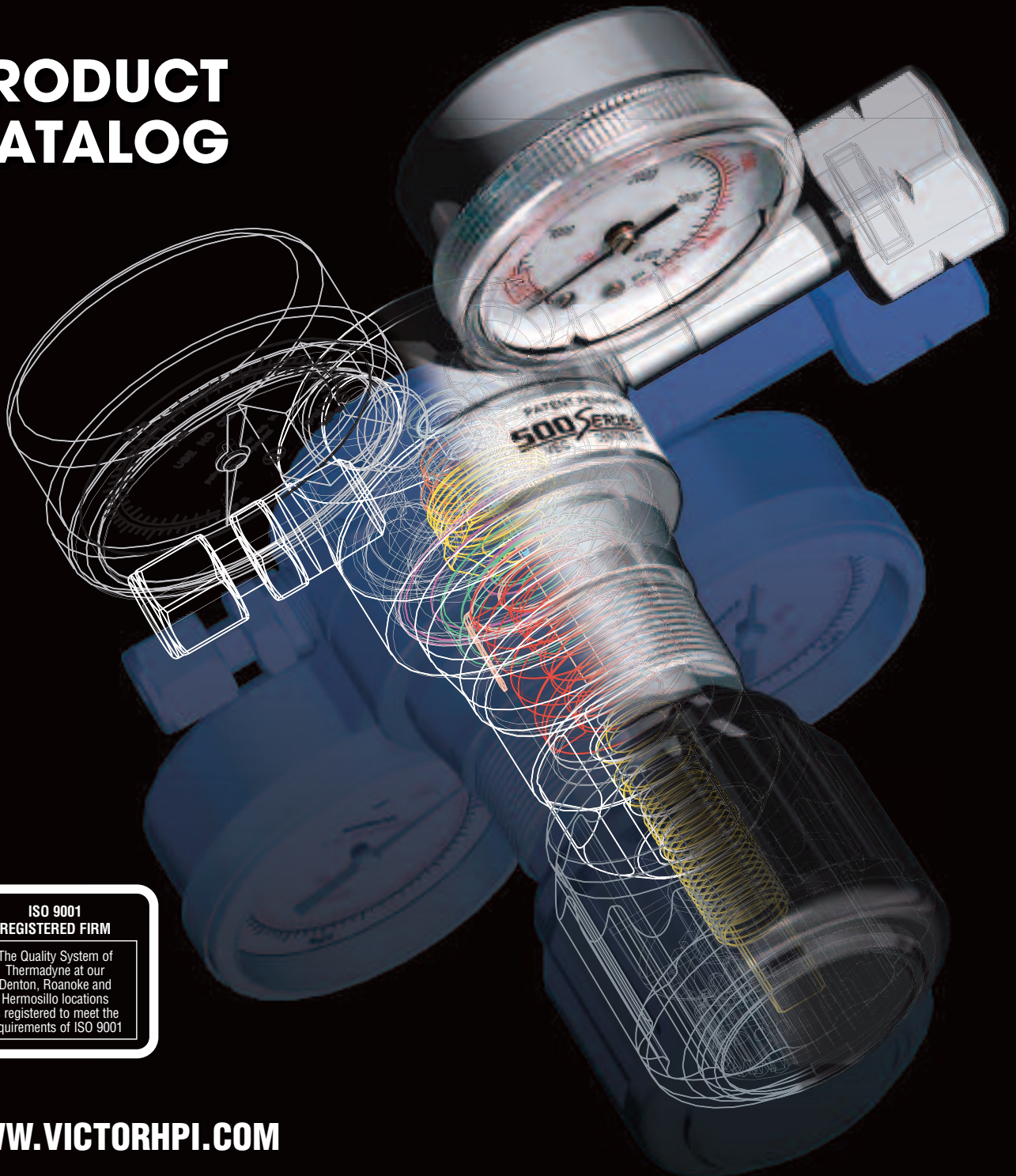




VICTOR[®]
Specialty Products

SPECIALTY PRODUCTS EQUIPMENT

PRODUCT CATALOG



**ISO 9001
REGISTERED FIRM**

The Quality System of
Thermadyne at our
Denton, Roanoke and
Hermosillo locations
is registered to meet the
requirements of ISO 9001

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VICTOR[®]

Specialty Products

Quality Statement

*Victor[®]
is committed to
providing superior quality,
reliable apparatus that earn
our customers' confidence.
Victor apparatus and
services will be recognizably
better than those of our
competitors by consistently
meeting customers
expectations and by
providing safe, reliable
performance.*

*Victor[®] has a proud heritage and long-standing
reputation for quality manufacturing
and service to the welding industry.*



Victor Specialty Products - *proven service to specialty gas and manifold markets for over 92 years*

Supported by manufacturing and engineering expertise of Victor Equipment Company and a recently completed, multi-million dollar, state-of-the-art assembly and testing facility, Victor Specialty Products provides unsurpassed product quality and performance in a timely manner.

With Victor Specialty Products, you will experience

- Expanded global product offering
- Improved product performance featuring “flow straightening technology”
- Guaranteed product quality and reliability
- Service excellence
- Global Sales Support

Victor Specialty Products is committed to exceeding industry standards with ongoing certifications and programs including:

- ISO9001 Registered

The ISO 9001 standards focus on the major processes and place great emphasis on making quality management systems closer to the processes and on continual improvement, including the satisfaction of customers and quality manufacturing

- Helium Leak Rate Certification

Helium leak testing is performed by conducting an outboard test immediately after the unit is assembled. The unit is then attached to a Mass Spectrometer, calibrated quarterly, where an inboard test is performed to ensure compliance with the minimum standard

- CGA compliant with all CGA E-4 testing, including E-4, 7.1 “Oxygen Ignition Test.”

Regulator Selection Information..... Pages 4-5

“Flow Straightening Technology”..... Pages 6-7

Stainless Steel Regulators High Purity Regulators Pages 8-13

SGS500 Stainless Steel Regulator	Pages 8-9
SGT500 Stainless Steel Regulator	Pages 10-11
SGL500 Stainless Steel Regulator	Pages 12-13

Brass & Chrome Plated High Purity Regulators Pages 14-27

HPS500 Chrome-plated Bar Stock Single Stage	Pages 14-15
HPT500 Chrome-plated Bar Stock Two Stage	Pages 16-17
HPL500 Chrome-plated Bar Stock Single Stage Line Regulators	Pages 18-19
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HPT270/280 Chrome-plated Forged Brass, Two Stage	Pages 22-23
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Gas Calibration & Lecture Bottle Regulators Pages 36-39

CRS 100 Nickel-plated Brass, Single-Stage	Pages 36-37
CRS 200 Nickel-plated Brass, Single-Stage	Pages 38-39

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PR 160 Brass Bar Stock, Non-Corrosive Calibration Gas C-10)	Page 41
PR 190 Aluminum, Non-Corrosive Calibration Gas (C-10).....	Pages 42-43
LB 150 Chrome-plated Forged Brass, Non-Corrosive Lecture Bottles	Pages 44-45
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General Purpose, Liquid Cylinder, Miscellaneous Regulators Pages 48- 57

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GPT 270/280 Chrome-plated Forged Brass, Two Stage	Pages 50-51
GPL 270/280 Chrome-plated Forged Brass, Single Stage Line Regulators	Pages 52-53
GLC 350 Chrome-plated Forged Brass, Single Stage for Liquid Gas Cylinders	Pages 54-55
SR 310 Aluminum, Single-Stage for CO ₂ /High Flows	Page 56
MBG-A Chrome-plated Brass Bar Stock, Two Stage for Blood Gas Analysis	Page 57

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How To Choose A Regulator:

Questions & Answers: Questions to consider when selecting a VSP regulator:

Q. What gas will you be regulating?

A. This determines what type of regulator is best.

Q. What purity is that gas?

A. This determines the materials of construction of the regulator.

Q. Do you want constant delivery pressure?

A. This determines single or dual stage regulation

Q. What outlet pressure does your application require?

A. This determines the delivery range of the regulator as shown on page 5.

Q. What type of outlet connection do you need?

A. Connection is based on application and downstream apparatus.

Q. What additional options would you like installed?

A. All options are listed in the 'options' section of the "how to order" portion.

How To Order Please call 800-569-0547 for more information.

Step 1 Refer to the regulator model legend below and the regulator selection guide on page 87 to identify the type of regulator that best fits your requirements. (Example **SGS Series**)

Step 2 Locate the specifications page for that particular regulator and use the Model Number System to select the model desired. (Example **SGS500**)

Step 3 Select the regulator delivery range you require. (Example **SGS-500-80**)

Step 4 Specify the CGA inlet connection required. (Example **SGS-500-80-330**)
Note: If no inlet is desired, please specify "4F" on your order.

Step 5 Specify the outlet fitting you require. (Example **SGS-500-80-330-DK4S**)

Step 6 Add any one or more options you want. (Example **SGS-500-80-330-DK4S-04**)

NEW Model Number System

Series	Delivery	Inlet Fitting	Outlet Fitting	Options
HPS Brass Single Stage	15 (2-15 psig)	CGA 240, 330, 350, 540, 580, 660, 705	BV 1/4" Shut-off valve	00 Bare body
HPT Brass Two Stage	40 (2-40 psig)	4F 1/4" Female NPT	DK 1/4" DRK valve	01 Cross purge
HPL Brass Line (4-Port Body)	80 (4-80 psig)	4M 1/4" Male NPT	4M 1/4" Male fitting	02 Helium Leak Certification
SGS Stainless Steel Single Stage	125 (5-125 psig)	Inlet Protocol Option	4F 1/4" Female port	03 Certification
SGT Stainless Steel Two Stage	200 (10-200 psig)	B1P 1 Pigtail	2S 1/8 Swagelok®	04 Captured Vent
SGL Stainless Steel Line (4-Port Body)	300 (10-300 psig)	B2P 2 Pigtail	4S 1/4" Swagelok®	05 Panel mount kit
	500 (20-500 psig)		FM Flowmeter	06 W/O gauges
				07 Relief Valve

Ordering Examples: SGS500-125-580-DK

SGS500 regulator w/125 psig delivery pressure
CGA 580 inlet fitting, 1/4" Diffusion Resistant Valve
outlet fitting. No options selected.

SGS500-500-4F-2S-02, 04

SGS500 regulator w/500 psig delivery pressure
1/4" Female NPT inlet port, 1/8" Swagelok® outlet fitting
Helium Leak Certification option, Captured Vent option.

Model & Ordering Information

Regulator and Manifold Model Identification Symbols

Legend	Type of Regulator	Legend	Type of Regulator	Legend	Type of Regulator
GPS	General Purpose Single Stage	HPS	High Purity Single Stage	SGS	Stainless Steel Single Stage
GPT	General Purpose Two Stage	HPT	High Purity Two Stage	SGT	Stainless Steel Two Stage
GPL	General Purpose Line	HPL	High Purity Line	SGL	Stainless Steel Line
DRK	Diffusion Resistant Valve	PDS	Switchover Manifold	LB	Lecture Bottle
DRL	1/4 Valve with Lever	D-1	Dome Loaded Regulator	CRS	Corrosion Resistant Regulators
		VHP	Victor High Purity Switchover Manifolds	PR	Calibration Gas Regulator
				PS	Protocol Station

Regulator Delivery Ranges

Regulator Delivery Ranges	Gauge Ranges	Gauge Ranges
15 2-15 PSIG	15 ("A" Range) 2-30 PSIG Gauge	Regulator Gauges: Unless otherwise noted, high pressure gauges for all oxygen, inert gas, CO ₂ , N ₂ O, and hydrogen models are graduated 200-4000 psig. High pressure gauges for fuel gas models are graduated 20-400 psig. Low pressure or outlet gauge ranges are determined by the regulator delivery range selected.
40 2-40 PSIG	40 ("B" Range) 2- 60 PSIG Gauge	
80 4-80 PSIG	80 ("C" Range) 4-100 PSIG Gauge	
125 5-125 PSIG	125 ("D" Range) 5-200 PSIG Gauge	
200 10-200 PSIG	200 ("E" Range) 10-400 PSIG Gauge	
200 10-300 PSIG	300 10-400 PSIG Gauge	
500 20-500 PSIG	500 (Brass) 20-600 PSIG Gauge	
	500 (Stainless) ... 60-600 PSIG Gauge	

Regulator Quick Reference Chart

Model	Material of Construction						Stage/Type			General Application
	Stainless Steel	Chrome Plated Brass	Chrome Plated Forged Brass	Brass	Electroless Nickel Plated Brass	Aluminum	Single Stage	Two Stage	Other	
SGS500	X						X			High purity (critical)
SGT500	X							X		High purity (critical)
SGL500	X								Line	High purity (critical)
HPS500		X					X			High purity (critical)
HPT500		X						X		High purity (critical)
HPL500		X							Line	High purity (critical)
HPS270/280		X	X				X			High purity
HPT270/280		X	X					X		High purity
HPL270/280		X	X						Line	High purity
HPT100		X						X		High purity
HPS 4				X					Piston	High pressure (High purity)
HPL700				X					Line	High flow
D-1 (Dome)			X						Dome	Assist gas
CRS100					X				Yoke-style	Corrosion resistant
CRS200					X				Yoke-style	Corrosion resistant
PR150				X					Piston	Calibration gas
PR160		X							Piston	Calibration gas
PR190						X	X		Piston	Calibration gas
LB150		X	X						Lecture	Non-corrosive gases
LB165	X								Lecture	Corrosion resistant (High purity)
GPS270/280		X					X			General purpose, non-corrosive
GPT270/280		X						X		General purpose, non-corrosive
GPL270/280		X							Line	General purpose, non-corrosive
GLC350		X							Liquid Cyl.	Specialty gas
SR310/311/312						X			High Flow CO ₂	Carbon dioxide cyl.-non-siphoned
MBG-A		X						X		Special purpose

Introducing the New 500 Series³ High Purity Regulator

500 *SERIES³*



Why “Series³”

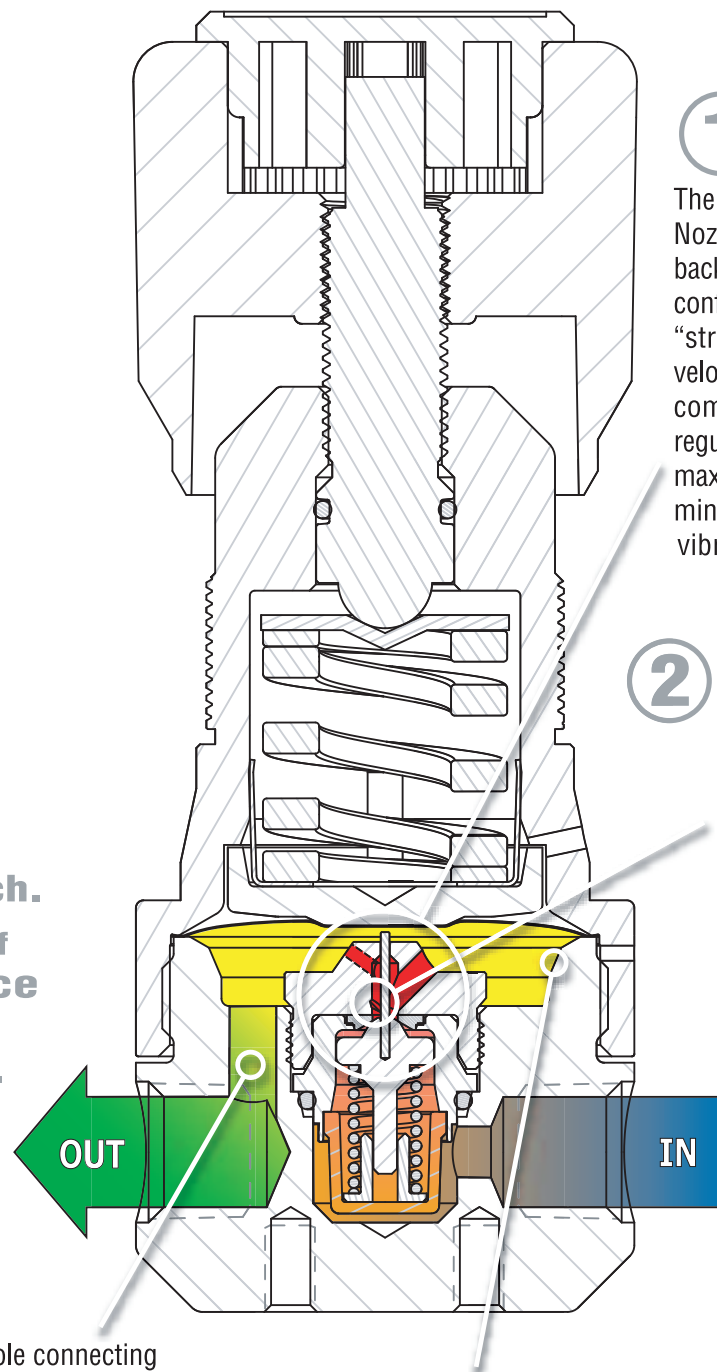
The 500 Series3 is the third generation of the 500 Series regulator from Victor Specialty Products. It is a special blend of years of proven design concepts combined with brand new, innovative technologies to create a regulator that is lightyears ahead of previous models. Wrapped in a new, slimmer, more high tech looking package, the 500 Series3 has the looks, performance and reliability second to none.

Key attributes of the new design:

- New Patent Pending “Flow-Straightening Technology” reduces internal vibration and turbulence in the gas flow stream. The results of this is improved efficiency and overall performance, and a smoother, more consistent flow to downstream equipment.
- An all-new seat design improves sensitivity, increases delivery pressure precision and dramatically improves seat integrity.
- Slimmer, more compact lighter weight design improves visual “high-tech” appeal and reduces shipping cost (approx. 10% lighter than our current design in a 4F-4F configuration).
- Improved cleanliness and assembly environment-assembled in a all-new HP&I facility.
- Compliant with CGA_E4 testing, Including E-4, 7.1 “Oxygen Ignition Test”.

“Flow-Straightening Technology”

**New look.
New tech.**
**New levels of
performance
and
reliability.**



1 The Flow-Straightening Nozzle uses internal backpressure with special configured outlet holes to “straighten” the high velocity flow stream as it comes through the regulator. This results in maximum efficiency with minimum turbulent vibration.

2 The Flow Channel Groove (part of the nozzle) creates a channel just above the high velocity inlet flow stream that gives any turbulent flows not already eliminated a “place to go”... so that the inlet stream remains straight and smooth.

3 The multi-angled low pressure cavity design acts as a diffuser to the high speed flow stream exiting the nozzle, breaking the stream up as quickly as possible and distributing it evenly throughout the low pressure cavity. This results in a “tighter”, more responsive, more repeatable regulator.

4 Instead of a single hole connecting the low pressure cavity to the outlet port, the 500 Series3 body uses dual offset outlet holes. Two parallel paths for gas flow results in a smoother transition of gas out of the regulator and downstream into the line.



SGS500

Single-Stage Stainless Steel Regulator

SGS500 regulators are recommended for very high purity, mild and non-corrosive gas applications where slight variance in delivery pressure is acceptable (as cylinder pressure decreases).

TYPICAL APPLICATIONS

- Gas chromatography
- Regulation of corrosive gases
- Research sampling systems
- Laser gas systems
- Process analyzers
- EPA protocol standards
- Emission monitoring

500 SERIES³

FEATURES

Precision High Purity Performance

- Flow Straightening Technology
- Helium leak rate of 1×10^{-9} scc/sec
- 100% Helium outboard leak tested
- New control knob allows precise setting and resetting of the maximum delivery pressure

Quality Components

- Metal-to-metal diaphragm seal
- 2" dual scale gauges (psi/kp2)
- Cartridge type seat assembly with 10 micron inboard filter
- Resistant to inboard diffusion of atmospheric contaminants
- Materials of construction will not off-gas and contaminate the gas stream
- These regulators are able to withstand internal vacuums generated during purging operations and have minimal purge volumes for maximum safety

Installation Flexibility

- 1.6" stainless steel diaphragm for minimal footprint
- 6 port stainless steel bar stock body (3 high/ 3 low)
- Threaded housing cap for panel mounting
- Drilled and tapped body for rear bracket mounting
- Available fully configured for cylinder, OEM or bare-body for custom installation

Options

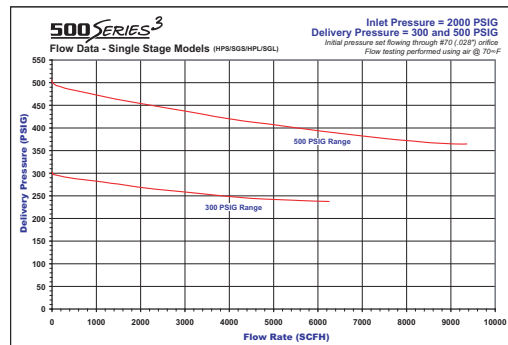
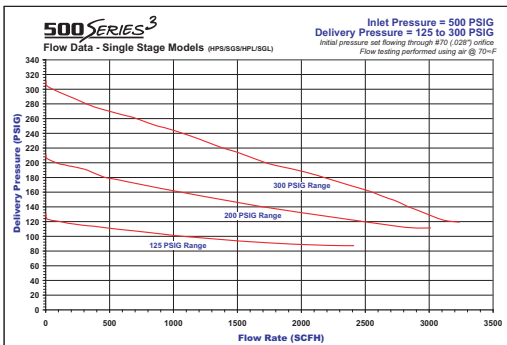
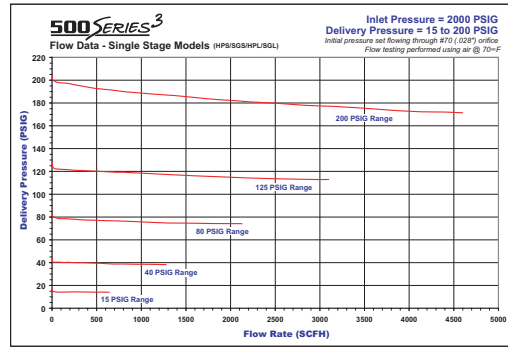
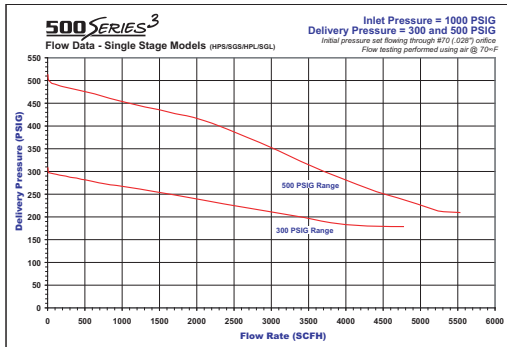
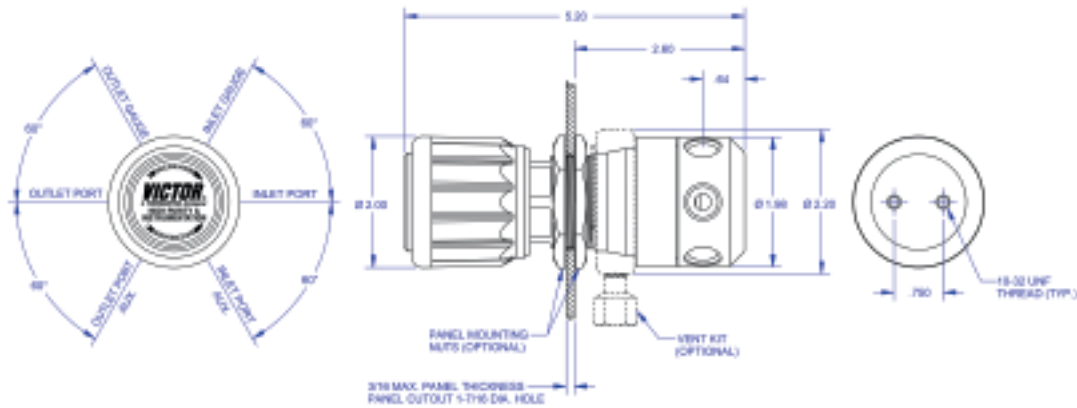
- Rotating captured vent for remote venting
- Diffusion resistant, packless diaphragm valve

MATERIALS OF CONSTRUCTION

Body	316 stainless steel
Spring housing cap.....	Chrome-plated brass
Diaphragm	316 stainless steel
Nozzle.....	316 stainless steel
Seat.....	PCTFE™
Seals	Teflon™
Poppet	316 stainless steel
Inboard filter.....	10 micron sintered stainless steel
Seat return spring.....	316 stainless steel
Pressure adjusting spring.....	Heat-treated spring steel
Adjusting knob	Acrylonitrile Butadiene Styrene

SPECIFICATIONS

Maximum inlet pressure.....	3000 psig
Inlet & outlet ports	1/4" NPT (F)
Temperature Operating Range:.....	-40 to 140°F (-40 to 60°C)
Delivery pressure rise:.....	<.92 psig/100 psig inlet decay
Flow coefficient	$C_v = .135$
Weight.....	3.6 lbs (1.64 kgs)
Outlet pressure ranges.....	15 (2-15 psig)
	40 (2-40 psig) 80 (4-80 psig)
	125 (5-125 psig) 200 (10-200 psig)
	300 (10-300 psig) 500 (20-500 psig)



SGS500 Series Model Number System

SGS500 - XXX - XXX - XXXX - XXXX

Single Stage 316L
SS Barstock

SGS500
0-4000 psig inlet gauge

SGS501
0-400 psig inlet gauge

SGS502
0-600 psig inlet gauge

Outlet Pressure

15 (2-15 psig)

40 (2-40 psig)

80 (4-80 psig)

125 (5-125 psig)

200 (10-200 psig)

300 (10-300 psig)

500 (20-500 psig)

Inlet Connection

CGA

240, 296, 320, 326,
330, 346, 510, 500,
540, 580, 590, 660,
705

4F 1/4" Female NPT

4M 1/4" Male NPT

4S 1/4" Tube Fitting

2S 1/8" Tube Fitting

Outlet Connection

4F 1/4" Female NPT

4M 1/4" Male NPT

4S 1/4" Tube Fitting

2S 1/8" Tube Fitting

BV4M Needle Valve 1/4" Male NPT

DK4F Diaphragm Valve 1/4" Female NPT

DK4M Diaphragm Valve 1/4" Male NPT

DK4S Diaphragm Valve 1/4" Tube Fitting

DK2S Diaphragm Valve 1/8" Tube Fitting

Options

00 Bare Body

02 Helium Leak Test

03 Certification

04 Captured Vent

05 Panel Mount

07 Relief Valve



SGT500

Two-Stage Stainless Steel Regulator

SGT500 regulators are recommended for very high purity, corrosive and toxic gas applications where constant delivery pressure is required (as cylinder pressure decreases).

TYPICAL APPLICATIONS

- Gas chromatography
- Regulation of corrosive gases
- Diffusion furnaces
- Research sampling systems
- Laser gas systems
- Process analyzers
- CEM and EPA protocol standards

500 *SERIES*³

FEATURES

Precision High Purity Performance

- Flow Straightening Technology
- Helium leak rate of 1×10^{-9} scc/sec
- 100% Helium outboard leak tested
- New control knob allows precise setting and resetting of the maximum delivery pressure

Quality Components

- Metal-to-metal diaphragm seal
- 2" dual scale gauges (psi/kp2)
- Cartridge type seat assembly with 10 micron inboard filter
- Resistant to inboard diffusion of atmospheric contaminants
- Materials of construction will not off-gas and contaminate the gas stream
- These regulators are able to withstand internal vacuums generated during purging operations and have minimal purge volumes for maximum safety

Installation Flexibility

- Stainless steel 1.6" diaphragm for minimal footprint
- 6 port stainless steel bar stock body (3 high/ 2 low/ 1 intermediate)
- Threaded housing cap for panel mounting
- Available for cylinder, OEM or barebody

Options

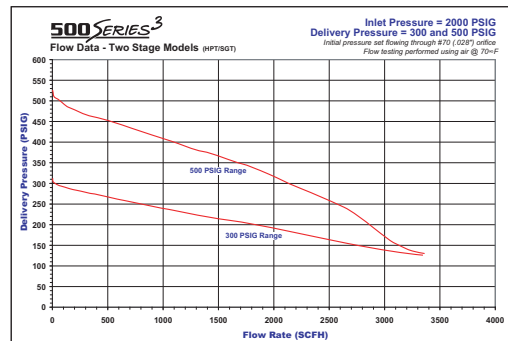
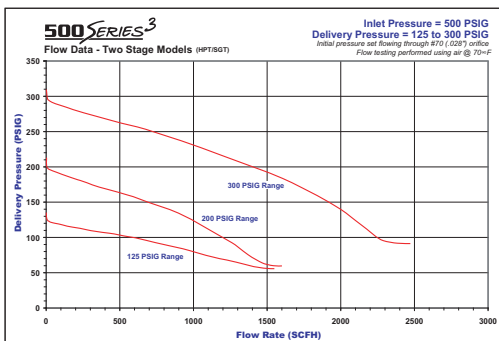
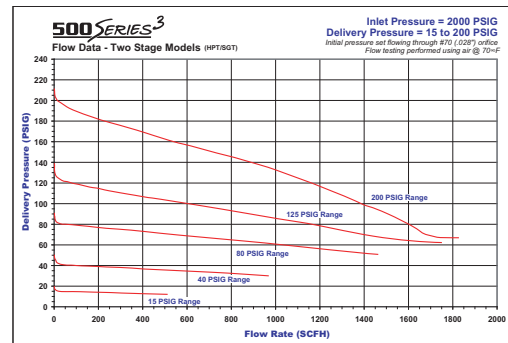
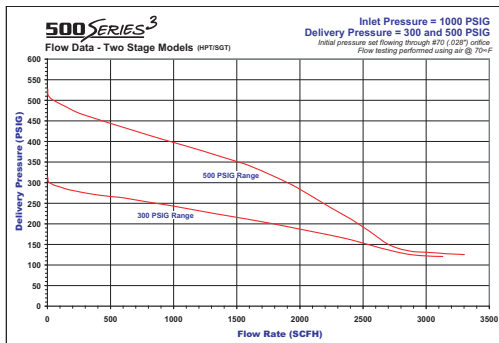
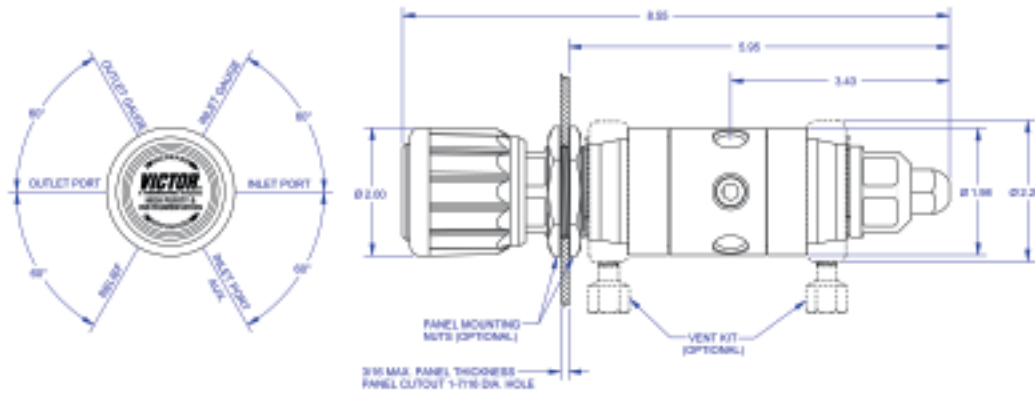
- Rotating captured vent for remote venting
- Diffusion resistant, packless diaphragm valve
- Relief valve on intermediate stage

MATERIALS OF CONSTRUCTION

Body.....	316L stainless steel
Spring housing cap	Chrome-plated brass
Diaphragm	316 stainless steel
Nozzle	316 stainless steel
Seat	PCTFE™
Seals.....	Teflon™
Poppet.....	316 stainless steel
Inboard filter	10 micron sintered stainless steel
Seat return spring	316 stainless steel
Pressure adjusting spring	Heat-treated spring steel
Adjusting knob	Acrylonitrile Butadiene Styrene (ABS)

SPECIFICATIONS

Maximum inlet pressure	3000 psig
Inlet & outlet ports.....	1/4" NPT (F)
Temperature operating range:.....	-40 to 140°F (-40 to 60°C)
Delivery pressure rise:	<.92 psig/100 psig inlet decay
Flow coefficient	$C_v = .111$
Weight	4.5 lbs (2 kgs)
Outlet pressure ranges.....	15 (2-15 psig)
	40 (2-40 psig) 80 (4-80 psig)
	125 (5-125 psig) 200 (10-200 psig)
	300 (10-300 psig) 500 (20-500 psig)



SGT500 Series Model Number System

SGT500 - XXX - XXX - XXXX - XXXX

Dual Stage 316L
SS Barstock

SGT500
0-4000 psig inlet gauge

Outlet Pressure

15 (2-15 psig)
40 (2-40 psig)
80 (4-80 psig)
125 (5-125 psig)
200 (10-200 psig)
300 (10-300 psig)
500 (20-500 psig)

Inlet Connection

CGA
240, 296, 320, 326,
330, 346, 510, 500,
540, 580, 590, 660,
705
4F 1/4" Female NPT
4M 1/4" Male NPT
4S 1/4" Tube Fitting
2S 1/8" Tube Fitting

Outlet Connection

4F 1/4" Female NPT
4M 1/4" Male NPT
4S 1/4" Tube Fitting
2S 1/8" Tube Fitting
BV4M Needle Valve 1/4" Male NPT
DK4F Diaphragm Valve 1/4" Female NPT
DK4M Diaphragm Valve 1/4" Male NPT
DK4S Diaphragm Valve 1/4" Tube Fitting
DK2S Diaphragm Valve 1/8" Tube Fitting

Options

00 Bare Body
02 Helium Leak Test
03 Certification
04 Captured Vent
05 Panel Mount
07 Relief Valve



SGL500

Line Stainless Steel Regulator

SGL500 regulators are recommended for very high purity, corrosive and toxic, gas applications for gas distribution systems (pipeline).

TYPICAL APPLICATIONS

- High purity gas handling
- Gas chromatography
- Regulation of corrosive gases
- Diffusion furnaces
- Research sampling systems
- Laser gas systems
- Process analyzers

500 *SERIES*³

FEATURES

Precision High Purity Performance

- Flow Straightening Technology
- Helium leak rate of 1×10^{-9} scc/sec
- 100% Helium outboard leak tested
- New control knob allows precise setting for maximum delivery

Quality Components

- Metal-to-metal diaphragm seal
- 2" dual scale gauges (psi/kp2)
- Cartridge type seat assembly with 10 micron inboard filter
- Resistant to inboard diffusion of atmospheric contaminants
- Materials of construction will not off-gas and contaminate the gas stream
- These regulators are able to withstand internal vacuums generated during purging operations and have minimal purge volumes for maximum safety

Installation Flexibility

- 1.6" stainless steel diaphragm for minimal footprint
- 4 port stainless steel bar stock body (1 high/ 3 low)
- Threaded housing cap for panel mounting
- Drilled and tapped body for rear bracket mounting

Options

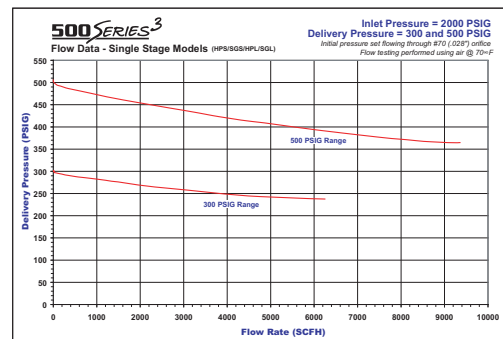
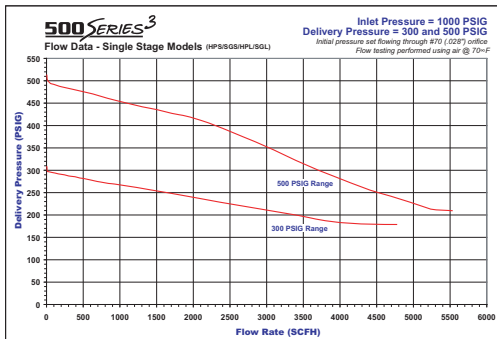
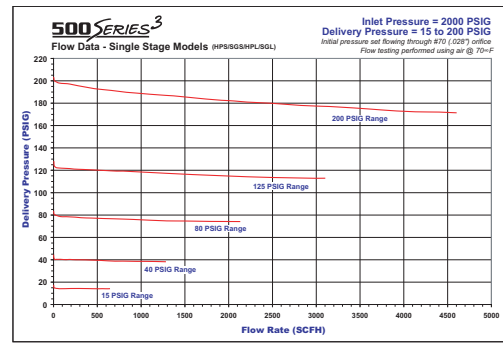
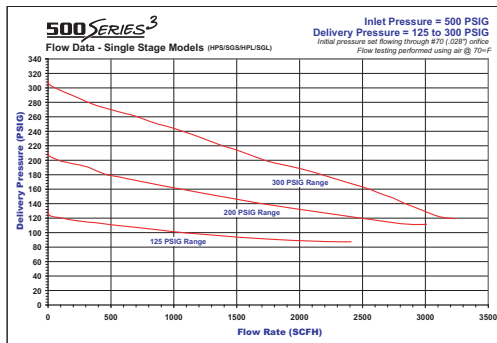
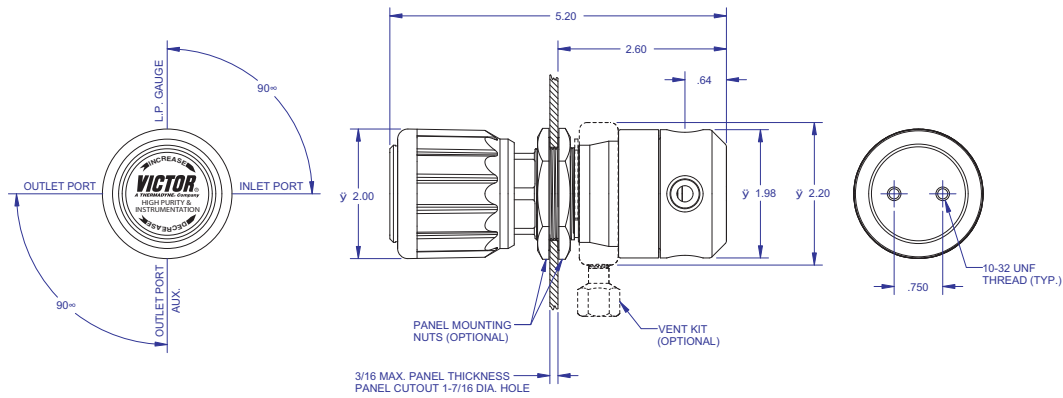
- Rotating captured vent for remote venting
- Diffusion resistant, packless diaphragm valve

MATERIALS OF CONSTRUCTION

Body.....	316L stainless steel
Spring housing cap	Chrome-plated brass
Diaphragm	316L stainless steel
Nozzle	316L stainless steel
Seat	PCTFE™
Seals.....	Teflon™
Poppet.....	316L stainless steel
Inboard filter	10 micron sintered stainless steel
Seat return spring	316L stainless steel
Pressure adjusting spring	Heat-treated spring steel
Adjusting knob.....	Acrylonitrile Butadiene Styrene

SPECIFICATIONS

Maximum inlet pressure	3000 psig
Inlet & outlet ports	1/4" NPT (F)
Temperature operating range:.....	-40 to 140°F (-40 to 60°C)
Delivery pressure rise:	<.92 psig/100 psig inlet decay
Flow coefficient.....	$C_v = .135$
Weight	2.7 lbs (1.23 kgs)
Outlet pressure ranges	15 (2-15 psig)
	40 (2-40 psig) 80 (4-80 psig)
	125 (5-125 psig) 200 (10-200 psig)
	300 (10-300 psig) 500 (20-500 psig)



SGL500 Series Model Number System

SGL500 - XXX - XXX - XXXX - XXXX

Line Regulator
316L SS Barstock

SGL500
No Inlet Gauge

Outlet Pressure

15 (2-15 psig)
40 (2-40 psig)
80 (4-80 psig)
125 (5-125 psig)
200 (10-200 psig)
300 (10-300 psig)
500 (20-500 psig)

Inlet Connection

4F 1/4" Female NPT
4M 1/4" Male NPT
4S 1/4" Tube Fitting
2S 1/8" Tube Fitting

Outlet Connection

4F 1/4" Female NPT
4M 1/4" Male NPT
4S 1/4" Tube Fitting
2S 1/8" Tube Fitting
BV4M Needle Valve 1/4" Male NPT
DK4F Diaphragm Valve 1/4" Female NPT
DK4M Diaphragm Valve 1/4" Male NPT
DK4S Diaphragm Valve 1/4" Tube Fitting
DK2S Diaphragm Valve 1/8" Tube Fitting

Options

00 Bare Body
02 Helium Leak Test
03 Certification
04 Captured Vent
05 Panel Mount
07 Relief Valve



HPS500

Single-Stage

Chrome-Plated Brass Regulator

HPS500 regulators are recommended for very high purity, inert gas applications where slight variance in delivery pressure is acceptable (as cylinder pressure decreases).

TYPICAL APPLICATIONS

- High-purity gas handling
- Gas chromatography
- Regulation of corrosive gases
- Diffusion furnaces
- Research sampling systems
- Laser gas systems
- Process analyzers

500 *SERIES*³

FEATURES

Precision High Purity Performance

- Flow straightening technology
- Helium leak rate of 1×10^{-9} scc/sec
- 100% Helium outboard leak tested
- Control knob allows precise setting for maximum delivery

Quality Components

- Metal-to-metal diaphragm seal
- 2" dual scale gauges (psi/kp2)
- Cartridge type seat assembly with 10 micron inboard filter
- Resistant to inboard diffusion of atmospheric contaminants
- Materials of construction will not off-gas and contaminate the gas stream
- These regulators are able to withstand internal vacuums generated during purging operations and have minimal purge volumes for maximum safety

Installation Flexibility

- 1.6" diaphragm for minimal footprint
- 6 port brass bar stock body (3 high/ 3 low)
- Threaded housing cap for panel mounting
- Drilled and tapped body for rear bracket mounting

Options

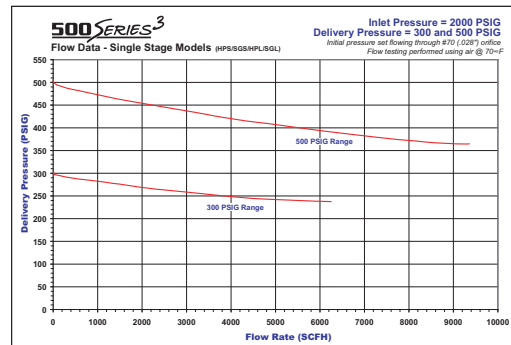
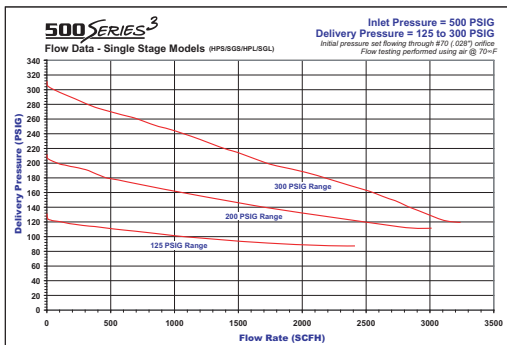
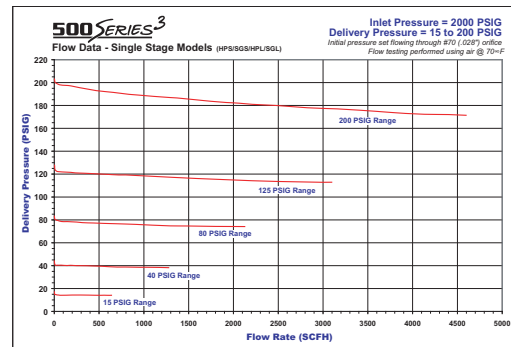
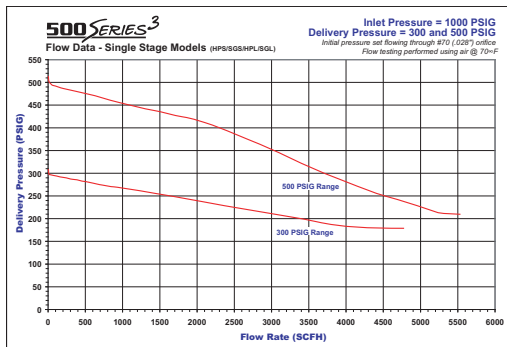
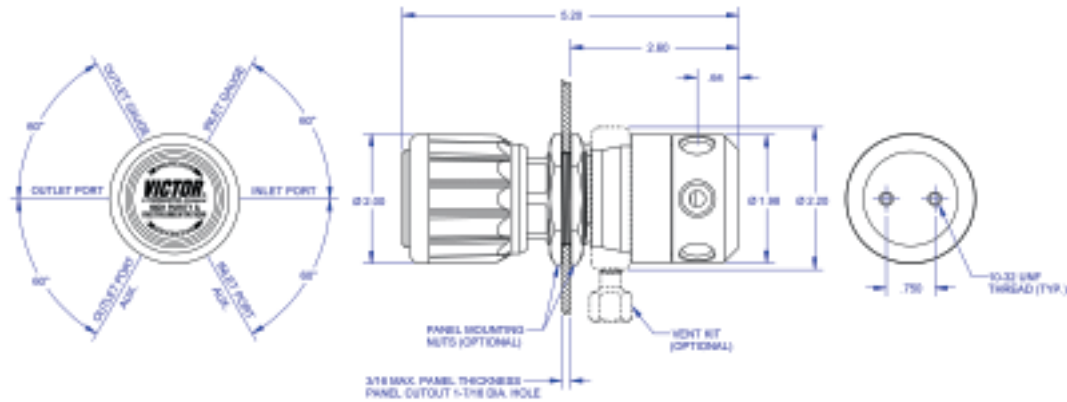
- Rotating captured vent for remote venting
- Diffusion resistant, packless diaphragm shut-off valve

MATERIALS OF CONSTRUCTION

Body	Chrome-plated brass bar stock
Spring housing cap	Chrome-plated brass
Diaphragm	316 stainless steel
Nozzle	Brass barstock
Seat	PCTFE™
Seals	Viton™
Poppet	316 stainless steel
Inboard filter	10 micron sintered bronze
Seat return spring	Stainless steel
Pressure adjusting spring	Heat-treated spring steel
Adjusting knob	Acrylonitrile Butadiene Styrene

SPECIFICATIONS

Maximum inlet pressure	3000 psig
Inlet & outlet ports	1/4" NPT (F)
Temperature operating range:	-40 to 140°F (-40 to 60°C)
Delivery pressure rise:	<.92 psig/100 psig inlet decay
Flow coefficient	$C_v = .135$
Weight	4.0 lbs (1.8 kgs)
Outlet pressure ranges	15 (2-15 psig)
	40 (2-40 psig) 80 (4-80 psig)
	125 (5-125 psig) 200 (10-200 psig)
	300 (10-300 psig) 500 (20-500 psig)



HPS500 Series Model Number System

HPS500 - XXX - XXX - XXXX - XXXX

Single Stage Brass
Barstock

HPS500
0-4000 psig inlet gauge
HPS501
0-400 psig inlet gauge
HPS502
0-600 psig inlet gauge

Outlet Pressure

15 (2-15 psig)
40 (2-40 psig)
80 (4-80 psig)
125 (5-125 psig)
200 (10-200 psig)
300 (10-300 psig)
500 (20-500 psig)

Inlet Connection

CGA
580, 590
4F 1/4" Female NPT
4M 1/4" Male NPT
4S 1/4" Tube Fitting
2S 1/8" Tube Fitting

Outlet Connection

4F 1/4" Female NPT
4M 1/4" Male NPT
4S 1/4" Tube Fitting
2S 1/8" Tube Fitting
BV4M Needle Valve 1/4" Male NPT
DK4F Diaphragm Valve 1/4" Female NPT
DK4M Diaphragm Valve 1/4" Male NPT
DK4S Diaphragm Valve 1/4" Tube Fitting
DK2S Diaphragm Valve 1/8" Tube Fitting

Options

00 Bare Body
02 Helium Leak Test
03 Certification
04 Captured Vent
05 Panel Mount
07 Relief Valve



HPT500

Two-Stage Chrome-Plated Brass Regulator

HPT500 regulators are recommended for high purity, non-corrosive gas applications where constant delivery pressure is required (as cylinder pressure decreases).

TYPICAL APPLICATIONS

- High-purity gas handling
- Gas chromatography
- Zero gases, span gases, and calibration mixtures
- Research sampling systems
- Laser gas systems

500 *SERIES*³

FEATURES

Precision High Purity Performance

- Flow straightening technology
- Helium leak rate of 1×10^{-9} scc/sec
- 100% Helium outboard leak tested
- Control knob allows precise setting for maximum delivery

Quality Components

- Metal-to-metal diaphragm seal
- 2" dual scale gauges (psi/kp2)
- Cartridge type seat assembly with 10 micron inboard filter
- Resistant to inboard diffusion of atmospheric contaminants
- Materials of construction will not off-gas and contaminate the gas stream
- These regulators are able to withstand internal vacuums generated during purging operations and have minimal purge volumes for maximum safety

Installation Flexibility

- 1.6" stainless steel diaphragm for minimal footprint
- 6 port brass bar stock body (3 high/ 2 low/ 1 intermediate)
- Threaded housing cap for panel mounting

Options

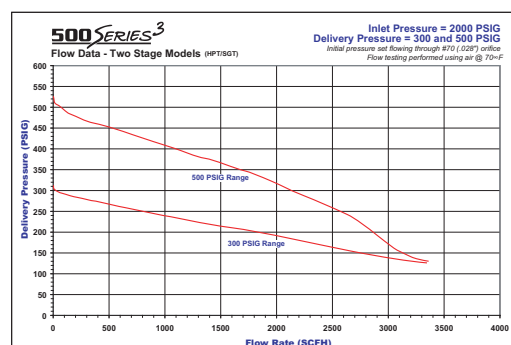
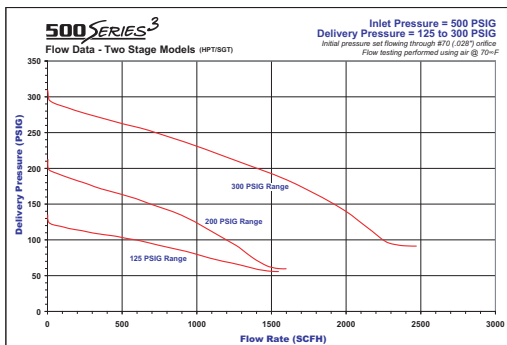
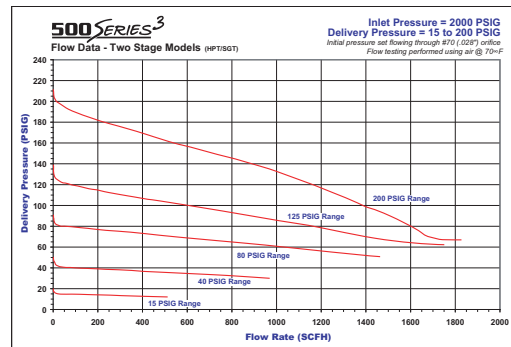
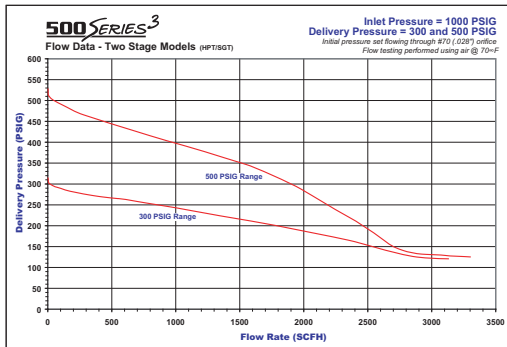
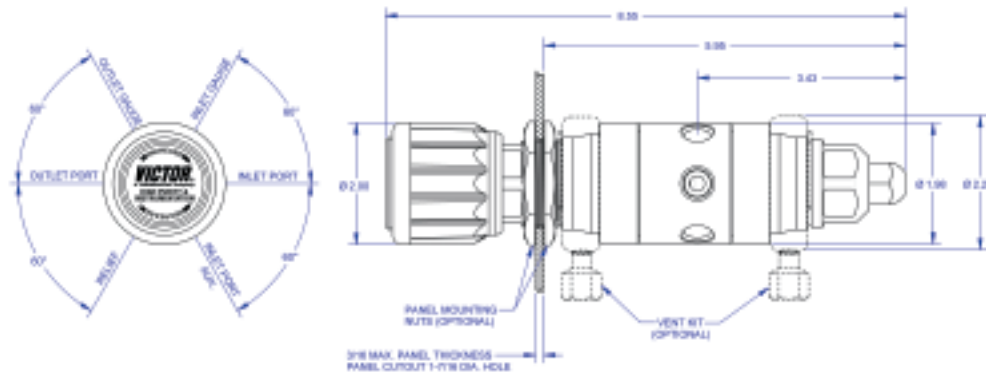
- Rotating captured vent for remote venting
- Diffusion resistant, packless diaphragm shut-off valve

MATERIALS OF CONSTRUCTION

Body.....Chrome-plated brass bar stock
Spring housing capChrome-plated brass
Diaphragm.....316L stainless steel
NozzleBrass bar stock
SeatPCTFE™
Seals.....Teflon™
Poppet.....Stainless steel
Inboard filter10 micron sintered stainless steel
Seat return spring316L stainless steel
Pressure adjusting spring.....Heat-treated spring steel
Adjusting knob.....Acrylonitrile Butadiene Styrene

SPECIFICATIONS

Maximum inlet pressure3000 psig
Inlet & outlet ports1/4" NPT (F)
Temperature operating range:.....-40 to 140°F (-40 to 60°C)
Delivery pressure rise:.....<.07 psig/100 psig inlet decay
Flow coefficient..... $C_v = .111$
Weight4.5 lbs (2 kgs)
Outlet pressure ranges.....15 (0-15 psig)
40 (0-40 psig) 80 (0-80 psig)
125 (0-125 psig) 200 (0-200 psig)
300 (0-300 psig) 500 (0-500 psig)



HPT500 Series Model Number System

HPT500	-	XXX	-	XXX	-	XXXX	-	XXXX
Dual Stage Brass Barstock		Outlet Pressure		Inlet Connection		Outlet Connection		Options
HPT500 0-4000 psig inlet gauge		15 (2-15 psig)		CGA 580, 590		4F 1/4" Female NPT		00 Bare Body
		40 (2-40 psig)		4F 1/4" Female NPT		4M 1/4" Male NPT		02 Helium Leak Test
		80 (4-80 psig)		4M 1/4" Male NPT		4S 1/4" Tube Fitting		03 Certification
		125 (5-125 psig)		4S 1/4" Tube Fitting		2S 1/8" Tube Fitting		04 Captured Vent
		200 (10-200 psig)		2S 1/8" Tube Fitting		BV4M Needle Valve 1/4" Male NPT		05 Panel Mount
		300 (10-300 psig)				DK4F Diaphragm Valve 1/4" Female NPT		07 Relief Valve
		500 (20-500 psig)				DK4M Diaphragm Valve 1/4" Male NPT		
						DK4S Diaphragm Valve 1/4" Tube Fitting		
						DK2S Diaphragm Valve 1/8" Tube Fitting		



HPL500

Line

Chrome-Plated Brass Regulator

HPL500 regulators are recommended for high purity, non-corrosive gas applications where gas is supplied through a distribution system (pipeline).

TYPICAL APPLICATIONS

- High-Purity gas handling
- Gas chromatography
- Research sampling systems
- Laser Gas Systems
- Process analyzers

500 *SERIES*³

FEATURES

Precision High Purity Performance

- Flow straightening technology
- Helium leak rate of 1×10^{-9} scc/sec
- 100% Helium outboard leak tested
- Control knob allows precise setting for maximum delivery

Quality Components

- Metal-to-metal diaphragm seal
- 2" dual scale gauges (psi/kp2)
- Cartridge type seat assembly with 10 micron inboard filter
- Resistant to inboard diffusion of atmospheric contaminants
- Materials of construction will not off-gas and contaminate the gas stream
- These regulators are able to withstand internal vacuums generated during purging operations and have minimal purge volumes for maximum safety

Installation Flexibility

- 1.6" stainless steel diaphragm for minimal footprint
- 4 port brass bar stock body (1 high/ 3 low)
- Threaded housing cap for panel mounting
- Drilled and tapped body for rear bracket mounting

Options

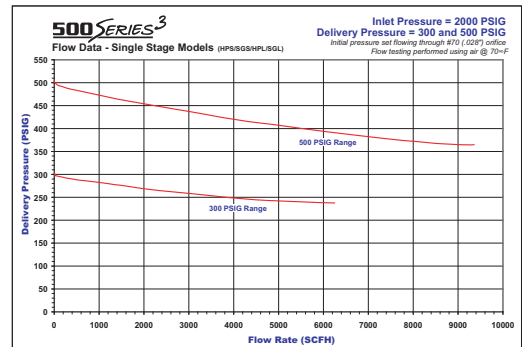
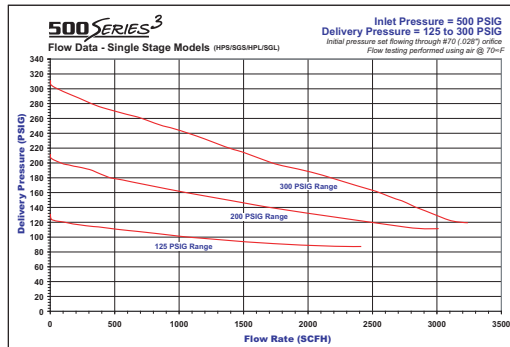
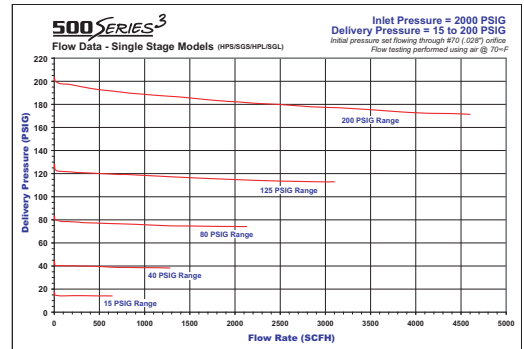
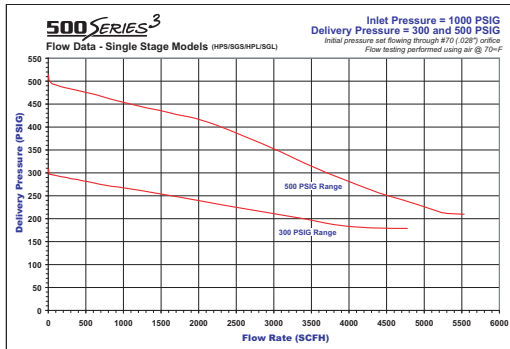
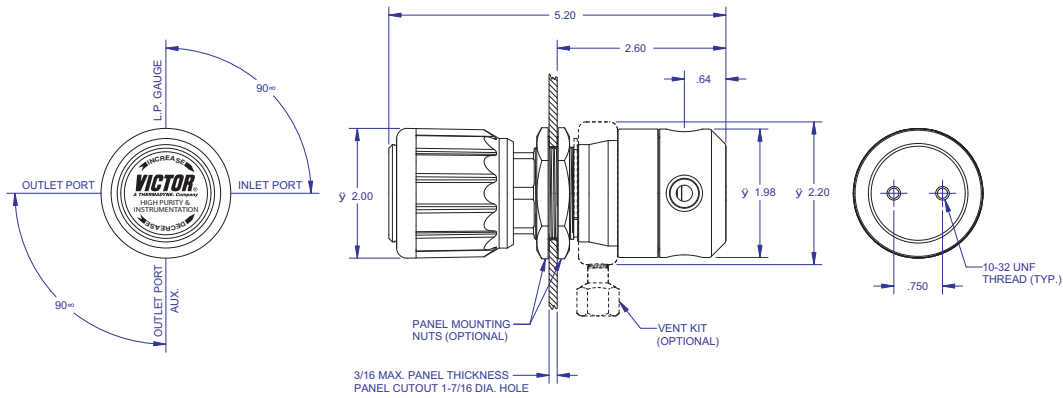
- Rotating captured vent for remote venting
- Diffusion resistant, packless diaphragm shut-off valve

MATERIALS OF CONSTRUCTION

Body.....	Chrome-plated brass bar stock
Spring housing cap.....	Chrome-plated brass
Diaphragm.....	316L stainless steel
Nozzle	Brass bar stock
Seat	PCTFE™
Seals	Teflon™
Poppet.....	Stainless steel
Inboard filter.....	10 micron sintered Stainless steel
Seat return spring.....	Heat-treated spring steel
Pressure adjusting spring.....	Heat-treated spring steel
Adjusting knob	Acrylonitrile Butadiene Styrene

SPECIFICATIONS

Maximum inlet pressure	3000 psig
Inlet & outlet ports	1/4" NPT (F)
Temperature operating range:.....	-40 to 140°F (-40 to 60°C)
Delivery pressure rise:.....	< 1.63 psig/100 psig inlet decay
Flow coefficient.....	$C_v = .135$
Weight	2 lbs, 10 oz. (1 kgs)
Outlet pressure ranges.....	15 (0-15 psig)
	40 (0-40 psig) 80 (0-80 psig)
	125 (0-125 psig) 200 (0-200 psig)
	300 (0-300 psig) 500 (0-500 psig)



HPL500 Series Model Number System

HPL500	-	XXX	-	XXX	-	XXXX	-	XXXX
Line Regulator Brass Barstock		Outlet Pressure		Inlet Connection		Outlet Connection		Options
		15 (2-15 psig)		4F 1/4" Female NPT		4F 1/4" Female NPT		00 Bare Body
		40 (2-40 psig)		4M 1/4" Male NPT		4M 1/4" Male NPT		02 Helium Leak Test
		80 (4-80 psig)		4S 1/4" Tube Fitting		4S 1/4" Tube Fitting		03 Certification
		125 (5-125 psig)		2S 1/8" Tube Fitting		2S 1/8" Tube Fitting		04 Captured Vent
		200 (10-200 psig)				BV4M Needle Valve 1/4" Male NPT		05 Panel Mount
		300 (10-300 psig)				DK4F Diaphragm Valve 1/4" Female NPT		07 Relief Valve
		500 (20-500 psig)				DK4M Diaphragm Valve 1/4" Male NPT		
						DK4S Diaphragm Valve 1/4" Tube Fitting		
						DK2S Diaphragm Valve 1/8" Tube Fitting		



HPS270/280

Single-Stage Chrome-Plated Brass Regulator

HPS270/280 regulators are recommended for high purity, non-corrosive gas applications where slight variance in delivery pressure is acceptable (as cylinder pressure decreases).

Series choice is dependent on gas:

- HPS270 - non-flammable and non-corrosive gases
- HPS272 - high pressure, flammable gases
- HPS280 - Acetylene gas
- HPS281 - LP gas

TYPICAL APPLICATIONS

- Gas chromatography
- Zero gases, auto emission, and span gases
- Research sampling systems
- Laser gas systems
- Process analyzers
- Purging systems
- Atomic absorption analysis

FEATURES

Precision High Purity Performance

- Helium leak rate of 1×10^{-8} scc/sec
- 100% Helium outboard leak tested

Quality Components

- 2-3/4" stainless steel diaphragm
- 2-1/2" dual scale gauges (psi/kp2)
- Cartridge type inlet with 10 micron filter
- Self reseating relief valve (vented) except 280/281
Not designed to protect downstream apparatus
- Resistant to inboard diffusion of atmospheric contaminants
- Materials of construction will not contaminate the gas stream

Options

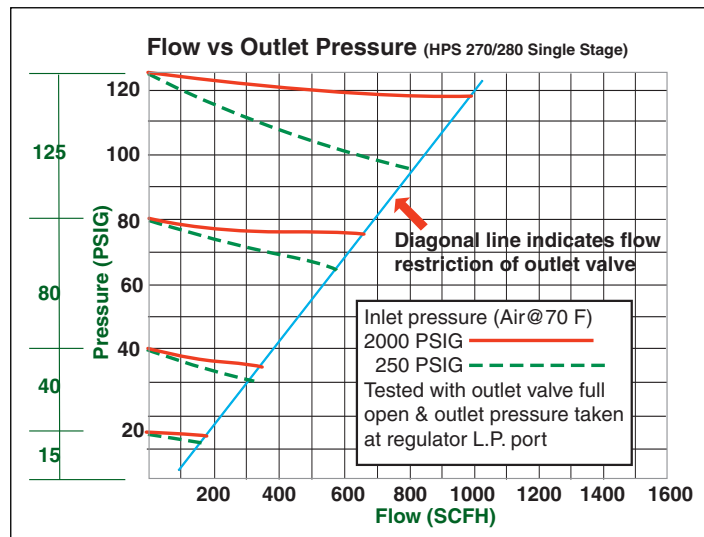
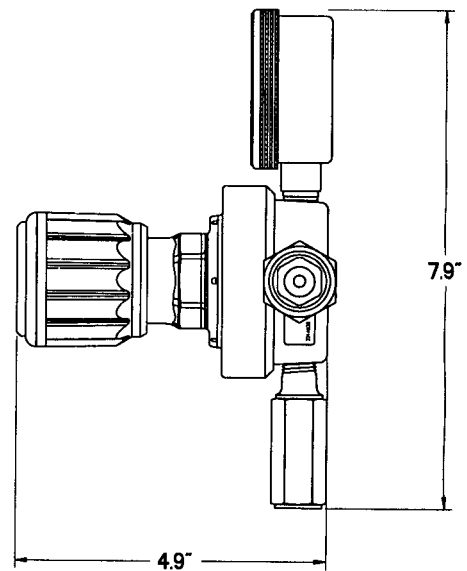
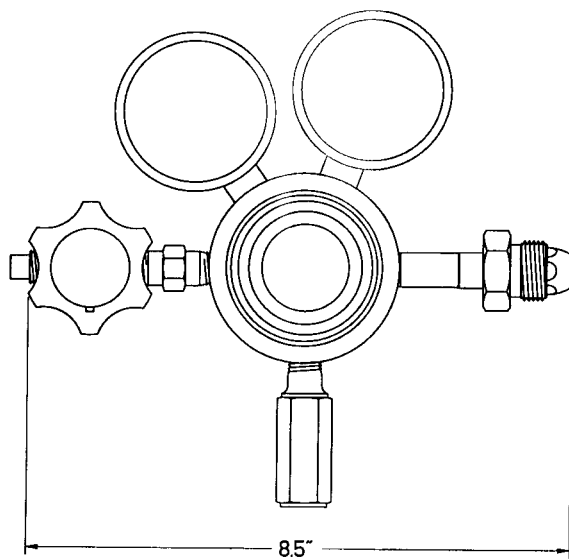
- Diffusion resistant, packless diaphragm shut-off valve
- Panel mount kit

MATERIALS OF CONSTRUCTION

Body	Chrome-plated forged brass
Spring housing cap.....	Chrome-plated forged brass
Diaphragm	301 stainless steel
Nozzle	Brass
Seat.....	PCTFE™
Seals.....	Viton™
Poppet	Brass CDA 360
Inboard filter	Cartridge - brass Inlet: 10 micron sintered stainless steel.
Seat return spring.....	316 stainless steel
Pressure adjusting spring	Heat-treated spring steel
Adjusting knob	Acrylonitrile Butadiene Styrene

SPECIFICATIONS

Maximum inlet pressure	(HPS270/272) 3000 psig (HPS280/282) 350 psig
Temperature operating range:.....	0 to 140°F (-17 to 60°C)
Delivery pressure rise:	< .5 psig/100 psig inlet decay
Flow coefficient	$C_v = .05$
Valve outlet	1/4" NPT (F)
Outlet pressure ranges	15 (2-15 psig), 40 (2-40 psig) 80 (4-80 psig), 125 (5-125 psig)



HPS270 Series Model Number System

HPS270	-	XXX	-	XXX	-	XXXX	-	XXXX
Single Stage Chrome Forged Brass		Outlet Pressure		Inlet Connection		Outlet Connection		Options
		15 (2-15 psig)		CGA		4F 1/4" Female NPT		00 Bare Body
		40 (2-40 psig)		580, 590		4M 1/4" Male NPT		03 Certification
HPS270 0-4000 psig inlet gauge		80 (4-80 psig)		4F 1/4" Female NPT		4S 1/4" Tube Fitting		05 Panel Mount
HPS272 0-4000 psig inlet gauge Hydrogen		125 (5-125 psig)		4M 1/4" Male NPT		2S 1/8" Tube Fitting		07 Relief Valve
HPS280 0-400 psig inlet gauge Acetylene (15 psig max outlet)		200 (10-200 psig)		4S 1/4" Tube Fitting		BV4M Needle Valve 1/4" Male NPT		
HPS281 0-400 psig inlet gauge, LP Gas				2S 1/8" Tube Fitting		DK4F Diaphragm Valve 1/4" Female NPT		
						DK4M Diaphragm Valve 1/4" Male NPT		
						DK4S Diaphragm Valve 1/4" Tube Fitting		
						DK2S Diaphragm Valve 1/8" Tube Fitting		



HPT270/280

Two-Stage

Chrome-Plated Brass Regulator

HPT270/280 regulators are recommended for high purity, non-corrosive gas applications where constant delivery pressure is required (as cylinder pressure decreases).

Series choice is dependent on gas:

- HPT270 - non-flammable and non-corrosive gases
- HPT272 - high pressure, flammable gases
- HPT280 - Acetylene gas
- HPT281 - LP gas

TYPICAL APPLICATIONS

- High-purity gas handling
- Gas chromatography
- Zero gases, span gases, and calibration mixtures
- Research sampling systems
- Laser gas systems
- Process analyzers

FEATURES

Precision High Purity Performance

- Helium leak rate of 1×10^{-8} scc/sec
- 100% Helium outboard leak tested

Quality Components

- 2-3/4" stainless steel diaphragm
- 2-1/2" dual scale gauges (psi/kp2)
- Cartridge type inlet with 10 micron filter
- Self reseating relief valve (vented) except 280/281
Not designed to protect downstream apparatus
- Resistant to inboard diffusion of atmospheric contaminants
- Materials of construction will not contaminate the gas stream

Options

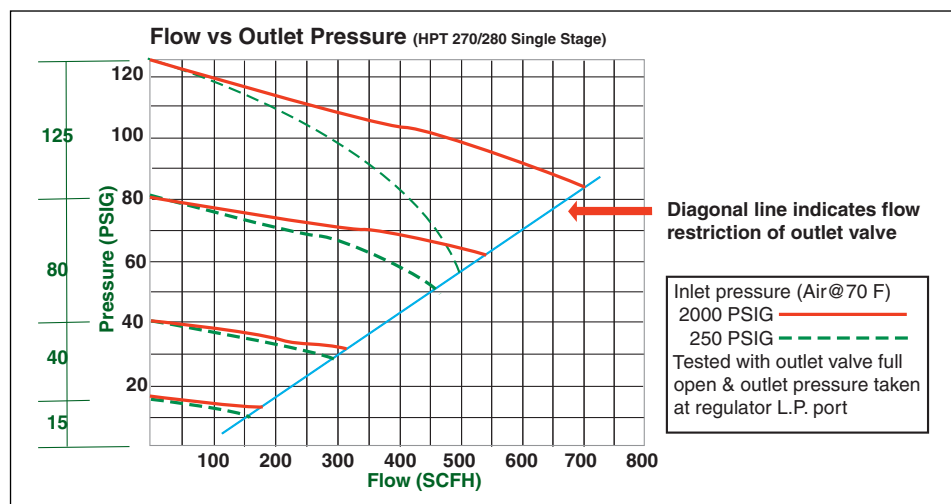
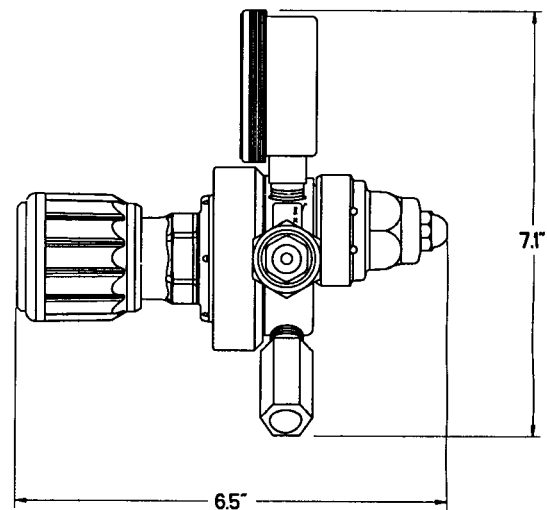
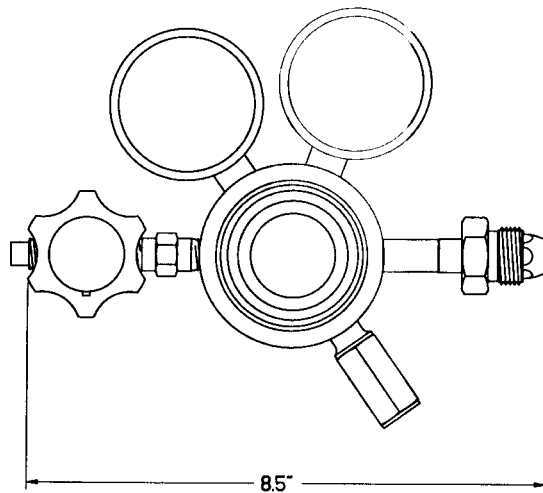
- Diffusion resistant, packless diaphragm shut-off valve
- Panel mount kit

MATERIALS OF CONSTRUCTION

Body	Chrome-plated forged brass
Spring housing cap	Chrome-plated forged brass
Diaphragm	301 stainless steel
Nozzle	Brass
Seat	1 stage PCTFE™ 2 stage Viton™
Seals	Viton™
Poppet	Brass CDA 360
Inboard Filter	Cartridge - brass Inlet: 10 micron sintered stainless steel.
Seat Return Spring	316L stainless steel
Pressure Adjusting Spring	Heat-treated spring steel
Adjusting Knob	Acrylonitrile Butadiene Styrene

SPECIFICATIONS

Maximum inlet pressure	(HPS270/272) 3000 psig
.....	(HPS280/282) 350 psig
Temperature operating range:	0 to 140°F (-17 to 60°C)
Delivery pressure rise:	<.1 psig /100 psig inlet decay
Flow coefficient	$C_v = .04$
Valve outlet	1/4" NPT (F)
Outlet pressure ranges	15 (2-15 psig), 40 (2-40 psig) 80 (4-80 psig), 125 (5-125 psig)



HPT270 Series Model Number System

HPT270 - XXX - XXX - XXXX - XXXX

Dual Stage Chrome Forged Brass

HPT270
0-4000 psig inlet gauge
HPT272
0-4000 psig inlet gauge
Hydrogen
HPT280
0-400 psig inlet gauge
Acetylene (15 psig max outlet)
HPT281
0-400 psig inlet gauge,
LP Gas

Outlet Pressure
15 (2-15 psig)
40 (2-40 psig)
80 (4-80 psig)
125 (5-125 psig)
200 (10-200 psig)

Inlet Connection
CGA
580, 590
4F 1/4" Female NPT
4M 1/4" Male NPT
4S 1/4" Tube Fitting
2S 1/8" Tube Fitting

Outlet Connection
4F 1/4" Female NPT
4M 1/4" Male NPT
4S 1/4" Tube Fitting
2S 1/8" Tube Fitting
BV4M Needle Valve 1/4" Male NPT
DK4F Diaphragm Valve 1/4" Female NPT
DK4M Diaphragm Valve 1/4" Male NPT
DK4S Diaphragm Valve 1/4" Tube Fitting
DK2S Diaphragm Valve 1/8" Tube Fitting

Options
00 Bare Body
03 Certification
05 Panel Mount
07 Relief Valve



HPL270/280

Line Chrome-Plated Brass Regulator

HPL270/280 regulators are recommended for high purity, inert and non-corrosive gas applications where gas is supplied through a distribution system (pipeline).

Series choice is dependent on gas:

- HPL270 - non-flammable and non-corrosive gases
- HPL272 - high pressure, flammable gases
- HPL280 - Acetylene gas
- HPL281 - LP gas

TYPICAL APPLICATIONS

- High-purity gas handling
- Gas chromatography
- Final pressure control in gas systems
- Research sampling systems
- Laser gas systems
- Process analyzers

FEATURES

Precision High Purity Performance

- Helium leak rate of 1×10^{-8} scc/sec
- 100% Helium outboard leak tested

Quality Components

- 2-3/4" stainless steel diaphragm
- 2-1/2" dual scale gauges
- 102 micron filter
- Materials of construction will not contaminate the gas stream

Options

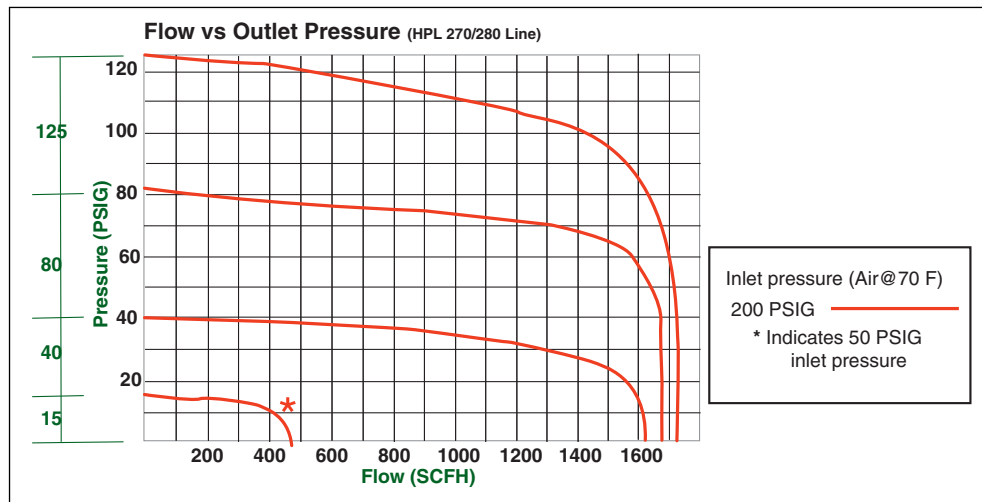
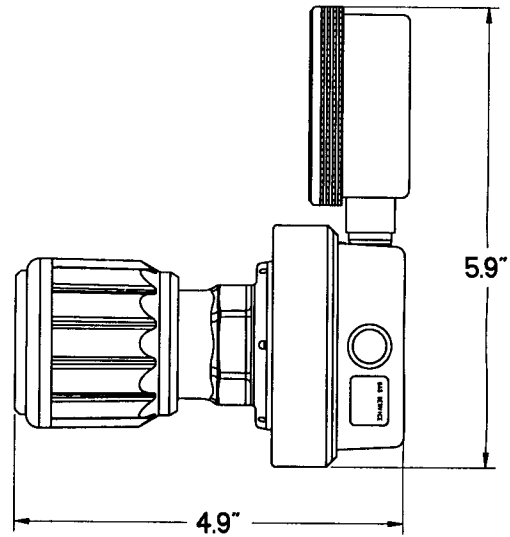
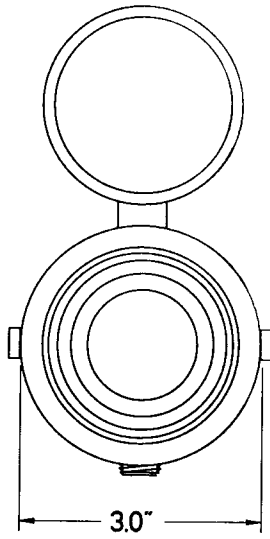
- Diffusion resistant, packless diaphragm shut-off valve
- Panel mount kit

MATERIALS OF CONSTRUCTION

Body.....	Chrome-plated forged brass
Spring housing cap.....	Chrome-plated forged brass
Diaphragm	301 stainless steel
Nozzle	Brass
Seat	Viton™
Seals	Viton™
Poppet.....	Brass CDA 360
Inboard filter	Stainless steel screen 10 micron rating
Seat Return Spring.....	316L stainless steel
Pressure Adjusting Spring	Heat-treated spring steel
Adjusting Knob.....	Acrylonitrile Butadiene Styrene

SPECIFICATIONS

Maximum inlet pressure.....	350 psig
Temperature Operating Range:	0 to 140°F (-17 to 60°C)
Delivery pressure rise:	< .1 psig/100 psig inlet decay
Flow coefficient.....	$C_v = .19$
Valve outlet	1/4" NPT (F)
Outlet pressure ranges.....	15 (2-15 psig) 40 (2-40 psig) 80 (4-80 psig) 125 (5-125 psig)



HPL270 Series Model Number System

HPL270	XXX	XXX	XXXX	XXXX
Line Regulator Chrome Forged Brass	Outlet Pressure	Inlet Connection	Outlet Connection	Options
HPL270 No inlet gauge	15 (2-15 psig)	4F 1/4" Female NPT	4F 1/4" Female NPT	00 Bare Body
HPL272 No inlet gauge Hydrogen	40 (2-40 psig)	4M 1/4" Male NPT	4M 1/4" Male NPT	03 Certification
HPL280 No inlet gauge Acetylene	80 (4-80 psig)	4S 1/4" Tube Fitting	4S 1/4" Tube Fitting	05 Panel Mount
HPL281 No inlet gauge, LP Gas	125 (5-125 psig)	2S 1/8" Tube Fitting	2S 1/8" Tube Fitting	07 Relief Valve
	200 (10-200 psig)		BV4M Needle Valve 1/4" Male NPT	
	300 (10-300 psig)		DK4F Diaphragm Valve 1/4" Female NPT	
	500 (20-500 psig)		DK4M Diaphragm Valve 1/4" Male NPT	
			DK4S Diaphragm Valve 1/4" Tube Fitting	
			DK2S Diaphragm Valve 1/8" Tube Fitting	



HPT100

Two Stage

Chrome-Plated Brass Regulator

HPT100 regulators are recommended for very high purity, gas applications where compact design and consistent delivery pressure are required (as cylinder pressure decreases).

TYPICAL APPLICATIONS

- High-purity gas handling
- Gas chromatography
- Continuous emissions monitoring
- Research sampling systems
- Laser gas systems
- Process analyzers

FEATURES

Precision High Purity Performance

- Helium leak rate of 1×10^{-6} scc/sec
- 100% Helium outboard leak tested
- Low dead space (internal volume) minimizes particle generation

Quality Components

- 1-3/8" stainless steel diaphragm
- 1-1/2" chrome gauges
- 10 micron sintered stainless steel filter
- Resistant to inboard diffusion of atmospheric contaminants
- Self reseating relief valve. Not designed to protect downstream apparatus

Installation Flexibility

- 1.375" diaphragm for minimal footprint

Options

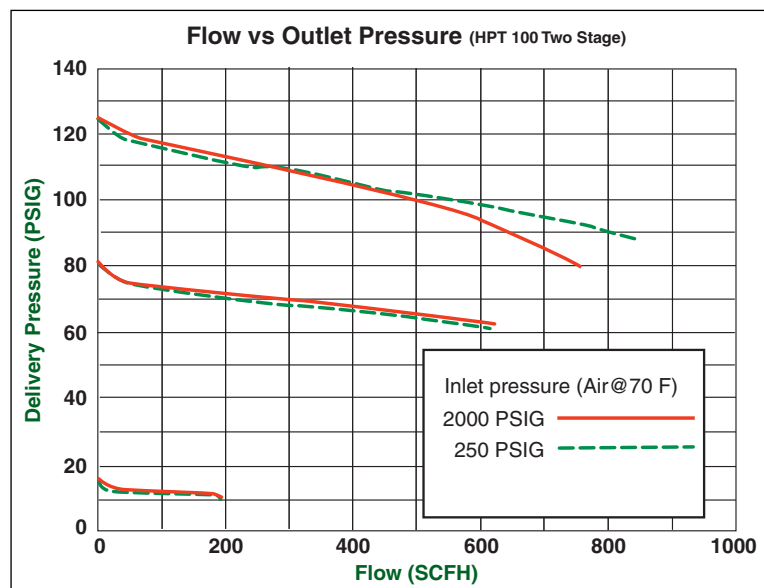
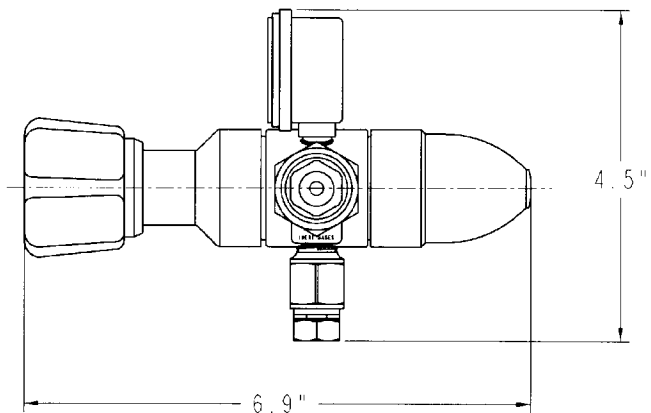
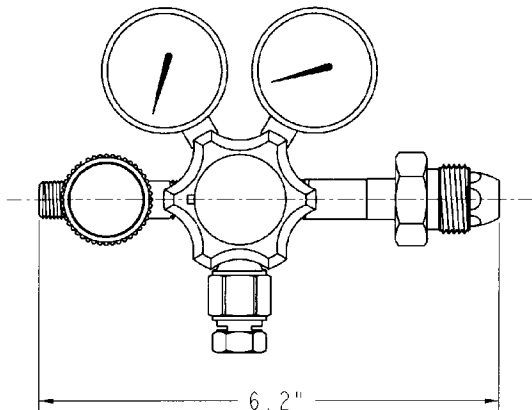
- Rotating captured vent for remote venting
- Diffusion resistant, packless diaphragm shut-off valve

MATERIALS OF CONSTRUCTION

Body	Chrome-plated brass bar stock
Spring housing cap	Chrome-plated bar stock
Diaphragm.....	301 stainless steel
Nozzle.....	Brass
Seat	1st stage PCTFE™ 2nd stage Viton™
Seals.....	Nylon and Viton™
Poppet.....	Brass CDA 360
Inboard filter	10 micron sintered stainless steel
Seat return spring	302 stainless steel
Pressure adjusting spring	Heat-treated spring steel
Adjusting knob.....	Acrylonitrile Butadiene Styrene

SPECIFICATIONS

Maximum inlet pressure	3000 psig
Temperature operating range:	0 to 140°F (-17 to 60°C)
Delivery pressure rise:	< .1 psig/100 psig inlet decay
Outlet pressure ranges.....	15 (2-15 psig) 80 (4-80 psig) 125 (5-125 psig)



HPT100 Series Model Number System

HPT100	-	XXX	-	XXX	-	XXXX	-	XXXX
Dual Stage Chrome Forged Brass		Outlet Pressure		Inlet Connection		Outlet Connection		Options
HPT100 0-4000 psig inlet gauge		15 (2-15 psig) 80 (4-80 psig) 125 (5-125 psig)		CGA 580, 590 4F 1/4" Female NPT 4M 1/4" Male NPT 4S 1/4" Tube Fitting 2S 1/8" Tube Fitting		4F 1/4" Female NPT 4M 1/4" Male NPT 4S 1/4" Tube Fitting 2S 1/8" Tube Fitting BV4M Needle Valve 1/4" Male NPT DK4F Diaphragm Valve 1/4" Female NPT DK4M Diaphragm Valve 1/4" Male NPT DK4S Diaphragm Valve 1/4" Tube Fitting DK2S Diaphragm Valve 1/8" Tube Fitting		00 Bare Body 03 Certification 07 Relief Valve



HPS4

High Pressure Piston Machined Brass Regulator

HPS4 regulators are recommended for high purity, non-corrosive gas applications where precise control of higher delivery pressures is required.

TYPICAL APPLICATIONS

- High-purity gas handling
- Research sampling systems
- High pressure testing
- High pressure purging
- Accelerated aging

FEATURES

Designed for High Pressures

- Piston type actuation
- Delrin bushing for smooth adjustment
- Adjustable relief valves on 750/1500 outlets.
Not designed to protect downstream apparatus

Quality Components

- 2-1/4" brass gauges
- Double inlet filters

Installation Flexibility

- Designed for panel mounting

Options

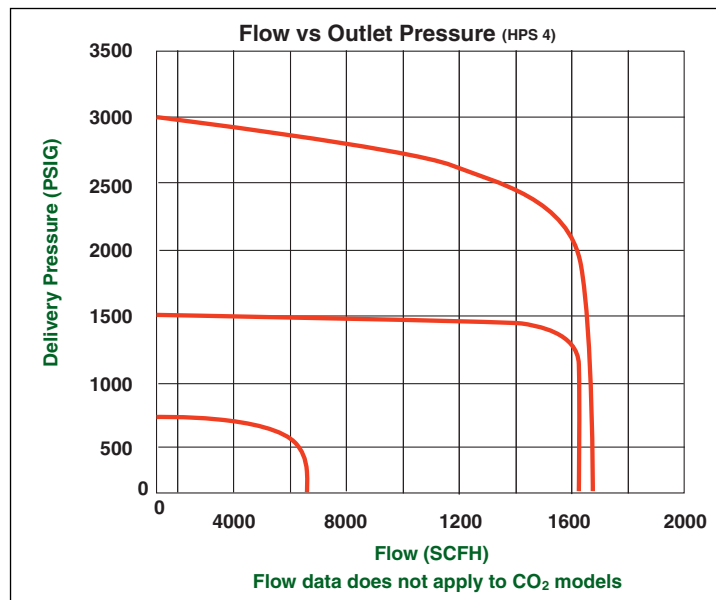
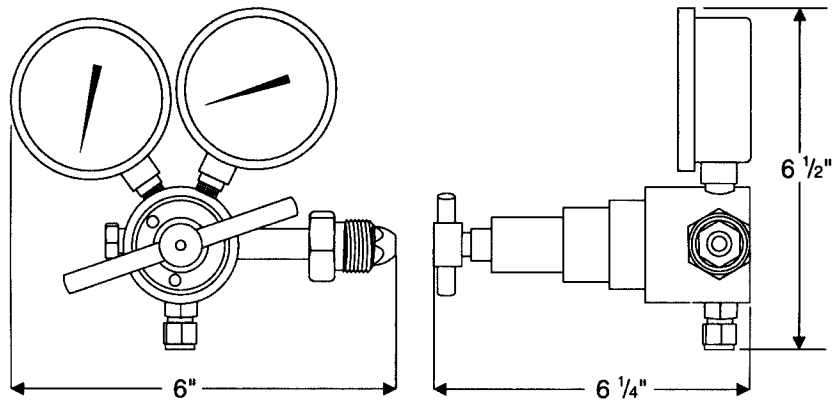
- Flush/adjustable panel mount

MATERIALS OF CONSTRUCTION

Body.....	Machined brass
Housing cap.....	Machined brass
Piston	Brass
Nozzle.....	PCTFE™
Seals	Viton™
Inlet Filter	Bronze
Pressure adjusting spring.....	Heat treated spring steel
Adjusting Screw	Machined brass

SPECIFICATIONS

Maximum inlet pressure	6000 psig without inlet fitting
	5500 psig with CGA 680, 347
	3000 psig with CGA 580, 346, 350
Temperature Operating range:	o to 140°F (-17 to 60°C)
Delivery pressure rise:	
750/1500 range < 2.4 psig/100 psig inlet decay	
3000 range < 4.8 psig/100 psig inlet decay	
Flow coefficient	C _v = .103
Weight	4 lbs. (1.8 kgs.)
Outlet	1/4" Swagelok® fitting
Outlet pressure ranges	750 (50-750 psig)
	1500 (100-1500 psig)
	3000 (200-3000 psig)



HPS4 Series Model Number System

HPS4	XXX	XXX	XXXX	XXXX
Single Stage Brass Barstock	Outlet Pressure	Inlet Connection	Outlet Connection	Options
HPS4 Inlet Pressure Gauge dependent on CGA Connection	750 (25-750 psig)	CGA 296, 320, 326, 346, 347, 350, 540, 580, 590, 677, 680	4F 1/4" Female NPT	00 Bare Body
	1500 (50-1500 psig)		4M 1/4" Male NPT	03 Certification
	3000 (100-3000 psig)		4S 1/4" Tube Fitting	05 Panel Mount
	4500 (100-4500 psig)	4F 1/4" Female NPT	2S 1/8" Tube Fitting	07 Relief Valve
		4M 1/4" Male NPT	BV4M Needle Valve 1/4" Male NPT*	
		4S 1/4" Tube Fitting	DK4F Diaphragm Valve 1/4" Female NPT*	
		2S 1/8" Tube Fitting	DK4M Diaphragm Valve 1/4" Male NPT*	
			DK4S Diaphragm Valve 1/4" Tube Fitting*	
			DK2S Diaphragm Valve 1/8" Tube Fitting*	

* BV and DK Valves not available with 4500 psig outlet pressure



HPL700

Line Forged Brass Regulator

HPL700 regulators are recommended for high purity, inert and non-corrosive gas applications where gas is supplied through a distribution system (pipeline) and high flow is required.

TYPICAL APPLICATIONS

- Laser gas systems
- High-purity gas handling
- High flow non-corrosive gases

FEATURES

High Flow Delivery

- 3 1/4" stainless steel diaphragm
- Delrin bushing for smooth adjustment

Precision High Purity Performance

- Helium leak rate tested at 1×10^{-6} scc/sec.

Quality Components

- 2.5" dual brass gauges
- Resistant to inboard diffusion of atmospheric contaminants

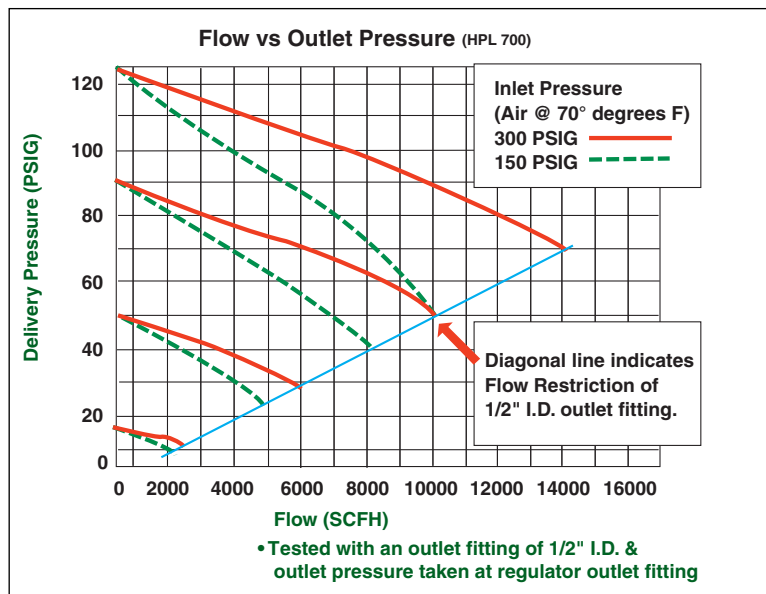
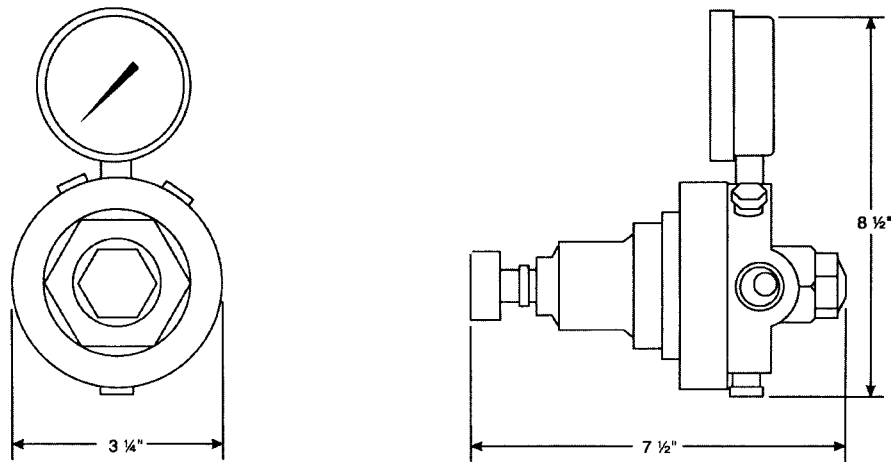
Note: The HPL700 is designed for use downstream of the vaporizer on bulk (liquid) systems. The regulator controls the delivery of gases, not liquids.

MATERIALS OF CONSTRUCTION

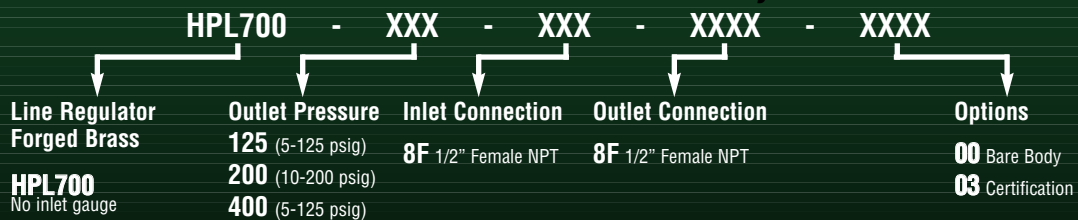
Body	Forged brass
Housing cap	Forged brass
Diaphragm	301 stainless steel
Nozzle	Brass CDA 360
Seat.....	Viton™
Seals	Nylon & Viton™
Seat holder	Brass
Adjusting knob	Brass nut
Seat return spring.....	316 stainless steel
Pressure adjusting spring	316 stainless steel
Filter	Nickel

SPECIFICATIONS

Maximum inlet pressure	(HPL-700-400) 500 psig (HPL-700-200) 350 psig
Inlet	1/2" NPT(F)
Outlet	1/2" NPT(F)
Temperature operating range:	0 to 140°F (-17 to 60°C)
Delivery pressure rise:	< 4.9 psig/100 psig inlet decay
Flow coefficient.....	$C_v = 1.67$
Weight	5.5 lbs (2.5 kg)
Outlet pressure ranges	0-200 psig 0-400 psig



HPL700 Series Model Number System





D1- Dome Dome Regulator

The D1 Dome Regulator is a compact brass regulator designed for applications, such as laser delivery systems, that require constant delivery pressure throughout varying flow ranges and inlet pressures

TYPICAL APPLICATIONS

- Very high flow
- Assist or process gas delivery in laser systems
- Bulk systems, transfilling
- Manifold applications
- Automated cutting systems

FEATURES

- Combines dome and pilot regulator into one unit
- Lighter and more compact than traditional two regulator unit
- Fully adjustable delivery range 50-550 psig
- Bracket for wall mounting included
- 2" chrome gauges

High Flow Delivery

- Capable of delivery 10,000-20,000 scfh

Installation Flexibility

- Cylinder mountable
- Panel mount (included)
- Weight

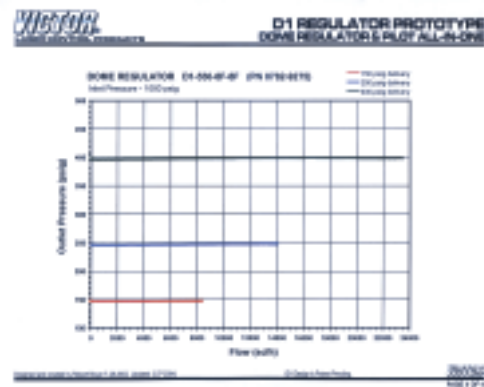
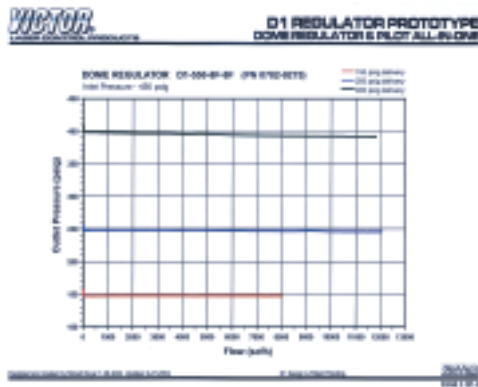
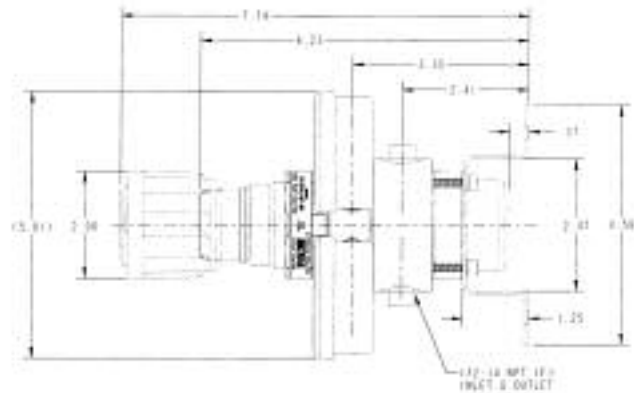
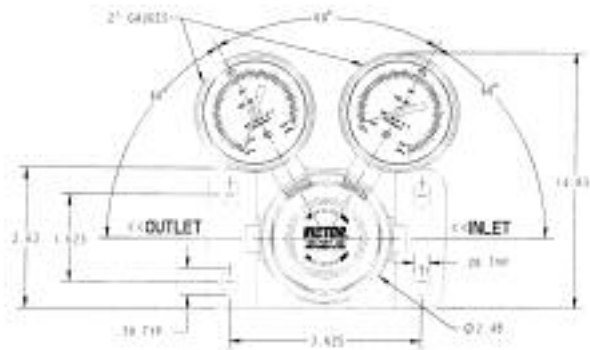
MATERIALS OF CONSTRUCTION

Body.....	CDA 360 brass
Pilot housing cap.....	Chrome plated CDA brass
Dome housing cap.....	CDA 360 brass
Pilot diaphragm	Brass CGA 360
Nozzle/seat	CDA 360 brass
Pilot seat.....	PTCFE
Dome seat	Viton™
Seals/piston O-ring.....	Viton™
Dome seat backup ring.....	Teflon™
Filter.....	102 micron stainless steel
Seat return spring.....	302/316 stainless steel
Pressure adjusting spring	Spring steel
Adjusting knob	Acrylonitrile Butadiene Styrene

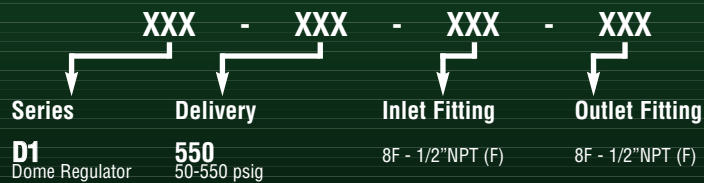
SPECIFICATIONS

Inlet pressure.....	3000 psig
Delivery pressure	50-550 psig
Inlet & outlet ports	1/2"-14 NPT (F)
Gauges	H.P. 2" 4000 psig/28000 kPa
.....	L.P. 2" 600 psig/4200 kPa
Temperature operating range.....	0°-140°F
Outlet pressure rise.....	1.04 psig per 100 psig inlet decay
Flow coefficient.....	C _v = 1.02
Weight	5 lbs (2.3 kg)

U.S. Customer Care: 800-569-0547 / FAX 800-535-0557



D1 Dome Model Number System



Description	Part No.
D1-550-8F-8F	0782-9276

Victor Laser Products

Victor offers a selection of high quality equipment to deliver the lasing, assist and beam purge gases to CO₂ industrial laser equipment.

Features

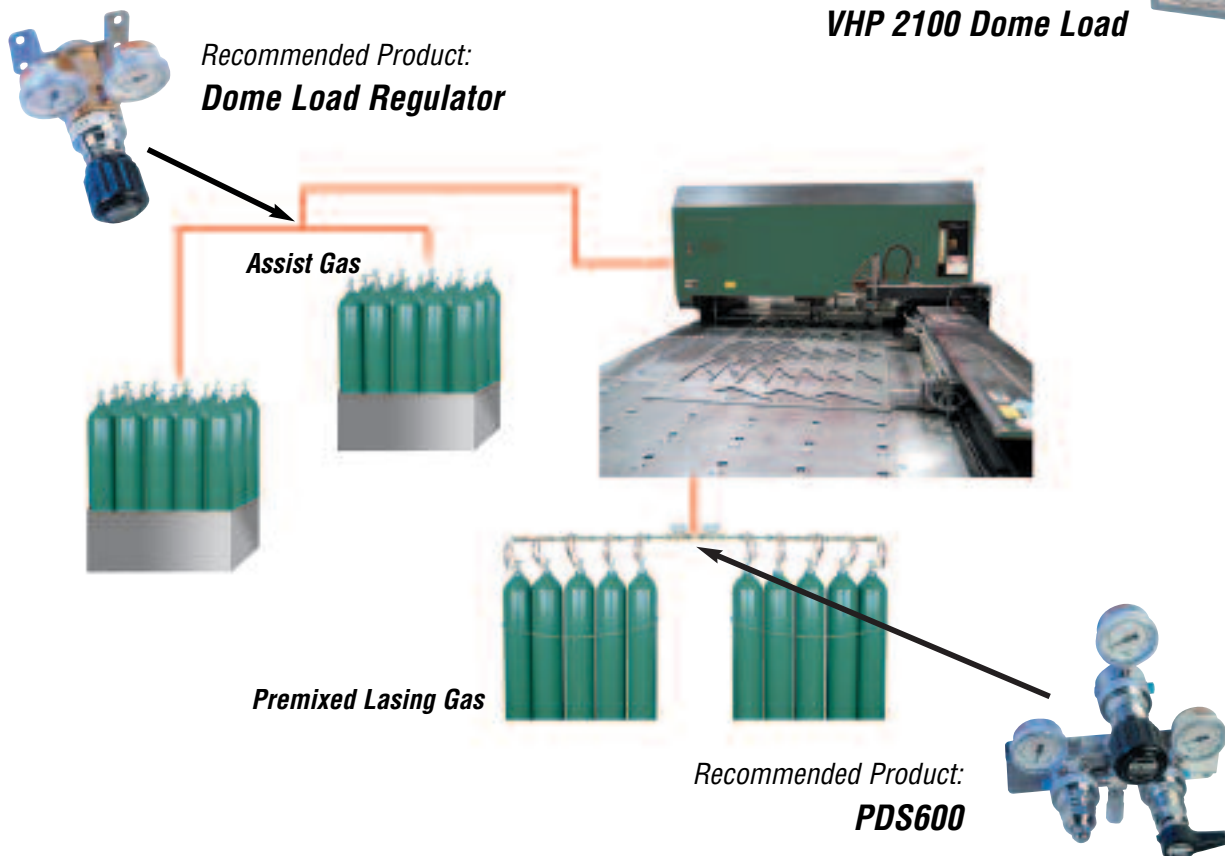
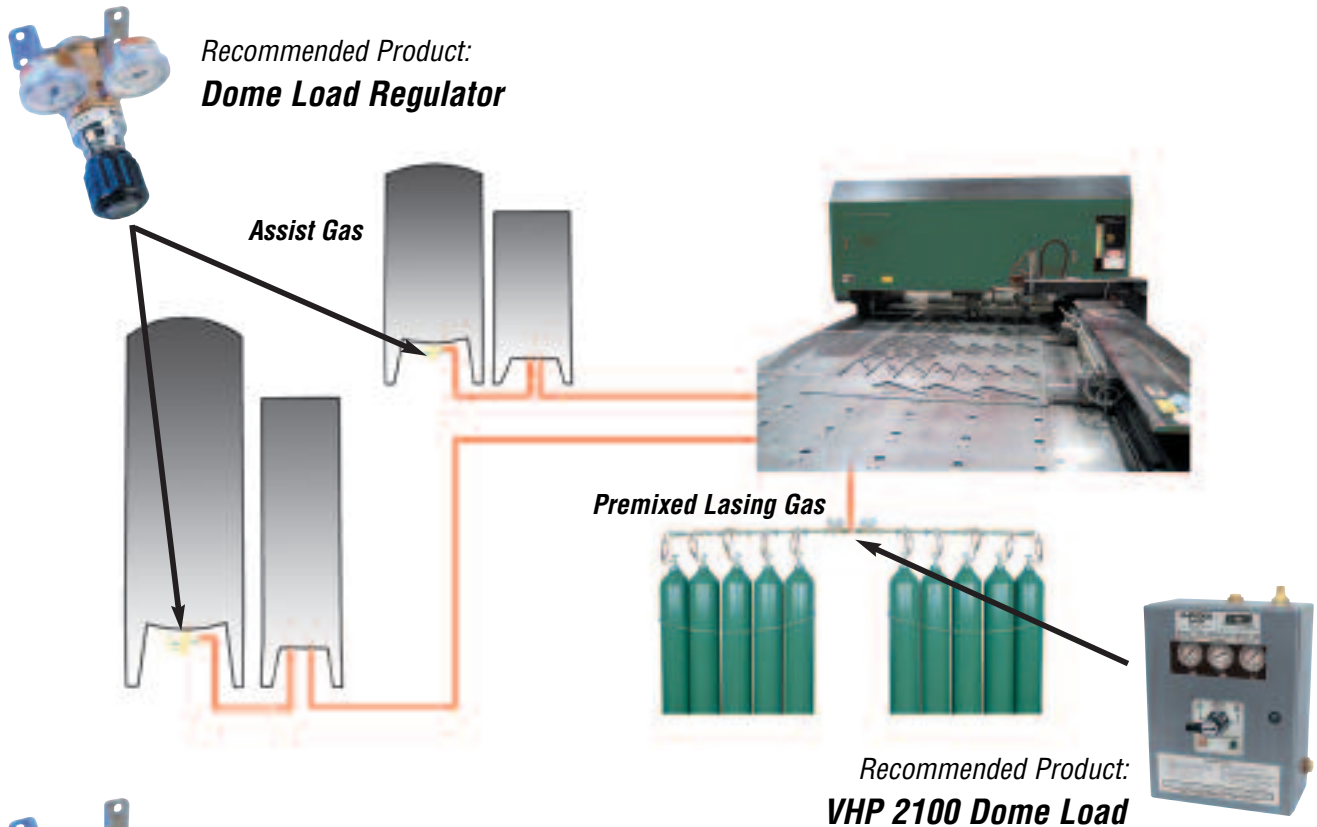
- Stainless steel diaphragm regulators
- High purity assist gas delivery pressures up to 550 psig
- High purity manifolds
- High flow, constant delivery pressure



Product Menu

Model Number	Description	Applications	Page
VHP 2100	Pressure Differential Semi-Automatic Switchover Manifold	Lasing Gas	64
PDS 600	High Purity Semi-Automatic Switchover Manifold	Lasing Gas	60
PSB-1 or PSB-2	Laser Gas Protocol Station	Lasing Gas	68
D1 Regulator	Dome Load Regulator	Assist Gas	32
HPT 500	High Purity Line Regulator	Beam Purge	16
GLC 350	Liquid Cylinder Regulator	Assist Gas, Beam Purge	54

Typical Industrial Laser Applications





CRS100

Corrosion Resistant

Brass & Chrome-Plated Regulators

CRS100 regulators are recommended for high purity, highly corrosive gas applications with restricted space requirements.

TYPICAL APPLICATIONS

- High-purity, corrosive gas handling including
 - Boron trichloride/boron trifluoride
 - Carbonyl fluoride
 - Chlorine/chlorine trifluoride
 - Hydrogen bromide/hydrogen chloride/hydrogen fluoride
 - Nitrosyl chloride
 - Phosphorous pentafluoride
 - Silicon tetrafluoride
 - Sulfur tetrfluoride

FEATURES

Durable for Corrosive Gas

- Captured vent allows for remote venting of gas
- Electroless nickel-plated brass body and sintered bronze filter
- 2-3/16" Teflon™ lined stainless steel diaphragm
- Monel™ nozzle

Precision High Purity Performance

- Yoke connects diaphragm and seat block for instant response
- 100% Helium outboard leak tested
- 100% inboard leak checked with precision helium mass spectrometer

Quality Components

- 2.7" dual scale gauges

Installation Flexibility

- Multi-seat design with rotatable seat block
- Small size to meet space requirements

Options

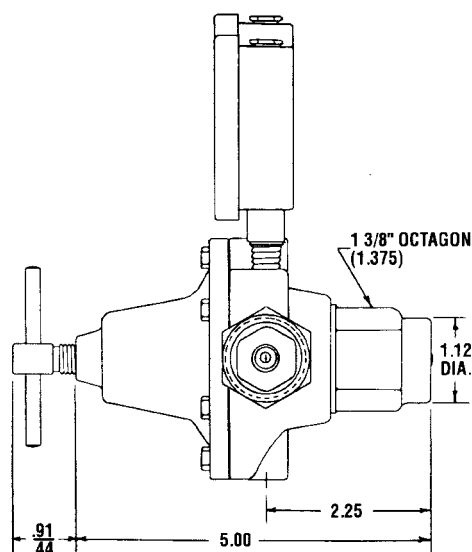
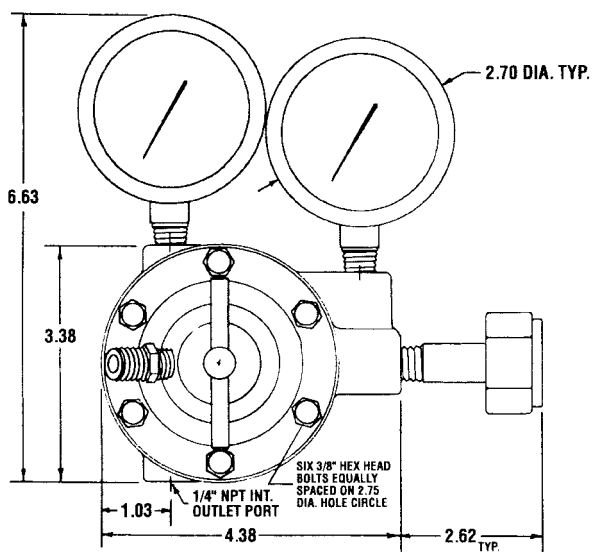
- Diffusion resistant, packless diaphragm shut-off valve
- Outlet valve with Monel™ body, stem, tip and Teflon™ packing

MATERIALS OF CONSTRUCTION

Body	Electroless nickel-plated brass
Spring housing cap	Electroless nickel-plated brass
Diaphragm.....	Teflon™ lined 316L stainless steel
Nozzle.....	Monel®
Seat	PCTFE™
Seals	Viton™
Filter	Electroless nickel-plated sintered bronze
Adjusting screw	Acrylonitrile Butadiene Styrene

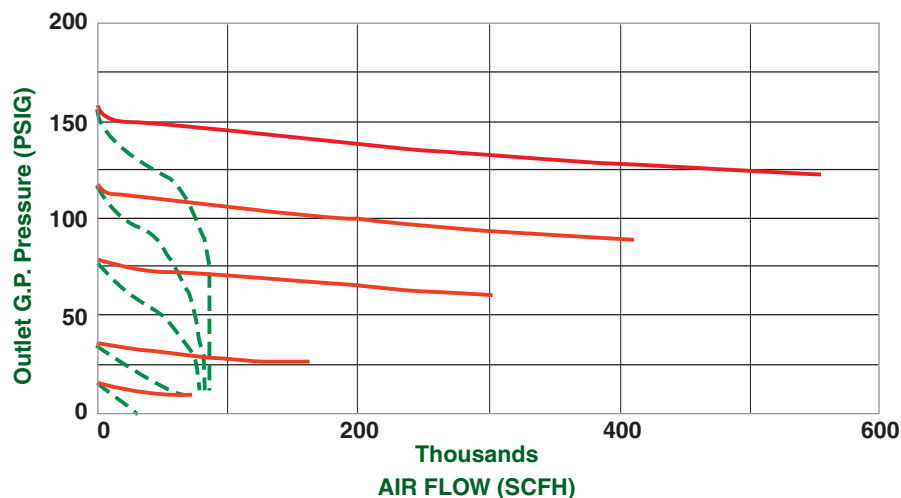
SPECIFICATIONS

Maximum inlet pressure.....	3000 psig (crs100) 1000 psig (crs110)
Valve outlet.....	1/4" MNPT
Temperature operating range:.....	-20 to 160°F (-28 to 60°C)
Outlet pressure ranges	0-80 psig 0-160 psig



† Inlet pressure
(Nitrogen @ 70°F)

2000 psig ———
250 psig - - - - -



- Tested with outlet valve full open and outlet pressure taken at regulator L.P. gauge port.

CRS100 Series Model Number System

CRS100 - XXX - XXX - XXXX - XXXX				
Line Forged Brass	Outlet Pressure	Inlet Connection	Outlet Connection	Options
CRS100 0-4000 psig inlet gauge	80 (2-160 psig)	CGA 240, 330, 346, 350, 660, 705	4F 1/4" Female NPT	00 Bare Body
CRS110 0-1000 psig inlet gauge	160 (10-160 psig)	4F 1/4" Female NPT	4M 1/4" Male NPT	03 Certification
		4M 1/4" Male NPT	4S 1/4" Tube Fitting	
		4S 1/4" Tube Fitting	2S 1/8" Tube Fitting	
			BV4M Needle Valve 1/4" Male NPT	
			DK4F Diaphragm Valve 1/4" Female NPT	
			DK4M Diaphragm Valve 1/4" Male NPT	
			DK4S Diaphragm Valve 1/4" Tube Fitting	
			DK2S Diaphragm Valve 1/8" Tube Fitting	



CRS200

Corrosion Resistant

Electroless Nickel-Plated Regulators

CRS200 regulators are recommended for high purity, highly corrosive gas applications.

TYPICAL APPLICATIONS

- High-purity, corrosive gas handling including
 - Boron trichloride/boron trifluoride
 - Carbonyl fluoride
 - Chlorine/chlorine trifluoride
 - Hydrogen bromide/hydrogen chloride/hydrogen fluoride
 - Nitrosyl chloride
 - Phosphorous pentafluoride
 - Silicon tetrafluoride
 - Sulfur tetrfluoride

FEATURES

Durable for Corrosive Gas

- Captured vent allows for remote venting of gas
- Electroless nickel-plated brass body and sintered bronze filter
- 3" Teflon™ lined stainless steel diaphragm
- Monel™ nozzle

Precision High Purity Performance

- Yoke connects diaphragm and seat block for instant response
- 100% Helium outboard leak tested
- 100% inboard leak checked with precision helium mass spectrometer

Quality Components

- 2.7" dual scale gauges

Installation Flexibility

- Multi-seat design with rotatable seat block

Options

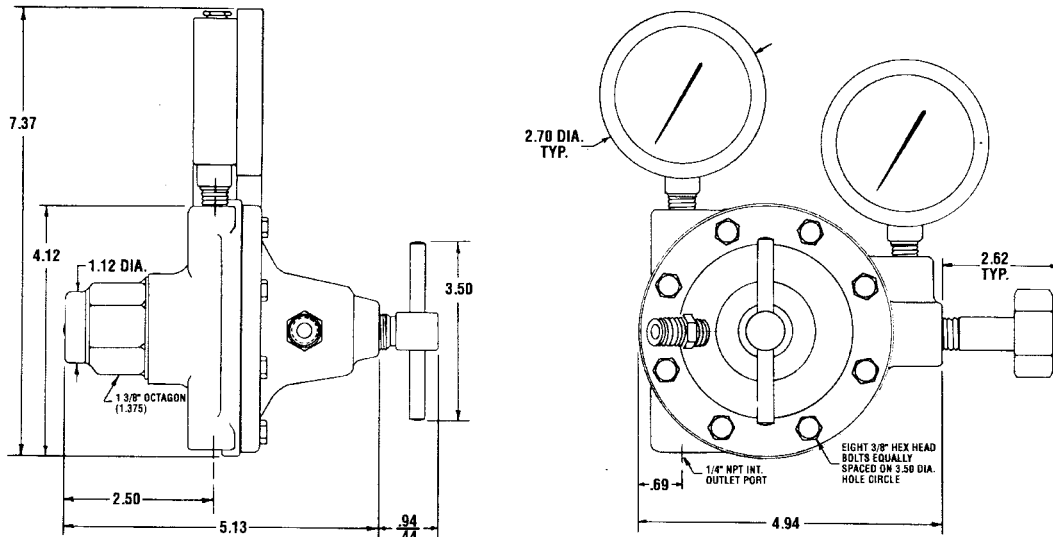
- Outlet valve with Monel™ body, stem, tip and Teflon™ packing

MATERIALS OF CONSTRUCTION

Body.....	Electroless nickel-plated brass
Spring housing cap.....	Electroless nickel-plated brass
Diaphragm	Teflon™ lined 316L stainless steel
Nozzle	Monel®
Seat.....	PCTFE™
Seals.....	Viton™
Filter.....	Electroless nickel-plated sintered bronze
Adjusting screw.....	Acrylonitrile Butadiene Styrene

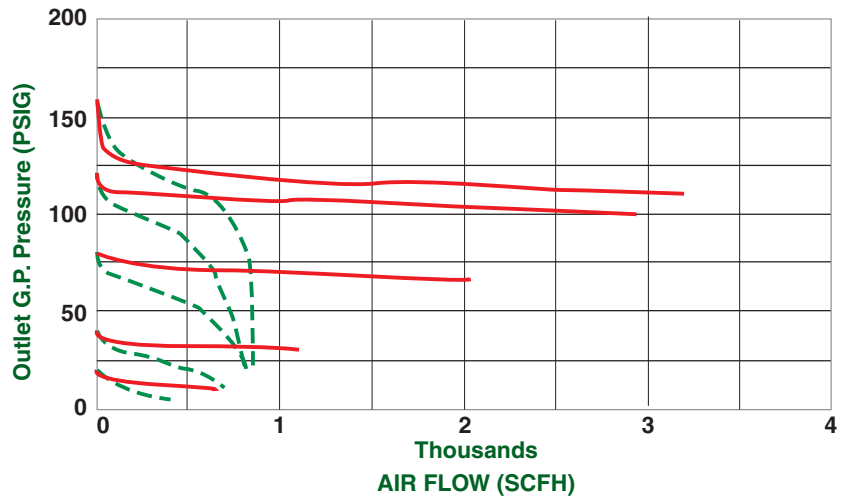
SPECIFICATIONS

Maximum inlet pressure.....	3000 psig
Temperature operating range:	-20 to 160°F (-28 to 60°C)
Outlet pressure ranges	0-80 psig
	0-160 psig
Valve outlet	1/4" MNPT



† Inlet pressure
(Nitrogen @ 70°F)

2000 psig ———
250 psig - - - - -



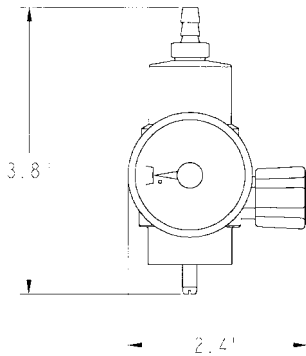
- Tested with outlet valve full open and outlet pressure taken at regulator L.P. gauge port.

CRS200 Series Model Number System

Series	Delivery	Outlet Gauge Pressure	Inlet Fitting	Outlet Fitting	Options
CRS200 Single Stage Corrosion Resistant	80 4-80 psig	15 (2-30 psig)	CGA 240	BV 1/4" Shut-off valve	00 Bare body
CRS210 Single Stage Corrosion Resistant	160 0-160 psig	40 (2-60 psig)	CGA 330	4M 1/4" Male fitting	02 Helium Leak Certification
		80 (4-100 psig)	CGA 350	4F 1/4" Female port	03 Certification
		125 (5-200 psig)	CGA 580	4S 1/4" Swagelok®	
			CGA 660		
			4F 1/4" FNPT		

Ordering Examples: **CRS200-160-330-4F**
CRS200 regulator w/160 psig delivery pressure
CGA 330 inlet fitting, 1/4" Female NPT outlet
No options selected.

CRS110-160-330-4S-02
CRS210 regulator w/160 psig delivery pressure
CGA 330 inlet fitting, 1/4" Swagelok® outlet
fitting. Option-Helium Leak Certification



PR150

Calibration Gas Regulators

PR150 regulators are recommended for non-corrosive gas applications with disposable cylinders using a CGA 600 valve

TYPICAL APPLICATIONS

- Disposable cylinders of non-corrosive gases

FEATURES

Durable for Corrosive Gas

- CGA 600 valve

User Friendly

- Control valve permits constant flow and easy on/off

Quality Components

- 1.5" gauges

Options

- 4 preset flows: 2.5 lpm, .5 lpm, 1.0 lpm, 1.5 lpm

MATERIALS OF CONSTRUCTION

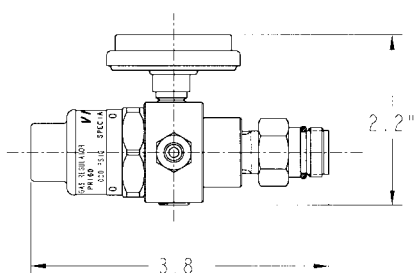
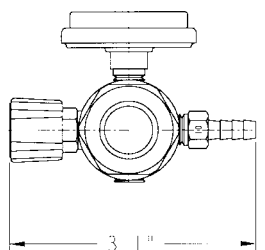
Body.....Brass bar stock
Spring housing capChrome-plated brass bar stock
DiaphragmTeflon™ lined 316L stainless steel
Seat.....PCTFE™
Piston.....Brass
Piston "O" rings.....Buna-N®

SPECIFICATIONS

Maximum inlet pressure.....500 psig
Temperature operating range:0 to 40°F (-17 to 60°C)
Outlet fitting.....3/16" Hose barb
Inlet fittingCGA 600

Model PR150 Ordering Information

Part No.	Model Number	Flow Rate
0781-1170	PR150-025-600	.25 LPM Air
0781-1171	PR150-025-600	.5 LPM Air
0781-1172	PR150-05-600	1.0 LPM Air
0781-1173	PR150-1-600	1.5 LPM Air



PR160

Calibration Gas Regulators

PR160 regulators are recommended for non-corrosive gas applications with disposable cylinders using a 5/8\"-18 valve

TYPICAL APPLICATIONS

- Disposable cylinders of non-corrosive gases

FEATURES

Durable for Corrosive Gas

- 5/8\"-18

User Friendly

- Control valve permits constant flow and easy on/off

Quality Components

- 1.5\" gauges

Options

- 9 preset flows: .25 lpm, .3 lpm, 5 lpm, 1.0 lpm, 1.5 lpm, 2.0 Lpm, 2.5 lpm, 5 lpm, 6.0 lpm

MATERIALS OF CONSTRUCTION

Body.....Brass bar stock
Spring housing capChrome-plated brass bar stock
DiaphragmTeflon™ lined 316L stainless steel
Seat.....PCTFE™
PistonBrass
Piston "O" rings.....Buna-N®

SPECIFICATIONS

Maximum inlet pressure.....1000 psig
Temperature operating range:0 to 140°F (-17 to 60°C)
Inlet fitting5/8\"-18 UNF (C-10)
Outlet fitting3/16\" Hose barb

Model PR150 Ordering Information

Part No.	Model Number	Flow Rate
0781-1080	PR160-025	.25 LPM Air
0781-1087	PR160-03	.5 LPM Air
0781-1081	PR160-05	1.0 LPM Air
0781-1082	PR160-1	1.5 LPM Air
0781-1083	PR160-15	.25 LPM Air
0781-1088	PR160-2	.5 LPM Air
0781-1084	PR160-25	1.0 LPM Air
0781-1085	PR160-5	1.5 LPM Air
0781-1086	PR160-6	1.5 LPM Air

NEW!

PR190

Calibration Gas Regulators

Calibration gas regulators are for use with disposable cylinders. These regulators are designed for non-corrosive gas service and are single stage, piston style regulators. The control valve permits constant gas flow and easy on/off.

TYPICAL APPLICATIONS

- Disposable cylinders of non-corrosive gases



FEATURES

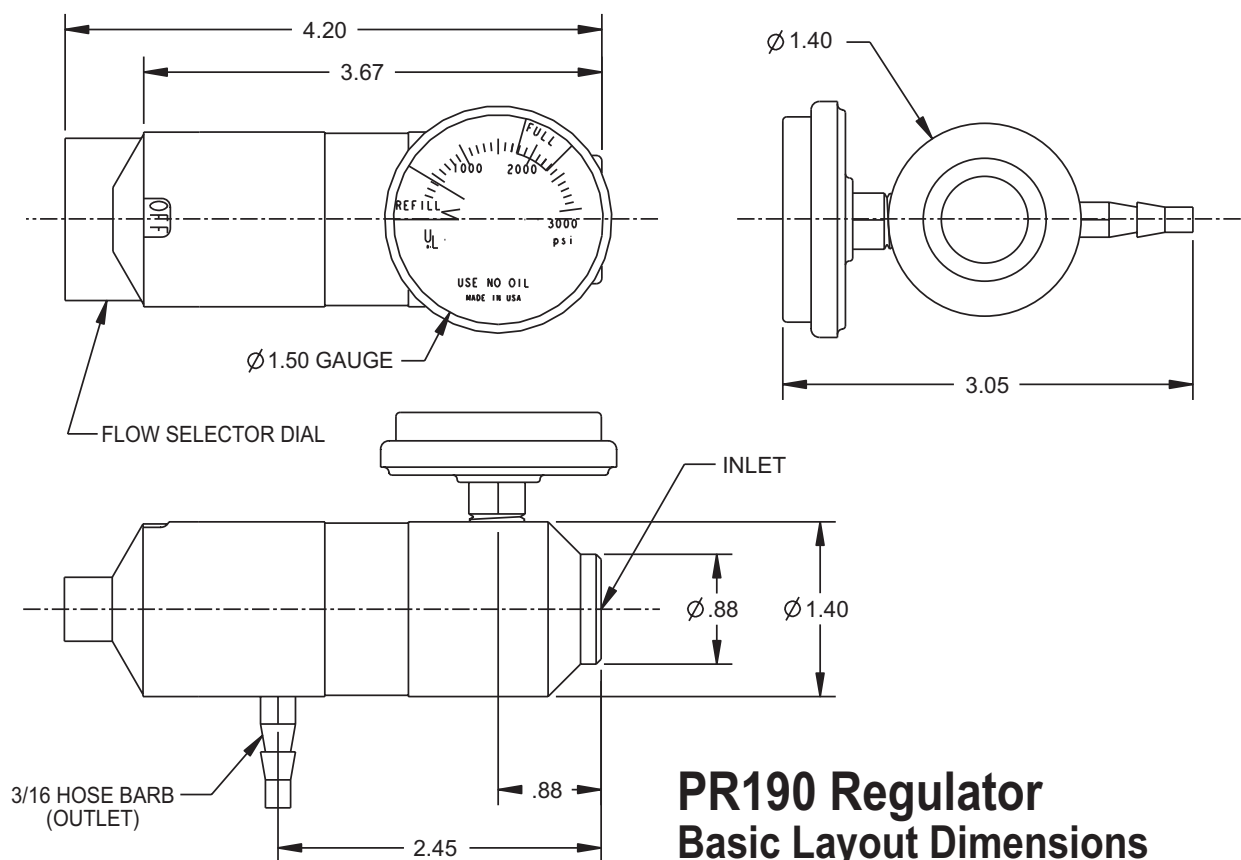
- Piston type construction
- Preset flow ratings
- On/Off valve
- 1 1/2" gauge

MATERIALS OF CONSTRUCTION

Body.....	7075-T65-11 Aluminum
Orifice disk.....	360 brass
Manifold	360 brass
Piston.....	360 brass
Flow knob.....	Acrylonitrile Butadiene Styrene
Flow meter housing	Acrylonitrile Butadiene Styrene
Elastomers	Viton™ (O-ring)

SPECIFICATIONS

Maximum inlet pressure	1,000 to 3,000 psig
Outlet flow settings (orifice)	0.2 lpm, 0.3 lpm, 0.5 lpm, 1 lpm, 1.5 lpm, 2.5 lpm, 5 lpm, 6 lpm
Inlet fitting	C-10
Outlet fitting	3/16" hose barb
Temperature operating range	0 to 140°F (-17 to 60°C)



Model PR190 Ordering Information

Part No.	Model Number	Flow Rate	Inlet Connection	Max Inlet Pressure
0782-0620	PR191-B-06-C10C-0	0-6 lpm	C-10, Chrome	1000 psi
0782-0621	PR191-B-06-660-01	0-6 lpm	CGA 660 SST.	3000 psi
0782-0622	PR191-B-06-180-01	0-6 lpm	CGA 180 SST.	3000 psi
0782-0623	PR191-B-06-4F-01	0-6 lpm	NPT (Female)	3000 psi
0782-0624	PR191-B-06-C10S-01	0-6 lpm	C-10 SST.	1000 psi
0782-0625	PR191-B-06-330-01	0-6 lpm	CGA 330 SST.	3000 psi
0782-0626	PR191-B-06-C10C-01	0-6 lpm	C-10, Chrome	3000 psi
0782-0627	PR191-B-06-C10S-01	0-6 lpm	C-10 SST.	3000 psi



LB150

Lecture Bottle

Chrome-Plated Brass Regulators

LB150 regulators are recommended for non-corrosive gas applications with lecture bottles.

TYPICAL APPLICATIONS

- Lecture bottles of non-corrosive gas
- EPA protocol
- Calibration
- Sampling

FEATURES

Precision Performance

- 1-1/4" neoprene diaphragm provides greater sensitivity

Quality Components

- 1-1/2" chrome-plated gauges
- Lightweight adjusting knob
- Self seating type relief valve. Not designed to protect downstream apparatus

Options

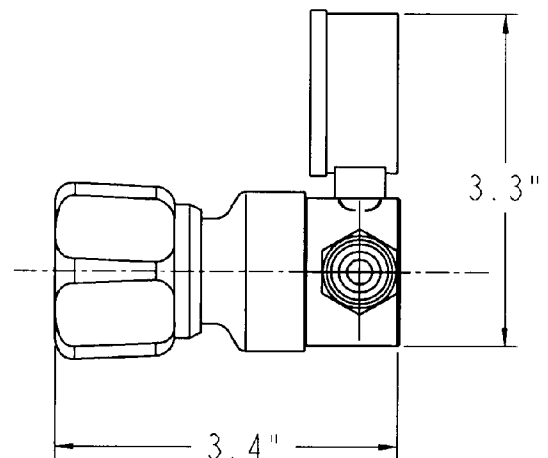
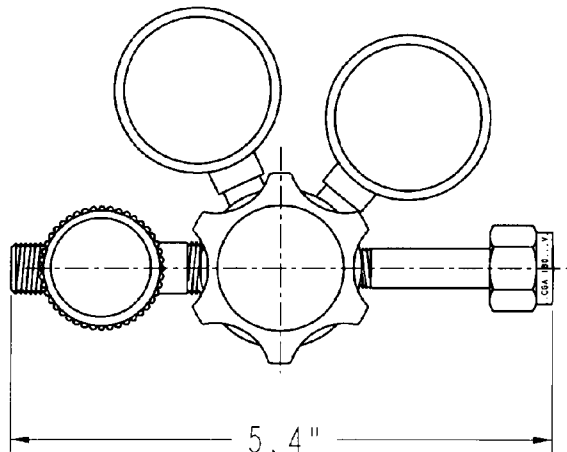
- Outlet valve
 - Body Chrome-plated brass
 - Stem Brass
 - Packing Teflon®

MATERIALS OF CONSTRUCTION

Body.....	Chrome-plated brass
Spring housing cap.....	Chrome-plated brass
Diaphragm	Neoprene
Nozzle	Brass
Seat	Polyurethane
Seals	Nylon
Poppet	Brass
Filter.....	.50 micron sintered bronze
Seat return Spring.....	Stainless steel
Pressure adjusting knob.....	Music wire
Adjusting knob	Acrylonitrile Butadiene Styrene

SPECIFICATIONS

Maximum inlet pressure	3000 psig
Temperature operating range:.....	0 to 1140°F (-17 to 60°C)
Delivery pressure rise:.....	<.3 psig/100 psig inlet decay
Outlet pressure ranges.....	15 (2-15 psig) 60 (4-60 psig)
Valve outlet	1/4" NPT (F)

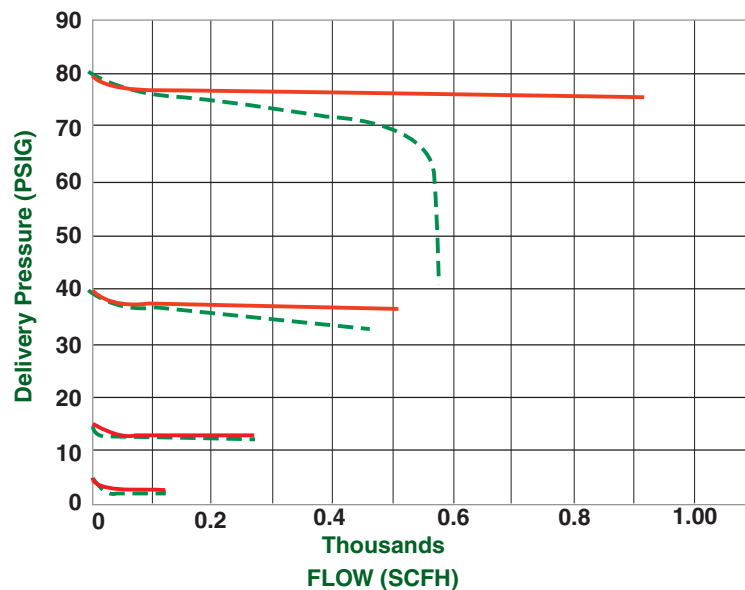


Flow vs Outlet Pressure

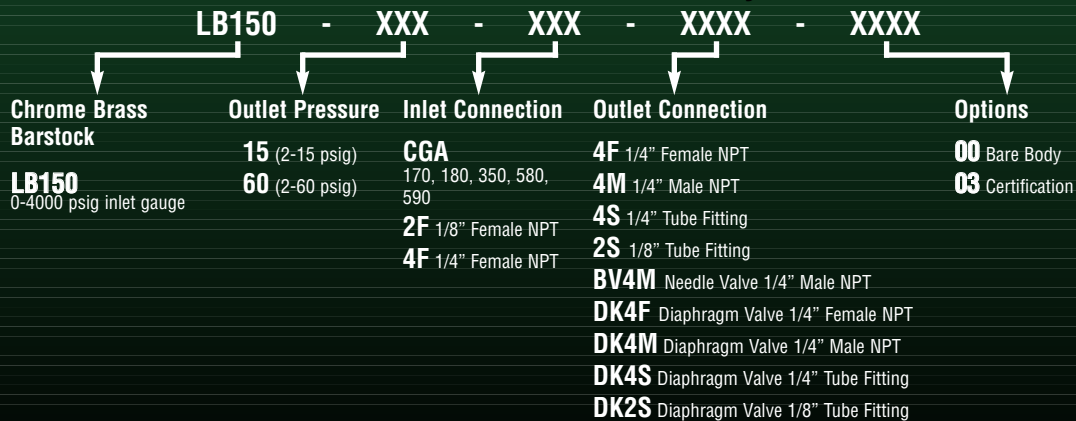
Inlet pressure
(AIR @ 70°F)

2000 psig ————
250 psig - - - - -

LB-150-60 Flow



LB150 Series Model Number System





LB165

Corrosion Resistant Lecture Bottle Chrome-Plated Brass Regulators

LB165 regulators are recommended for high purity, corrosive and toxic gas applications with lecture bottles.

TYPICAL APPLICATIONS

- Lecture bottles of corrosive gas
- Semiconductor
- Moist analysis
- Trace hydrocarbon analysis
- Emissions analysis

FEATURES

Durable for Corrosive Gas

- 2" Stainless steel body with 4 ports
- 1-1/2" stainless steel diaphragm

Precision High Purity Performance

- Helium leak rate of 1×10^{-9} scc/sec.
- 100% Helium outboard leak tested

Quality Components

- Unique diaphragm reduces potential leak paths
- 2" dual scale 316 stainless steel gauges (psi/kp2)
- Cartridge type seat assembly with 10 micron filter
- Resistant to inboard diffusion of atmospheric contaminants

Options

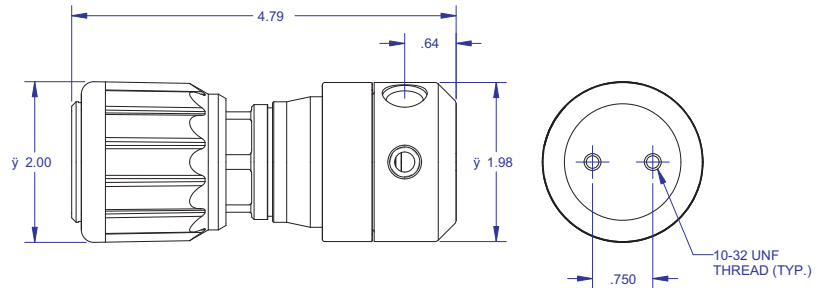
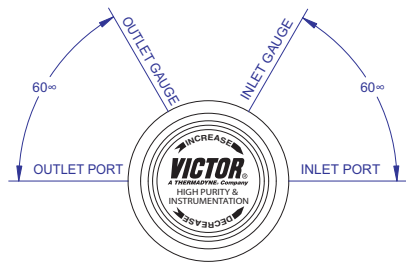
- Captured vent allows for remote venting of gas

MATERIALS OF CONSTRUCTION

Body	316 stainless steel
Spring housing cap	nickel-plated brass
Diaphragm	316 stainless steel
Nozzle.....	316 stainless steel
Seat.....	PCTFE™
Seals.....	Teflon™ and PCTFE™
Poppet	316 stainless steel
Filter.....	10 micron sintered stainless steel
Seat return Spring.....	316 stainless steel
Pressure adjusting knob	Music wire
Adjusting knob	Acrylonitrile Butadiene Styrene

SPECIFICATIONS

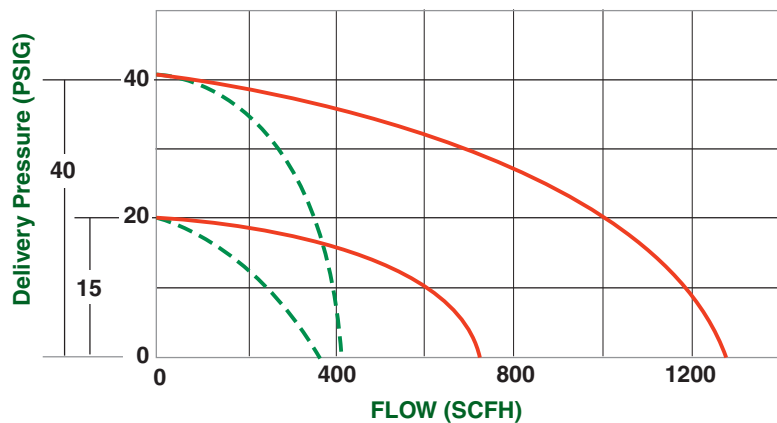
Maximum inlet pressure	3000 psig
Outlet.....	1/4" MNPT (M)
Temperature operating range:	0 to 140°F (-17 to 60°C)
Delivery pressure rise:	<.92 psig/100 psig inlet decay
Flow coefficient	C< = .135
Outlet pressure ranges.....	15 (2-15 psig) 40 (4-40 psig)



Flow vs Outlet Pressure

Inlet pressure
(AIR @ 70°F)

2000 psig ————
250 psig - - - - -



LB165 Series Model Number System

LB165	XXX	XXX	XXXX	XXXX
316L Stainless Steel	Outlet Pressure	Inlet Connection	Outlet Connection	Options
LB165 0-4000 psig inlet gauge	15 (2-15 psig) 40 (2-40 psig) 80 (4-80 psig) 125 (5-125 psig)	CGA 110, 170, 180 2F 1/8" Female NPT	4F 1/4" Female NPT 4M 1/4" Male NPT 4S 1/4" Tube Fitting 2S 1/8" Tube Fitting BV4M Needle Valve 1/4" Male NPT DK4F Diaphragm Valve 1/4" Female NPT DK4M Diaphragm Valve 1/4" Male NPT DK4S Diaphragm Valve 1/4" Tube Fitting DK2S Diaphragm Valve 1/8" Tube Fitting	00 Bare Body 02 Helium Leak Test 03 Certification 04 Captured Vent 05 Panel Mount



GPS270/280

General Purpose, Single Stage Chrome-Plated Brass Regulators

GPS270/280 regulators are recommended for inert and non-corrosive gas applications where slight variance in delivery pressure is acceptable (as cylinder pressure decreases).

Series choice is dependent on gas:

- GPS270 - Oxygen and inert gas
- GPS272 - High pressure, flammable gases
- GPS280 - Acetylene gas
- GPS281 - LP gas

TYPICAL APPLICATIONS

- Non-critical specialty gases
- Purging
- Pressure testing
- Gas shielding
- Liquefied hydrocarbon analysis

FEATURES

Quality Components

- 2-3/4" nylon reinforced diaphragm
- 2-1/2" dual scale gauges (psi/kp2)
- Chrome plated body, housing cap, fittings and gauges

Options

- Outlet valve
 - Body Chrome-plated forged brass
 - Stem Brass
 - Packing Teflon®
 - Tip Stainless steel ball

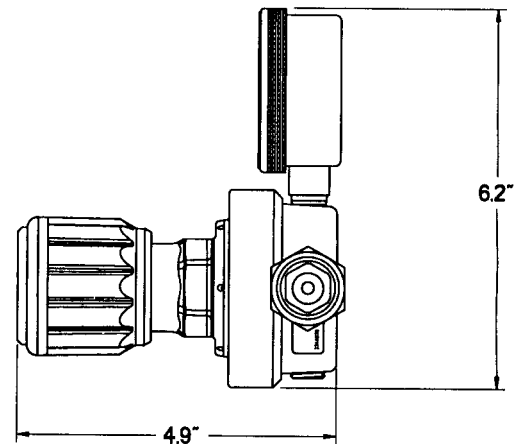
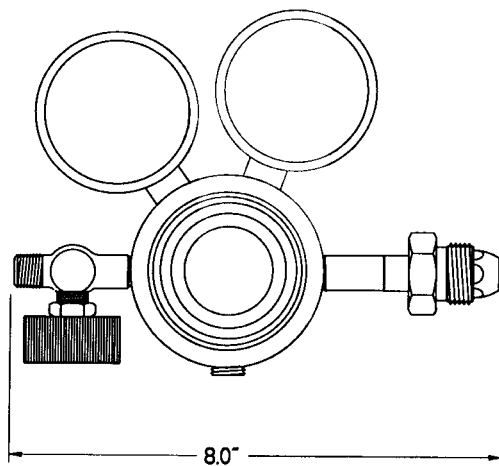
Note: These general purpose regulators should not be used in applications sensitive to inboard air diffusion or elastomeric out-gassing.

MATERIALS OF CONSTRUCTION

Body	Chrome-plated forged brass
Spring housing cap	Chrome-plated forged brass
Diaphragm	Nylon reinforced neoprene
Nozzle	Brass
Seat	GPS270, 272 Polyurethane GPS280, 282 Neoprene
Seals	Nylon™
Filter	Sintered bronze
Seat return Spring	Stainless steel
Pressure adjusting knob	Music wire
Adjusting knob	Acrylonitrile Butadiene Styrene

SPECIFICATIONS

Maximum inlet pressure	(GPS270, 272) 3000 psig (GPS280, 282) 400 psig
Temperature operating range:	0 to 140°F (-17 to 60°C)
Delivery pressure rise:	<.85 psig/100 psig inlet decay
Flow coefficient	C _v = .18
Outlet pressure ranges	15 (2-15 psig) 40 (2-40 psig) 80 (4-80 psig) 125 (5-125 psig)

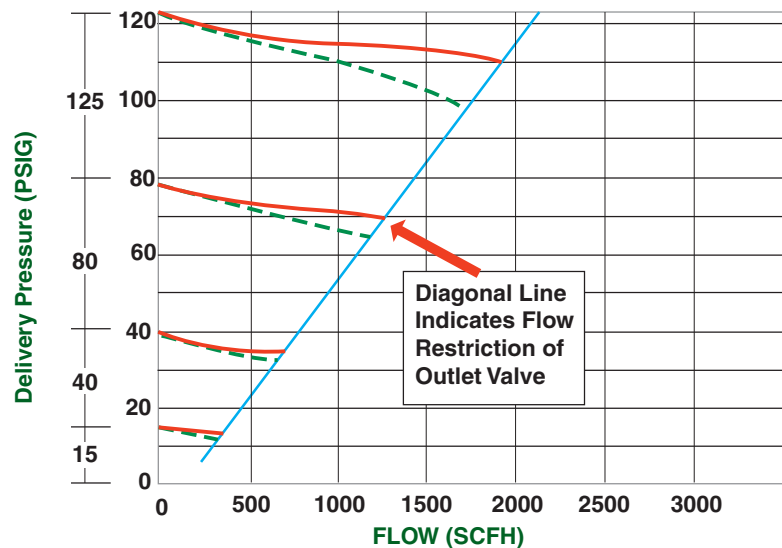


Flow vs Outlet Pressure

Inlet pressure
(AIR @ 70°F)

2000 psig ————
250 psig - - - - -

* Tested with outlet valve
full open & outlet pressure
taken at regulator L.P.
gauge port.



GPS270 Series Model Number System

GPS270 - XXX - XXX - XXXX - XXXX

**Single Stage
Chrome Forged
Brass**

GPS270
0-4000 psig inlet gauge

GPS272
0-4000 psig inlet gauge
Hydrogen

GPS280
0-400 psig inlet gauge
Acetylene (15 psig max
outlet)

GPS281
0-400 psig inlet gauge,
LP Gas

Outlet Pressure

15 (2-15 psig)
40 (2-40 psig)
80 (4-80 psig)
125 (5-125 psig)
200 (10-200 psig)

Inlet Connection

CGA
580, 590
4F 1/4" Female NPT
4M 1/4" Male NPT
4S 1/4" Tube Fitting
2S 1/8" Tube Fitting

Outlet Connection

4F 1/4" Female NPT
4M 1/4" Male NPT
4S 1/4" Tube Fitting
2S 1/8" Tube Fitting
BV4M Needle Valve 1/4" Male NPT
DK4F Diaphragm Valve 1/4" Female NPT
DK4M Diaphragm Valve 1/4" Male NPT
DK4S Diaphragm Valve 1/4" Tube Fitting
DK2S Diaphragm Valve 1/8" Tube Fitting

Options

00 Bare Body
03 Certification
05 Panel Mount
07 Relief Valve



GPT270/280

General Purpose, Two Stage Chrome-Plated Brass Regulators

GPT270/280 regulators are recommended for inert and non-corrosive gas applications where constant delivery pressure is required (as cylinder pressure decreases).

Series choice is dependent on gas:

- GPT270 - Oxygen and inert gas
- GPT272 - High pressure, flammable gases
- GPT280 - Acetylene gas
- GPT281 - LP gas

TYPICAL APPLICATIONS

- Non-critical specialty or lasing gases
- Blanketing
- Purging
- Pressure testing
- Gas shielding
- Hydrocarbon service

FEATURES

Quality Components

- Nylon reinforced diaphragm
- 2-1/2" dual scale gauges (psi/kp2)
- Chrome plated body, housing cap, fittings and gauges

Options

- Outlet valve
 - Body Chrome-plated forged brass
 - Stem Brass
 - Packing Teflon®
 - Tip Stainless steel ball

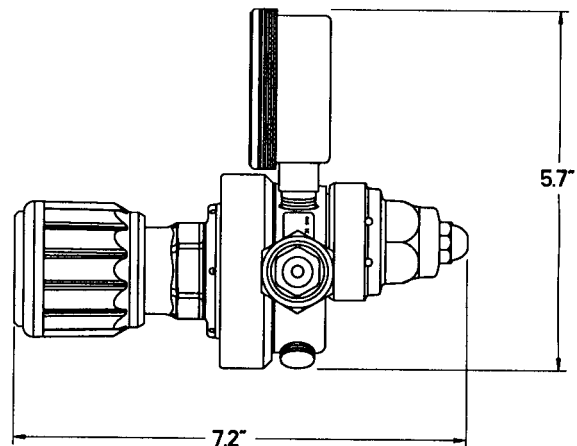
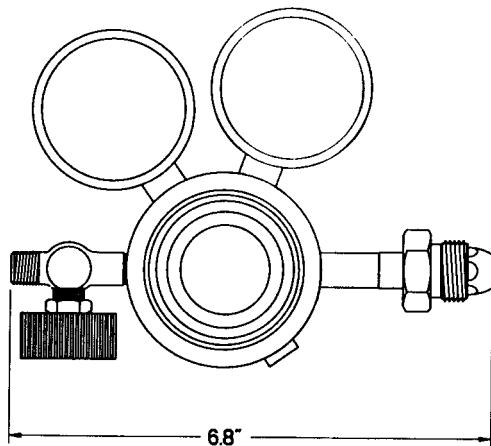
Note: These general purpose regulators should not be used in applications sensitive to inboard air diffusion or elastomeric out-gassing.

MATERIALS OF CONSTRUCTION

Body.....	Chrome-plated forged brass
Spring housing cap.....	Chrome-plated forged brass
Diaphragm.....	Nylon reinforced neoprene
Nozzle.....	Brass
Seat.....	GPT270, 272 Polyurethane GPT280, 282 Neoprene
Seals.....	Nylon™
Filter.....	Sintered bronze
Seat return Spring.....	Stainless steel
Pressure adjusting knob.....	Music wire
Adjusting knob.....	Acrylonitrile Butadiene Styrene

SPECIFICATIONS

Maximum inlet pressure.....	(GPT270, 272) 3000 psig (GPT280, 282) 350 psig
Outlet valve.....	1/4" NPT (M)
Temperature operating range:.....	0 to 140°F (-17 to 60°C)
Delivery pressure rise:.....	<.1 psig/100 psig inlet decay
Flow coefficient.....	C _v = .08
Outlet pressure ranges.....	15 (2-15 psig) 40 (2-40 psig) 80 (4-80 psig) 125 (5-125 psig)

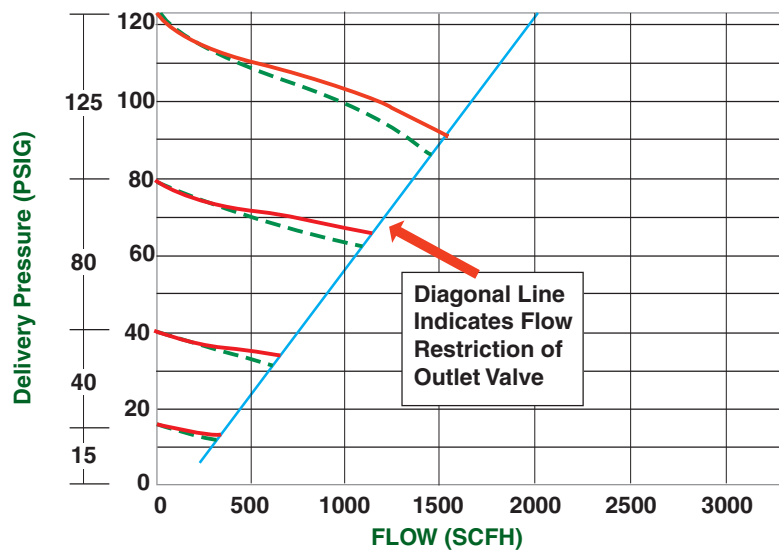


Flow vs Outlet Pressure

Inlet pressure
(AIR @ 70°F)

2000 psig ————
250 psig - - - - -

* Tested with outlet valve
full open & outlet pressure
taken at regulator L.P.
gauge port.



GPT270 Series Model Number System

GPT270 - XXX - XXX - XXXX - XXXX				
Dual Stage Chrome Forged Brass	Outlet Pressure	Inlet Connection	Outlet Connection	Options
GPT270 0-4000 psig inlet gauge	15 (2-15 psig)	CGA 580, 590	4F 1/4" Female NPT	00 Bare Body
GPT272 0-4000 psig inlet gauge Hydrogen	40 (2-40 psig)	4F 1/4" Female NPT	4M 1/4" Male NPT	03 Certification
GPT280 0-400 psig inlet gauge Acetylene (15 psig max outlet)	80 (4-80 psig)	4M 1/4" Male NPT	4S 1/4" Tube Fitting	05 Panel Mount
GPT281 0-400 psig inlet gauge, LP Gas	125 (5-125 psig)	4S 1/4" Tube Fitting	2S 1/8" Tube Fitting	07 Relief Valve
	200 (10-200 psig)	2S 1/8" Tube Fitting	BV4M Needle Valve 1/4" Male NPT	
			DK4F Diaphragm Valve 1/4" Female NPT	
			DK4M Diaphragm Valve 1/4" Male NPT	
			DK4S Diaphragm Valve 1/4" Tube Fitting	
			DK2S Diaphragm Valve 1/8" Tube Fitting	



GPL270/280

Line Regulator

Chrome-Plated Brass Regulators

GPL270/280 regulators are recommended for inert and non-corrosive gas applications where gas is supplied through a distribution system (pipeline).

Series choice is dependent on gas:

- GPL270 - Oxygen and inert gas
- GPL272 - High pressure, flammable gases
- GPL280 - Acetylene gas

TYPICAL APPLICATIONS

- Point of use laboratory systems
- Non-critical specialty gases
- Purging
- Cryogenic gases
- Bulk gas distribution
- Liquified hydrocarbon analysis

FEATURES

Quality Components

- 2-3/4" Nylon reinforced diaphragm
- 2-1/2" dual scale gauges (psi/kp2)
- Chrome plated body, housing cap, fittings and gauges

Options

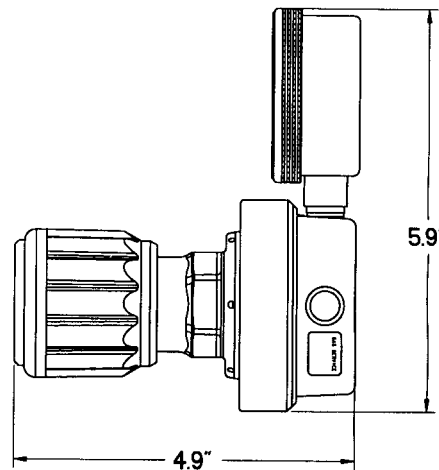
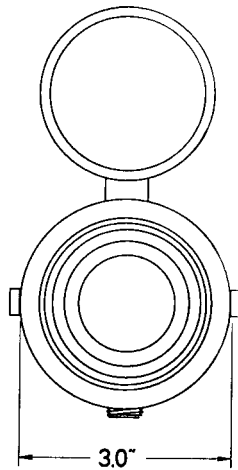
- Outlet valve
 - Body Chrome-plated forged brass
 - Stem Brass
 - Packing Teflon®
 - Tip Stainless steel ball

MATERIALS OF CONSTRUCTION

Body.....	Chrome-plated forged brass
Spring housing cap.....	Chrome-plated forged brass
Diaphragm.....	Nylon reinforced neoprene
Nozzle.....	Brass
Seat	Polyurethane
Seals.....	Nylon™
Filter.....	102 micron stainless steel
Seat return Spring.....	Stainless steel
Pressure adjusting knob.....	Music wire
Adjusting knob	Acrylonitrile Butadiene Styrene (ABS)

SPECIFICATIONS

Maximum inlet pressure.....	350 psig
Temperature operating range:	0 to 140°F (-17 to 60°C)
Flow coefficient	C _v = .33
Ports	1/4" NPT (F)
Outlet pressure ranges.....	15 (2-15 psig)
	40 (2-40 psig)
	80 (4-80 psig)
	125 (5-125 psig)

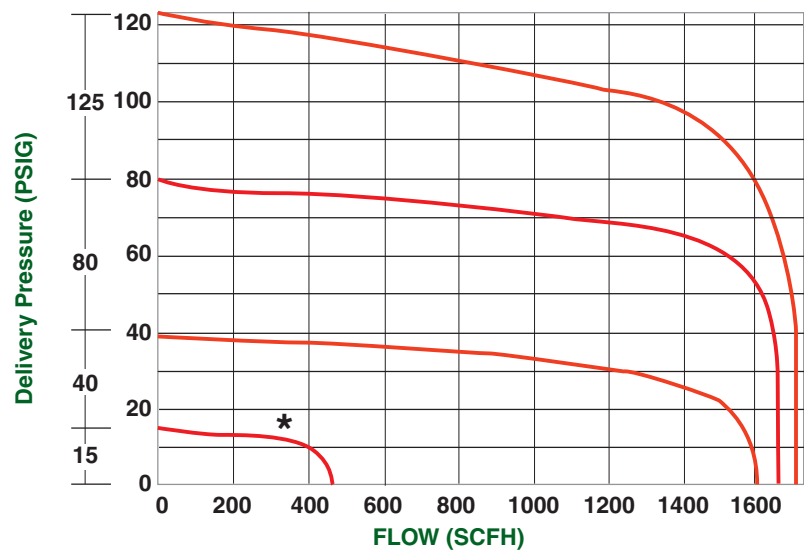


Flow vs Outlet Pressure

Inlet pressure
(AIR @ 70°F)

2000 psig

* Indicated 50 psig
inlet pressure



GPL270 Series Model Number System

GPL270	-	XXX	-	XXX	-	XXXX	-	XXXX
Line Regulator		Outlet Pressure		Inlet Connection		Outlet Connection		Options
Chrome Forged		15 (2-15 psig)		4F 1/4" Female NPT		4F 1/4" Female NPT		00 Bare Body
Brass		40 (2-40 psig)		4M 1/4" Male NPT		4M 1/4" Male NPT		03 Certification
GPL270		80 (4-80 psig)		4S 1/4" Tube Fitting		4S 1/4" Tube Fitting		05 Panel Mount
No inlet gauge		125 (5-125 psig)		2S 1/8" Tube Fitting		2S 1/8" Tube Fitting		07 Relief Valve
GPL272		200 (10-200 psig)				BV4M Needle Valve 1/4" Male NPT		
No inlet gauge Hydrogen		300 (10-300 psig)				DK4F Diaphragm Valve 1/4" Female NPT		
GPL280		500 (20-500 psig)				DK4M Diaphragm Valve 1/4" Male NPT		
No inlet gauge Acetylene						DK4S Diaphragm Valve 1/4" Tube Fitting		
GPL281						DK2S Diaphragm Valve 1/8" Tube Fitting		
No inlet gauge, LP Gas								



GLC350

Liquid Cylinder

Chrome-Plated Brass Regulators

GLC350 regulators are recommended for liquid gas cylinders

TYPICAL APPLICATIONS

- Bulk gas distribution
- Laser gas systems
- Laboratories

Note: For high flow applications, see HPL700 pages 30-31

FEATURES

Quality Components

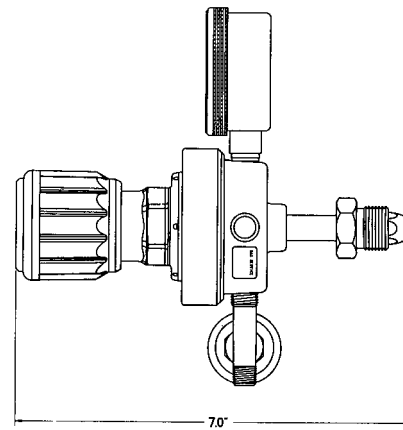
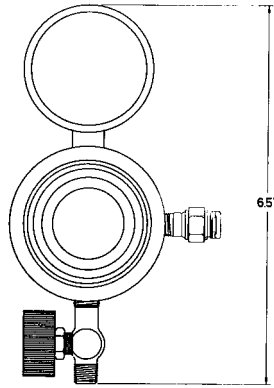
- 2³/₄" stainless steel diaphragm
- 2¹/₂" chrome plated, dual scale gauges
- Chrome plated body, housing cap, fittings and gauges
- Self reseating relief valve

MATERIALS OF CONSTRUCTION

Body.....	Chrome-plated forged brass
Spring housing cap.....	Chrome-plated forged brass
Diaphragm.....	Stainless steel
Nozzle.....	Brass
Seat.....	Neoprene™
Seals.....	Buna-N and Viton™
Filter.....	.02 micron stainless steel
Seat return Spring.....	Stainless steel
Pressure adjusting knob.....	Music wire
Adjusting knob.....	Acrylonitrile Butadiene Styrene (ABS)

SPECIFICATIONS

Maximum inlet pressure.....	500 psig
Temperature operating range:	0 to 140°F (-17 to 60°C)
Inlet	CGA 580, 4F
	320, 540
Outlet pressure ranges.....	40 (2-40 psig)
	200 (10-200 psig)
Outlet.....	1/4" NPT (M)

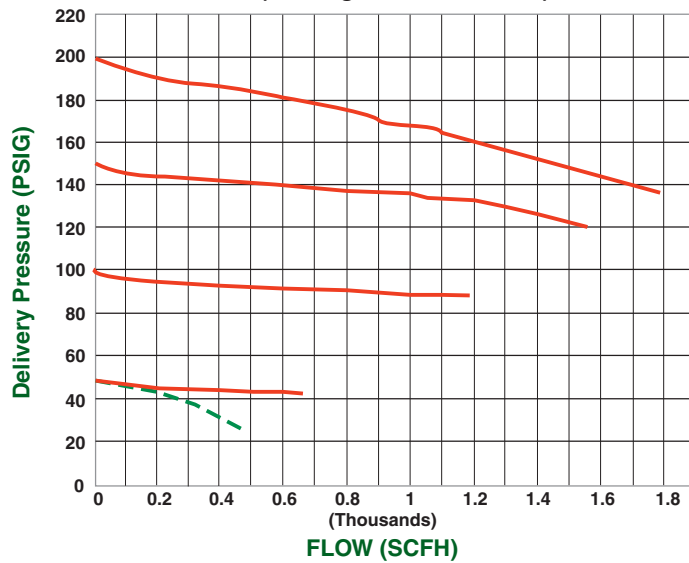


Flow vs Outlet Pressure

Inlet pressure
(AIR @ 70°F)

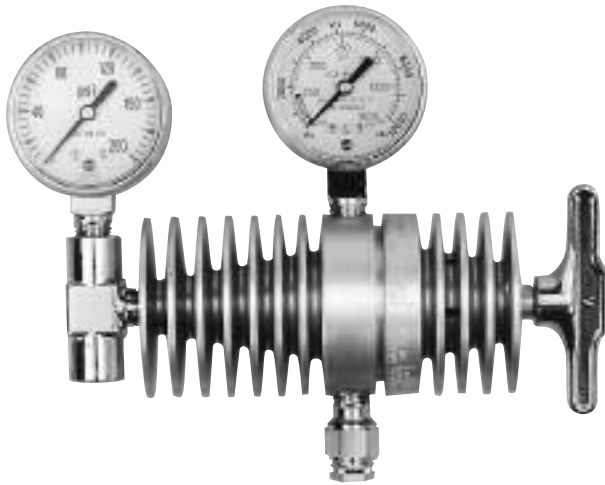
2000 psig ————
200 psig - - - - -

GLC 350 FLOW DATA
(Flowing Air @ Std. Cond.)



GLC350 Series Model Number System

GLC350	XXX	XXX	XXXX	XXXX
Single Stage Chrome Forged Brass	Outlet Pressure	Inlet Connection	Outlet Connection	Options
GLC350 No inlet gauge	15 (2-15 psig)	CGA 320, 540, 580	4F 1/4" Female NPT	00 Bare Body
	40 (2-40 psig)	4F 1/4" Female NPT	4M 1/4" Male NPT	03 Certification
	80 (4-80 psig)	4M 1/4" Male NPT	2S 1/8" Tube Fitting	05 Panel Mount
	125 (5-125 psig)	4S 1/4" Tube Fitting	BV4M Needle Valve 1/4" Male NPT	07 Relief Valve
	200 (10-200 psig)	2S 1/8" Tube Fitting	DK4F Diaphragm Valve 1/4" Female NPT	
			DK4M Diaphragm Valve 1/4" Male NPT	
			DK4S Diaphragm Valve 1/4" Tube Fitting	
			DK2S Diaphragm Valve 1/8" Tube Fitting	



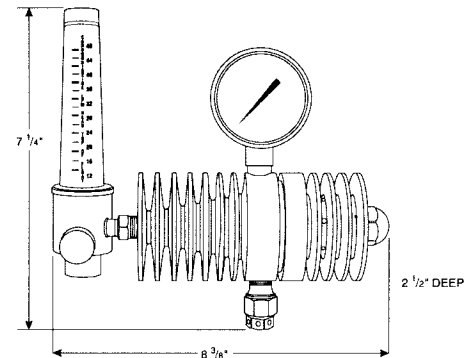
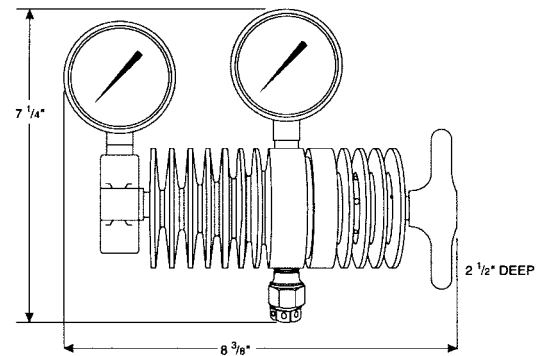
SR300 Series

SR310, SR311, SR312 High Flow CO₂ Aluminum Regulators

SR310 regulators are designed for use with standard (non-siphoned) carbon dioxide cylinders.

TYPICAL APPLICATIONS

- Carbon dioxide flow/pressure monitoring



FEATURES

Designed for Carbon Dioxide

- Aluminum heat sink fins permit consistent high flow without freeze-up

Quality Components

- Fabric reinforced neoprene diaphragms
- 2" gauges, high pressure dual scale, low pressure single scale
- Aluminum body and housing cap
- Self reseating relief valve. Not designed to protect downstream apparatus

MATERIALS OF CONSTRUCTION

Body	Aluminum
Spring housing cap	Aluminum
Diaphragm.....	Fabric reinforced neoprene
Inlet Filter	Bronze

Specifications

Maximum inlet pressure	1500 psig
Weights: SR310	2 lbs. 5 oz. (1kg)
SR311	2 lbs. 15 oz. (1.3kg)
SR312.....	2 lbs. 15 oz. (1.3kg)

Outlet range: SR 310	10-150 psig
Maximum outlet ranges: SR 310	200 SCFH
SR 311	100 SCFH
SR 312	100 SCFH
Outlet connection	5/8-18" (F) RH
Optional 1/4" NPT (M) connection available. Order part no. 0950-0163 if required	

Model SR300 Ordering Information

Part No.	Model Number	Delivery Range	Max SCFH	CGA
0781-0355	SR310-320 Adjustable/Flowgauge	0-150 psig	200	CGA 320
0781-0353	SR311-320 Flow meter	Preset@ 80 psig	100	CGA 320
0781-0354	SR312-320 Flow meter	100 psig @ 100 SCFH	100	CGA 320



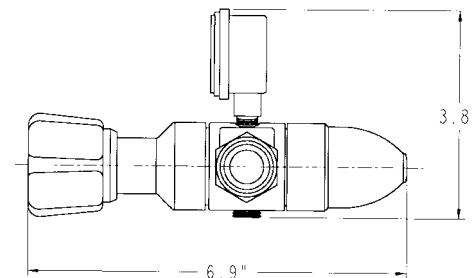
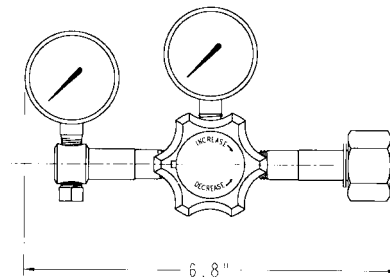
MBG-A

Special Purpose Regulator

The MBG-A regulator is designed for blood gas analysis or similar type apparatuses requiring a high degree of pressure control.

TYPICAL APPLICATIONS

- Blood gas analysis



FEATURES

Quality Components

- 1 1/4" neoprene diaphragm
- 2" chrome-plated gauges
- Self reseating relief valve. Not designed to protect downstream apparatus

MATERIALS OF CONSTRUCTION

Body	Chrome-plated brass
Spring housing cap.....	Chrome-plated brass
Diaphragm	Neoprene™
Seat.....	Polyurethane
Seals.....	Nylon®
Filter:	Inlet-sintered bronze, Cartridges-sintered stainless steel, 50 micron rating
Seat return spring	Stainless steel
Pressure adjusting spring	Music wire
Adjusting knob	Acrylonitrile Butadiene Styrene (ABS)

Specifications

Maximum inlet pressure	3000 psig
Temperature operating range:	0 to 140°F (-17 to 60°C)
Outlet range.....	2-15 psig
Outlet port	1/8" NPT (F)

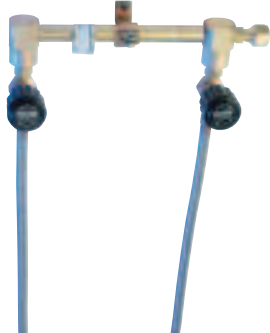
MBG-A Ordering Information

Model Number	Series	Delivery Range	Outlet Range	Inlet Fitting	Outlet fitting	Options
0781-0355	MBG-A	15 2-15 psig	1/8" NPT (F)	CGA 200	2F 1/8" Female NPT	None

Switchover Manifold Systems & Accessories

Standard Features

- High Purity Regulators
- 100% tested
- Easy to order, user friendly model number system
- All systems designed to provide expandability in the event of future growth requirements
- All manifolds cleaned for oxygen service
- Worldwide field sales and technical support

PDS PDS manifolds are designed to change between a primary side, or bank, and a reserve bank of high pressure cylinders. They are available with (600) or without (500) a delivery pressure regulator and are offered in brass or stainless steel.	
VHP VHP manifolds are enclosed in a cabinet for security and cleanliness. They are available with both fully and semi-automatic switchover functionality. Other options include indicator lights, remote alarms and an LCD screen	
Brass Brass manifolds are designed for non-corrosive applications where two or more cylinders are needed to supply critical processes.	
Stainless Stainless manifolds are suitable for corrosive gas applications where two or more cylinders are needed to supply critical processes.	

How To Order - High Purity Manifolds

Victor Manifold Systems are designed to make your ordering experience simple and easy to understand. Despite a product line which appears to be complex, this ordering system will allow you to get the right product to you or your customer.

The key to ordering is having the right information on what your needs are for the particular application. We have thus provided a checklist below of the key information you will need to make the ordering process

trouble-free.

Should you require additional information, please contact our Customer Service Department at (US) 1-800-569-0547. Additionally, we offer a worldwide network of trained District and Regional Managers who would be glad to assist you.

MODEL NUMBER SYSTEM

XXXXXX - XXX - XXX - XXX - XXXXXXXX

Center Section	Header (RIGHT)	Header (LEFT)	CGA	Length/Style
PDS500B (Brass)	1RW 2RW	1RW 2RW	240 330	24FTCVFA 24" Flexible Teflon Lined Check Valve
PDS500S (Stainless Steel)	3RW 4RW 5RW 6RW	3RW 4RW 5RW 6RW	Air (Industrial) 590	
PDS600B (Brass)	*Optional header configurations are available	*Optional header configurations are available	Air (Breathing) 346	24FS 24" Flexible ST. ST. Lined
PDS600S (Stainless Steel)			Argon 580	
VHP200B (Brass)			Carbon Dioxide 320	24RC 24" Rigid Copper
VHP200S (Stainless Steel)			Helium 580	24RCCV 24" Rigid Copper Check Valve
VHP2100B (Brass w/lights)			Hydrogen 350	24FTL 24" Flexible Teflon Lined
VHP2100S (Stainless Steel w/lights)			Nitrogen 580,	
PSB (Brass)			Methane 350	
PSS (Stainless Steel)			Nitrous Oxide 326	
			Oxygen 540 660 705	

Ordering Example #1:

Acetylene VHP2100B-2RW-2LW-580-24FTLV

VHP2100B Manifold with 2 cylinders per side,
CGA 580 connections on 24" flexible
Teflon lined pigtails with check valves.

Ordering Example #2:

Oxygen VHP2100B-1RWC-1LWC-540-72FPCV

VHP2100B Manifold with 1 cylinder per side,
CGA 540 connections on 72" flexible
pigtails with check valves.



500 SERIES³

PDS600

Switchover Manifold

Brass and Stainless Steel

The PDS600 is an automatic switchover manifold system that changes between a primary side, or bank, and the secondary side using the pressure differential between the two sides of high pressure gas supply.

The PDS 600 is designed to continuously supply the downstream process with high purity gas from two individual cylinders, or from two entire banks of cylinders manifolded together.

The PDS600 is designed with an outlet regulator to maintain a constant downstream pressure. The PDS 600 is available with brass or with stainless steel bar stock regulators for use with high purity or corrosive gases.

FEATURES

- Metal-to-metal diaphragm seals
- Helium leak rate of 1×10^{-9} scc/sec. All high purity regulators are inboard leak checked with a helium mass spectrometer
- 100% Helium outboard leak tested
- 2" dual scale gauges (psi/kp2)
- Cartridge-type seat assemblies with 10 micron inboard filter
- 180 degree lever with arrow indicates which side of the manifold is the active side
- Rotating captured vent for remote venting of process gases (optional)
- Regulator bodies are mounted on rear bracket
- Audible and visual alarms (optional)
- New control knob allows precise setting for maximum delivery and locking is easily attained by pressing in the cap

SPECIFICATIONS

Maximum inlet pressure	3000 psig
Maximum output flow rat	See Performance Data
Outlet pressure ranges	15 (2-15 psig)
	40 (2-40 psig)
	80 (4-80 psig)
	125 (5-125 psig)
Switchover Pressures	Right to Left Bank: 200 psig
	Left to Right Bank: 165 psig
Inlet & Outlet ports	1/4" Female NPT
Temperature Operating Range ...	-40 to 140°F (-40 to 60°C)
Outlet pressure rise	PDS 600: None
Flow coefficient	$C_v = .05$
Weight.	12 lbs. (5.4 kgs)
Mounting Hole Spacing.	8.5"H x 2.5"V

BRASS Model

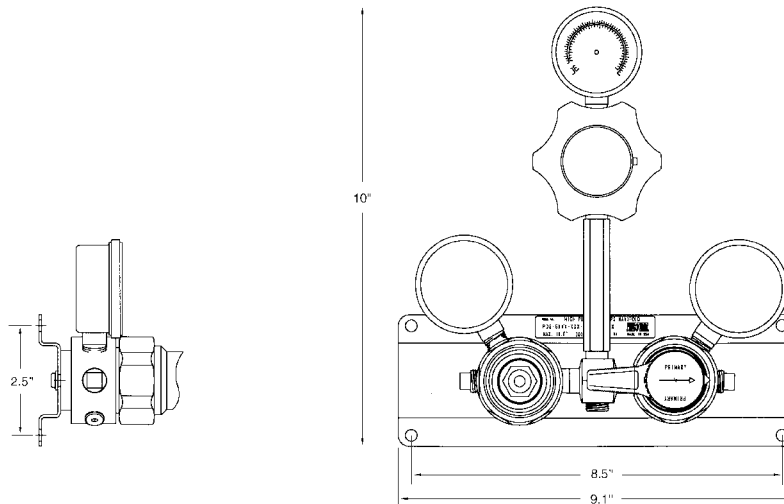
MATERIALS OF CONSTRUCTION

Body	Brass bar stock
Spring housing cap	Nickel-plated brass
Diaphragm	316L stainless steel
Nozzle	Brass
Seat	PCTFE™
Seals	Teflon™
Poppet	Brass bar stock
Inboard filter	10 micron sintered stainless steel
Seat return spring	Stainless steel
Pressure adjusting spring	Heat-treated spring steel
Adjusting knob	Polypropylene

STAINLESS Model

MATERIALS OF CONSTRUCTION

Body	316L Stainless steel bar stock
Spring housing cap	Nickel-plated brass
Diaphragm	316L stainless steel
Nozzle	316L Stainless steel
Seat	PCTFE™
Seals	Teflon™
Poppet	316L Stainless steel
Inboard filter	10 micron sintered stainless steel
Seat return spring	316L Stainless steel
Pressure adjusting spring	Heat-treated spring steel
Adjusting knob	Polypropylene

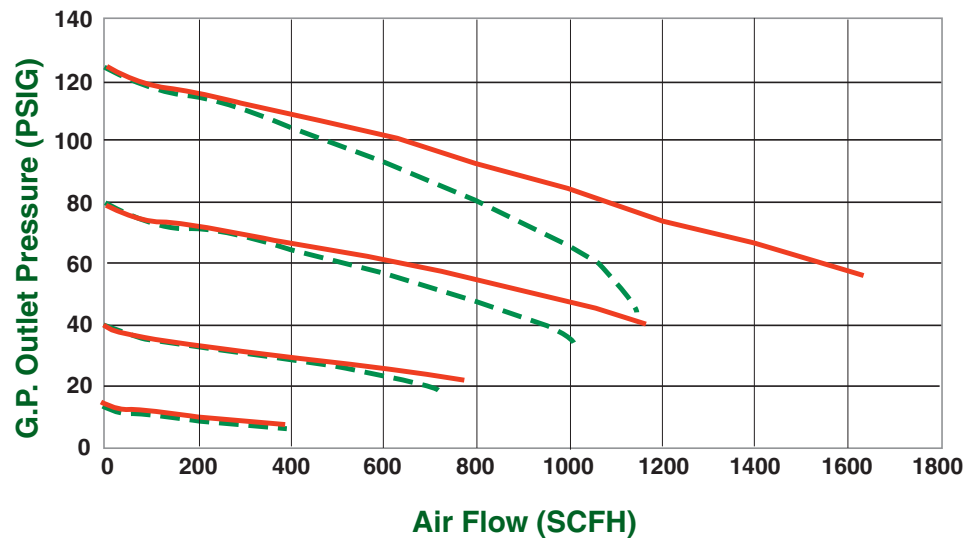


PDS 600 Flow Data

Flow vs Outlet Pressure

Inlet pressure
(Nitrogen @ 70°F)

2000 psig ———
250 psig - - - - -



PDS600 Series Model Number System

PDS600	-	XXX	-	XXX	-	XXX	-	XXX	-	XX
Center Section		Delivery		Header Right		Header Left		CGA INLET		Stainless Steel Pigtail
PDS600B Brass		15		1 RW		1 LW		Brass		24" Flex
		40		2 RW		2 LW		320, 346, 350, 540, 580, 590		36" Flex
PDS600S Stainless Steel		80		3 RW		3 LW		Stainless Steel		See note†
		125		4 RW		4 LW		240, 330, 660, 705		
				6 RW		6 LW				
				See note*		See note*				

Ordering Examples: **PDS600B-40-1 RW-2 LW-350-36**
PDS600 manifold w/40 psi delivery pressure,
1 header right, 2 headers left, CGA 350 brass
inlet and 36" flex stainless steel pigtail.

* Optional header configurations are available.

† Standard pigtails are stainless steel lined and
include a check valve.



500 SERIES³

PDS500

Switchover Manifold Brass and Stainless Steel

The PDS 500 is an automatic switchover manifold system that uses the pressure differential between each side, or bank, of the manifold to determine which side is active. The PDS 500 is designed to continuously supply the downstream process with high purity gas from two individual cylinders, one primary and one secondary, or from a bank of cylinders manifolded together.

The PDS 500 is available with brass or stainless steel bar stock regulators for use with high purity or corrosive gases.

FEATURES

- Metal-to-metal diaphragm seals
- Helium leak rate of 1×10^{-9} scc/sec. All high purity regulators are inboard leak checked with a helium mass spectrometer
- 100% Helium outboard leak tested
- 2" dual scale gauges (psi/kp2)
- Cartridge-type seat assemblies with 10 micron inboard filter
- 2" brass bar stock body regulators with ports for high and low pressure transducers or alarm switches
- 180 degree lever with arrow indicates which side of the manifold is the active side
- 360° rotating captured vent for remote venting of process gases (optional)
- Regulator bodies are mounted on rear bracket
- Audible and visual alarms (optional)

SPECIFICATIONS

Maximum inlet pressure 3000 psig
 Maximum output flow rate See Performance Data
 Outlet pressure ranges:
 Right as primary: 250 psig
 Left as primary 165 psig
 Left bank preset: 200 psig
 Switchover Pressures:
 Right to Left Bank: 200 psig
 Left to Right Bank: 165 psig
 Inlet & Outlet ports 1/4" Female NPT
 Temperature Operating Range ... -40 to 140°F (-40 to 60°C)
 Outlet pressure rise <.53 psig/100 psig inlet decay
 Flow coefficient $C_v = .05$
 Weight 8.5 lbs. (3.8 kgs)
 Mounting Hole Spacing 8.5"H x 2.5"H

BRASS Model

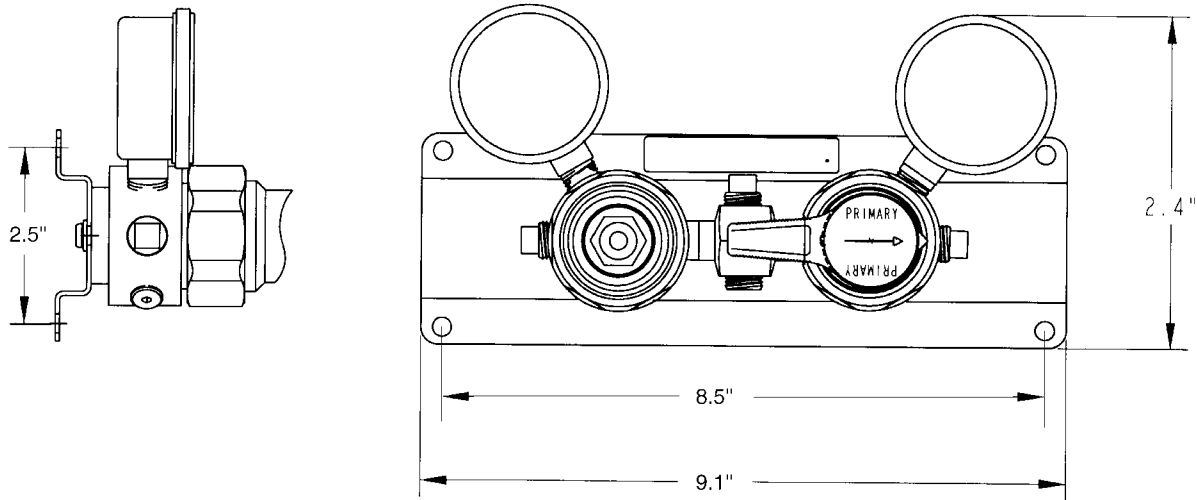
MATERIALS OF CONSTRUCTION

Body Chrome-plated brass bar stock
 Spring housing cap Chrome-plated brass
 Diaphragm 316L stainless steel
 Nozzle Brass bar stock
 Seat PCTFE™
 Seals Teflon™
 Poppet Brass bar stock
 Inboard filter 10 micron sintered stainless steel
 Seat return spring 316L Stainless steel
 Pressure adjusting spring Heat-treated spring steel
 Adjusting knob Polypropylene

STAINLESS Model

MATERIALS OF CONSTRUCTION

Body 316L Stainless steel bar stock
 Spring housing cap Chrome-plated brass
 Diaphragm 316L stainless steel
 Nozzle 316L Stainless steel
 Seat PCTFE™
 Seals Teflon™
 Poppet 316L Stainless steel
 Inboard filter 10 micron sintered stainless steel
 Seat return spring 316L Stainless steel
 Pressure adjusting spring Heat-treated spring steel
 Adjusting knob Polypropylene

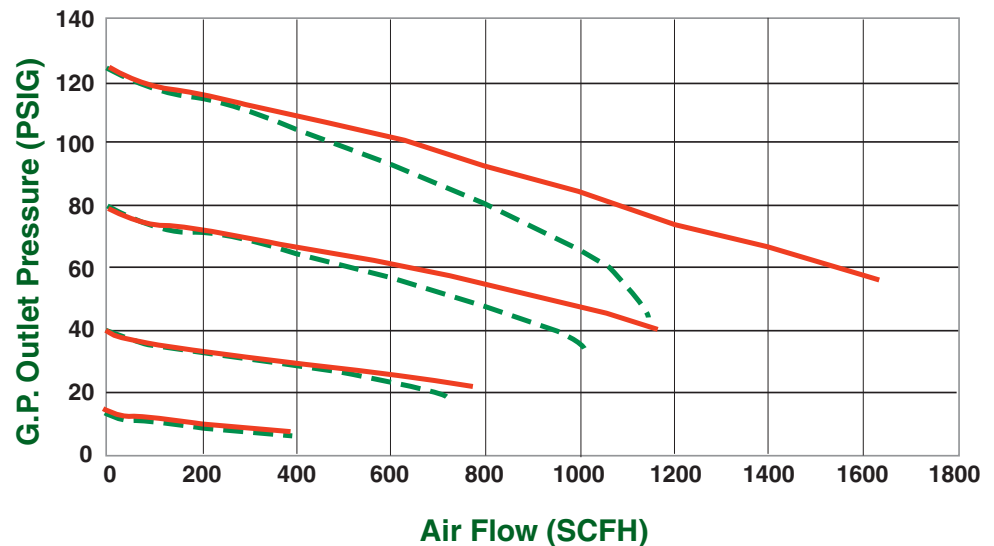


PDS 500 Flow Data

Flow vs Outlet Pressure

Inlet pressure
(Nitrogen @ 70°F)

2000 psig ———
250 psig - - - -



PDS500 Series Model Number System

PDS500	-	XXX	-	XXX	-	XXX	-	XX
Center Section		Header Right		Header Left		CGA INLET		Stainless Steel Pigtail
PDS500B Brass		1 RW		1 LW		Brass 320, 346, 350, 540, 580, 590		24" Flex
PDS500S Stainless Steel		2 RW		2 LW		Stainless Steel 240, 330, 660, 705		36" Flex
		3 RW		3 LW				See note†
		4 RW		4 LW				
		6 RW		6 LW				
		See note*		See note*				

Ordering Examples: **PDS500B-40-1 RW-2 LW-350-36**
PDS500 manifold 1 header right, 2 headers left,
CGA 350 brass inlet and 36" flex stainless steel
pigtail.

* Optional header configurations are available.

† Standard pigtails are stainless steel lined and
include a check valve.



VHP Manifolds

High Purity Switchover Manifolds

VHP 2100 Manifold System

The VHP 2100 is a deluxe manifold system for high purity gases. The system is highly recommended for laboratory and process plant applications where depletion of gas supply is unacceptable.

The VHP 2100 is designed with an outlet regulator to maintain a constant downstream pressure. The system is available in brass or 316L stainless steel. In service and reserve indicator lights are standard on the VHP 2100 manifold.

VHP 2000 Manifold System

The VHP 2000 manifold is the same manifold without the in service and reserve indicator lights.

FEATURES

- 500 Series barstock regulators - High Purity for critical applications
- In service and reserve indicator lights standard†
- Metal-to-metal seals for high helium leak integrity
- Adjustable line regulator for constant delivery
- Line regulator enclosed in box for tamper - resistant protection
- Easy 180° lever to select primary gas source
- VHP 2100 Model incorporates pressure switches for remote alarm activation to indicate gas depletion†

† VHP 2100 model only

SPECIFICATIONS

Maximum inlet pressure	3000 psig
Outlet pressure ranges	15 (2-15 psig)
	40 (2-40 psig)
	80 (4-80 psig)
	125 (5-125psig)
Switchover Pressures:	
Right to Left Bank: 200 psig	
Left to Right Bank: 165 psig	
Inlet & Outlet ports	1/4" NPT (F)
Temperature Operating Range ...	-40 to 140°F (-40 to 60°C)
Outlet pressure rise	None
Flow coefficient	.05
Weight	30 lbs

BRASS Model

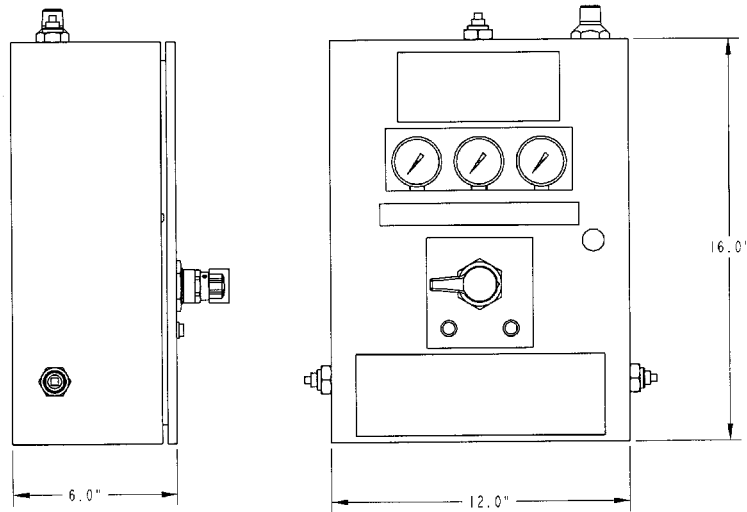
MATERIALS OF CONSTRUCTION

Body	Brass bar stock
Spring housing cap	Nickel-plated brass
Diaphragm	316L stainless steel
Nozzle	Brass
Seat	PCTFE™
Seals	Teflon™
Poppet	Brass bar stock
Inboard filter	10 micron sintered stainless steel
Seat return spring	316L stainless steel
Pressure adjusting spring	Heat-treated spring steel
Adjusting knob	Polypropylene
Enclosure	16 Gauge power coated
Tubing	1/4" copper
Fittings	Brass tube

STAINLESS STEEL Model

MATERIALS OF CONSTRUCTION

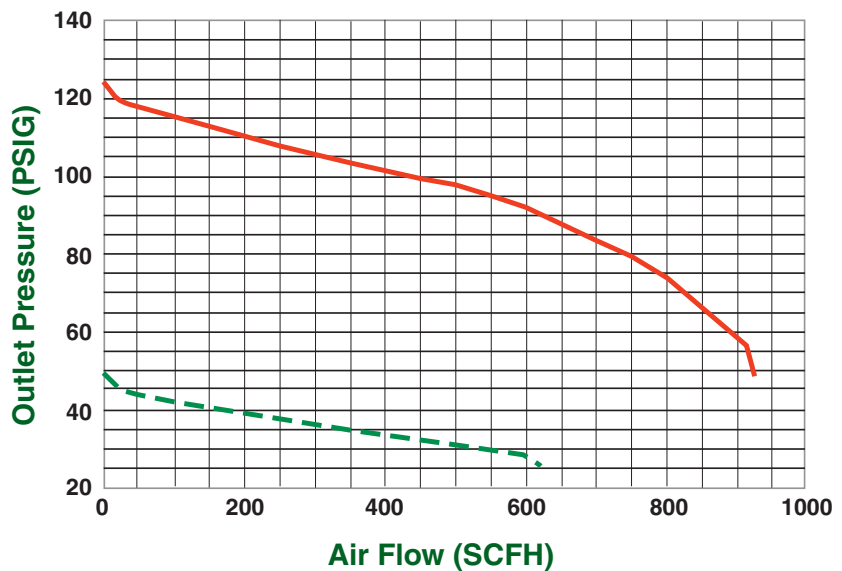
Body	316L stainless steel BAR STOCK
Spring housing cap	Nickel-plated brass
Diaphragm	316L stainless steel
Nozzle	316L stainless steel
Seat	PCTFE™
Seals	Teflon™
Poppet	316L stainless steel
Inboard filter	10 micron sintered stainless steel
Seat return spring	316L stainless steel
Pressure adjusting spring	Heat-treated spring steel
Adjusting knob	Polypropylene
Enclosure	16 Gauge power coated
Tubing	1/4" stainless steel
Fittings	Stainless steel tube



Flow vs Outlet Pressure

Inlet pressure
(Nitrogen @ 70°F)

2000 psig ————
250 psig - - - - -



VHP Manifold Model Number System

XXX	-	PDS500	-	XXX	-	XXX	-	XXX	-	XX
CGA INLET		Center Section		Delivery Pressure		Header Right		Header Left		Stainless Steel Pigtail
Brass 320, 346, 350, 540, 58, 590		VHP2000B Brass		15		1 RW		1 LW		24" Flex
Stainless Steel 240, 330, 660, 705		VHP2000S Stainless Steel		40		2 RW		2 LW		36" Flex
		VHP2100B Brass		80		3 RW		3 LW		See note†
		VHP2100S Stainless Steel		125		4 RW		4 LW		
				300		6 RW		6 LW		
						See note*		See note*		

* Optional header configurations are available.

† Standard pigtails are stainless steel lined and include a check valve.



Switchover Manifolds

Our brass manifolds are designed for high purity non-corrosive gas applications where two or more cylinders are needed to supply critical processes.

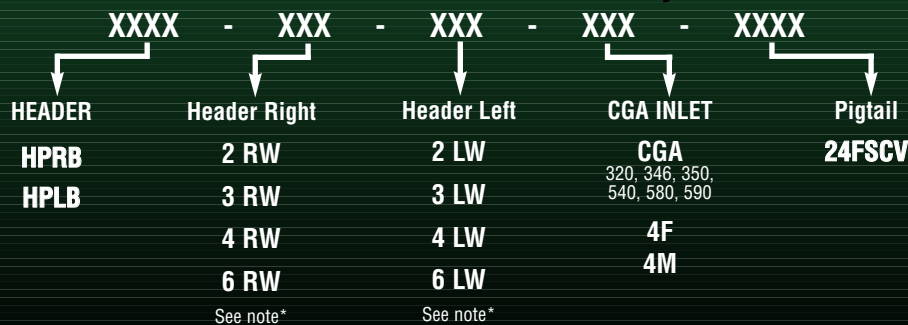
The materials of construction will not off-gas and contaminate the gas stream. The design is highly resistant to inboard diffusion of atmospheric conditions. Flexible braided stainless steel pigtails, lined with stainless steel are standard.

- Gas Chromatography
- Process Analyzers
- Laser Gas Systems
- High Purity Gas Systems
- Non-Corrosive Gases
- Corrosive Gases

- Brazed construction for maximum leak protection
- 7/8" O.D. brass pipe with bar stock tees
- DRK packless diaphragm shut off valves
- Flexible braided stainless steel pigtails, lined with stainless steel, with check valves
- Rated for hydrogen and helium service
- Easily connected to PDS, VHP and PDM switchover manifolds

Maximum inlet pressure3000 psig
Inlet connectionsstandard CGAs.
Outlet connections.....standard CGAs.

Pipe.....Brass
TeesBrass bar stock
Valves.....Packless diaphragm
PigtailsStainless steel braided,
Stainless steel lined



* Optional header configurations are available.



HPRS & HPLS

Stainless Steel Manifolds

Our stainless steel manifolds are designed for corrosive and non-corrosive gas applications where two or more cylinders are needed to supply critical processes.

The materials of construction will not off-gas and contaminate the gas stream. The design is highly resistant to inboard diffusion of atmospheric conditions. Victor DRK diffusion resistant shut off valves. Flexible braided stainless steel pigtails, lined with stainless steel are standard.

TYPICAL APPLICATIONS

- Gas Chromatography
- Process Analyzers
- Laser Gas Systems
- High Purity Gas Systems
- Non-Corrosive Gases

FEATURES

- Tig welded construction for maximum leak protection
- 7/8" O.D. stainless steel pipe with forged tees
- DRK packless diaphragm shut off valves
- Flexible braided stainless steel pigtails, lined with stainless steel, with check valves
- Rated for hydrogen and helium service
- Easily connected to PDS, VHP and PDM switchover manifolds

SPECIFICATIONS

Maximum inlet pressure3000 psig
Inlet connections.....standard CGAs.
Outlet connections.....standard CGAs.

MATERIALS OF CONSTRUCTION

Pipe303 stainless steel
Tees.....304 forged stainless steel
Valves.....Packless diaphragm
Pigtails.....Stainless steel braided,
stainless steel lined

Stainless Steel Manifold Model Number System

XXXX	-	XXX	-	XXX	-	XXX	-	XXXX
HEADER		Header Right		Header Left		CGA Inlet		Pigtail
HPRS		2 RW		2 LW		CGA		24FSCV
HPLS		3 RW		3 LW		240, 330, 350, 540, 580, 590, 660, 705		
		4 RW		4 LW		4F		
		6 RW		6 LW		4M		
		See note*		See note*				

* Optional header configurations are available.



Protocol Stations

The Point of Use (Protocol Station) is a regulator option designed for convenient bracket mounting to any surface. Wall mounting improves safety, prevents regulator damage and provides ease of use.

The protocol station is available in both brass and 316 stainless steel construction. Point of Use comes complete with a 24" long flexible hose with check valves.

TYPICAL APPLICATIONS

- Protocol Gases
- Laboratory
- CEM
- Laser

FEATURES

- Designed to accommodate single or two stage regulators
- Constructed of stainless steel or brass
- Regulator: CGA inlet connection designates stainless steel (corrosive) or brass (non-corrosive) block gas service
- Standard pigtails are stainless steel braided, stainless steel lined, flexible hose with check valves prevent contamination during cylinder changeout

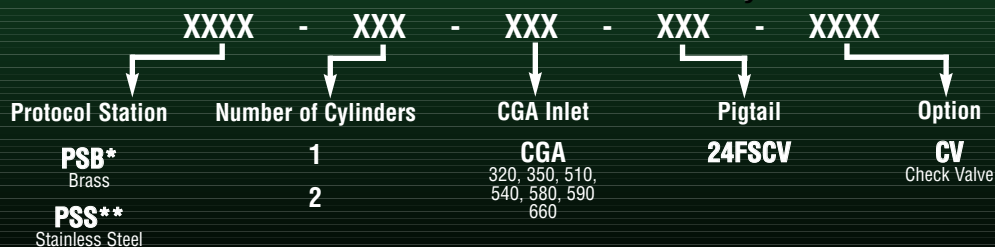
SPECIFICATIONS

Maximum inlet pressure3000 psig
Temperature rangeSee regulator specifications
Protocol station weight3.1 lbs. (less regulator)

MATERIALS OF CONSTRUCTION

Gas block 316 stainless steel or
chrome-plated brass bar stock
Inlet connection316 stainless steel or
brass bar stock

Protocol Station Model Number System



* PSB = Protocol Station, Brass w/Bracket

** PSS = Protocol Station, Stainless Steel w/Bracket

Protocol Stations Without Regulators

BRASS

<i>Part No.</i>	<i>Description</i>
1130-1233	PSB-1-580-24FSCV*
1130-1241	PSB-2-580-24FSCV*
1130-1242	PSB-1-590-24FSCV*
1130-1243	PSB-2-590-24FSCV*
1130-1244	PSB-1-350-24FSCV*
1130-1245	PSB-2-350-24FSCV*
1130-1246	PSB-1-320-24FSCV*
1130-1247	PSB-2-320-24FSCV*
1130-1239	PSB-1-540-24FSCV*
1130-1240	PSB-2-540-24FSCV*

STAINLESS STEEL

<i>Part No.</i>	<i>Description</i>
1130-1248	PSS-1-660SS-24FSCV**

* PSB = Protocol Station,
Brass, w/ Bracket

** PSS = Protocol Station,
Stainless, w/ Bracket

Protocol Components List

Regulator (Single or Two Stage)

CGA Chrome	CGA580 Adapter	0973-0041
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Brass	CGA540 Adapter	0967-0131
	CGA510 Adapter	0970-0062
	CGA590 Adapter	0974-0026
	CGA350 Adapter	0983-0048
	CGA320 Adapter	0985-0039

Stainless Steel	CGA660 Adapter	0995-0026
------------------------	----------------	-----------

Alarm Port	Pipe Plug (Chrome)	1105-0012
	Pipe Plug (Stainless)	1105-0021

Bracket	Bracket (Stainless)	1106-0085
	Screws (2 needed)	1400-0164

Block	Chrome Block	1131-0100
	Stainless Steel Block	1131-0101

Nipple	Nipple (Chrome)	0901-0081
	Nipple (Stainless)	0901-0070

Elbow	(Single or Two Cylinder)	
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DRK Valve	DRK Valve (Chrome)	0660-0513
	DRK Valve (Stainless)	0660-0200

Pigtail (Brass)	580 x 24" Pigtail	1123-0630
	540 x 24" Pigtail	1123-0632
	590 x 24" Pigtail	1123-0650
	350 x 24" Pigtail	1123-0631
	320 x 24" Pigtail	1123-0634

Pigtail (Stainless Steel)	580SS x 24" Pigtail	1123-0640
	540SS x 24" Pigtail	1123-0648
	590SS x 24" Pigtail	1123-0642
	350SS x 24" Pigtail	1123-0644
	660SS x 24" Pigtail	1123-0635

VSP610

Straight Purge Assemblies

The VSP610 Straight Purges are recommended for use with high purity gas applications to prevent contamination of equipment during cylinder changes or system changes of components.

The VSP610 purge provides safety by preventing the release of toxic or corrosive gases into confined areas and reduces corrosion of components by eliminating air and moisture during gas source changeout.

The VSP610 straight purge is used with a regulator by connecting it to an auxiliary high pressure port. Purge gases are vented down stream to a safe location.

VSP610 SPECIFICATIONS/ MATERIALS OF CONSTRUCTION

Body	Brass or 316L Stainless Steel
Diaphragms	316L Stainless Steel
Seat	PCTFE™
Spring	316L Stainless Steel
Control Knob	Polypropylene
Maximum inlet pressure	3000 psi



VTP620

Tee Purge Assemblies

The VTP620 Tee Purges are recommended for use with high purity gas applications to prevent contamination of equipment during cylinder changes or system changes of components.

The VTP620 purge provides safety by preventing the release of toxic or corrosive gases into confined areas and reduces corrosion of components by eliminating air and moisture during gas source changeout.

VTP620 SPECIFICATIONS/ MATERIALS OF CONSTRUCTION

Body	Brass or 316L Stainless Steel
Diaphragms	316L Stainless Steel
Seat	PCTFE™
Spring	316L Stainless Steel
Control Knob	Polypropylene
Maximum inlet pressure	3000 psi



Purging Options: Purging is a process by which the system or regulator is pressurized, depressurized, and vented to remove any atmospheric gas, air/moisture, or process gas. Internal Gas Purging is the process by which the process gas is used to purge the units. External Gas Purging is when an inert gas is used to perform the same function. Gas purging is extremely useful and effective when done correctly. It provides a way to remove any gas from dead ends efficiently and quickly. For toxic gases, gas purging is a safety requirement to ensure minimal exposure to the operator. For corrosive gases, purging will remove moisture that can produce solid materials which will in turn cause system failure. For high purity gases, gas purging will ensure that air and moisture are removed to maintain the integrity and purity of the process gas.

VCP630

Cross Purge Assemblies

The VCP630 Cross Purges are recommended for use with high purity gas applications to prevent contamination of equipment during cylinder changes or system changes of components.

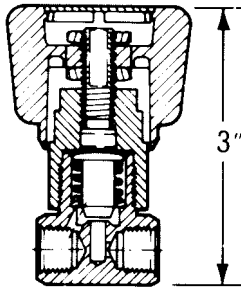
The VCP630 purge provides safety by preventing the release of toxic or corrosive gases into confined areas and reduces corrosion of components by eliminating air and moisture during gas source changeout.

The VCP630 cross purge provides a complete purge cycle. This system will allow users to purge into the regulator with a pulse dilution method. If a vacuum source is used, purge efficiency is increased substantially.



VSP620 SPECIFICATIONS/ MATERIALS OF CONSTRUCTION

Body	Brass or 316L Stainless Steel
Diaphragms	316L Stainless Steel
Seat	PCTFE™
Spring	316L Stainless Steel
Control Knob	Polypropylene
Maximum inlet pressure	3000 psi



DRK

Chrome-Plated Diffusion Resistant Valve

The packless, diffusion resistant shut off valve DRK series assists in maintaining system purity. The copper diaphragm feature is enveloped between two stainless steel diaphragms and is available in both brass or chrome-plated brass.

These outlet valves have a 1/4" NPT(F) inlet and outlet and are capable of being certified to inboard helium leak rates down to 1×10^{-9} scc/sec.

FEATURES

- Metal to metal seal
- 1-3/8" Hex bar stock body
- Multiple diaphragms
- Helium leak rate of 1×10^{-9} scc/sec. All high purity regulators are inboard leak checked with a helium mass spectrometer

SPECIFICATIONS

Maximum inlet.....3000 psig
Temperature Operating Range0 to 140°F (-17 to 60°C)
Inlet and outlet port.....1/4" NPT (F)
Flow coefficient.....Cv = .33
Weight13 oz.

MATERIAL OF CONSTRUCTION

Body.....Chrome-plated brass or brass
SeatPCTFE™
Seat holderBrass
GasketPCTFE™
Diaphragm contacting gas316L Stainless steel
Spring.....316L Stainless steel
Knob.....Glass filled polypropylene
Seat guide holder.....PCTFE™

Ordering information

DRK Chrome-Plated Diffusion Resistant Valve

Model No.	Description
DRK-2-4C	Chrome-plated brass 2 1/4"-18 Female NPT ports
DRK-2-4	Brass 2 1/4"-18 Female NPT ports
0910-0081	Adapter, 1/4 NPTM x 1/4" NPTM, Chrome



DRK

Stainless Steel with Center Purge Valves

The DRK packless diffusion resistant shut-off valve is designed for use in purge systems. It is available with four (4) 1/4\" -18 NPT (F) ports. The bodies are threaded for rear panel mounting.

Center valves are capable of being certified to inboard helium leak rates down to 1×10^{-9} scc/sec.

FEATURES

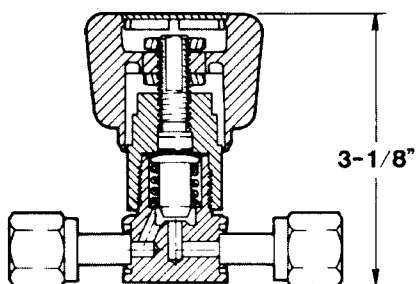
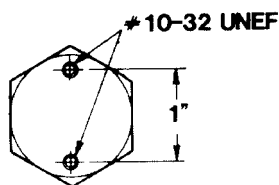
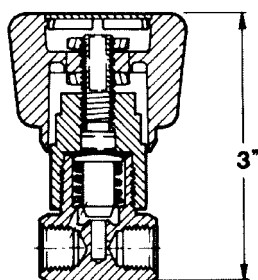
- Metal to metal seal
- 1-5/8\" Hex bar stock body (1/4\" - 18 NPT ports)
- 1-1/4\" Round bar stock body (1/4\" - 18 VCR® fittings)
- Bonnet leak test port
- Multiple diaphragms
- Helium leak rate of 1×10^{-9} scc/sec. All high purity regulators are inboard leak checked with a helium mass spectrometer
- Welded fitting models have VCR® compatible fittings semi-automatically butt welded
- All valves are 100% helium leak tested

SPECIFICATIONS

Maximum inlet3000 psig
Temperature Operating Range.....0 to 140°F (-17 to 60°C)
Inlet and outlet port1/4\" NPT (F)
Flow coefficientCv = .33
Weight13 oz.

MATERIAL OF CONSTRUCTION

Body1/4\"-18 NPT (F) ports
316L stainless steel or
1/4\" VCR® fittings
316L stainless steel
SeatPCTFE™
Seat holder.....316L stainless steel
Gasket..... PCTFE™
Diaphragm contacting gas.....316L Stainless steel
Spring316L Stainless steel
KnobGlass filled polypropylene
Seat guide holder.....PCTFE™



Ordering information

DRK Stainless Steel with Center Purge Valves

Model No.	Description
DRK-4-4S	Stainless steel Four (4) 1/4\" -18 Female NPT ports



DRK

Stainless Steel Full Turn Valve

The DRK series packless diffusion resistant shut-off valves help maintain system purity and leak integrity. The bodies are threaded for rear panel mounting. All welded vacuum coupled ring (VCR®) high performance face seal fittings or 1/4" NPT (F) versions are available.

These outlet valves are capable of being certified to inboard helium leak rates down to 1×10^{-9} scc/sec.

FEATURES

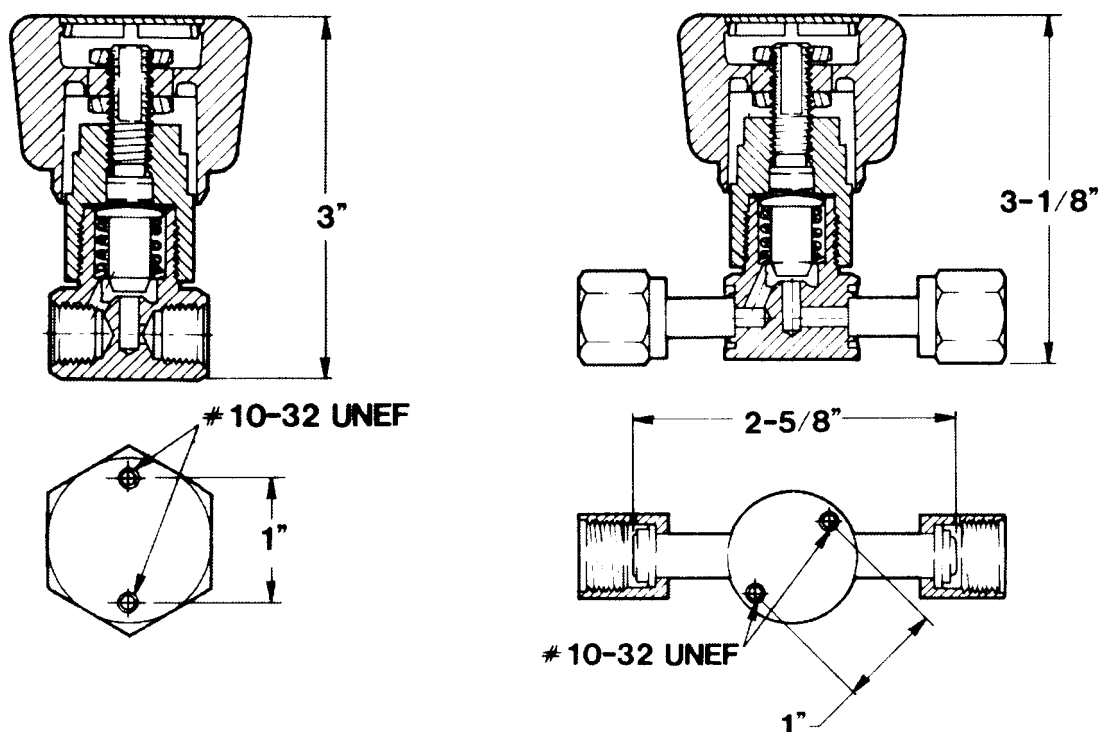
- Metal to metal seal
- 1-3/8" Hex bar stock body (1/4" NPT ports)
- 1-1/4" Round bar stock body (VCR® fittings)
- Bonnet leak test port
- Multiple diaphragms
- Reset feature on 1/4 turn valve
- Design capable of passing 1×10^{-9} scc/sec inboard helium leak rate (production models are tested to 1×10^{-7} scc/sec)
- Welded fitting models have VCR® compatible fittings semi-automatically butt welded
- Welded models are electro- polished
- All valves are 100% helium leak tested

SPECIFICATIONS

Maximum inlet.....	3000 psig
Available porting - Choice of:.....	1/4" NPT (F) ports or 1/4" VCR®(F) fittings
Maximum leak rate across seat	1×10^{-9} scc/sec
Temperature Operating Range	- 40°F to +165°F
Flow coefficient.....	DRK - Cv = .33 DRL - Cv = .17

MATERIAL OF CONSTRUCTION

Body: Choice of	1/4" - 18 NPT (F) ports 316L Stainless steel or 1/4" VCR® fittings 316L Stainless steel
Seat.....	PCTFE™
Seat holder.....	316L Stainless steel
Gasket.....	PCTFE™
Diaphragm contacting gas	316L Stainless steel
Spring.....	316L Stainless steel
Knob.....	Glass filled polypropylene
Seat guide holder	PCTFE™



Ordering information

DRK Stainless Steel Full Turn Valve

Model No.	Description
DRK-2-4S	Stainless steel 2 1/4"-18 Female NPT ports
DRK-2-VCR-FS	Stainless steel 2 1/4"-18 Female NPT ports
0910-0070	Adapter, 1/4" NPTM x 1/4" NPTM, Chrome

Accessories

Regulator Parts and Accessories



Miniature Metering VCalve

Description

This miniature needle valve is forged brass with 303 stainless steel stems and Teflon® packing.

SPECIFICATIONS

Maximum outlet 3000 psi

Temperature operating range -25°F to 250°F

Ordering Information

Part No.	Material	Connection	Orifice	Length	Height
0660-0081	Brass	1/4" NPT (M) x	.170	2 1/4"	2 1/4"
0660-0091	Stainless	1/4" NPT (M)			
0660-0080	Chrome				



Swagelok®

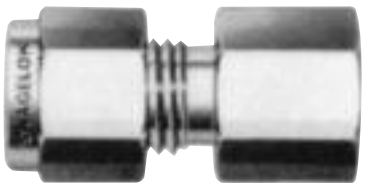
Brass Tube Fittings/ Compression Type

Description

Brass Swagelok® tube fittings provide a leak resistant seal for copper or brass tubing connections. Swagelok® fittings come completely assembled and finger-tight. Installation is made easy by inserting the tube until tubing rests firmly against the shoulder and the nut is finger-tight. Hold the fitting body with a back-up wrench and tighten the nut one-and-one quarter turns.

Ordering Information

Part No.	Material	Tube O.D.	Pipe Size	Swagelok® P/N
0910-0062	Brass	1/4"	1/4" NPT (M)	B-400-1-4
0910-0092		1/8"	1/4" NPT (M)	B-200-1-4
0910-0001		1/4"	1/4" NPT (F)	B-400-7-4



Compression Type Fitting

Gauges

Gauges for G.P. Regulators

Diameter	Description	Number
2-1/2"	4000#/28000 KPA	1424-0210
2-1/2"	400#/2800 KPA	1424-0211
2-1/2"	200#/1400 KPA	1424-0212
2-1/2"	100#/700 KPA	1424-0213
2-1/2"	60#/400 KPA	1424-0214
2-1/2"	30#/200 KPA (red line)	1424-0216
2-1/2"	30#/200 KPA	1424-0217

Note: All gauges listed above have chrome plated brass case and one piece Lexan® lens. Inlet connection 1/4" NPT (M)

Gauges for H.P. Regulators

Diameter	Description	Part Number
2-1/2"	4000#/28000 KPA	1424-0285
2-1/2"	400#/2800 KPA	1424-0295
2-1/2"	200#/1400 KPA	1424-0286
2-1/2"	100#/700 KPA	1424-0287
2-1/2"	60#/400 KPA	1424-0288
2-1/2"	30#/200 KPA (red line)	1424-0279
2-1/2"	30 HG VAC/30#/200 KPA	1424-0289

Note: All gauges listed above have chrome plated brass case and one piece Lexan® lens. Inlet connection 1/4" NPT (M)

Gauges for S.S. Regulators

Diameter	Diameter	Part Number
2"	3000#/20000 KPA	1424-0311
2"	400#/2800 KPA	1424-0316
2"	30 HG VAC/200#/1400 KPA	1424-0315
2"	30 HG VAC/100#/700 KPA	1424-0314
2"	30 HG VAC/60#/400 KPA	1424-0313
2"	30 HG VAC/30#/200 KPA	1424-0312

Note: All gauges listed above have stainless steel case and one piece Lexan® lens. Inlet connection 1/4" NPT (M)

Gauges for M.B.G. Regulators

Diameter	Diameter	Part Number
2"	30#	1424-0120
2"	4000#	1424-0166

Note: All gauges listed above have chrome plated brass case and one piece Lexan® lens. Inlet connection 1/4" NPT (M)



Cylinder Valve Outlets And Connections

GAS	CGA Valve Outlet & Conn.	GAS	CGA Valve Outlet & Conn.	GAS	CGA Valve Outlet & Conn.
Acetylene	.510	"Freon 13"		Methyl Bromide	.330
Air (Industrial)	.590	(Chlorotrifluoromethane)	.660	3-Methyl Butene-1	.510
Air (Breathing Air)	.346	"Freon 13B1"		Methyl Chloride	.510
Allene	.510	(Bromotrifluoromethane)	.660	Methyl Mercaptan	.330
Ammonia	.705, 240	"Freon 14"		Monoethylamine	.705
Argon	.580	(Tetrafluoromethane)	.580	Monomethylamine	.705
Arsine	.350	"Freon 22"		Natural Gas	.350
Boron Trichloride	.660	(Chlorodifluoromethane)	.660	Neon	.580
Boron Trifluoride	.330	"Freon 114"		Nickel Carbonyl	.660
Bromine Pentafluoride	.670	(1, 2 Dichlorotetrafluoroethane)	.660	Nitric Oxide	.660
Bromine Trifluoride	.670	"Freon 116"		Nitrogen	.580
Bromotrifluoroethylene	.510	(Hexafluoroethane)	.660	Nitrogen Dioxide	.660
1-3 Butadiene	.510	"Freon RC318"		Nitrogen Trioxide	.660
Butane	.510	(Octafluorocyclobutane)	.660	Nitrosyl Chloride	.330
Butenes	.510	"Genetron 21"		Nitrous Oxide (Formerly 1320)	.326
Carbon Dioxide	.320	(Dichlorofluoromethane)	.660	Oxygen	.540
Carbon Monoxide	.350	"Genetron 23" (Fluoroform)	.660	Perfluoro-2-Butene	.660
Carbonyl Fluoride	.750	"Genetron 115" (Mono-		Perfluoropropane	.660
Carbonyl Sulfide	.330	chloropentafluoroethane)	.660	Phosgene	.660
Chlorine	.660	"Genetron 152A"		Phosphine	.350
Chlorine Trifluoride	.670	(1, 1-Difluoroethane)	.510	Phosphorous Pentafluoride	.330
Chlorotrifluoroethylene	.510	"Genetron 1132A"		Propane	.510
Cyanogen	.750	(1, 1-Difluoroethylene)	.350	Propylene	.510
Cyanogen Chloride	.750	Germane	.350	Silane	.350
Cyclopropane	.510	Helium	.580	Silicon Tetrafluoride	.330
Deuterium	.350	Hexafluoroacetone	.330	Sulfur Dioxide	.660
Diborane	.350	Hexafluoropropylene	.660	Sulfur Hexafluoride	.590
1,2-Dibromodifluoromethane	.668	Hydrogen	.350	Sulfur Tetrafluoride	.330
Dimethylamine	.705	Hydrogen Bromide	.330	Sulfuryl Fluoride	.660
Dimethyl Ether	.510	Hydrogen Chloride	.330	Tetrafluoroethylene	.350
2-2 Dimethyl Propane	.510	Hydrogen Fluoride	.670	Trimethylamine	.705
Ethane	.350	Hydrogen Selenide	.350	Vinyl Bomide	.510
Ethyl Acetylene	.510	Hydrogen Sulfide	.330	Vinyl Chloride	.510
Ethyl Chloride	.510	Iodine Pentafluoride	.670	Vinyl Fluoride	.350
Ethylene	.350	Isobutane	.510	Vinyl Methyl Ether	.510
Ethylene Oxide	.510	Isobutylene	.510	Xenon	.580
Fluorine	.679	Krypton	.580		
"Freon 12"		Methane	.350		
(Dichlorodifluoromethane)	.660	Methyl Acetylene	.510		

NOTE: The above are standard CGA connections and are designated by Compressed Gas Association, Standard V-1. For alternate and latest standards and connections, contact Compressed Gas Association, 1235 Jefferson Davis Hwy., Arlington, VA 22202.

These dimensional drawings illustrate cylinder valve outlet and connections. The drawing at the left side illustrates the cylinder valve outlet. The one at right illustrates its mating regulator or valve connection.

CGA No. 170

Order No.'s

Nut

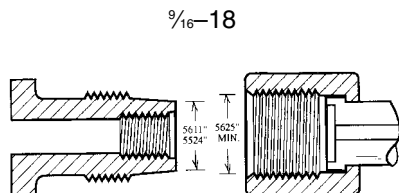
0980-0000
0980-0004*

Washer

1408-0071

SWIVEL

0980-0003
0980-0005*



CGA No. 180

Order No.'s

Nut

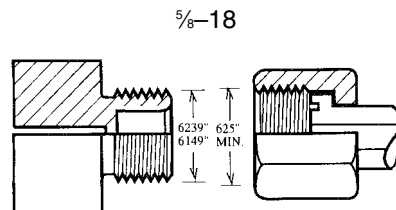
0981-0002
0981-0006**
0981-0004*

Washer

1408-0070

Swivel

0981-0000
0981-0005**
0981-0003*

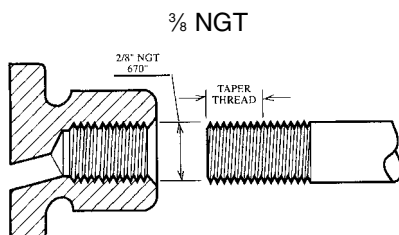


CGA No. 240

Order No.'s

Swivel

0998-0003**



CGA No. 296

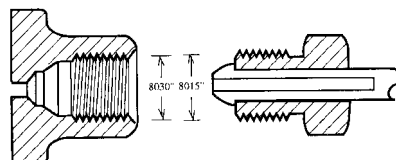
Order No.'s

Nut

0976-0003

Swivel

0976-0002



CGA No. 300

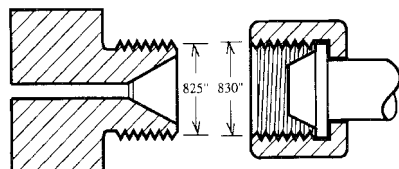
Order No.'s

Nut

0968-0003
0968-0006*

Swivel

0968-0014
0968-0051*



CGA No. 320

Order No.'s

Nut

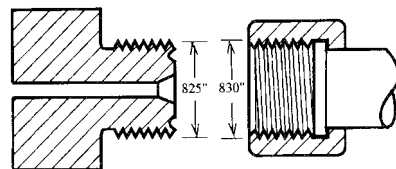
0985-0030
0985-0031*

Washer

1408-0065

Swivel

0985-0004
0985-0008*



CGA No. 326

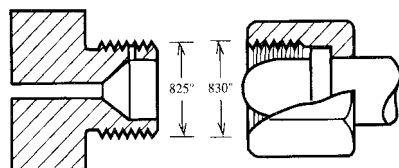
Order No.'s

Nut

0963-0015
0963-0016*

Swivel

0963-0004*
0963-0010



CGA No. 330

Order No.'s

Nut

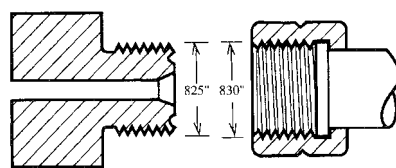
0986-0007*
0986-0008**

WASHER

1408-0023

Swivel

0985-0006**



* Chrome
** Stainless Steel

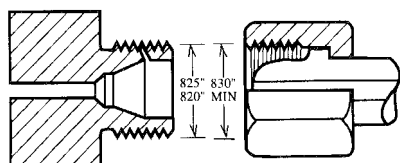
CGA No. 346

Order No.'s Nut

0972-0015
0972-0016*
0972-0036**

Swivel

0972-0010
0972-0017*
0972-0035**



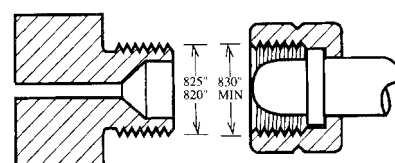
CGA No. 350

Order No.'s Nut

0983-0003
0983-0039*
0983-0013**

Swivel

0983-0008
0983-0040*
0983-0014**



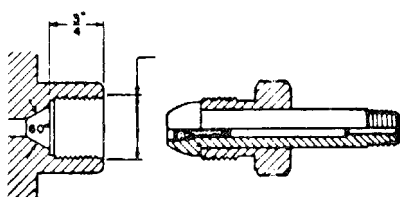
CGA No. 500

Order No.'s Nut

0976-0000

Swivel

0970-0017*



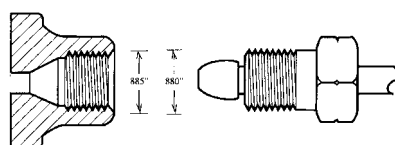
CGA No. 510

Order No.'s Nut

0970-0003
0970-0011*
0970-0006**

Swivel

0970-0005
0970-0017*
0970-0051**



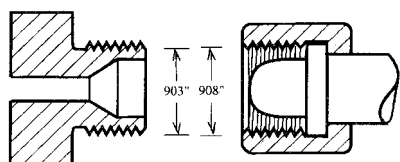
CGA No. 540

Order No.'s Nut

0967-0044
0967-0045*
0967-0052**

Swivel

0967-0034
0967-0042*
0967-0022**



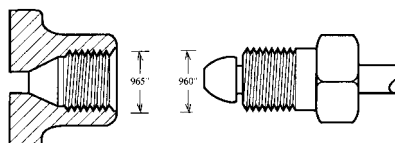
CGA No. 580

Order No.'s Nut

0973-0003
0973-0005*
0973-0004**

Swivel

0970-0005
0970-0017*
0970-0051**



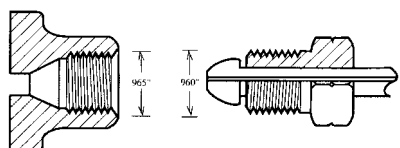
CGA No. 590

Order No.'s Nut

0974-0003
0974-0010*
0974-0004**

Swivel

0970-0005
0970-0017*



CGA No. 660

Order No.'s Nut

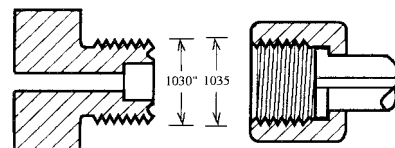
0995-0016*
0995-0003
0995-0007**

Washer

1408-0024

Swivel

0995-0017**
0995-0018*



CGA No. 705

Order No.'s Nut

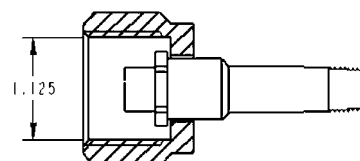
0998-0012**

Washer

1408-0032

Nipple

0998-0011**



* Chrome
** Stainless Steel

Glossary of Terms

Absolute Zero - The lowest temperature attainable. All molecular activity is considered ceased. It's value is -459.7 degrees F or -273.15 degrees C.

Aerobic Mixture - Gas mixture containing oxygen. A control atmosphere for the growth of biological cultures.

AIT (Auto Ignition Temperature) - The lowest temperature at which a material will ignite and sustain combustion in the absence of a spark or flame.

Anaerobic Mixture - Oxygen free gas mixture with carbon dioxide used as an atmosphere for the growth of biological cultures.

Anhydrous - Describes a material that contains no water.

Annealing Gas - A hydrogen-nitrogen mixture used to provide a reducing atmosphere during heating of metals to render them less brittle on cooling.

Asphyxiant Gas - A gas which has little or no positive toxic effect but which can bring about unconsciousness and death by replacing the air and thus depriving an organism of oxygen.

Atomic Absorption Spectrophotometer - Instrument for measuring energy distribution from light sources. Uses purified acetylene and nitrous oxide.

Blood Gas - A mixture of Carbon Dioxide in Oxygen for calibration of Blood Gas Analyzers.

Boiling Point - The temperature at which the pressure of the vapor is equal to the pressure exerted on the liquid. The normal boiling point is the temperature at which the vapor pressure of the liquid is 14.7 psia (1 atmosphere).

Calibration Gas - A gas or gas mixture of accurately known composition used as a comparative standard in analytical instrumentation.

Carrier Gas - High purity gases, primarily Helium, Hydrogen, Nitrogen and Argon for carrying either samples for analytical instrumentation (such as gas chromatography) or for carrying small quantities of reactive components into reaction area (such as doping gas mixtures for manufacturing semiconductor devices).

Chromatography - A method of separation of gaseous or chemical mixtures bases on selective absorption. Used widely in analytical technology.

Corrosive - A substance that erodes and deteriorates materials with which it comes in contact, such as metals, fabrics and human tissue.

Creep - The increase in outlet pressure of a pressure regulator. Gas from the high pressure side of the regulator is leaking into the low pressure side causing the delivery set pressure to increase. Usually this malfunction is more detectable when the regulator is in a static (no flow) or low flow condition.

Critical Pressure - The vapor of a liquid at the critical temperature.

Critical Temperature - The highest temperature at which a distinct liquid phase exists. When the temperature of a substance is below its critical temperature, its vapor can be liquefied by raising the pressure. Above the critical temperature, however, it can't be liquefied thus it behaves as a gas no matter what the pressure is because only one phase can exist.

Density - The ratio of a substances mass to its volume or the mass of a substance to unit volume.

Droop - The decrease in outlet set pressure of a pressure regulator as the flow rate increases.

Flammable Gas - Any gas that will ignite easily and burn rapidly.

Flow Coefficient (C_v) - The flow in gallons of water per minute at 60 degrees F when the inlet is 1 psig and the outlet pressure is atmospheric (14.7 psia).

Forming Gas - Usually mixtures of Hydrogen or Carbon Monoxide with Nitrogen. The mixtures are used as furnace atmospheres to prevent oxidation and are commonly called reducing gases.

Inert Gas - Gases which do not react with other materials at ordinary temperature and pressure. These gases are also sometimes called the noble gases.

Inlet Pressure - The upstream or supply pressure to a device.

Ion - An electrically charged atom or group of atoms; electrically charged molecules in gases. Usually an atom or molecule that has lost one or more of its electrons is left with a positive electrical charge. Those that have gained one or more extra electrons are left with a negative charge.

Lockup - The increase in outlet set pressure of a pressure regulator when the flow is stopped.

Lecture Bottle - Small steel cylinder 2" in diameter and 15" long.

Lung Diffusion Gas - Mixtures of either Carbon Monoxide and Air or Carbon Monoxide, Helium, Oxygen and Nitrogen to test the efficiency of lungs.

NTP (Normal Temperature and Pressure) - A gas industry reference set of conditions of temperature and pressure. Normal temperature is 70 degrees F and 14.7 psia (1 atmosphere).

Outlet Pressure - The delivery pressure of a device.

Oxidizer - Gases which do not burn, but which support combustion.

psia - Abbreviation for pounds per square inch absolute. One atmosphere equals 14.7 psia = psig plus 14.7.

psig - Abbreviation for pounds per square inch gauge. Gauge pressure always ignores the first atmosphere absolute (14.7).

Pyrophoric - The ability of a chemical to ignite in air at temperatures below 130 degrees F.

Glossary of Terms

Rare Gas - Refers to those constituents of air which comprise less than 1% of air and are generally considered inert such as argon, helium, krypton, neon, and xenon.

Rise - The increase in delivery pressure as the cylinder pressure decreases. Rise is sometimes stated as the amount of psig increase in delivery pressure per 100 psig decrease in cylinder pressure.

Span Gas - Usually a gas mixture used to span or calibrate a process or analyzer at intermediate points to full scale after a zero base line has been established.

Specific Gravity - The ratio of a given volume of a substance to the weight of an equal volume of a reference material. Usually gases are compared to air (air = 1) while liquids are compared to water (water = 1).

STP (Standard Temperature and Pressure) - An internationally accepted reference set of conditions of temperature and pressure. Standard temperature is 0 degrees C and 14.7 psia (1 atmosphere).

THC (Total Hydrocarbon Content) - THC is used to describe the quantity of hydrocarbon impurities present, expressed as a methane equivalents.

Toxic Gas - Poisonous gas or gas that can cause physical harm in relatively small concentrations.

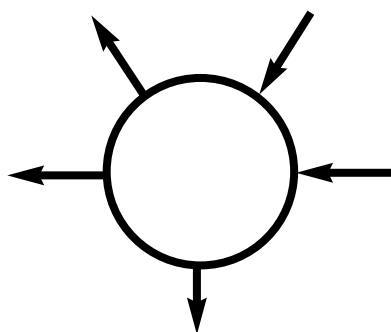
Triple Point - The temperature at the liquid, solid and vapor phase are in equilibrium.

Vapor Pressure - The pressure exerted by the vapor above a pure liquid when the two phases are in equilibrium. The value depends on the temperature of the system, but at any temperature it is independent of the amount of liquid present.

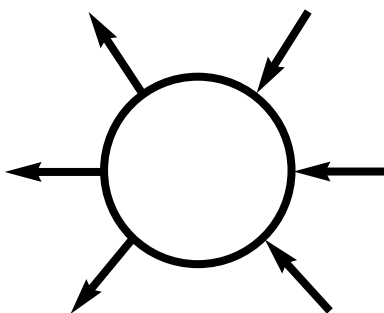
Zero Gas - Gases which have low THC and are used as reference point to "zero" a THC analyzer.

Port Configuration Data

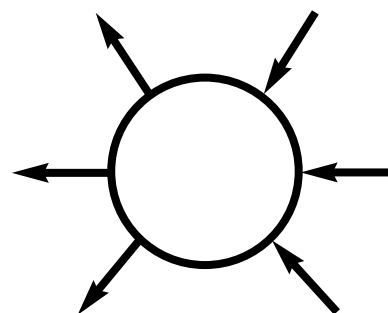
The following port configurations are used in high purity regulators.



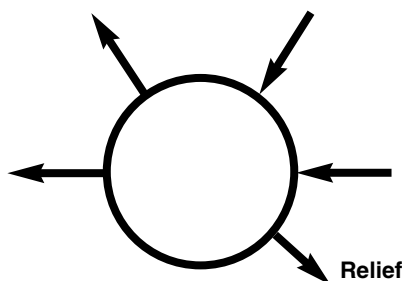
HPS 270, GPS 270, HPS 4



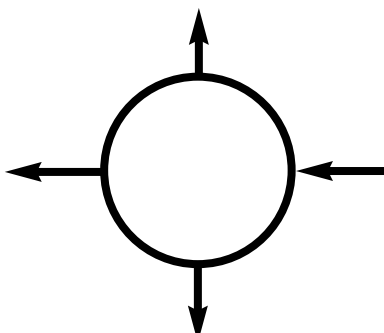
SGS 500, HPS 500



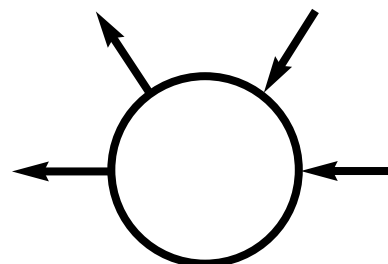
SGT 500, HPT 500



HPT 270, CPT 270



HPL, GPL, SGL



LB 150, LB 165

Conversion Factors

Flow Conversions

If flow is given In	Multiply by	To obtain
ml/min.	1.0×10^{-3}	L.P.M.
ml/min.	3.5316×10^{-5}	S.C.F.M.
ml/min.	2.1189×10^{-3}	S.C.F.H.
ml/min.	2.6418×10^{-4}	G.P.M.
ml/min.	1.5852×10^{-2}	G.P.H.
L.P.M.	1.0×10^3	cc/min.
L.P.M.	3.5316×10^{-2}	S.C.F.M.
L.P.M.	2.11896	S.C.F.H.
L.P.M.	2.6418×10^{-1}	G.P.M.
L.P.M.	1.58508×10^1	G.P.H.
S.C.F.H.	.47192	L.P.M.

Pressure Conversions

If pressure is given in	Multiply by	To obtain
Inches of Mercury at 70°F	4.912×10^{-1}	PSIA
Inches of Water at 4°C	3.613×10^{-2}	PSIA
PSIA	2.036	Inches of Mercury
PSIA	27.73	Inches of Water at 70°F
PSIA	6.804×10^{-2}	Atmospheres
Atmosphere	1.47×10^1	PSIA
Bars 14.29	1.45×10^1	PSIA
Inches of Mercury at 70°F	13.57	Inches of Water at 70°F
Millimeters of Water at 70°F	3.937×10^{-2}	Inches of Water at 70°F
Millimeters of Mercury at 70°F	5.343×10^1	Inches of Water at 70°F
Atmospheres (PSIG)	407.631	Inches of Water at 70°F

Temperature Conversions

If temperature is given In	Multiply by	To obtain
Degrees Centigrade	$(^{\circ}\text{C} + 17.78) \times 1.8$	Fahrenheit
Degrees Centigrade	$(^{\circ}\text{C} + 273.16) \times 1.8$	Rankine
Degrees Fahrenheit	$(^{\circ}\text{F} - 32.0) \times 5.56 \times 10^{-1}$	Centigrade
Degrees Fahrenheit	$(^{\circ}\text{F} \times 1.0) + 459.70$	Rankine
Degrees Rankine	$(^{\circ}\text{R} \times 1.0) - 459.70$	Fahrenheit
Degrees Rankine	$(^{\circ}\text{R} \times 5.56 \times 10^{-1}) - 273.16$	Centigrade

Density Conversions

If density is given In	Multiply by	To obtain
Pounds / ft ³	5.787×10^{-4}	Pounds / in ³
Pounds / ft ³	1.602×10^{-2}	Grams / cm ³
Pounds / in ³	1.728×10^3	Pounds / ft ³
Pounds / in ³	2.768×10^1	Grams / cm ³
Grams / cm ³	3.613×10^{-2}	Pounds / in ³
Grams / cm ³	6.243×10^1	Pounds / ft ³

How to estimate the flow of gases other than air based on air flow data and gas temperature.

Calculate Using Formula: $Q_2 = \frac{Q_1 (f_1)}{f_2}$

Where: Q_2 = Flow (SCFH) of gas being estimated

Q_1 = Flow (SCFH) of air from flow curves

f_1 = Temperature correction factor (See Table 1)

f_2 = Specific gravity correction factor (See Table 2)

Table 1. Temperature Correction Factors (f_1)

Operating Temperature - Degrees F												
0	10	20	30	40	50	60	70	80	90	100	110	0120
0.932	0.942	0.952	0.962	0.971	0.981	0.991	1.000	1.009	1.018	1.028	1.037	1.046

Operating Temperature - Degrees F												
130	140	150	160	170	180	190	200	210	220	230	240	250
1/055	1.064	1.072	1.081	1.090	1.099	1.107	1.116	1.124	1.133	1.141	1.149	1.157

Conversion Factors

Table 2. General Gas Data and Specific Gravity Correction Factors (f_2)

Gas Name	Symbol	Specific Gravity @ 14.7 psia & 70°F	f_2 (f_2) ² =SP.GR.	Full Cylinder pressure @ 70°F (psig)	Hazards in Handling	Auto- Ignition Temp (°F)
Acetylene	C ₂ H ₄	0.907	0.952	205 2 ②	Highly Flammable	635°
Air	--	1.000	1.000	1775-2200	--	--
Ammonia	NH ₃	0.596	0.772	114.1 ③	Highly Irritant & Toxic	1204°
Argon	Ar	1.380	1.175	1775-2490	Asphyxiant	--
Boron Trifluoride	BF ₃	2.217	1.489	1600-1800	Highly Irritant & Toxic	--
Butane	C ₄ H ₁₀	2.071	1.439	16.3 ③	Highly Flammable	761°
Carbon Dioxide	CO ₂	1.529	1.236	830 ③	Solid Form May Severely Burn	--
Carbon Monoxide	CO	.0967	0.983	1650	Highly Toxic & Flammable	1128° liq
Cyclopropane	C ₃ H ₆	1.354	1.164	75 ③	Highly Flammable/Moderately Toxic	928°
Dimethyl Ether	(CH ₃) ₂ O	1.484	1.218	62.3 ③	Highly Flammable	662°
Ethane	C ₂ H ₆	1.049	1.024	543 ③	Flammable	959°
Helium	HE	0.138	0.372	2490	Asphyxiant	--
Hydrogen	H ₂	0.0695	0.624	2200	Highly Flammable & Explosive	1075°
Hydrogen Bromide	BHr	2.575	1.605	320 ③	Highly Irritant & Toxic	--
Hydrogen Sulfide	H ₂ S	1.087	1.043	252 ③	Highly Irritant & Toxic	500°
Methane	CH ₄	0.554	0.744	2265	Severe Fire Hazard & Explosive	1000°
Methylacetylene	C ₃ H ₄	1.292	1.137	60 ③	Flammable & Moderately Toxic	--
Natural Gas	--	0.610 ④	0.781	1775-2665	Flammable & Explosive	900-1100°
Neon	Ne	0.638	0.799	225-1800	Asphyxiant	--
Nitric Oxide	NO	0.950	0.974	500	Highly Irritant & Toxic	--
Nitrogen	N ₂	0.967	0.983	2000-2490	--	--
Nitrous Oxide	N ₂ O	1.530	1.236	745 ③	Supports Combustion/Anesthetic	--
Oxygen	O ₂	1.105	1.051	2200	Accelerates Combustion/Fire Hazard	--
Propane	C ₃ H ₈	1.554	1.246	109 ③	Flammable	874°
Propylene	C ₃ H ₆	1.381	1.175	136.5 ③	Highly Flammable & Explosive	874°
Sulfur Tetrafluoride	SF ₄	3.525	1.878	140 ③	Highly Flammable & Explosive	927°
Xenon	Xe	4.169	2.042	800	Asphyxiant	--

① Referred to air at 14.7 psia and 70°F

② Cylinder pressure of the dissolved gas (in acetone)

③ Vapor pressure of the liquefied gas

④ This number is an average of a variance specific gravity

Regulator Selection Guide

Use this guide to match gas service requirements with available regulator model.

IMPORTANT NOTICE/PLEASE READ CAREFULLY

Any use or application of these regulators which VICTOR may suggest is based on VICTOR's experience to date and is believed to be reliable. It should be understood, however, that reliance by the user on any such suggestion is at the user's own discretion and risk. VICTOR strongly recommends that tests be run under actual operation conditions to ascertain the regulator's performance ability with the gas to be used.

NOTE: CGA connections are designated by Compressed Gas Association, Standard V-1. For latest standards and connections, contact Compressed Gas Association, 1235 Jefferson Davis Hwy., Arlington, VA 22202.

PURE GASES	CYLINDER REGULATOR			LINE REGULATOR	
	SINGLE STAGE	TWO STAGE	CGA INLET	SINGLE STAGE	PORT SIZE
ACETYLENE (C ₂ H ₂) PURIFIED 99.6%	HPS280	None	510	HPL280	1/4" NPT (F)
AIR					
DRY	GPS270	GPT270	590	GPL270	1/4" NPT (F)
HYDROCARBON FREE	HPS500/270	HPT500/270	590	HPL500/270	1/4" NPT (F)
ZERO	HPS500/270	HPT500/270	590	HPL500/270	1/4" NPT (F)
AMMONIA (NH ₃) ANHYDROUS	SGS500/550	SGT500	240/705	SGL500	1/4" NPT (F)
ARGON (Ar)					
RESEARCH 99.9995%	HPS500/270	HPT500/270	580	HPL500/270	1/4" NPT (F)
U.H.P. 99.999%	HPS500/270	HPT500/270	580	HPL500/270	1/4" NPT (F)
PREPURIFIED 99.998%	HPS500/270	HPT500/270	580	HPL500/270	1/4" NPT (F)
ZERO 99.998%	HPS500/270	HPT500/270	580	HPL500/270	1/4" NPT (F)
O ₂ FREE 99.996%	HPS500/270	HPT500/270	580	HPL500/270	1/4" NPT (F)
HIGH PURITY 99.995%	HPS500/270	HPT500/270	580	HPL500/270	1/4" NPT (F)
ARSINE (AsH ₃) MINIMUM PURITY 99.9995%	None	None	None	SGL500	1/4" NPT (F)
BORON TRIFLUORIDE (BF ₃) MINIMUM PURITY 99.5%	CRS100/200	None	330	SGL500	1/4" NPT (F)
1,3 BUTADIENE (C ₄ H ₆)					
INSTRUMENT 99.5%	GPS281	None	510	GPL270	1/4" NPT (F)
C.P. 99.0%	GPS281	None	510	GPL270	1/4" NPT (F)
N-BUTANE (C ₄ H ₁₀)					
RESEARCH 99.9%	GPS281	None	510	GPL270	1/4" NPT (F)
C.P. 99.0%	GPS281	None	510	GPL270	1/4" NPT (F)
CIS-2 BUTENE (C ₄ H ₈) C.P. 99.0%	GPS281	None	510	NONE	N/A
TRANS-2-BUTENE (C ₄ H ₈) C.P. 99.0%	GPS281	None	510	NONE	N/A
CARBON DIOXIDE (CO ₂)					
RESEARCH 99.998%	HPS500/270	HPT500/270	320	HPL500/270	1/4" NPT (F)
INSTRUMENT (COLEMAN) 99.99%	HPS500/270	HPT500/270	320	HPL500/270	1/4" NPT (F)
BONE DRY 99.9%	GPS270*	GPT270	320	GPL270	1/4" NPT (F)
CARBON MONOXIDE (CO)					
RESEARCH 99.99%	HPS500/272	HPT500/272	350	NONE	N/A
C.P. 99.0%	HPS500/272	HPT500/272	350	NONE	N/A
TECHNICAL 98.0%	GPS272*	GPT272	350	NONE	N/A
CHLORINE (Cl ₂) HIGH PURITY 99.5%	CRS100/200		660	SGL500	1/4" NPT (F)

*Oxygen greater than 23% use CGA 296, and less than 23% use CGA 590.

PURE GASES	CYLINDER REGULATOR			LINE REGULATOR	
	SINGLE STAGE	TWO STAGE	CGA INLET	SINGLE STAGE	PORT SIZE
DEUTERIUM (D ₂) C.P. 99.5%	HPS500/272	HPT500/270	350	None	None
DIMETHYL ETHER (C ₂ H ₆ O) PURITY 99.5%	GPS281	None	510	None	None
ETHANE (C ₂ H ₆) RESEARCH 99.98%	HPS500/272	HPT500/272	350	None	None
C.P. 99.0%	HPS500/272	HPT500/272	350	None	None
TECHNICAL 97.5%	GPS272	GPT272	350	None	None
ETHYLENE (C ₂ H ₄) RESEARCH 99.98%	HPS500/272	HPT500/272	350	None	None
C.P. 99.5%	HPS500/272	HPT500/272	350	None	None
TECHNICAL 98.55%	GPS272	GPT272	350	None	None
ETHYLENE OXIDE (C ₂ H ₄ O)	None	None	510/350	None	None
FLUORINE (F ₂)	None	None	679	None	None
HALOCARBON 12 (CClF ₂) PURITY 99.0%	None	None	660	None	None
HALOCARBON 13 (CClF ₃) PURITY 99.0%	None	None	660	None	None
HALOCARBON 13B1 (CBrF ₃) PURITY 99.0%	None	None	660	None	None
HALOCARBON 14 (CF ₄) PURITY 99.7%	GPS270	GPT270	580	GPL270	1/4" NPT (F)
HALOCARBON 22 (CHClF ₂) PURITY 99.9%	None	None	660	None	None
HALOCARBON 116 (C ₂ F ₆) PURITY 99.95%	None	None	660	None	None
HELIUM (He) RESEARCH 99.9995%	HPS500/270	HPT500/270	580	HPL500/270	1/4" NPT (F)
ULTRA HIGH 99.999%	HPS500/270	HPT500/270	580	HPL500/270	1/4" NPT (F)
ZERO 99.995%	HPS500/270	HPT500/270	580	HPL500/270	1/4" NPT (F)
HIGH PURITY 99.995%	HPS500/270	HPT500/270	580	HPL500/270	1/4" NPT (F)
HEXAFLUOROPROPYLENE (C ₃ F ₆) PURITY 99.5%	None	None	660	NONE	None
HYDROGEN (H ₂) RESEARCH 99.9999%	HPS500/272	HPT500/272	350	HPL500/270	1/4" NPT (F)
ULTRA HIGH 99.999%	HPS500/272	HPT500/272	350	HPL500/270	1/4" NPT (F)
ZERO 99.99%	HPS500/272	HPT500/272	350	HPL500/270	1/4" NPT (F)
PREPURIFIED 99.99%	HPS500/272	HPT500/272	350	HPL500/270	1/4" NPT (F)
EXTRA DRY 99.95%	HPS500/272	HPT500/272	350	HPL500/270	1/4" NPT (F)
HYDROGEN CHLORIDE (HCl) TECHNICAL 99.0%	CRS100/200	None	330	SGL500	1/4" NPT (F)
HYDROGEN SULFIDE (H ₂ S) C.P. 99.5%	None	None	330	SGL500	1/4" NPT (F)
ISOBUTANE (C ₂ H ₁₀) RESEARCH 99.96%	HPS281	None	510	None	None
INSTRUMENT 99.5%	GPS281	None	510	None	None
C.P. 99.0%	GPS281	None	510	None	None

U.S. Customer Care: 800-569-0547 / FAX 800-535-0557

PURE GASES	CYLINDER REGULATOR			LINE REGULATOR	
	SINGLE STAGE	TWO STAGE	CGA INLET	SINGLE STAGE	PORT SIZE
ISOBUTYLENE (C ₄ H ₈) RESEARCH 99.6% C.P. 99.0%	HPS281 GPS 281	NONE NONE	510 510	NONE NONE	None None
KRYPTON (Kr) RESEARCH 99.995%	HPS500/270	HPT500/270	580	HPL500/270	1/4" NPT (F)
METHANE (CH ₄) RESEARCH 99.99% U.H.P. 99.97% C.P. 99.0% TECHNICAL 98.0% COMMERCIAL 93.00%	HPS500/270 HPS500/270 HPS500/270 GPS272 GPS272	HPT500/270 HPT500/270 HPT500/270 GPT272 GPT272	350 350 350 350 350	None None None None None	None None None None None
METHYLACETYLENE (C ₃ H ₄) PURITY 96.0%	GPS281	None	510	None	None
METHYL CHLORIDE (CH ₃ Cl) C.P. 99.5%	None	None	510	None	None
NEON (Ne) RESEARCH 99.999% U.H.P. 99.996% PURIFIED 99.89%	HPS500/270 HPS500/270 HPS500/270	HPT500/270 HPT500/270 HPT500/270	580 580 580	HPL500/270 HPL500/270 HPL500/270	1/4" NPT (F) 1/4" NPT (F) 1/4" NPT (F)
NITRIC OXIDE (NO) C.P. 99.0%	SGS500/550	SGT500	660	SGL500	1/4" NPT (F)
NITROGEN (N ₂) RESEARCH 99.9995% ULTRA HIGH 99.999% PREPURIFIED 99.998% ZERO 99.998% HIGH PURITY 99.99% OXYGEN FREE 99.99% EXTRA DRY 99.7%	HPS500/270 HPS500/270 HPS500/270 HPS500/270 HPS500/270 HPS500/270 HPS500/270	HPT500/270 HPT500/270 HPT500/270 HPT500/270 HPT500/270 HPT500/270 HPT500/270	580 580 580 580 580 580 580	HPL500/270 HPL500/270 HPL500/270 HPL500/270 HPL500/270 HPL500/270 HPL500/270	1/4" NPT (F) 1/4" NPT (F) 1/4" NPT (F) 1/4" NPT (F) 1/4" NPT (F) 1/4" NPT (F) 1/4" NPT (F)
NITROUS OXIDE (N ₂ O) U.H.P. 99.99% ATOMIC ABSORPTION 99.0%	HPS500/270 GPS270	HPT500/270 GPT270	326 326	HPL500/270 GPL270	1/4" NPT (F) 1/4" NPT (F)
OXYGEN (O ₂) RESEARCH 99.995% U.H.P. 99.99% ZERO 99.6% EXTRA DRY 99.6%	HPS500/270 HPS500/270 HPS500/270 HPS500/270	HPT500/270 HPT500/270 HPT500/270 HPT500/270	540 540 540 540	HPL500/270 HPL500/270 HPL500/270 HPL500/270	1/4" NPT (F) 1/4" NPT (F) 1/4" NPT (F) 1/4" NPT (F)
PERFLUOROPROPANE (C ₃ F ₈) PURITY 99.0%	None	None	660	None	None
PROPANE (C ₃ H ₈) RESEARCH 99.99% INSTRUMENT 99.5% C.P. 99.0% NATURAL 96.0%	HPS281 GPS281 GPS281 GPS281	NONE NONE NONE NONE	510 510 510 510	None None None None	None None None None
PROPYLENE (C ₃ H ₆) RESEARCH C.P. 99.0%	HPS281 GPS281	None None	510 510	None None	None None

PURE GASES	CYLINDER REGULATOR			LINE REGULATOR	
	SINGLE STAGE	TWO STAGE	CGA INLET	SINGLE STAGE	PORT SIZE
SILANE (SiH ₄) PURITY 99.9%	None	SGT500	350	None	None
SULFUR DIOXIDE (SO ₂) ANHYDROUS 99.98% COMMERCIAL 99.9%	None None	None None	660 660	SGL500 SGL500	1/4" NPT (F) 1/4" NPT (F)
SULFUR HEXAFLUORIDE (SF ₆) INSTRUMENT 99.99% C.P. 99.8%	HPS500/270 GPS270	None None	590 590	HPL500/270 GPL270	1/4" NPT (F) 1/4" NPT (F)
XENON (Xe) RESEARCH 99.995%	HPS500/270	HPT500/270	580	HPL500/270	1/4" NPT (F)

MIXED GASES	CYLINDER REGULATOR			LINE REGULATOR	
	SINGLE STAGE	TWO STAGE	CGA INLET	SINGLE STAGE	PORT SIZE
AMMONIA IN ARGON IN HELIUM IN HYDROGEN IN NITROGEN	SGS500 SGS500 SGS500 SGS500	SGT500 SGT500 SGT500 SGT500	705 or 240 705 or 240 705 or 240 705 or 240	SGL500 SGL500 SGL500 SGL500	1/4" NPT (F) 1/4" NPT (F) 1/4" NPT (F) 1/4" NPT (F)
ARGON IN HELIUM IN HYDROGEN IN NITROGEN IN OXYGEN*	HPS500/270 HPS500/270 HPS500/270 HPS500/270	HPT500/270 HPT500/270 HPT500/270 HPT500/270	580 580 580 296/590	HPL500/270 HPL500/270 HPL500/270 HPL500/270	1/4" NPT (F) 1/4" NPT (F) 1/4" NPT (F) 1/4" NPT (F)
BUTANE IN ARGON IN HELIUM IN HYDROGEN IN NITROGEN	HPS500/272 HPS500/272 HPS500/272 HPS500/272	HPT500/272 HPT500/272 HPT500/272 HPT500/272	350 350 350 350	None None None None	None None None None
CARBON DIOXIDE IN AIR IN ARGON IN HELIUM IN HYDROGEN IN NITROGEN IN OXYGEN (>23% O ₂)*	HPS500/270 HPS500/270 HPS500/270 HPS500/270 HPS500/270 HPS500/270	HPT500/270 HPT500/270 HPT500/270 HPT500/270 HPT500/270 HPT500/270	580 580 580 580 580 296	HPL500/270 HPL500/270 HPL500/270 HPL500/270 HPL500/270 HPL500/270	1/4" NPT (F) 1/4" NPT (F) 1/4" NPT (F) 1/4" NPT (F) 1/4" NPT (F) 1/4" NPT (F)
CARBON MONOXIDE (>23% O ₂ = 580) IN AIR IN ARGON IN HELIUM IN HYDROGEN IN NITROGEN	HPS500/270 HPS500/270 HPS500/270 HPS500/270 HPS500/270	HPT500/270 HPT500/270 HPT500/270 HPT500/270 HPT500/270	350 350 350 350 350	HPL500/270 HPL500/270 HPL500/270 HPL500/270 HPL500/270	1/4" NPT (F) 1/4" NPT (F) 1/4" NPT (F) 1/4" NPT (F) 1/4" NPT (F)

*Oxygen greater than 23% use CGA 296, and less than 23% use CGA 590.

MIXED GASES	CYLINDER REGULATOR			LINE REGULATOR	
	SINGLE STAGE	TWO STAGE	CGA INLET	SINGLE STAGE	PORT SIZE
CHLORINE IN ARGON	SGS500 CRS100/200	SGT500	330	SGL500	1/4" NPT (F)
IN HELIUM	SGS500 CRS100/200	SGT500	330	SGL500	1/4" NPT (F)
IN NITROGEN	SGS500 CRS100/200	SGT500	330	SGL500	1/4" NPT (F)
ETHANE IN ARGON	HPS500/272	HPT500/272	350	HPL500/272	1/4" NPT (F)
IN HELIUM	HPS500/272	HPT500/272	350	HPL500/272	1/4" NPT (F)
IN HYDROGEN	HPS500//272	HPT500/272	350	HPL500/272	1/4" NPT (F)
IN NITROGEN	HPS500/272	HPT500/272	350	HPL500/272	1/4" NPT (F)
ETHYLENE IN ARGON	HPS500/272	HPT500/272	350	HPL500/272	1/4" NPT (F)
IN HELIUM	HPS500/272	HPT500/272	350	HPL500/272	1/4" NPT (F)
IN NITROGEN	HPS500/272	HPT500/272	350	HPL500/272	1/4" NPT (F)
HELIUM IN ARGON	HPS500/272	HPT500/272	580	HPL500/272	1/4" NPT (F)
IN HYDROGEN	HPS500/272	HPT500/272	350	HPL500/272	1/4" NPT (F)
IN NITROGEN	HPS500/272	HPT500/272	580	HPL500/272	1/4" NPT (F)
IN OXYGEN (>23% O ₂)*	HPS500/272	HPT500/272	296	HPL500/272	1/4" NPT (F)
HEXANE IN AIR	HPS500/272	HPT500/272	350	HPL500/272	1/4" NPT (F)
IN ARGON	HPS500/272	HPT500/272	350	HPL500/272	1/4" NPT (F)
IN HELIUM	HPS500/272	HPT500/272	350	HPL500/272	1/4" NPT (F)
IN HYDROGEN	HPS500//272	HPT500/272	350	HPL500/272	1/4" NPT (F)
IN NITROGEN	HPS500//272	HPT500/272	350	HPL500/272	1/4" NPT (F)
HYDROGEN IN ARGON	HPS500//272	HPT500/272	350	HPL500/272	1/4" NPT (F)
IN HELIUM	HPS500/272	HPT500/272	350	HPL500/272	1/4" NPT (F)
IN NITROGEN	HPS500/272	HPT500/272	350	HPL500/272	1/4" NPT (F)
HYDROGEN CHLORIDE IN ARGON	SGS500 CRS100/200	None	330	SGL500	1/4" NPT (F)
IN HELIUM	SGS500/ CRS100/200	None	330	SGL500	1/4" NPT (F)
IN NITROGEN	SGS500 CRS100/200	None	330	SGL500	1/4" NPT (F)
HYDROGEN SULFIDE IN ARGON	SGS500	SGT500	330	SGL500	1/4" NPT (F)
IN HELIUM	SGS500	SGT500	330	SGL500	1/4" NPT (F)
IN NITROGEN	SGS500	SGT500	330	SGL500	1/4" NPT (F)
ISOBUTANE IN ARGON	HPS500/272	HPT500/272	350	HPL500/272	1/4" NPT (F)
IN HELIUM	HPS500/272	HPT500/272	350	HPL500/272	1/4" NPT (F)
IN HYDROGEN	HPS500/272	HPT500/272	350	HPL500/272	1/4" NPT (F)
IN NITROGEN	HPS500/272	HPT500/272	350	HPL500/272	1/4" NPT (F)

*Oxygen greater than 23% use CGA 296, and less than 23% use CGA 590.

	CYLINDER REGULATOR			LINE REGULATOR	
	SINGLE STAGE	TWO STAGE	CGA INLET	SINGLE STAGE	PORT SIZE
METHANE					
IN AIR	HPS500/270	HPT500/270	350/590	HPL500/270	1/4" NPT (F)
IN ARGON	HPS500/270	HPT500/270	350	HPL500/270	1/4" NPT (F)
IN HELIUM	HPS500/270	HPT500/270	350	HPL500/270	1/4" NPT (F)
IN HYDROGEN	HPS500/270	HPT500/270	350	HPL500/270	1/4" NPT (F)
IN NITROGEN	HPS500/270	HPT500/270	350	HPL500/270	1/4" NPT (F)
NITRIC OXIDE					
IN ARGON	SGS500	SGT500	660	SGL500	1/4" NPT (F)
IN HELIUM	SGS500	SGT500	660	SGL500	1/4" NPT (F)
IN NITROGEN	SGS500	SGT500	660	SGL500	1/4" NPT (F)
NITROGEN					
IN ARGON	HPS500/270	HPT500/270	580	HPL500/270	1/4" NPT (F)
IN HELIUM	HPS500/270	HPT500/270	580	HPL500/270	1/4" NPT (F)
IN HYDROGEN	HPS500/272	HPT500/272	350	HPL500/270	1/4" NPT (F)
IN OXYGEN (>23% O ₂)*	HPS500/272	HPT500/272	296	HPL500/270	1/4" NPT (F)
NITROGEN DIOXIDE					
IN AIR	SGS500	SGT500	660	SGL500	1/4" NPT (F)
IN ARGON	SGS500	SGT500	660	SGL500	1/4" NPT (F)
IN HELIUM	SGS500	SGT500	660	SGL500	1/4" NPT (F)
IN NITROGEN	SGS500	SGT500	660	SGL500	1/4" NPT (F)
OXYGEN					
IN ARGON	HPS500/270	HPT500/270	296/590*	HPL500/270	1/4" NPT (F)
IN HELIUM	HPS500/270	HPT500/270	296/590	HPL500/270	1/4" NPT (F)
IN NITROGEN	HPS500/270	HPT500/270	296/590	HPL500/270	1/4" NPT (F)
PROPANE					
IN AIR	HPS500/270	HPT500/270	350/590	HPL500/270	1/4" NPT (F)
IN ARGON	HPS500/272	HPT500/272	350	HPL500/270	1/4" NPT (F)
IN HELIUM	HPS500/272	HPT500/272	350	HPL500/270	1/4" NPT (F)
IN HYDROGEN	HPS500/272	HPT500/272	350	HPL500/270	1/4" NPT (F)
IN NITROGEN	HPS500/272	HPT500/272	350	HPL500/270	1/4" NPT (F)
PROPYLENE					
IN AIR	HPS500/270	HPT500/270	350/590	HPL500/270	1/4" NPT (F)
IN ARGON	HPS500/272	HPT500/272	350	HPL500/270	1/4" NPT (F)
IN HELIUM	HPS500/272	HPT500/272	350	HPL500/270	1/4" NPT (F)
IN HYDROGEN	HPS500/272	HPT500/272	350	HPL500/270	1/4" NPT (F)
IN NITROGEN	HPS500/272	HPT500/272	350	HPL500/270	1/4" NPT (F)
SULFUR DIOXIDE					
IN AIR	SGS500	SGT500	660	SGL500	1/4" NPT (F)
IN ARGON	SGS500	SGT500	660	SGL500	1/4" NPT (F)
IN HELIUM	SGS500	SGT500	660	SGL500	1/4" NPT (F)
IN NITROGEN	SGS500	SGT500	660	SGL500	1/4" NPT (F)

*Oxygen greater than 23% use CGA 296, and less than 23% use CGA 590.

STERILIZING GASES	CYLINDER REGULATOR			LINE REGULATOR	
	SINGLE STAGE	TWO STAGE	CGA INLET	SINGLE STAGE	PORT SIZE
ETHYLENE OXIDE IN CARBON DIOXIDE	HPS500/270	HPT500/270	350	HPL500/270	1/4" NPT (F)

LASER GASES	CYLINDER REGULATOR			LINE REGULATOR	
	SINGLE STAGE	TWO STAGE	CGA INLET	SINGLE STAGE	PORT SIZE
EXCIMER LASER GAS MIXTURES					
HYDROGEN CHLORIDE IN HELIUM	CRS100/200	SGT500	330	None	None
MOLECULAR LASER GAS MIXTURES					
4.5% CARBON DIOXIDE 13.5% NITROGEN IN HELIUM	HPS500/270	HPT500/270	580	HPL500/270	1/4" NPT (F)

INSTRUMENT MIXTURES	CYLINDER REGULATOR			LINE REGULATOR	
	SINGLE STAGE	TWO STAGE	CGA INLET	SINGLE STAGE	PORT SIZE
CHROMATOGRAPH CARRIER GAS 8.5% HYDROGEN 91.5% HELIUM	HPS500/272	HPT500/272	350	HPL500/272	1/4" NPT (F)
FLAME IONIZATION FUEL MIXTURES					
40% HYDROGEN 60% HELIUM	HPS500/272	HPT500/272	350	HPL500/272	1/4" NPT (F)
40% HYDROGEN 60% NITROGEN	HPS500/272	HPT500/272	350	HPL500/272	1/4" NPT (F)
FURNACE ATMOSPHERE MIXTURE 40% CARBON DIOXIDE 60% CARBON MONOXIDE	HPS500/272	HPT500/272	350	HPL500/272	1/4" NPT (F)
GEIGER GAS MIXTURE .95% ISO BUTANE 99.05% HELIUM	HPS500/272	HPT500/272	350	HPL500/272	1/4" NPT (F)

INSTRUMENT MIXTURES	CYLINDER REGULATOR			LINE REGULATOR	
	SINGLE STAGE	TWO STAGE	CGA INLET	SINGLE STAGE	PORT SIZE
LEAK DETECTION MIXTURE 1-10% HELIUM IN NITROGEN	HPS500/272	HPT500/270	580	HPL500/270	1/4" NPT (F)

ELECTRON CAPTURE MIXTURE	CYLINDER REGULATOR			LINE REGULATOR	
	SINGLE STAGE	TWO STAGE	CGA INLET	SINGLE STAGE	PORT SIZE
P-5 GAS MIXTURE 5% METHANE	HPS500/272	HPT500/272	350	HPL500/270	1/4" NPT (F)

NUCLEAR COUNTER MIXTURE	CYLINDER REGULATOR			LINE REGULATOR	
	SINGLE STAGE	TWO STAGE	CGA INLET	SINGLE STAGE	PORT SIZE
P-10 GAS MIXTURE 10% METHANE 90% ARGON	HPS500/272	HPT500/272	350	HPL500/270	1/4" NPT (F)
PROPORTIONAL COUNTING GAS MIX 4% ISO BUTANE 96% HELIUM	HPS500/272	HPT500/272	350	HPL500/270	1/4" NPT (F)
1.5% ISO BUTANE 98.5% HELIUM	HPS500/272	HPT500/272	350	HPL500/270	1/4" NPT (F)
QUENCH GAS 1.3% n-BUTANE 98.7% HELIUM	HPS500/272	HPT500/272	350	HPL500/270	1/4" NPT (F)
SPARK CHAMBER MIXTURES 10% HELIUM 90% NEON	HPS500/272	HPT500/270	580	HPL500/270	1/4" NPT (F)
20% HELIUM 80% NEON	HPS500/272	HPT500/270	580	HPL500/270	1/4" NPT (F)
X-RAY FLUORESCENCE SPECTROSCOPY 1% n-BUTANE 49% HELIUM 50% NEON	HPS500/272	HPT500/272	350	HPL500/270	1/4" NPT (F)

LIMITED WARRANTY: THERMADYNE warrants that its products will be free of material defects in workmanship or material ("Limited Warranty") for the applicable period of time stated in the following Warranty Schedule (the "Warranty Period"). The Warranty Period shall begin on the date that an authorized distributor delivers the product to a customer (hereinafter, the "Purchaser"). If, during the Warranty Period, THERMADYNE is notified in writing by the distributor or the Purchaser that the Limited Warranty is breached with respect to a THERMADYNE product, and it is subsequently determined by THERMADYNE, in its sole discretion, that the product is defective and covered under the terms of the Limited Warranty, then THERMADYNE shall, at its expense, repair or replace said defective product(s). This Limited Warranty shall become invalid and shall not apply if: (i) the product has been modified, changed or altered by anyone other than THERMADYNE; (ii) replacement parts or accessories are used that may impair the safety or performance of the product; (iii) the product has been stored, installed, operated or maintained other than in accordance with THERMADYNE's specifications, instructions and recommendations and/or recognized standard industry practice; or (iv) the product has been subject to misuse, repair, neglect or accident. Should any warranty claims fall within any of the above exceptions, then this Limited Warranty shall become immediately null and void and shall be of no further force or effect with respect to such product. THE ABOVE WARRANTY IS THE ONLY WARRANTY MADE WITH RESPECT TO THERMADYNE'S PRODUCTS AND CONSTITUTES A LIMITED WARRANTY. THIS LIMITED WARRANTY SUPERSEDES ALL PREVIOUS THERMADYNE WARRANTIES, AND IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES. THERMADYNE EXPRESSLY DISCLAIMS ANY AND ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

SUBMITTING CLAIMS: Claims made under the Limited Warranty must be submitted to THERMADYNE within thirty (30) days of the discovery of any alleged defect. Products must be returned to the selling distributor for handling. Transportation charges to send products to the distributor shall be the responsibility of Purchaser. All returned goods shall be at Purchaser's risk and expense.

LIMITATION OF LIABILITY: TO THE MAXIMUM EXTENT PERMITTED UNDER APPLICABLE LAW, THERMADYNE'S ENTIRE LIABILITY TO PURCHASER (WHETHER BASED ON AN ACTION OR CLAIM IN CONTRACT, TORT OR OTHERWISE) SHALL IN NO EVENT EXCEED THE PRICE OF THE GOODS UPON WHICH SUCH LIABILITY IS BASED. THE REMEDIES OF PURCHASER SET FORTH HEREIN ARE EXCLUSIVE. THERMADYNE WILL NOT BE LIABLE TO PURCHASER OR TO ANY THIRD PARTY FOR ANY CONSEQUENTIAL, SPECIAL, PUNITIVE OR INCIDENTAL DAMAGES, INCLUDING, BUT NOT LIMITED TO, LOST PROFITS OR OTHER ECONOMIC LOSS (WHETHER ARISING FROM BREACH OF CONTRACT OR TORT), EVEN IF APPRISED OF THE LIKELIHOOD OF SUCH DAMAGES.

The warranty is effective below for the time stated in the Warranty Schedule beginning on the date that the authorized distributor delivers the products to the purchaser. THERMADYNE[®] reserves the right to request documented evidence of date of purchase.

VICTOR SPECIALTY PRODUCTS EQUIPMENT	PARTS AND LABOR
HP&I BRASS REGULATORS / MANIFOLDS	2 YEARS / NA
HP&I STAINLESS STEEL REGS / MANIFOLDS	1 YEAR / NA
HP&I CORROSIVE GAS REGS / MANIFOLDS	90 DAYS / NA
REPAIR PARTS	90 DAYS / NA



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ISO 9001 REGISTERED FIRM

The Quality System of
 Thermadyne at our
 Denton, Roanoke and
 Hermosillo locations
 is registered to meet the
 requirements of ISO 9001

U.S. Customer Care: 800-569-0547 / FAX 800-535-0557 • International Customer Care: 905-827-9777 / FAX 905-827-9797
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