



**HYDRAULICS INTERNATIONAL, INC.**  
9201 Independence Avenue  
Chatsworth, CA 91311 USA  
Tel: (818) 407-3400 Fax: (818) 407-3428



## **HYDROGEN BOOSTER SYSTEM**

### **PN HIHPG2-5GDD28-H2-P-SAD-A1K-B2K-HPR**

This Unit is designed to boost directly from a cascade system to outlet pressures of 1813 PSI (125 BAR).

The unit ensures full fills even if the supply storage pressure drop as low as 1000 PSI (69 BAR).

The unit is operated directly from a low pressure air compressor source. The high-pressure sections of the booster are cooled by the drive exhaust air and operates dry, non-lubricated. In the shop air drive mode, non-contaminated outlet gas is assured because of complete dual vented separation from the drive section. All items are mounted on a powder coated white tubular frame and tilted control panel with valves and gauges panel mounted.

#### **Controls Included:**

- Air driven gas booster, double acting, double air drive configuration, model 5G-DD-28-H2-P with gas vents connected to a common port
- Low pressure air controls (filter, regulator, gauges and ½" ball valve)
- Low pressure pilot cutoff valve set to automatically stops the booster when the gas inlet pressure drops below 1000 PSI adjustable
- High pressure pilot cutoff valve set to automatically start/stop the booster when the outlet pressure exceeds set pressure of 2000 PSI adjustable
- Outlet high pressure regulator set at 1813 PSI
- Gas outlet on/off valve (needle type)
- Vent on/off valve (needle type)
- Safety relief valves set at 2350 PSI adjustable
- 2.5" dial gas inlet & 4" dial outlet gauges dual scale with calibration certs
- Gas inlet & outlet filters (10-Micron)

#### **Specifications:**

- Dimensions: .....38"L x 17"D x 20"H
- Weight: ..... 95-pounds
- Displacement per cycle: ..... 14 cu-in
- Maximum outlet pressure: ..... 2000-psi
- Booster dimensions: ..... 32"x10"x10"
- Drive air supply port: ..... ½" NPTF
- Gas inlet & outlet ports: ..... 3/8" NPTF

#### **NOTE**

Proposed system will be powder coated white. Use as an illustration purpose only.



Air driven gas boosters range





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## **Electric Driven Hydrogen System PN 2G-E14504-H2-P-A200-B5075-VFD-ATEX**

The hydrogen booster unit was designed to boost directly from a low pressure source to an outlet pressures up to 5075-psi (350 bar) for charging cylinders or alike.

The unit ensures full fills even if the hydrogen storage cylinders drop as low as 200-psi. The unit intensifies the hydrogen source by means of an electric motor that transfers mechanical energy through a shaft to the speed reducer and crankshaft mechanism to generate the reciprocating action. This mechanism is directly connected to a 2-stage gas boosting configuration. The gas sections are air cooled by an intergral cooling fan.

### **Controls Included:**

- Gas booster PN 2G-E14504-H2-P, 2-stage configuration with vents connected to a common port
- Automatic stop/start high limit control FACTORY pre-set @ 5075-psi (adjustable) when the hydrogen outlet pressure exceeds set point
- Automatic stop/start low limit control FACTORY pre-set @ 200-psi (adjustable) when the hydrogen supply pressure drops below set point
- Manual start/stop control from remote control panel
- Inlet & outlet ports supplied with 1/4" NPT (F)
- Outlet safety relief valve set @ 5200-psi (adjustable)
- Gas Inlet/Outlet Pressure Gauges dual scale
- Cooling fan rated at 176-cfm
- Hour Meter, 6-digits installed at remote control panel
- Gas inlet & outlet filters, 5-Micron
- Gas outlet on/off and bleed valves, needle type

### **Specifications:**

- Dimensions: ..... 37"L x 20"W x 11.5"H
- Weight: ..... 155 Pounds
- Max. outlet pressure: ..... 5075-PSI
- Min. inlet pressure: ..... 290-PSI
- Max. inlet pressure: ..... 435-PSI
- Motor rating: ..... 2-HP, 380-VAC, 3PH
- Operating Noise level: ..... 63-dBA
- Operating speed (cpm): ..... (70-72) @ 50-hz
- Warranty: ..... 1-year



### **NOTE:**

Above illustration shows the Non-ATEX remote enclosure housing the VFD, relays, on/off switch, circuit breaker, potentiometer, and hour meter

### **Performance:**

Gas Inlet Pressure (PSI)	Discharge Flow Rate from booster	Flow Rate required Max	Frequency Reading from VFD
290	2.1-scfm	0.59-scfm (1NM3/h)	14-hz
		2.1-scfm (5NM3/h)	50-hz
435	3.2-scfm	0.59-scfm (1NM3/h)	9-hz
		2.9-scfm (5NM3/h)	45-hz

Electric gas boosters range



## ACCESSORIES FOR H2 USAGE

	<b>Actuated Ball Valves: Code 42606</b>
   	<p><b>3/8" bore ball valves</b> offered with 3/8, 9/16, or 3/4 MP end adapters. Fixed end adapters eliminate periodic adjustments to the end adapters. Two piece trunnion and stem design assures precision trunnion and seat seal alignment.</p> <p>Ultra-long life thrust washer. We tested the valve to &gt;100,000 on/off cycles with virtually no wear to the thrust washer.</p> <p>Special back-up rings.</p> <p>Double O- rings and back-up rings on dynamic stem.</p> <p>Bearing grade peek material used for bearings.</p> <p>PHP can assemble the valve slightly tight/snug and the bearings relax under pressure.</p> <p>Low temperature o rings for H2 temperatures –40C rated.</p> <p>NORSOK M-710 approved.</p> <hr/> <p><b>Needle Valves: Standard code + H2</b></p> <p>PHP is using SUH660 material for them stem. SUH660 has a 25% Ni content while our standard 316L is slightly above 10%. The higher Ni content helps eliminate H2 embrittlement which you probably already know.</p> <p>The rest of the needle valve construction and materials are standard with the exception of the air actuator (Atex version).</p> <p>ATEX certification available.</p> <p>All our fittings are made from standard 316L material.</p> <p><b>Read the QR code for SUH660 Steel Datasheet</b></p>
	<b>Rigid Tubing</b>
 	<p>In material 1.4401/1.4404 (316/316L)</p> <p>For pressure up to 20.000 psi (1380 bar)</p> <p><b>Made in Italy</b> tubing manufactured according to ASTM A 370, ISO 6892-1 and ASME SA213 regulations.</p> <p>Standard measure 6 meters, other lengths upon request.</p>

