



Catalog No. H - HPGR800S  
Jan. 2008

## HPGR-800 Series

### ULTRA-HIGH PURITY POINT-OF-USE REGULATOR

#### Features

- Single Stage
- Low Particle Entrapment
- True metal to metal body to diaphragm seal
- Long life cycle
- 10Ra or 5Ra microinch internal surface
- Free poppet type
- Internally Threadless
- Maximum inlet pressure range : 600, 1000 or 3500 psig  
(41, 69, or 24.1 MPa)
- Outlet pressure range : 3-30, 3-60, 3-100 & 4-150 psig  
(0.1-0.207, 0.1-0.414, 0.1-0.689, & 0.1-1.034MPa)

The HPGR-800 Series is a high purity gas regulator designed to provide the optimum in performance and cleanliness for high purity delivery systems in semiconductor applications.

The HPGR-800 Series regulators are a Point-Of-Use regulator designed to be used with corrosive and non-corrosive gases in process gas systems for Semiconductor manufacturing facilities and is a single stage regulator operated by the load spring which interacts with a main valve to control outlet pressure.

The regulators are metal-to-metal diaphragm to body seal provides enhanced leak integrity.

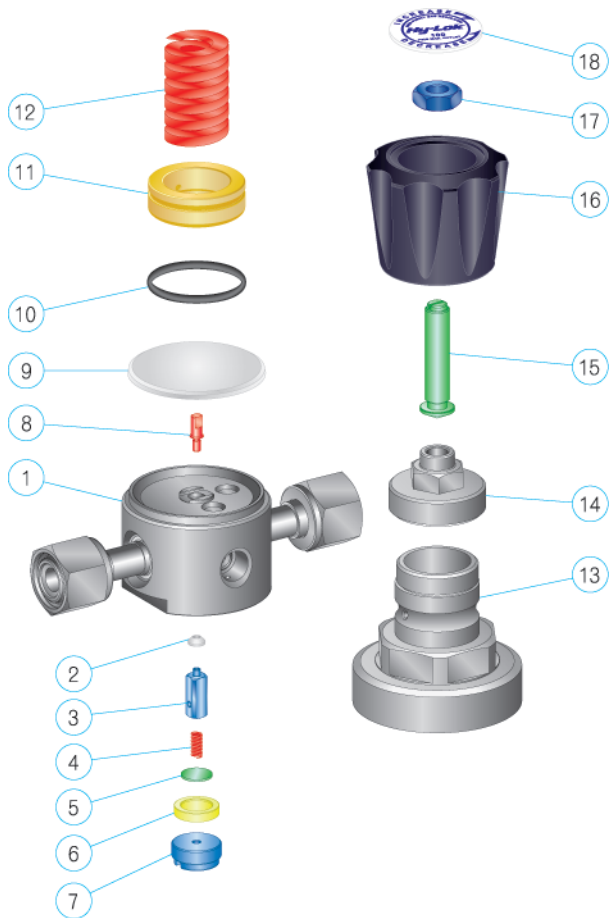
The wetted surface are finished to 10Ra or 5Ra microinch to minimize the generation of particles.

Assembly, testing and packing are performed in a class 10 cleanroom.





# HPGR - 800Series



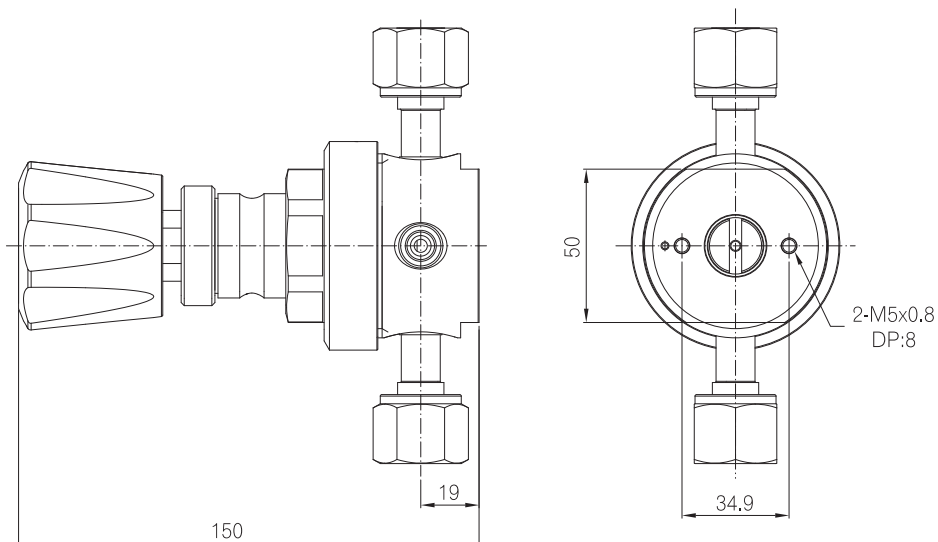
## Materials of Construction

| No. | Description   | Material / ASTM Specification     |
|-----|---------------|-----------------------------------|
| * 1 | Body          | Single/Double Melting 316L / A479 |
| * 2 | Seat          | PCTFE                             |
| * 3 | Main Valve    | Type 316L / A479                  |
| * 4 | Valve Spring  | Type 316L / A479                  |
| * 5 | Gasket        | Type 316L / A479                  |
| 6   | Gasket Holder | Type 316L / A479                  |
| 7   | Push Bolt     | Stainless Steel 304               |
| * 8 | Seat Holder   | Type 316L / A479                  |
| * 9 | Diaphragm     | Elgiloy®                          |
| 10  | O-Ring        | Viton®                            |
| 11  | Thrust Pad    | Stainless Steel 304               |
| 12  | Load Spring   | Stainless Steel 304               |
| 13  | Bonnet        | Brass / B16                       |
| 14  | Bonnet Nut    | Brass / B16                       |
| 15  | Adjust Screw  | Stainless Steel 304               |
| 16  | Hand Wheel    | Plastic                           |
| 17  | Nut           | Stainless Steel 304               |
| 18  | Label         | Plastic                           |

\* : Wetted Components

## Dimension

- All dimensions are in millimeters and Subject to change.





# HPGR - 800Series

## Specification

**FLUID MEDIA :** All gases corrosive or non-corrosive for high purity system.  
When using other media , Please Contact us.

**PRESSURE RATING :** Per criteria of ANSI/ASME B31.3

Maximum rated inlet pressure ----- 600, 1000 or 3500 psig  
(41, 69, or 24.1 MPa)  
Outlet pressure range ----- 3-30, 3-60, 3-100 & 4-150 psig  
(0.1-0.207, 0.1-0.414, 0.1-0.689, & 0.1-1.034MPa)

**DESIGN PROOF PRESSURE :** 150% maximum operating pressure

**MATERIALS IN CONTACT WITH MEDIA :**

Body ----- 316L SS VOD / AOD / VIM (BA),  
316L SS VIM / VAR (EP)  
Valve seat ----- 1000psig - PCTFE, 3500psig - Vespel®  
Diaphragm ----- Hastelloy C-22 / Elgiloy  
Main valve,Bush,Spring,Seat holder ----- 316L SS

**OTHER PARAMETERS :**

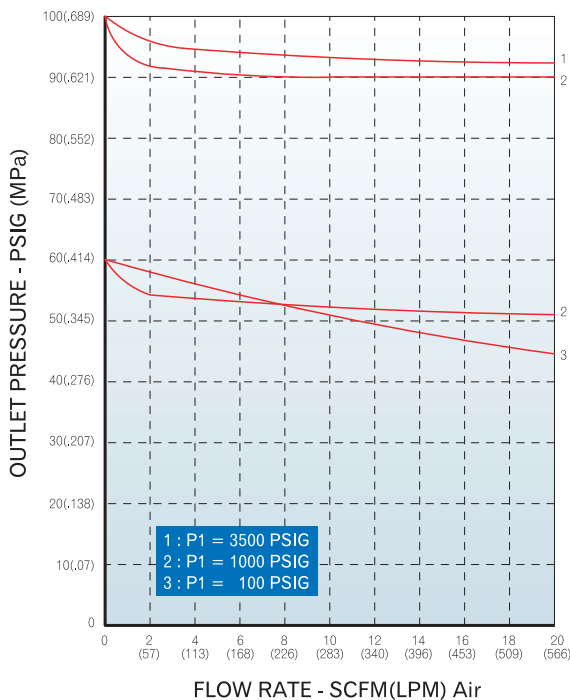
Flow capacity ----- Cv = 0.5  
Certified maximum inboard leak rate -----  $1 \times 10^{-9}$  atm cc / sec He  
Internal surface finish ----- 10Ra or 5Ra microinch (0.25 or 0.13 $\mu$ m)

**OPERATING TEMPERATURE :**

PCTFE Seat ----- -40°F to +200°F (-40°C to +93°C)  
Vespel®Seat ----- -40°F to +300°F (-40°C to +149°C)

**WEIGHT :** 3.2lbs (1.5Kg)

**FLOW CHART**  
**REGULATOR DISCHARGE CHARACTERISTICS CURVES**  
P1 : Inlet Pressure



This characteristics curve chart shows the change or drop in two Different pressure as the flow rate Increases and the inlet pressure Decreases.

# HPGR - 800Series

## Gauge Port Options

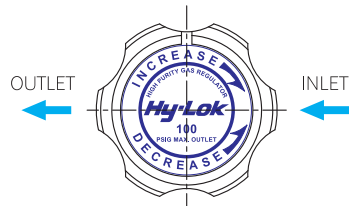


Fig.1(NO GAUGE)

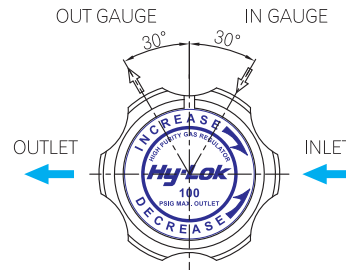


Fig.3(2 GAUGE)

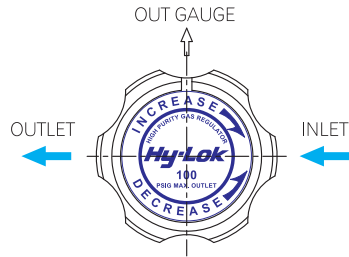


Fig.2(1 GAUGE)

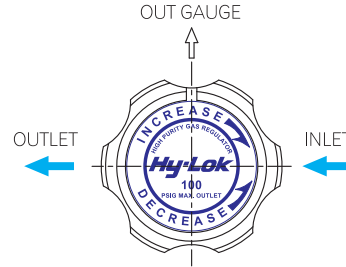


Fig.4 (2 GAUGES)

## Ordering Information

HPGR - 800 2 2 P ZF B - H - VV6L

|  |   |
|--|---|
| <p><b>SERIES</b></p> <p>HPGR-801 : 3/8" Connection<br/>HPGR-802 : 1/2" Connection</p>  | <p><b>BODY MATERIAL</b></p> <p>SM6L : Single melting 316L SS(VOD/AOD)<br/>VV6L : Double melting 316L SS(VIM-VAR)</p>  |
| <p><b>INLET PRESSURE</b></p> <p>1 : 300 psig 2 : 600 psig<br/>3 : 1000 psig 4 : 3500 psig</p>  | <p><b>GRADE</b></p> <p>B : BA (Bright Annealing)<br/>H : EP (Electropolish)<br/>S : Super Electropolish</p>   |
| <p><b>OUTLET PRESSURE</b></p> <p>0 : 1-30 psig (0,1-0,207 MPa)<br/>1 : 1-60 psig (0,1-0,414 MPa)<br/>2 : 1-100 psig (0,1-0,689 MPa)<br/>3 : 1-150 psig (0,1-1,034 MPa)</p> | <p><b>GAUGE PORT OPTION</b></p> <p>A : None No gauge port (Fig.1)<br/>B : Internal Face Seal(1/4") 1 Gauge (Fig.2)<br/>C : Internal Face Seal(1/4") 2 Gauges (Fig.3)<br/>D : Internal Face Seal(1/4") 2 Gauges (Fig.4)<br/>E : ZCR male(1/4") 1 Gauge (Fig.2)<br/>F : ZCR male(1/4") 2 Gauges (Fig.3)<br/>G : ZCR male(1/4") 2 Gauges (Fig.4)<br/>H : ZCR Female(1/4") 1 Gauge (Fig.2)<br/>I : ZCR Female(1/4") 2 Gauges (Fig.3)<br/>J : ZCR Female(1/4") 2 Gauges (Fig.4)<br/>K : Fixed male(1/4") 1 Gauge (Fig.2)<br/>L : Fixed male(1/4") 2 Gauges (Fig.3)<br/>M : Fixed male(1/4") 2 Gauges (Fig.4)</p> |
| <p><b>SEAL MATERIAL</b></p> <p>P : PCTFE<br/>V : Vespel®</p>   |   |
| <p><b>INLET &amp; OUTLET PORT</b></p> <p>NF : Female NPT thread<br/>TW : Tube Weld<br/>ZM : ZCR male<br/>ZF : ZCR female<br/>HL : Hy-Lok<br/>FM : Fixed male</p>           |   |

### QUALITY SYSTEM CERTIFICATES



ISO 9001  
CERTIFICATE NO.QCC 212

ASME SECT III (MO)  
CERTIFICATE NO. QSC 584

### TYPE APPROVALS (for Hy-Lok Tube Fittings)



American Bureau Shipping  
CERTIFICATE NO.05-BK576227-X



Lloyd's Register  
CERTIFICATE NO.01/10075



GERMANISCHER LLOYD  
CERTIFICATE NO.40297-01HH



DET NORSKE VERITAS  
CERTIFICATE NO.P-10432

### SAFETY in VALVE SELECTION

Proper installation, material compatibility, operation and maintenance of the valve is the responsibility of the user. The total system design must be taken into consideration to ensure optimal performance and safety.



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