFICATIONS

Parameters	HCPS-60	HCPS-300
Maximum Flow Rate	60 slm	300 slm
Maximum Operating Pressure	500 psig	500 psig
Typical Operating Pressure	125 psig	125 psig
Minimum Operating Pressure	30 psig	30 psig
Purifying Media	Nickel Silica Mix	Nickel Silica Mix
Gases Removed from H ₂	CO, CO ₂ , H ₂ O, O ₂ , NMHCs	CO, CO ₂ , H ₂ O, O ₂ , NMHCs
Outlet Purity	<1 ppb (eq. 9N)	<1 ppb (eq. 9N)
Operation Temperature	0°C to 50°C (32 F to 122 F)	0°C to 50°C (32 F to 122 F)
Inlet /outlet Connections	¼" male VCR	¼" male VCR
Leak Rating	4 x 10 ⁻⁹ atm cc/sec	4 x 10 ⁻⁹ atm cc/sec