

ULTRA-HIGH PURITY POINT - OF - USE REGULATOR

HPGR-400s

HPGR - 400 Series



Features

- Single Stage.
- 10Ra or 5Ra microinch internal surface.
- True metal to metal body to diaphragm seal.
- Long life cycle.
- Maximum inlet pressure range : 3500 or 600Psig (241 or 41 barg).
- Outlet pressure range : 1-30, 1-60, 1-100, 1-150, 1-250 Psig (1-2.1, 1-4.2, 1-7.0, 1-10.5, 1-17.5 barg).

The HPGR-400 Series is a High Purity Gas regulator designed to provide the optimum in performance and cleanliness for high purity delivery systems in semiconductor applications.

This regulator is suitable for applications involving gases that are non-corrosive and corrosive, and is a point-of-use regulator designed to be used in process gas cabinets for semiconductor manufacturing facilities. The HPGR-400 Series is a single stage regulator operated by a load spring which interacts with a control valve to control outlet pressure. Metal-to-metal diaphragm to body seal provides enhanced sealing integrity. The wetted surfaces are finished to 10 or 5Ra micro-inch to minimize the generation of particles.

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



HY-LOK CORPORATION

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ISO 14001

OHSAS 18001



HPGR - 400Series

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	-----	3500 or 600PSIG (241 or 41 bar)
Outlet pressure range	-----	1-30, 1-60, 1-100, 1-150,1-250 PSIG (1-2.1, 1-4.2, 1-7.0, 1-10.5, 1-17.5 bar)

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	-----	600 to 1000PSIG - PCTFE, 3500PSIG - Vespel®
Diaphragm	-----	Hastelloy C-22 / Elgiloy
Main valve,Bush,Spring,Seat holder	-----	316L SS

OTHER PARAMETERS :

Flow capacity	-----	Cv = 0.06(3500 PSIG), Cv = 0.15(600 PSIG)
Certified maximum inboard leak rate	-----	1x10 ⁻⁹ atm cc/sec He
Internal surface finish	-----	10Ra or 5Ra microinch (0.25 or 0.13µm)

OPERATING TEMPERATURE :

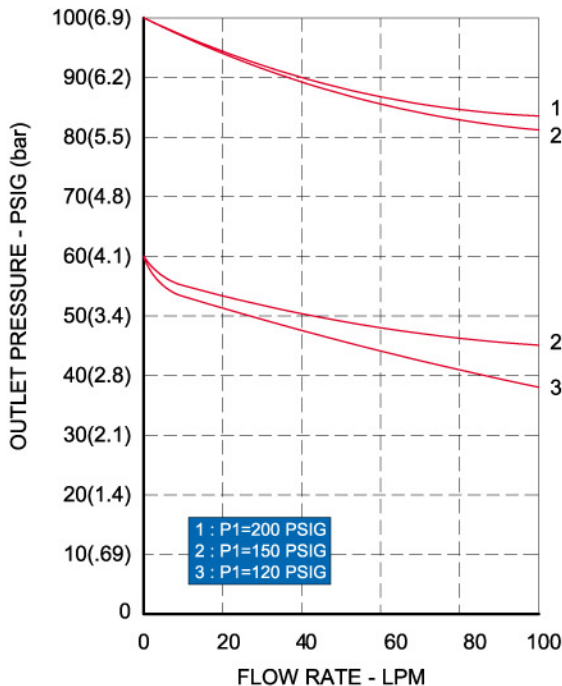
PCTFE Seat	-----	-40°F to +140°F (-40°C to +60°C)
VepelR Seat	-----	-40°F to +350°F (-40°C to +177°C)

WEIGHT : 2.0lbs (0.9Kg)

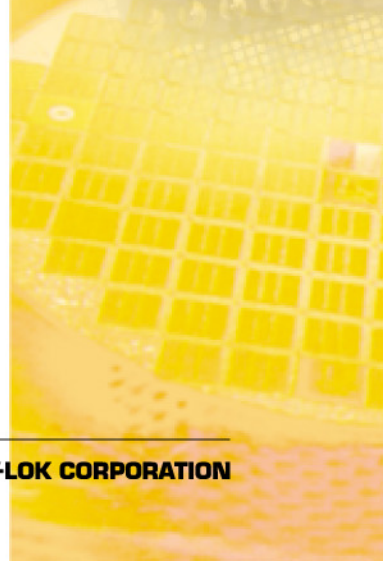
FLOW CHART

REGULATOR DISCHARGE CHARACTERISTICS CURVES

P1 : Inlet Pressure



This characteristics curves Show the change or droop in two Different pressure as the flow rate Increase and the inlet pressure Decrease.





HPGR - 400Series

GAUGE PORT OPTIONS

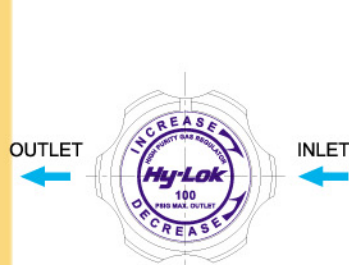


Fig.1(NO GAUGES)

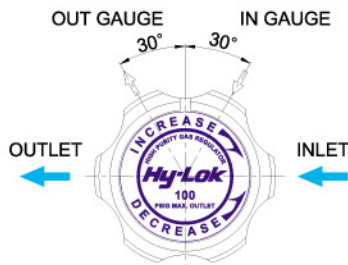


Fig.3(2 GAUGES)

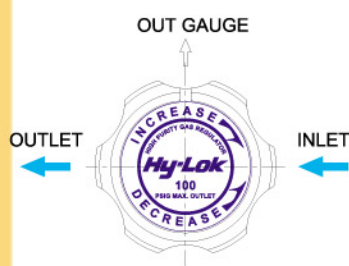


Fig.2(1 GAUGE)

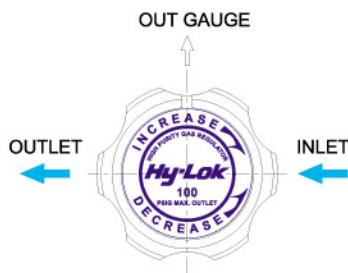


Fig.4 (2 GAUGES)

ORDERING INFORMATION

HPGR - 400 **2** **2** **P** **ZF** **B** - **H** - VV6L

SERIES

INLET PRESSURE

1 : 600 PSIG
2 : 3500 PSIG

OUTLET PRESSURE

0 : 1-30 PSIG (1-2.1bar)
1 : 1-60 PSIG (1-4.1bar)
2 : 1-100 PSIG (1-6.9 bar)
3 : 1-150 PSIG (1-10.5 bar)
4 : 1-250 PSIG (1-17.3 bar)

SEAL MATERIAL

P : PCTFE
V : Vespel®

INLET & OUTLET PORT

NF : Female NPT thread
TW : Tube Weld
ZM : ZCR male
ZF : ZCR female
HL : Hy-Lok
FM : Fixed male

BODY MATERIAL

SM6L : Single melting 316L SS
VV6L : Double melting 316L SS

GRADE

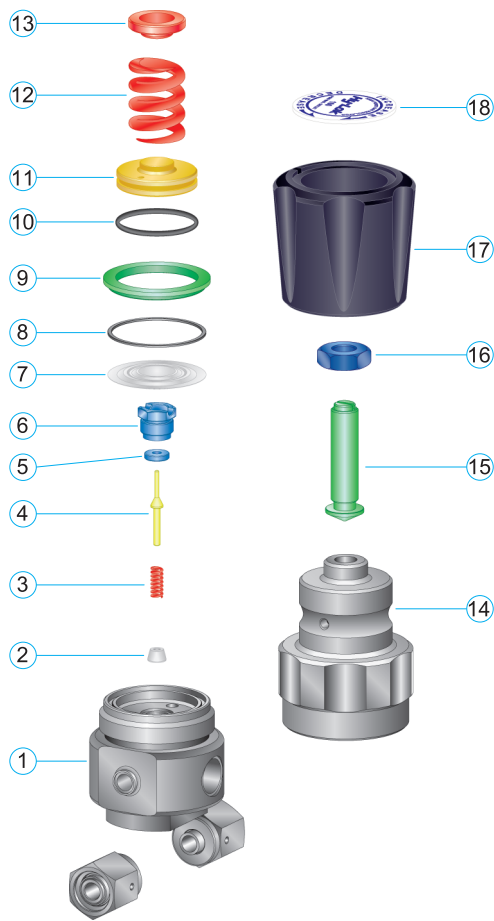
B : BA
H : Electropolish
S : Super Electropolish

GAUGE PORT OPTION

A : None	No gauge port (Fig.1)
B : Internal Face Seal	1 Gauge (Fig.2)
C : Internal Face Seal	2 Gauges (Fig.3)
D : Internal Face Seal	2 Gauges (Fig.4)
E : ZCR male	1 Gauge (Fig.2)
F : ZCR male	2 Gauges (Fig.3)
G : ZCR male	2 Gauges (Fig.4)
H : ZCR Female	1 Gauge (Fig.2)
I : ZCR Female	2 Gauges (Fig.3)
J : ZCR Female	2 Gauges (Fig.4)
K : Fixed male	1 Gauge (Fig.2)
L : Fixed male	2 Gauges (Fig.3)
M : Fixed male	2 Gauges (Fig.4)
N : Female NPT thread	1 Gauge (Fig.2)
O : Female NPT thread	2 Gauges (Fig.3)
P : Female NPT thread	2 Gauges (Fig.4)

Hastelloy C-22® is a registered trademark of Haynes International, Inc.
Teflon® and Vespel® is a registered trademark of DuPont.
Viton® is a registered trademark of DuPont Dow Elastomers.

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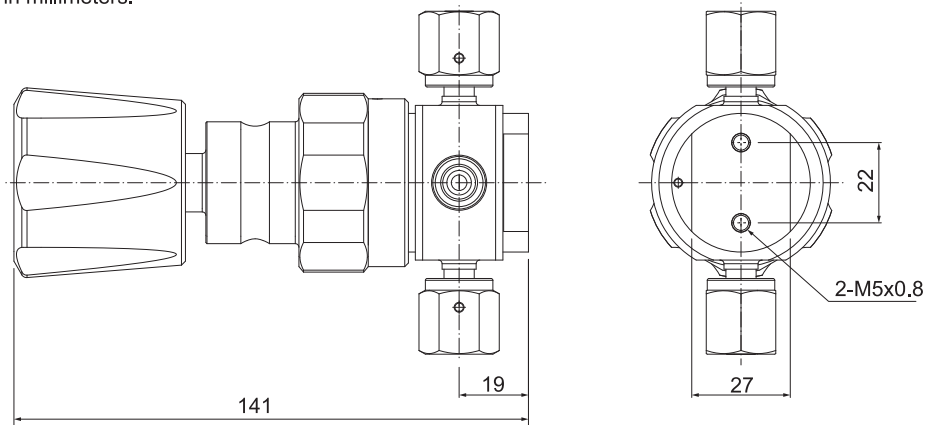
MATERIALS OF CONSTRUCTION

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

* : Wetted Components

ALL DIMENSIONS ARE REFERENCE ONLY

- All dimensions are in millimeters.



■ QUALITY SYSTEM CERTIFICATES



ISO 9001
CERTIFICATE NO. GQC 212

ASME SECT III (MO)
CERTIFICATE NO. QSC 584

■ TYPE APPROVALS (for Hy-Lok Tube Fittings)



American Bureau of Shipping
CERTIFICATE NO. 00-BK50288-X



Lloyd's Register
CERTIFICATE NO. 01/10075



GERMANISCHER LLOYD
CERTIFICATE NO. 57798-91 HH



DET NORSKE VERITAS
CERTIFICATE NO. P-9100



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