



# **PRESSURE REGULATORS**

Instrument/Analyzer Product Line

Catalog 4511/USA  
*November 2003*



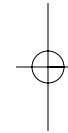
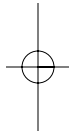
# **PRESSURE REGULATORS**

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# VERIFLO DIVISION



**V**eriflo Division, Parker Hannifin Corporation is a leading manufacturer of precision valves, regulators and surface mount components for the control and application of liquids and gases used in the fabrication of semiconductors, as well as in the chemical and petrochemical industries.

## **A Leading Manufacturer Of Precision Valves, Regulators & Surface Mount Components**

Veriflo Division has maintained industry leadership over the past 95 years through innovative engineering, manufacturing and by placing a premium on quality customer care.

Veriflo maintains two state-of-the-art Class 10 Clean Rooms at its Richmond, CA, facility and has adopted a corporate wide "Lean Manufacturing" philosophy, which is delivering greater value to the customer by eliminating wasteful steps through continuous improvement activities.

Veriflo Division is extremely focused on maintaining the highest of industry standards. The division has achieved an ISO 9001 registration at its Richmond, CA manufacturing plant and its Carson City, NV facility.



This certification confirms Veriflo Division's dedication to quality & excellence as recognized by the international community.

The Instrumentation Group of Parker Hannifin specializes in high quality, critical flow components for world-wide process instrumentation, ultra-high-purity, medical, analytical and biopharmaceutical applications.

Parker's Instrumentation Group has ten manufacturing plants and over 300 authorized distributor locations around the world to provide local inventory and technical support.

## **Maintained Industry Leadership By Placing A Premium On Quality Customer Care**

Valued markets for Parker Hannifin's Instrumentation Group include the following: Chemical Process, Power Generation, Oil and Gas Exploration, Semiconductor Manufacturing, Biomedical, and Analytical Equipment.

*Note: For further information on Veriflo Division and or its product line visit the division web site at [www.veriflo.com](http://www.veriflo.com). For more information on Parker Hannifin visit the corporation's web site at [www.parker.com](http://www.parker.com).*

# IR4000 Series

## SS High Pressure Regulator Internally Threadless Design



Parker Hannifin Corporation's Veriflo Division presents the IR4000 Series internally threadless pressure regulator for instrument/analyzer and semiconductor applications. The internal threadless design minimizes purge times, and reduces carrier and calibration gas usage. The IR4000's seat materials meet the requirements for corrosive and/or higher temperature media requirements.

Instrument applications include gas management systems in petrochemical/refineries and process analyzer systems. Semiconductor applications include general purpose gas management (Air, Clean Dry Air (CDA), and Plant Nitrogen).

The IR4000 is a high pressure regulator that can be ordered with a variety of options to meet a wide range of system design requirements.



### materials of construction

#### Wetted

Body . . . . . 316L Stainless Steel,  
Hastelloy C-22®, Monel®  
Compression Member . . . . . Inconel®  
Diaphragm . . . . . Hastelloy C-22®  
Poppet . . . . . Elgiloy®  
Poppet Spring . . . . . Inconel®  
Carrier . . . . . Stainless Steel\*, Hastelloy C-22®  
Back-up Washer . . . . . Hastelloy C-22®  
Seat . . . . . PCTFE, PEEK™ or Vespel®  
Back-up O-ring . . . . . Viton®, optional Teflon®  
Inlet Screen/Filter . . . . . 316L Stainless Steel,  
Hastelloy C-22® (Hastelloy®, Monel® bodies)

#### Non-Wetted

Cap . . . . . Nickel Plated Brass,  
optional Stainless Steel  
Nut . . . . . 316 Stainless Steel, Nickel Plated Brass†  
Knob (black) . . . . . ABS Plastic

### operating conditions

Maximum inlet . . . . . 4000 psig (276 barg)  
Outlet . . . 1-10 psig† (.7 barg), 2-30 psig (2 barg),  
3-60 psig (4 barg), 4-100 psig (7 barg),  
5-250 psig (17 barg), 10-500 psig (35 barg)

#### Temperature:

PCTFE . . . . . -40°F to 150°F (-40°C to 65°C)  
PEEK™ . . . . . -40°F to 275°F (-40°C to 135°C)  
Vespel® . . . . . -40°F to 500°F (-40°C to 260°C)

### functional performance

#### Flow capacity:

Standard . . . . .  $C_v = .06$   
Optional . . . . .  $C_v = .02, .15†$   
(SEMI Flow Coefficient Test #F-32-0998 )

Design Proof Pressure . . . . 6000 psig (414 barg)  
Design Burst Pressure . . . . 12000 psig (828 barg)

#### Maximum Inboard Design

Leak Rate . . . . .  $< 2 \times 10^{-8}$  scc/sec HE

#### Supply Pressure Effect:

.02  $C_v$  . . . . . .23 psig per 100 psig  
(.016 barg per 7 barg)  
.06  $C_v$  . . . . . .6 psig per 100 psig  
(.04 barg per 7 barg)  
.15  $C_v$  . . . . . 1.5 psig per 100 psig  
(.1 barg per 7 barg)

### internal volume

4.0 cc without fittings

### approximate weight

1.5 lbs (.7 kg)

\* Proprietary Carpenter Stainless Steel with corrosion resistance equal or better than 316 Stainless Steel.

† Refer to Range Table for specific information.

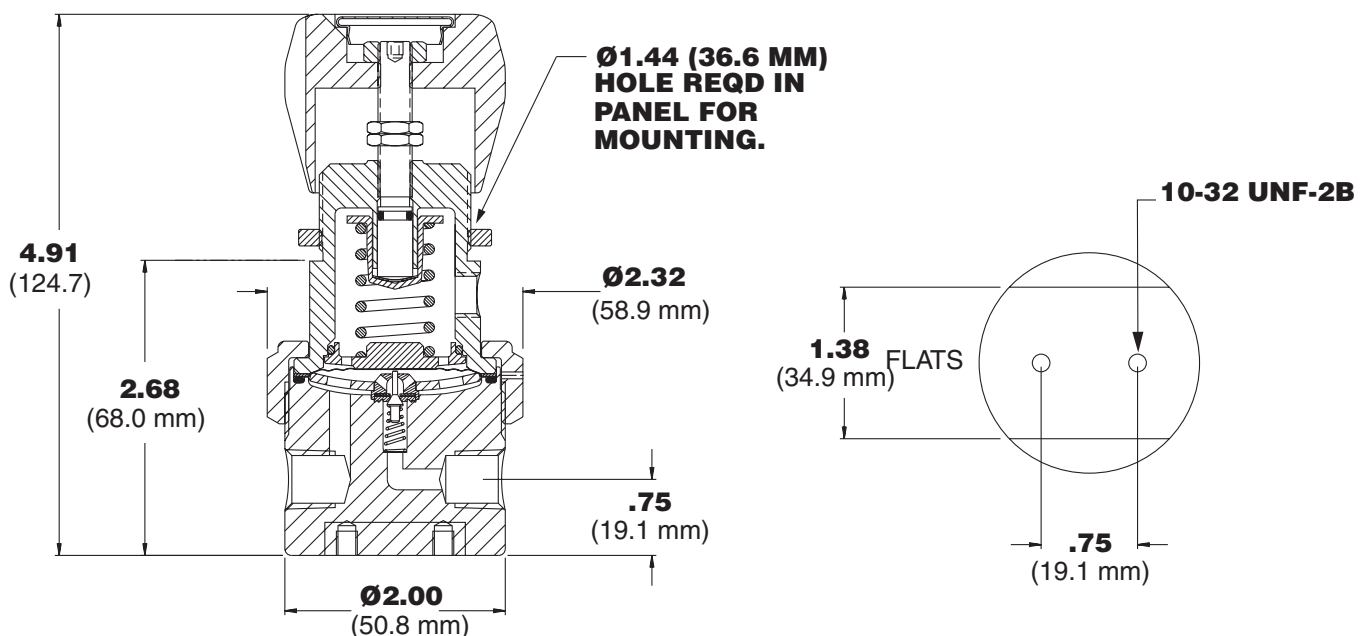
†† Nickel Plated Brass for PCTFE seat.

# IR4000 Series

## Product Features and Benefits

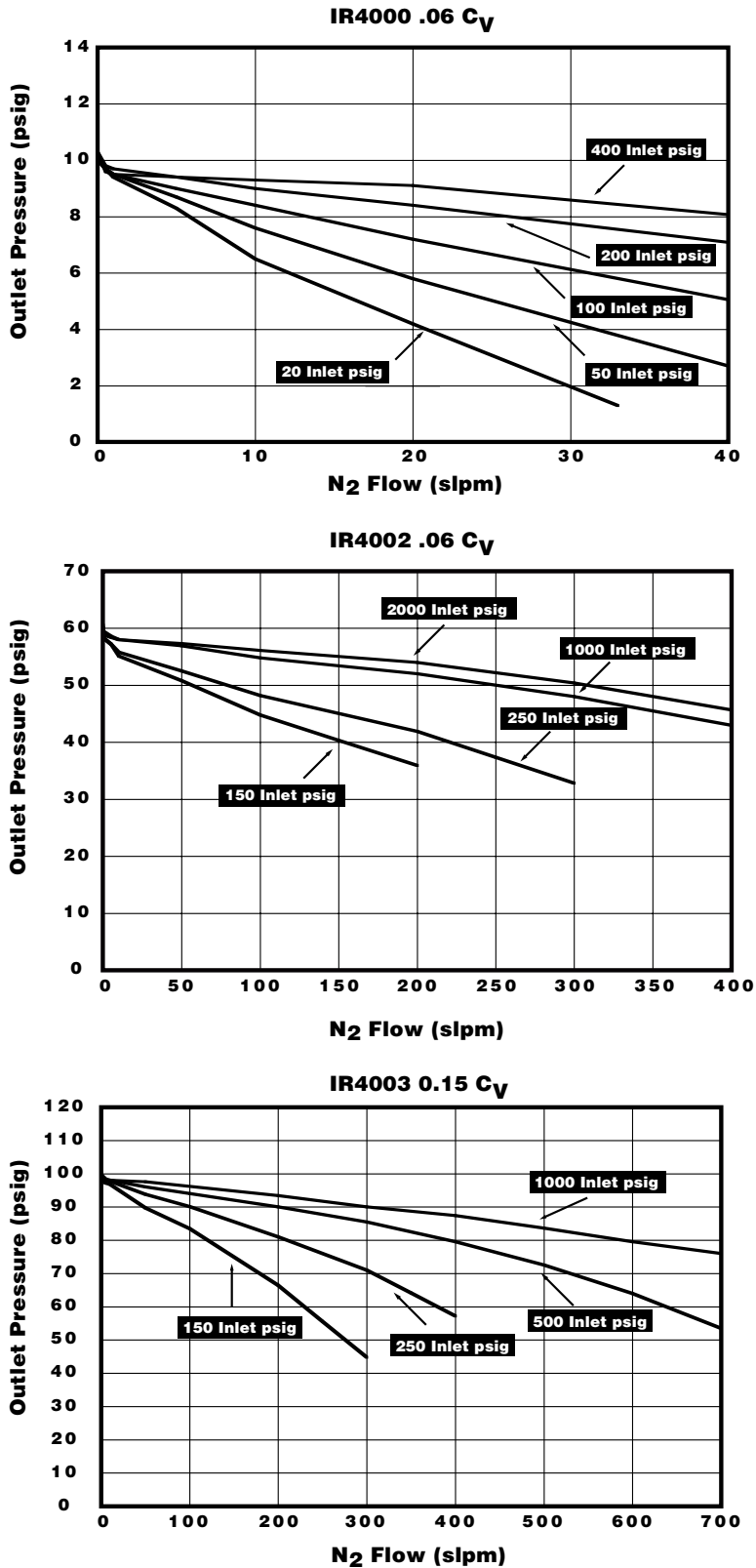
- ▶ Unique patented compression member loads the seal to the body without requiring a threaded nozzle or additional seals to atmosphere.
- ▶ Selection of seat materials for media compatibility and temperature applications.
- ▶ Meets NACE Standard MR0175.
- ▶ O<sub>2</sub> Cleaned.
- ▶ Fully swept design.
- ▶ Internally threadless seat design promotes long seat life.
- ▶ Convuluted, Hastelloy C-22<sup>®</sup> diaphragm provides high corrosion resistance and increases cycle life.
- ▶ Positive upward and downward stops increases cycle life by preventing over stroking of the diaphragm.
- ▶ Low internal volume reduces cycle and purge time.
- ▶ Captured bonnet allows for safety venting.
- ▶ Standard units can be dome loaded (with clean dry air or nitrogen).
- ▶ The use of Inconel<sup>®</sup>, Hastelloy C-22<sup>®</sup>, and Elgiloy<sup>®</sup> provide superior corrosion resistance and high repeatability.
- ▶ Close tolerances and tight alignment of moving components minimize hysteresis.
- ▶ Unique carrier design disperses gas uniformly through the regulator to improve purging.

## Dimensional Drawing

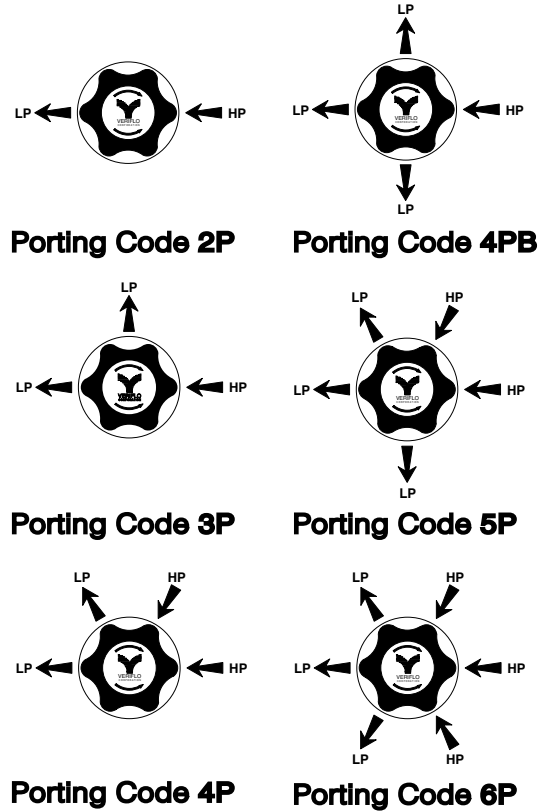


# IR4000 Series

## Flow Curves



## Porting Configurations



Gauge Index	
2P	No Gauge Ports
3P	One gauge Port
4P	Two gauge Ports
4PB	One Gauge Port
5P	Two Gauge Ports
6P	Two Gauge Ports

# IR4000 Series

## Ordering Information

**IR400 S 4 B**

**BASIC SERIES**

Range	Outlet Gauge	2P	3P	4P	4PB	5P
0 = 1 - 10 psig	0 - 30 psig	—	Y/X	Y/X	Y/X	Y/X
1 = 2 - 30 psig	0 - 60 psig	—	—	—	—	—
2 = 3 - 60 psig	0 - 100 psig	—	—	—	—	—
3 = 4 - 100 psig	0 - 200 psig	—	—	—	—	—
4 = 5 - 250 psig	0 - 400 psig	—	—	—	—	—
5 = 10 - 500 psig	0 - 600 psig	—	—	—	—	—

**CGA#\***

320  
330  
350  
510  
580  
590  
Additional Configurations Available Upon Request

**OPTIONAL FEATURES (See Notes)**

**L** = Teflon® Back-Up O-Ring (PCTFE & PEEK™ seat only)  
**R** = Relief Valve (4PB and 5P Only)  
**V** = Outlet Valve NOVAS44MF(STD)(See Notes)

**PLEASE SELECT ONE OR NONE OF THE FOLLOWING:**

**D** = Dome Loaded  
**G** = Tamper Proof  
**M** = Metal Knob(Black)

For optional color knobs consult factory

**Note: PANEL MOUNT OPTION:**  
Order Panel Nut Ring P/N 41900363 as separate line item.

**PORT MOUNTING**

**B** = .75 (19.1) port height w/ .75 (19.1) mounting hole pattern.  
(Additional Port Mounting available on request)

**PORT STYLE**

**4** = 1/4" NPT Female Standard  
Other = (Additional sizes available upon request)

**BODY MATERIAL**

**S** = 316L Stainless Steel (Hastelloy® & Monel® Available Upon Request)

**FLOW CAPACITY**

= .06 C<sub>v</sub> (Standard)  
**1** = .02 C<sub>v</sub>  
**2** = .15 C<sub>v</sub> (See Range Table)

**SEAT MATERIALS**

**K** = PCTFE  
**P** = PEEK™  
**V** = Vespel®

**PORTING**

**OUTLET GAUGE**

See Outlet Gauge under **BASIC SERIES (see above)** for standards. (Additional ranges available upon request)

**INLET GAUGE**

3000 psig std.  
400 psig with the 10 psig range  
2000 psig with .15 C<sub>v</sub> option

**NOTE:**

**Outlet Valve:** Compression End Connection On Outlet (A-Lok, CPI) Can Be Substituted for NPTF Connection Upon Request.

**ORDERING REGULATORS WITHOUT GAUGES**

**Example #1**

IR4003SK2P4B (No X required for gauges, inlet & outlet ports only)

**Example #2**

IR4003SK3PX4B (One X for gauge port)

**Example #3**

IR4003SK4PBX4B (One X for gauge port)

**Example #4**

IR4003SK4PXX4B (Two X's for gauge ports)

\* Do not exceed the rated pressure of the CGA connection

Hastelloy C-22® is a registered trademark of Haynes International, Inc.  
PEEK™ is a trademark of Victrex plc.  
Inconel® and Monel® are registered trademarks of Inco Alloys International.  
Elgiloy® is a registered trademark of Elgiloy Company.  
Viton® is a registered trademark of DuPont Dow Elastomers.  
Teflon® is a registered trademark of DuPont Company.

Range Table			
Model Basic Series	Max Inlet PSIG		
	C <sub>v</sub>		
	.06	.02	.15
IR4000	400	400	400
IR4001	4000	4000	1250
IR4002	4000	4000	1250
IR4003	4000	4000	1250
IR4004	4000	4000	1250
IR4005	4000	4000	1250



# IR4200 Series

## Brass High Pressure Regulator Internally Threadless Design



Parker Hannifin Corporation's Veriflo Division presents the IR4200 Series internally threadless pressure regulator for instrument/analyzer and semiconductor applications. The internal threadless design minimizes purge times, and reduces carrier and calibration gas usage.

Instrument applications include gas management systems in petrochemical/refineries and process analyzer systems. Semiconductor applications include general purpose gas management (Air, Clean Dry Air (CDA), and Plant Nitrogen).

The IR4200 is a high pressure regulator that can be ordered with a variety of options to meet a wide range of system design requirements.



### materials of construction

#### Wetted

Body . . . . . Brass, Nickel Plated Brass  
 Compression Member . . . . . Inconel®  
 Diaphragm . . . . . Hastelloy C-22®  
 Poppet . . . . . Phosphor Bronze  
 Poppet Spring . . . . . Inconel®  
 Carrier . . . . . Stainless Steel\*  
 Back-up Washer . . . . . Phosphor Bronze  
 Seat . . . . . PCTFE  
 Back-up O-ring . . . . . Viton®  
 Inlet Screen/Filter . . . . . Copper and Phosphor Bronze

#### Non-Wetted

Cap . . . . . Nickel Plated Brass  
 Nut . . . . . Nickel Plated Brass  
 Knob (black) . . . . . ABS Plastic

### operating conditions

Maximum inlet . . . . . 4000 psig (276 barg)  
 Outlet . . . 1-10 psig† (.7 barg), 2-30 psig (2 barg),  
 3-60 psig (4 barg), 4-100 psig (7 barg),  
 5-250 psig (17 barg), 10-500 psig (35 barg)

Temperature:  
 PCTFE . . . . . -40°F to 140°F (-40°C to 60°C)

### functional performance

Flow capacity:  
 Standard . . . . .  $C_v = .06$   
 Optional . . . . .  $C_v = .02, .15†$   
 (SEMI Flow Coefficient Test #F-32-0998 )

Design Proof Pressure . . . . 6000 psig (414 barg)  
 Design Burst Pressure . . . . 12000 psig (828 barg)

Maximum Inboard Design  
 Leak Rate . . . . .  $< 2 \times 10^{-8}$  scc/sec HE

Supply Pressure Effect:  
 .02  $C_v$  . . . . . .23 psig per100 psig  
 (.016 barg per 7 barg)  
 .06  $C_v$  . . . . . .6 psig per100 psig  
 (.04 barg per 7 barg)  
 .15  $C_v$  . . . . . 1.5 psig per100 psig  
 (.1 barg per 7 barg)

### internal volume

4.0 cc without fittings

### approximate weight

1.5 lbs (.7 kg)

\* Proprietary Carpenter Stainless Steel with corrosion resistance equal or better than 316 Stainless Steel.

† Refer to Range Table for specific information.

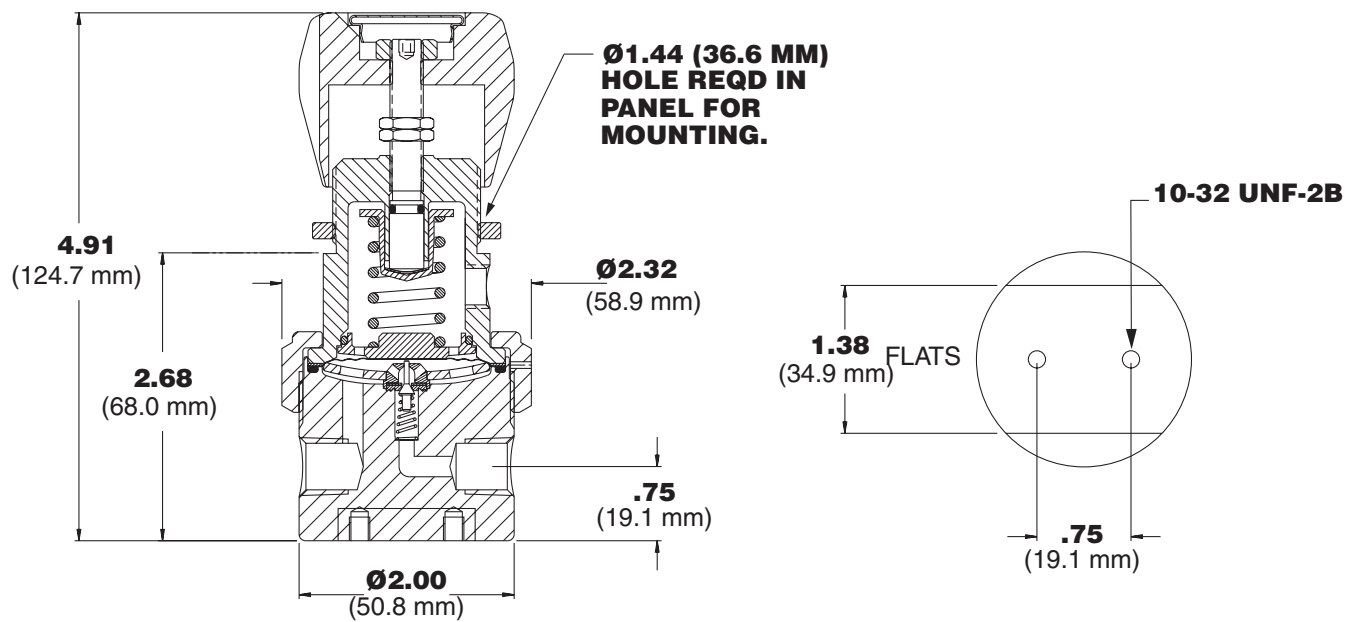


# IR4200 Series

## Product Features and Benefits

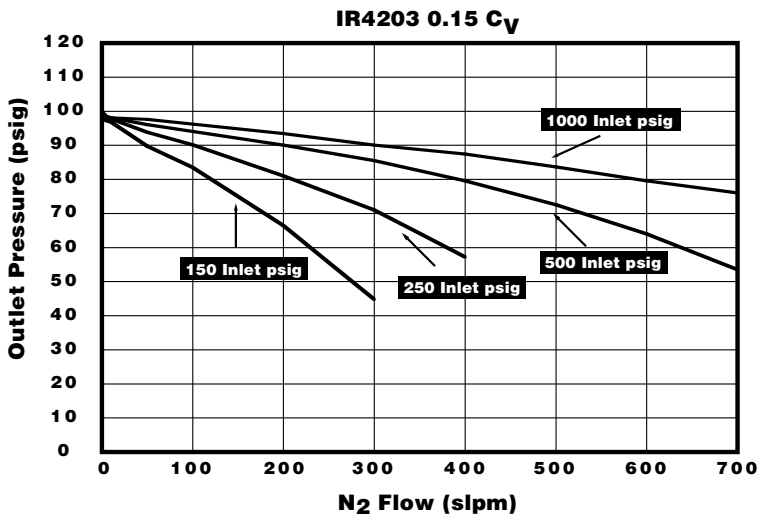
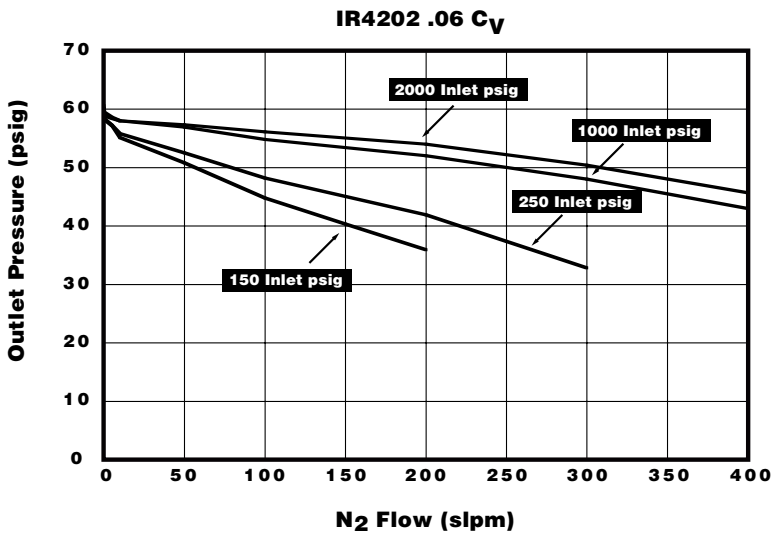
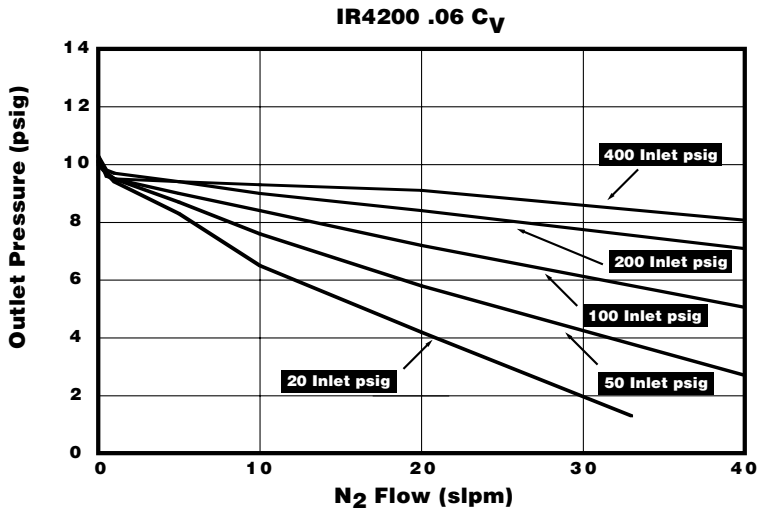
- ▶ Unique patented compression member loads the seal to the body without requiring a threaded nozzle or additional seals to atmosphere.
- ▶ O<sub>2</sub> Cleaned.
- ▶ Fully swept design.
- ▶ Internally threadless seat design include promotes long seat life.
- ▶ Convoluted, Hastelloy C-22® diaphragm provides high corrosion resistance and increases cycle life.
- ▶ Positive upward and downward stops increases cycle life by preventing over stroking of the diaphragm.
- ▶ Low internal volume reduces cycle and purge time.
- ▶ Captured bonnet allows for safety venting.
- ▶ Standard units can be dome loaded (with clean dry air or nitrogen).
- ▶ The use of Inconel® and Hastelloy®, provide superior corrosion resistance and high repeatability.
- ▶ Close tolerances and tight alignment of moving components minimize hysteresis.
- ▶ Unique carrier design disperses gas uniformly through the regulator to improve purging.

## Dimensional Drawing

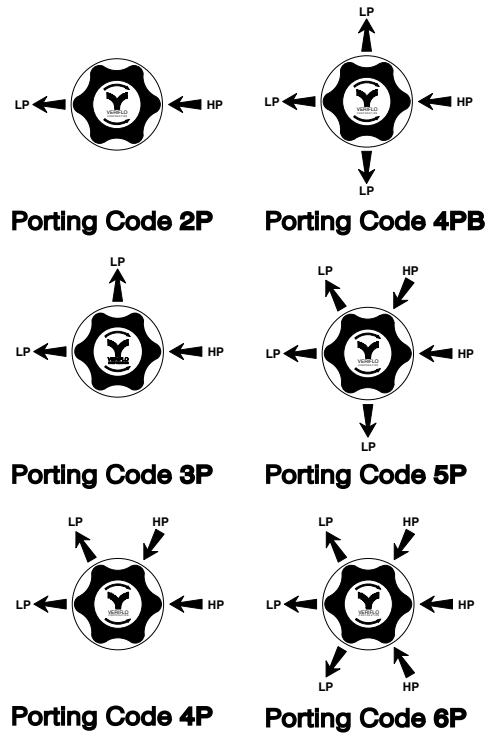


# IR4200 Series

## Flow Curves



## Porting Configurations



## Gauge Index

2P	No Gauge Ports
3P	One gauge Port
4P	Two gauge Ports
4PB	One Gauge Port
5P	Two Gauge Ports
6P	Two Gauge Ports

# IR4200 Series

## Ordering Information

IR420		B	K	2P	3P	4P	4PB	5P	4	B
Basic Series	Outlet Gauge				Y/X	Y/X	Y/X	Y/X		
0 = 1 - 10 psig	0 - 30 psig			-						
1 = 2 - 30 psig	0 - 60 psig									
2 = 3 - 60 psig	0 - 100 psig									
3 = 4 - 100 psig	0 - 200 psig									
4 = 5 - 250 psig	0 - 400 psig									
5 = 10 - 500 psig	0 - 600 psig									

### BASIC SERIES

Range

0 = 1 - 10 psig  
 1 = 2 - 30 psig  
 2 = 3 - 60 psig  
 3 = 4 - 100 psig  
 4 = 5 - 250 psig  
 5 = 10 - 500 psig

### BODY MATERIAL

B = Brass

### FLOW CAPACITY

= .06 C<sub>v</sub> (Standard)

1 = .02 C<sub>v</sub>

2 = .15 C<sub>v</sub> (See Range Table)

### SEAT MATERIALS

K = PCTFE

### PORTING

### OUTLET GAUGE

See Outlet Gauge under

**BASIC SERIES** (see above) for standards.

(Additional ranges available upon request)

### INLET GAUGE

3000 psig std.

400 psig with the 10 psig range

2000 psig with .15 C<sub>v</sub> option

### NOTE:

**Outlet Valve:** Compression End Connection On Outlet (A-Lok, CPI) Can Be Substituted for NPTF Connection Upon Request.

### ORDERING REGULATORS WITHOUT GAUGES

#### Example #1

IR4203BK2P4B (No X required for gauges, inlet & outlet ports only)

#### Example #2

IR4203BK3PX4B (One X for gauge port)

#### Example #3

IR4203BK4PBX4B (One X for gauge port)

#### Example #4

IR4203BK4PXX4B (Two X's for gauge ports)

\* Do not exceed the rated pressure of the CGA connection

Elgiloy® is a registered trademark of Elgiloy Company.

Vespe® and Teflon® are registered trademarks of DuPont Company.

Viton® is a registered trademark of DuPont Dow Elastomers.

Teflon® is a registered trademark of DuPont Company.

### CGA#\*

320  
 330  
 350  
 510  
 580  
 590  
 Additional Configurations Available Upon Request

### OPTIONAL FEATURES (See Notes)

N = Nickel Plate  
 R = Relief Valve (4PB and 5P Only)  
 V = Outlet Valve NOVAB44MF(STD)(See Notes)

### Please select ONE or NONE of the following:

D = Dome Loaded  
 G = Tamper Proof  
 M = Metal Knob(Black)

For optional color knobs consult factory

**Note:** **PANEL MOUNT OPTION:**  
 Order Panel Nut Ring P/N 41900363 as separate line item.

### PORT MOUNTING

B = .75 port height w/ .75 mounting hole pattern

### PORT STYLE

4 = 1/4" NPT Female Standard  
 Other = (Additional sizes available upon request)

Model Basic Series	Range Table		
	Max Inlet PSIG		
	C <sub>v</sub>		
	.06	.02	.15
IR4200	400	400	400
IR4201	4000	4000	1250
IR4202	4000	4000	1250
IR4203	4000	4000	1250
IR4204	4000	4000	1250
IR4205	4000	4000	1250

# IR4000W Series

**Welded High Pressure  
Regulator Internally  
Threadless Design**



Parker Hannifin Corporation's Veriflo Division presents the IR4000W Series internally threadless pressure regulator for instrument/analyzer and semiconductor applications. The internal threadless design minimizes purge times, and reduces carrier and calibration gas usage. The IR4000W's seat materials meet the requirements for corrosive and/or higher temperature media requirements.

Instrument applications include gas management systems in petrochemical/refineries and process analyzer systems. Semiconductor applications include general purpose gas management (Air, Clean Dry Air (CDA), and Plant Nitrogen).

The IR4000W is a high pressure regulator that can be ordered with a variety of options to meet a wide range of system design requirements.



## materials of construction

### Wetted

Body . . . . .	316L Stainless Steel, Hastelloy C-22 <sup>®</sup>
Compression Member . . . . .	Inconel <sup>®</sup>
Diaphragm . . . . .	Hastelloy C-22 <sup>®</sup>
Poppet . . . . .	Elgiloy <sup>®</sup>
Poppet Spring . . . . .	Inconel <sup>®</sup>
Carrier . . . . .	Stainless Steel*, Hastelloy C-22 <sup>®</sup>
Back-up Washer . . . . .	Hastelloy C-22 <sup>®</sup>
Seat . . . . .	PCTFE, PEEK <sup>™</sup> or Vespel <sup>®</sup>
Back-up O-ring . . . . .	Viton <sup>®</sup> , optional Teflon <sup>®</sup>
Inlet Screen/Filter . . . . .	316L Stainless Steel, Hastelloy C-22 <sup>®</sup>

### Non-Wetted

Cap . . . . .	Nickel Plated Brass, optional Stainless Steel
Nut . . . . .	316 Stainless Steel, Nickel Plated Brass <sup>††</sup>
Knob (black) . . . . .	ABS Plastic

## operating conditions

Maximum inlet . . . . .	4000 psig (276 barg)
Outlet . . . . .	1-10 psig <sup>†</sup> (.7 barg), 2-30 psig (2 barg), 3-60 psig (4 barg), 4-100 psig (7 barg), 5-250 psig (17 barg), 10-500 psig (35 barg)

### Temperature:

PCTFE . . . . .	-40°F to 150°F (-40°C to 65°C)
PEEK <sup>™</sup> . . . . .	-40°F to 275°F (-40°C to 135°C)
Vespel <sup>®</sup> . . . . .	-40°F to 500°F (-40°C to 260°C)

## functional performance

### Flow capacity:

Standard . . . . .	C <sub>v</sub> = .06
Optional . . . . .	C <sub>v</sub> = .02, .15 <sup>†</sup>

(SEMI Flow Coefficient Test #F-32-0998 )

Design Proof Pressure . . . . .	6000 psig (414 barg)
Design Burst Pressure . . . . .	12000 psig (828 barg)

### Maximum Inboard Design

Leak Rate . . . . .	< 2 x 10 <sup>8</sup> scc/sec HE
---------------------	----------------------------------

### Supply Pressure Effect:

.02 C <sub>v</sub> . . . . .	.23 psig per 100 psig (.016 barg per 7 barg)
.06 C <sub>v</sub> . . . . .	.6 psig per 100 psig (.04 barg per 7 barg)
.15 C <sub>v</sub> . . . . .	1.5 psig per 100 psig (.1 barg per 7 barg)

## internal volume

4.0 cc without fittings

## approximate weight

1.5 lbs (.7 kg)

\* Proprietary Carpenter Stainless Steel with corrosion resistance equal or better than 316 Stainless Steel.

† Refer to Range Table for specific information.

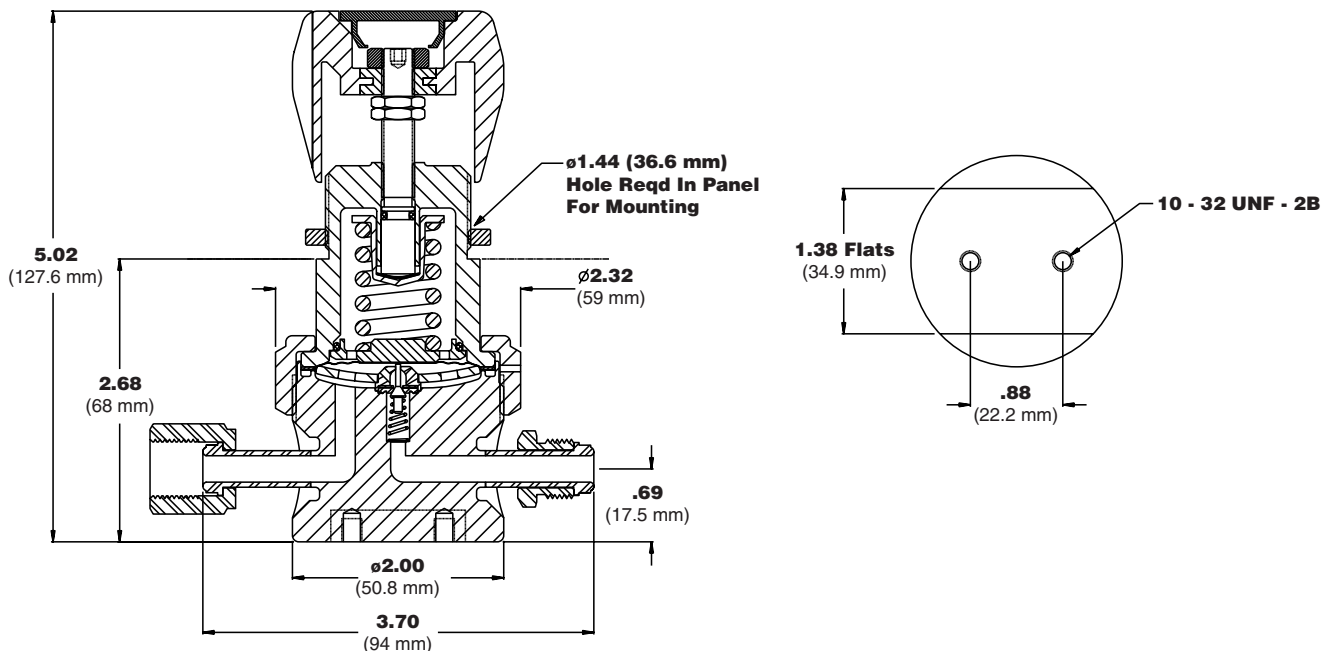
†† Nickel Plated Brass for PCTFE seat.

# IR4000W Series

## Product Features and Benefits

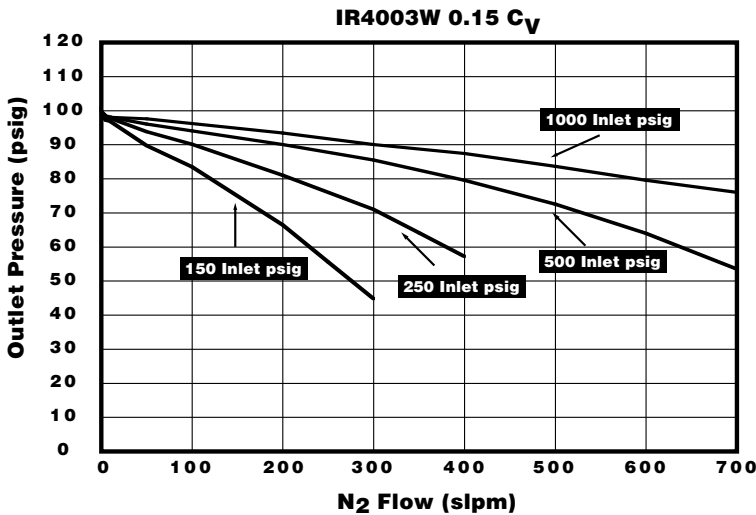
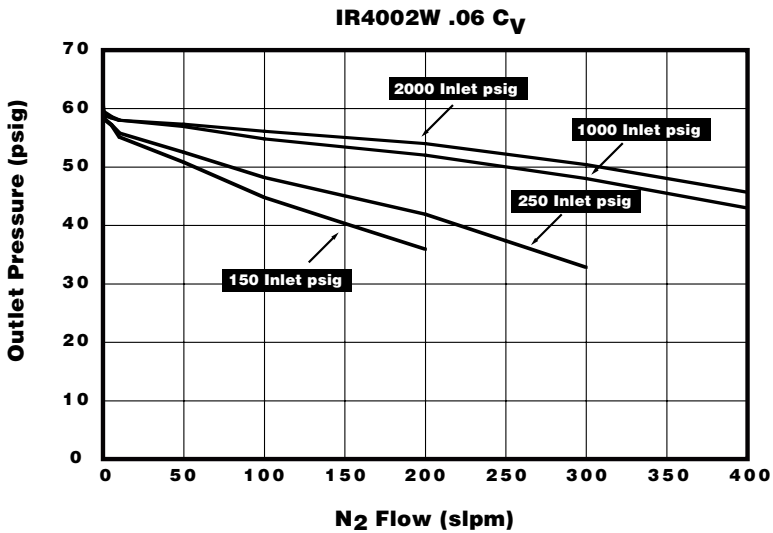
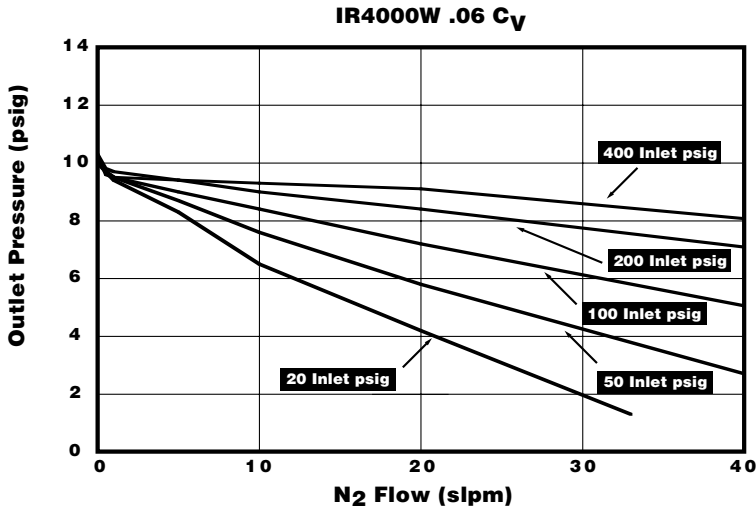
- ▶ Unique patented compression member loads the seal to the body without requiring a threaded nozzle or additional seals to atmosphere.
- ▶ Selection of seat materials for media compatibility and temperature applications.
- ▶ Meets NACE Standard MR0175.
- ▶ O<sub>2</sub> Cleaned.
- ▶ Fully swept design.
- ▶ Internally threadless seat design promotes long seat life.
- ▶ Convolute, Hastelloy C-22<sup>®</sup> diaphragm provides high corrosion resistance and increases cycle life.
- ▶ Positive upward and downward stops increases cycle life by preventing over stroking of the diaphragm.
- ▶ Low internal volume reduces cycle and purge time.
- ▶ Captured bonnet allows for safety venting.
- ▶ Standard units can be dome loaded (with clean dry air or nitrogen).
- ▶ The use of Inconel<sup>®</sup>, Hastelloy C-22<sup>®</sup>, and Elgiloy<sup>®</sup> provide superior corrosion resistance and high repeatability.
- ▶ Close tolerances and tight alignment of moving components minimize hysteresis.
- ▶ Unique carrier design disperses gas uniformly through the regulator to improve purging.

## Dimensional Drawing

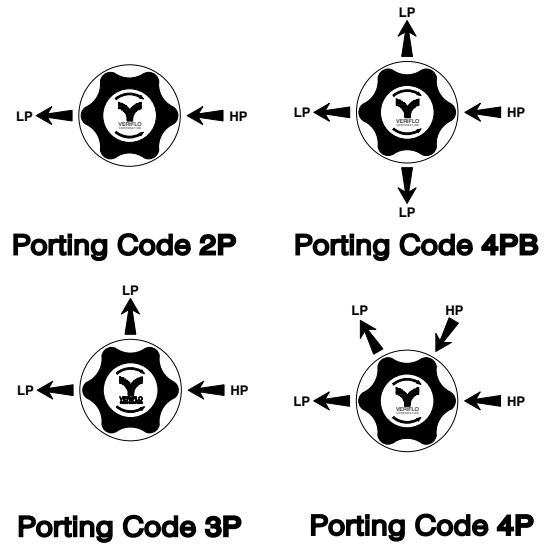


# IR4000W Series

## Flow Curves



## Porting Configurations



## Gauge Index

2P	No Gauge Ports
3P	One gauge Port
4P	Two gauge Ports
4PB	One Gauge Port



# IR5000 Series

## SS High Pressure Regulator Internally Threadless Design



Parker Hannifin Corporation's Veriflo Division presents the IR5000 Series high pressure regulator. Veriflo Division continues the internally threadless design of the IR4000 family of products.

IR5000 pressure reducing regulator is designed with a larger convoluted diaphragm than the IR4000. This allows for greater sensitivity, and provides precise outlet pressure control.

Instrument applications include gas management for analyzer systems and other industrial processes. Semiconductor applications include general purpose gas management (Air, Clean Dry Air (CDA), and Plant Nitrogen) Systems.



### materials of construction

#### Wetted

Body . . . . . 316L Stainless Steel, Hastelloy C-22®, Monel®  
 Compression Member . . . . . Inconel®  
 Diaphragm . . . . . Hastelloy C-22®  
 Poppet . . . . . Elgiloy®  
 Poppet Spring . . . . . Inconel®  
 Carrier . . . . . Stainless Steel\*, Hastelloy C-22®  
 Back-up Washer . . . . . Hastelloy C-22®  
 Seat . . . . . PCTFE, PEEK™, Vespel®  
 Back-up O-ring . . . . . Viton®, optional Teflon®  
 Inlet Screen/Filter . . . . . 316L Stainless Steel, Hastelloy C-22® (Hastelloy®, Monel® bodies)

#### Non-Wetted

Cap . . . . . Nickel Plated Brass, optional Stainless Steel  
 Nut . . . . . 316L Stainless Steel  
 Knob (black) . . . . . ABS Plastic

### operating conditions

Maximum inlet . . . . . 3500 psig (241 barg)  
 Outlet . . . . . 0-5 psig (400 max inlet), 1-30 psig, 2-60 psig, 3-100 psig, 5-200 psig

#### Temperature:

PCTFE . . . . . -40°F to 150°F (-40°C to 65°C)  
 \*\*PEEK™ . . . . . -40°F to 275°F (-40°C to 135°C)  
 \*\*Vespel® . . . . . -40°F to 500°F (-40°C to 260°C)

### functional performance

Design Proof Pressure . . . . 6000 psig (414 barg)  
 Design Burst Pressure . . . . 12000 psig (828 barg)

#### Flow capacity:

Standard . . . . .  $C_V = .06$   
 Optional . . . . .  $C_V = .02, .15^\dagger$   
 (SEMI Flow Coefficient Test #F-32-0998 )

#### Maximum Inboard Design

Leak Rate . . . . .  $< 2 \times 10^8$  scc/sec HE

#### Supply Pressure Effect:

.02  $C_V$  . . . . . .12 psig per 100 psig (.008 barg per 7 barg)  
 .06  $C_V$  . . . . . .3 psig per 100 psig (.02 barg per 7 barg)  
 .15  $C_V$  . . . . . .75 psig per 100 psig (.05 barg per 7 barg)

### standard configurations

See Dimension Table with Ordering Information

### internal volume

11.9 cc

### approximate weight

4.5 lbs (2.1 kg)

\* Proprietary Carpenter Stainless Steel with corrosion resistance equal or better than 316 Stainless Steel.

† Refer to Range Table for specific information.

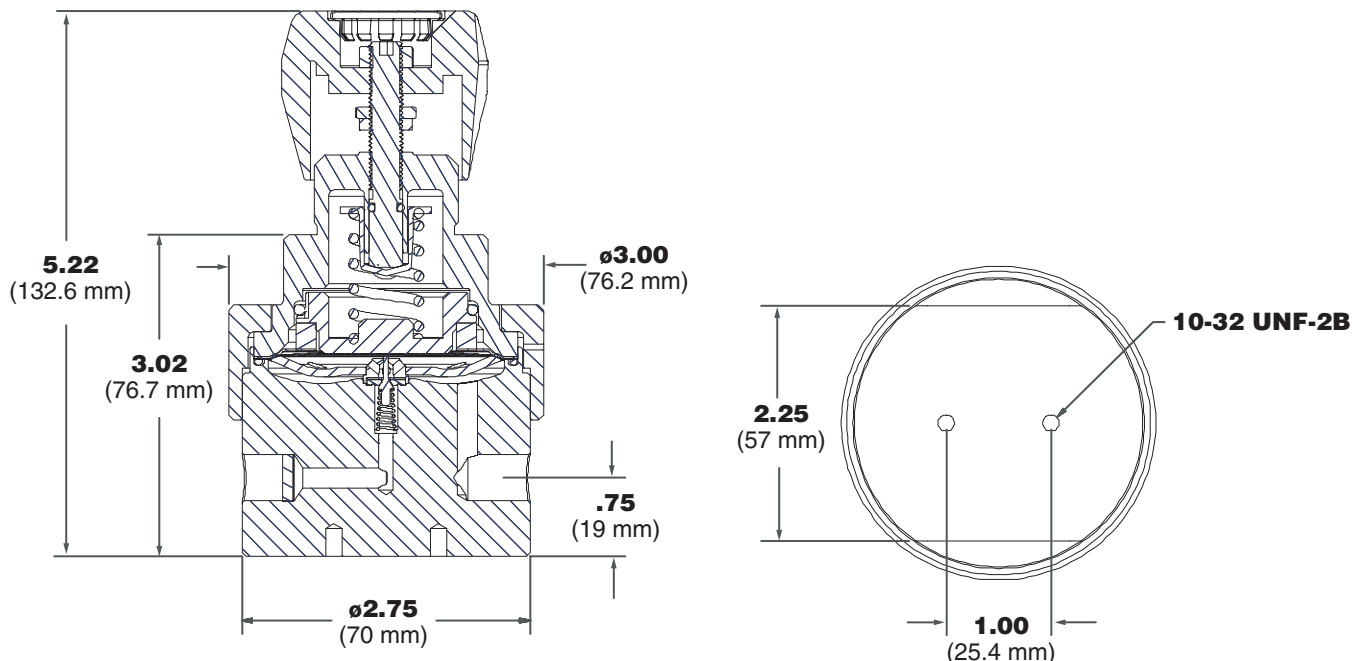


# IR5000 Series

## Product Features and Benefits

- ▶ Unique patented compression member loads the seal to the body without requiring a threaded nozzle or additional seals to atmosphere.
- ▶ Large diaphragm provides more sensitive pressure adjustments.
- ▶ Selection of seat materials for media compatibility and temperature applications.
- ▶ Meets NACE Standard MR0175.
- ▶ O<sub>2</sub> Cleaned.
- ▶ Fully swept design.
- ▶ Internally threadless seat design promotes long seat life.
- ▶ Convoluted, Hastelloy C-22® diaphragm provides high corrosion resistance and increases cycle life.
- ▶ Positive upward and downward stops increases cycle life by preventing over stroking of the diaphragm.
- ▶ Low internal volume reduces cycle and purge time.
- ▶ Captured bonnet allows for safety venting.
- ▶ Standard units can be dome loaded (with clean dry air or nitrogen).
- ▶ The use of Inconel®, Hastelloy®, and Elgiloy® provide superior corrosion resistance and high repeatability.
- ▶ Close tolerances and tight alignment of moving components minimize hysteresis.
- ▶ Unique carrier design disperses gas uniformly through the regulator to improve purging.

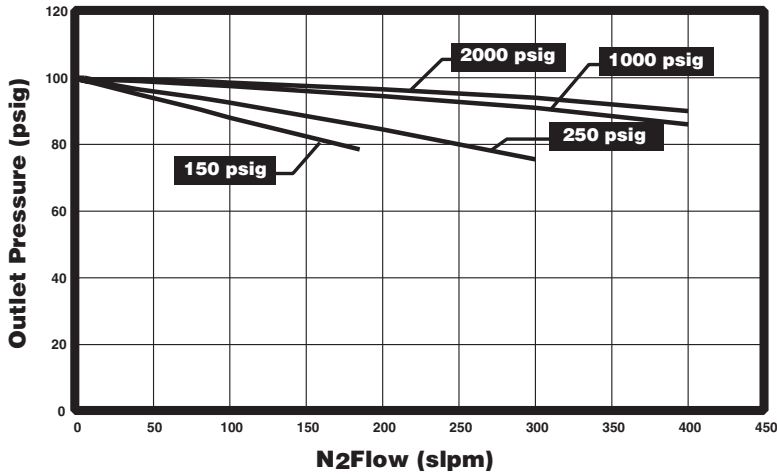
## Dimensional Drawing



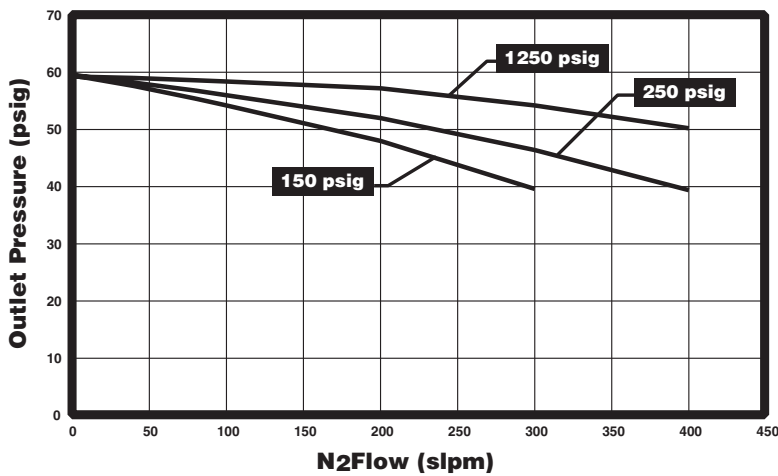
# IR5000 Series

## Flow Curves

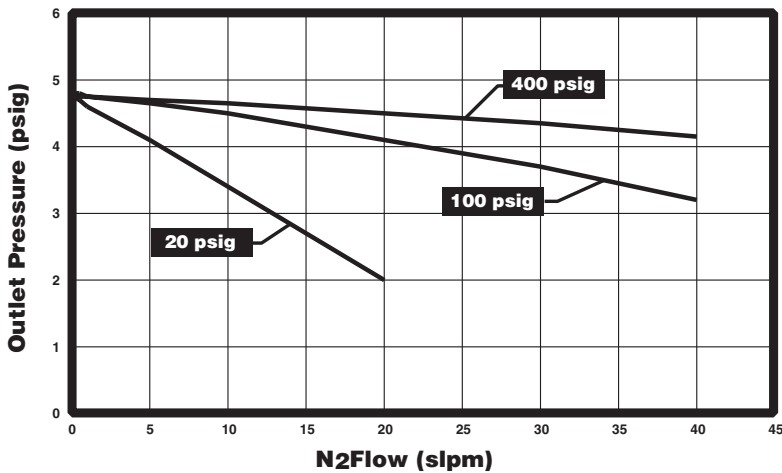
IR5003 .06 C<sub>v</sub>



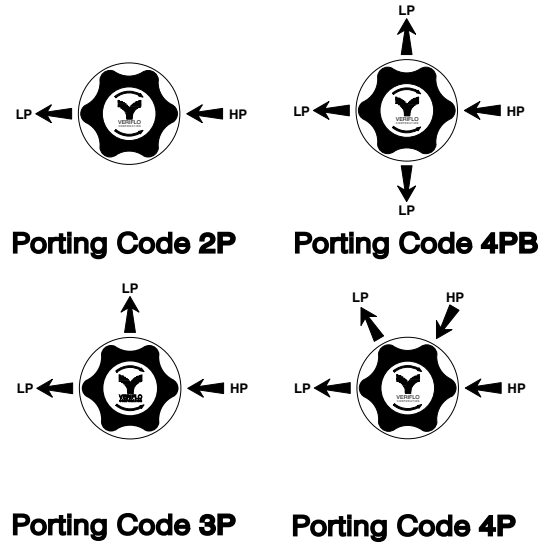
IR5002 .15 C<sub>v</sub>



IR5000 .06 C<sub>v</sub>



## Porting Configurations



## Gauge Index

2P	No Gauge Ports
3P	One gauge Port
4P	Two gauge Ports
4PB	One Gauge Port

# IR5000 Series

## Ordering Information

**IR500**

**BASIC SERIES**

Range	Outlet Gauge	2P	3P	4P	4PB
0 = 0 - 5 psig	0 - 15 psig	—	Y/X	Y/X	—
1 = 1 - 30 psig	0 - 60 psig	—	Y/X	—	—
2 = 2 - 60 psig	0 - 100 psig	—	—	—	—
3 = 3 - 100 psig	0 - 200 psig	—	—	—	—
4 = 5 - 250 psig	0 - 400 psig	—	—	—	—

**MATERIALS**

**S** = 316L Stainless Steel  
(Hastelloy® & Monel® Available Upon Request)\*\*

**FLOW CAPACITY**

= .06 C<sub>v</sub> (standard)  
1 = .02 C<sub>v</sub>  
2 = .15 C<sub>v</sub> (See Range Table)

**SEAT MATERIALS**

K = PCTFE  
P = PEEK™  
V = Vespel®

**PORTING**

**OUTLET GAUGE**

See Outlet Gauge under **BASIC SERIES** (see above) for standards.  
(Additional ranges available upon request)

**NOTE:**  
**Outlet Valve:** Compression End Connection On Outlet (A-Lok, CPI) Can Be Substituted for NPTF Connection Upon Request.

**ORDERING REGULATORS WITHOUT GAUGES**

**Example #1**  
IR5003SK2P4B (No X required for gauges, inlet & outlet ports only)

**Example #2**  
IR5003SK3PX4B (One X for gauge port)

**Example #3**  
IR5003SK4PBX4B (One X for gauge port)

**Example #4**  
IR5003SK4PXX4B (Two X's for gauge ports)

\* Do not exceed the rated pressure of the CGA connection  
\*\* Hastelloy® & Monel® Get Stainless Steel Gauges.

Hastelloy C-22® is a registered trademark of Haynes International, Inc.  
Inconel® and Monel® are registered trademarks of Inco Alloys International.  
Elgiloy® is a registered trademark of Elgiloy Company.  
Vespel® and Teflon® are registered trademarks of DuPont Company.  
Viton® is a registered trademark of DuPont Dow Elastomers.  
PEEK™ is a trademark of Victrex plc.

**CGA#\***

320  
330  
350  
510  
580  
590  
Additional Configurations Available Upon Request

**OPTIONAL FEATURES**

**L** = Teflon® Back-Up O-Ring (PCTFE & PEEK™ seat only)  
**R** = Relief Valve (4PB only)  
**V** = Outlet Valve NOVAS44MF(STD)(See Notes)

Please select **ONE** or **NONE** of the following:

**D** = Dome Loaded  
**G** = Tamper Proof  
**M** = Metal Knob(Black)

For optional color knobs consult factory

**Note:** **PANEL MOUNT OPTION:**  
Order Panel Nut Ring P/N 41900363 as separate line item.

**PORT MOUNTING**

**B** = .75 port height w/ 1.00 mounting hole pattern

**PORT STYLE**

**4** = 1/4" NPTF (Standard)  
(Other sizes available upon request)

**INLET GAUGE**

3000 psig std.  
400 psig with the 10 psig range  
2000 psig with .15 C<sub>v</sub> option

**Range Table**

Model Basic Series	Max Inlet PSIG		
	C <sub>v</sub>		
	.06	.02	.15
IR5000	400	400	400
IR5001	3500	3500	1250
IR5002	3500	3500	1250
IR5003	3500	3500	1250
IR5004	3500	3500	1250

# IR5200 Series

**Brass High Pressure  
Regulator Internally  
Threadless Design**



Parker Hannifin Corporation's Veriflo Division presents the IR5200 Series high pressure regulator. Veriflo Division continues the internally threadless design of the IR4000 family of products.

IR5200 pressure reducing regulator is designed with a larger convoluted diaphragm than the IR4000. This allows for greater sensitivity, and provides precise outlet pressure control.

Instrument applications include gas management for analyzer systems and other industrial processes. Semiconductor applications include general purpose gas management (Air, Clean Dry Air (CDA), and Plant Nitrogen) Systems.



## materials of construction

### Wetted

Body . . . . . Brass, Nickel Plated Brass  
 Compression Member . . . . . Inconel®  
 Diaphragm . . . . . Hastelloy C-22®  
 Poppet . . . . . Phosphor Bronze  
 Poppet Spring . . . . . Inconel®  
 Carrier . . . . . Stainless Steel\*  
 Back-up Washer . . . . . Phosphor Bronze  
 Seat . . . . . PCTFE  
 Back-up O-ring . . . . . Viton®  
 Inlet Screen/Filter . . . . . Copper and Phosphor Bronze

### Non-Wetted

Cap . . . . . Nickel Plated Brass,  
 Nut . . . . . 316L Stainless Steel  
 Knob (black) . . . . . ABS Plastic

## operating conditions

Maximum inlet . . . . . 3500 psig (241 barg)  
 Outlet . . . . . 0-5 psig (400 max inlet),  
 1-30 psig, 2-60 psig, 3-100 psig, 5-200 psig

### Temperature:

Maximum . . . . . 150°F (65°C)  
 PCTFE . . . . . -40°F to 150°F (-40°C to 65°C)

## functional performance

### Flow capacity:

Standard . . . . .  $C_v = .06$   
 Optional . . . . .  $C_v = .02, .15†$   
 (SEMI Flow Coefficient Test #F-32-0998 )

Design Proof Pressure . . . . 6000 psig (414 barg)  
 Design Burst Pressure . . . . 12000 psig (828 barg)

### Maximum Inboard Design

Leak Rate . . . . .  $< 2 \times 10^{-8}$  scc/sec HE

### Supply Pressure Effect:

.02  $C_v$  . . . . . .12 psig per 100 psig  
 (.008 barg per 7 barg)  
 .06  $C_v$  . . . . . .3 psig per 100 psig  
 (.02 barg per 7 barg)  
 .15  $C_v$  . . . . . .75 psig per 100 psig  
 (.05 barg per 7 barg)

## standard configurations

See Dimension Table with Ordering Information

## internal volume

11.9 cc

## approximate weight

4.5 lbs (2.1 kg)

\* Proprietary Carpenter Stainless Steel with corrosion resistance equal or better than 316 Stainless Steel.

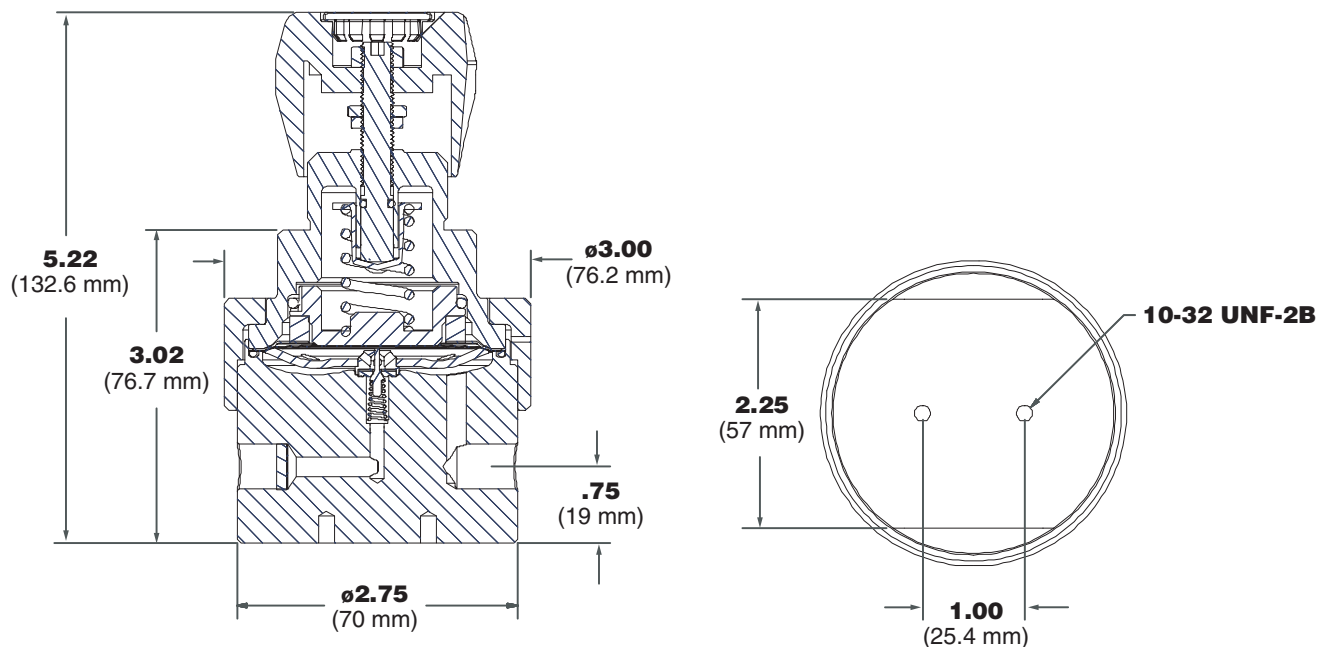
† Refer to Range Table for specific information.

# IR5200 Series

## Product Features and Benefits

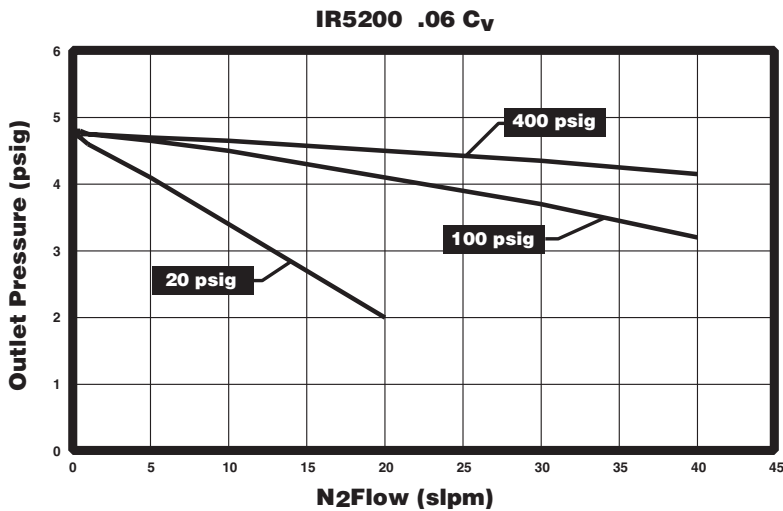
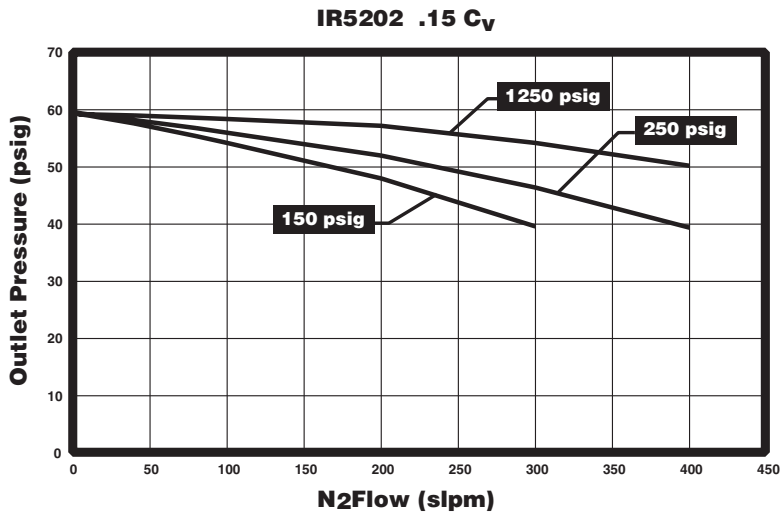
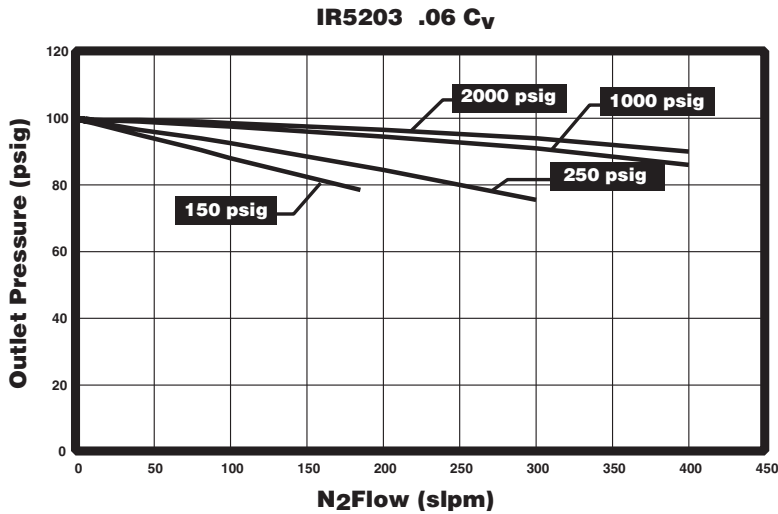
- ▶ Unique patented compression member loads the seal to the body without requiring a threaded nozzle or additional seals to atmosphere.
- ▶ Large diaphragm provides more sensitive pressure adjustments.
- ▶ O<sub>2</sub> Cleaned.
- ▶ Fully swept design.
- ▶ Internally threadless seat design promotes long seat life.
- ▶ Convoluted, Hastelloy C-22<sup>®</sup> diaphragm provides high corrosion resistance and increases cycle life.
- ▶ Positive upward and downward stops increases cycle life by preventing over stroking of the diaphragm.
- ▶ Low internal volume reduces cycle and purge time.
- ▶ Captured bonnet allows for safety venting.
- ▶ Standard units can be dome loaded (with clean dry air or nitrogen).
- ▶ The use of Inconel<sup>®</sup>, Hastelloy<sup>®</sup>, and Elgiloy<sup>®</sup> provide superior corrosion resistance and high repeatability.
- ▶ Close tolerances and tight alignment of moving components minimize hysteresis.
- ▶ Unique carrier design disperses gas uniformly through the regulator to improve purging.

## Dimensional Drawing

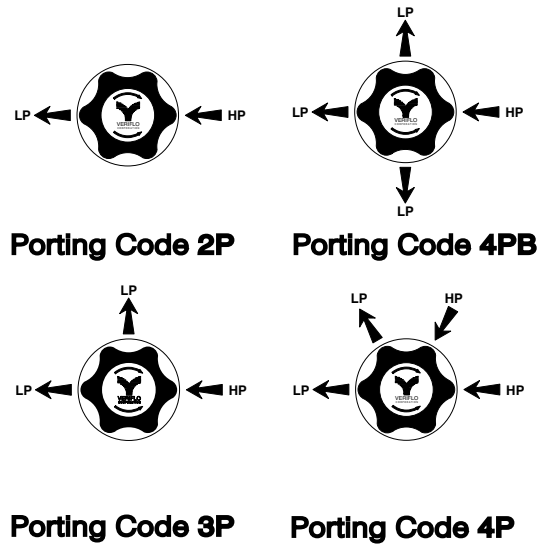


# IR5200 Series

## Flow Curves



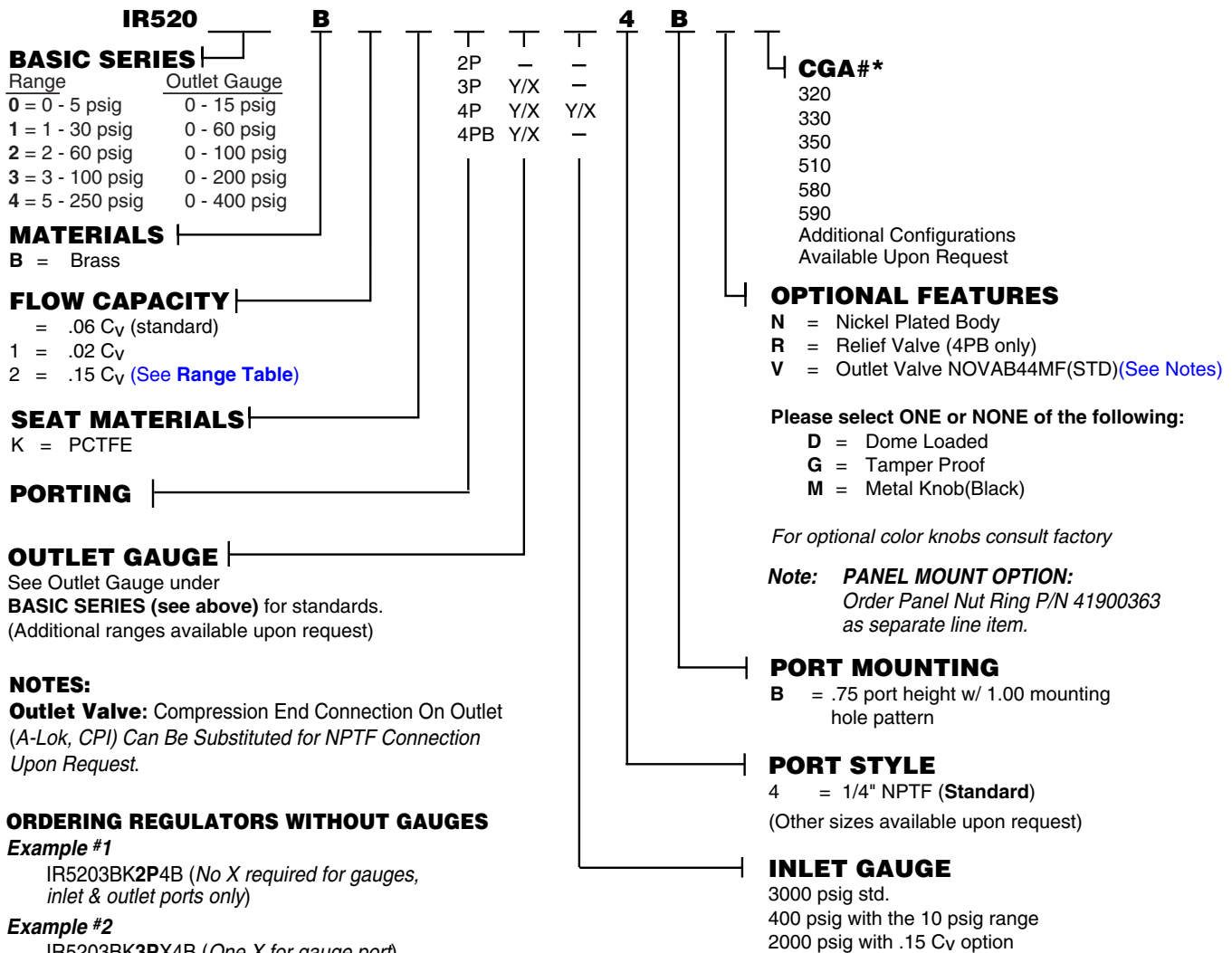
## Porting Configurations



Gauge Index	
2P	No Gauge Ports
3P	One gauge Port
4P	Two gauge Ports
4PB	One Gauge Port

# IR5200 Series

## Ordering Information



\* Do not exceed the rated pressure of the CGA connection

Hastelloy C-22® is a registered trademark of Haynes International, Inc.  
 Incone® is a registered trademarks of Inco Alloys International.  
 Elgiloy® is a registered trademark of Elgiloy Company.  
 Vespel® and Teflon® are registered trademarks of DuPont Company.  
 Viton® is a registered trademark of DuPont Dow Elastomers.

Model Basic Series	Range Table		
	Max Inlet PSIG		
	C <sub>v</sub>		
	.06	.02	.15
IR5200	400	400	400
IR5201	3500	3500	1250
IR5202	3500	3500	1250
IR5203	3500	3500	1250
IR5204	3500	3500	1250

# IR5000W Series

**Welded High Pressure,  
Regulator Internally  
Threadless Design**



Parker Hannifin Corporation's Veriflo Division presents the IR5000W Series high pressure regulator. Veriflo Division continues the internally threadless design of the IR4000 family of products.

IR5000W pressure reducing regulator is designed with a larger convoluted diaphragm than the IR4000. This allows for greater sensitivity, and provides precise outlet pressure control.

Instrument applications include gas management for analyzer systems and other industrial processes. Semiconductor applications include general purpose gas management (Air, Clean Dry Air (CDA), and Plant Nitrogen) Systems.

**Note:** IR5000 Threaded Porting Shown



## materials of construction

### Wetted

Body . . . . . 316L Stainless Steel,  
Hastelloy C-22®  
Compression Member . . . . . Inconel®  
Diaphragm . . . . . Hastelloy C-22®  
Poppet . . . . . Elgiloy®  
Poppet Spring . . . . . Inconel®  
Carrier . . . . . Stainless Steel\*, Hastelloy C-22®  
Back-up Washer . . . . . Hastelloy C-22®  
Seat . . . . . PCTFE, PEEK™, Vespel®  
Back-up O-ring . . . . . Viton®, optional Teflon®  
Inlet Screen/Filter . . . . . 316L Stainless Steel,  
Hastelloy C-22® (Hastelloy®, Monel® bodies)

### Non-Wetted

Cap . . . . . Nickel Plated Brass,  
optional Stainless Steel  
Nut . . . . . 316L Stainless Steel  
Knob (black) . . . . . ABS Plastic

## operating conditions

Maximum inlet . . . . . 3500 psig (241 barg)  
Outlet . . . . . 0-5 psig (400 max inlet),  
2-30 psig, 3-60 psig, 4-100 psig, 5-200 psig

### Temperature:

PCTFE . . . . . -40°F to 150°F (-40°C to 65°C)  
\*\*PEEK™ . . . . . -40°F to 275°F (-40°C to 135°C)  
\*\*Vespel® . . . . . -40°F to 500°F (-40°C to 260°C)

## functional performance

Design Proof Pressure . . . . 6000 psig (414 barg)  
Design Burst Pressure . . . . 12000 psig (828 barg)

### Flow capacity:

Standard . . . . . C<sub>v</sub> = .06  
Optional . . . . . C<sub>v</sub> = .02, .15†  
(SEMI Flow Coefficient Test #F-32-0998 )

### Maximum Inboard Design

Leak Rate . . . . . < 2 x 10<sup>-8</sup> scc/sec HE

### Supply Pressure Effect:

.02 C<sub>v</sub> . . . . . .12 psig per 100 psig  
(.008 barg per 7 barg)  
.06 C<sub>v</sub> . . . . . .3 psig per 100 psig  
(.02 barg per 7 barg)  
.15 C<sub>v</sub> . . . . . .75 psig per 100 psig  
(.05 barg per 7 barg)

## standard configurations

See Dimension Table with Ordering Information

## internal volume

11.9 cc

## approximate weight

4.5 lbs (2.1 kg)

\* Proprietary Carpenter Stainless Steel with corrosion resistance equal or better than 316 Stainless Steel.

† Refer to Range Table for specific information.

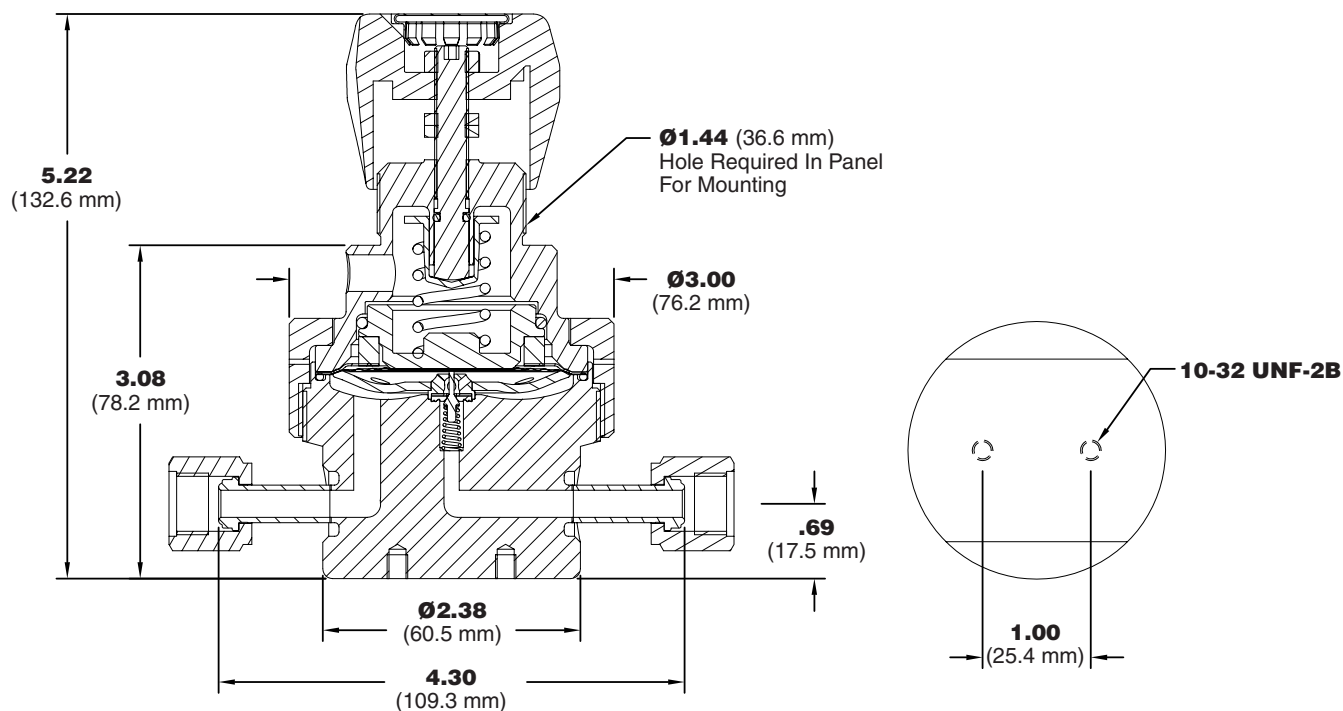


# IR5000W Series

## Product Features and Benefits

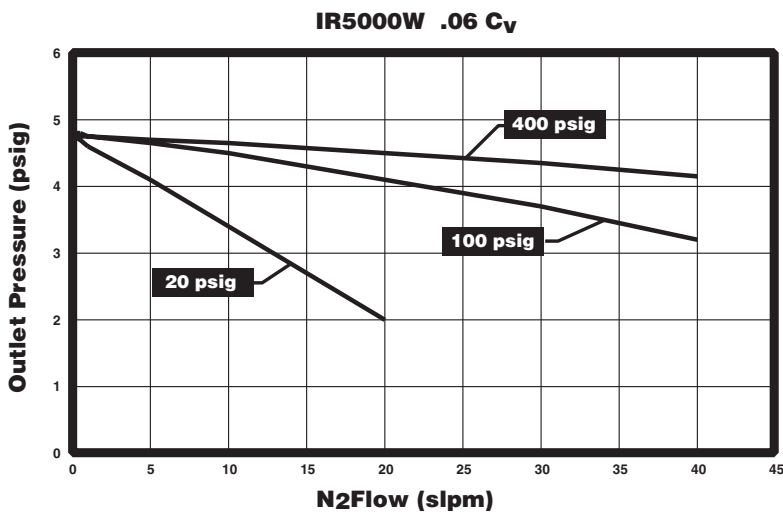
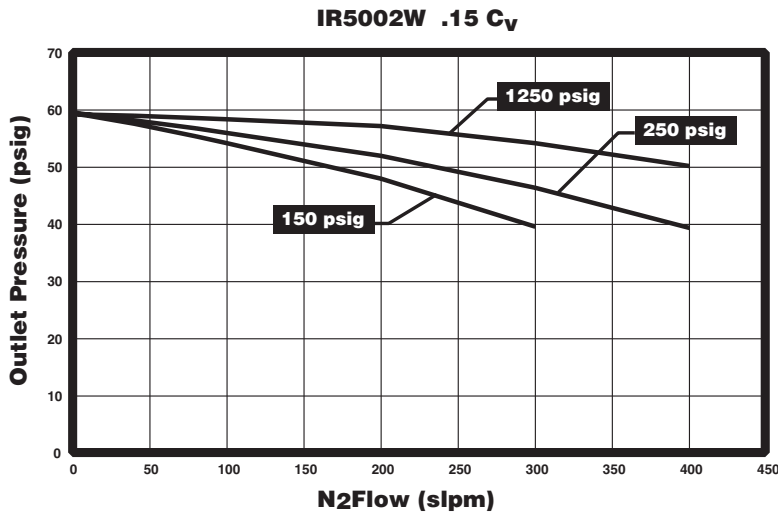
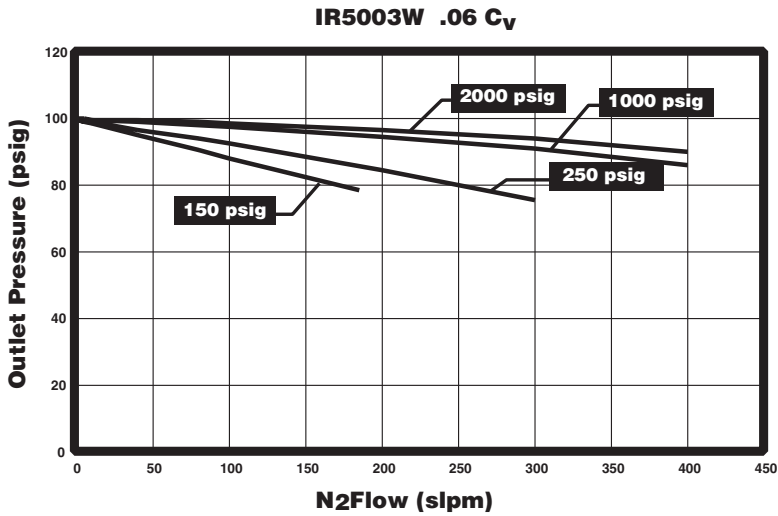
- ▶ Unique patented compression member loads the seal to the body without requiring a threaded nozzle or additional seals to atmosphere.
- ▶ Large diaphragm provides more sensitive pressure adjustments.
- ▶ Selection of seat materials for media compatibility and temperature applications.
- ▶ Meets NACE Standard MR0175.
- ▶ O<sub>2</sub> Cleaned.
- ▶ Fully swept design.
- ▶ Internally threadless seat design promotes long seat life.
- ▶ Convuluted, Hastelloy C-22<sup>®</sup> diaphragm provides high corrosion resistance and increases cycle life.
- ▶ Positive upward and downward stops increases cycle life by preventing over stroking of the diaphragm.
- ▶ Low internal volume reduces cycle and purge time.
- ▶ Captured bonnet allows for safety venting.
- ▶ Standard units can be dome loaded (with clean dry air or nitrogen).
- ▶ The use of Inconel<sup>®</sup>, Hastelloy<sup>®</sup>, and Elgiloy<sup>®</sup> provide superior corrosion resistance and high repeatability.
- ▶ Close tolerances and tight alignment of moving components minimize hysteresis.
- ▶ Unique carrier design disperses gas uniformly through the regulator to improve purging.

## Dimensional Drawing

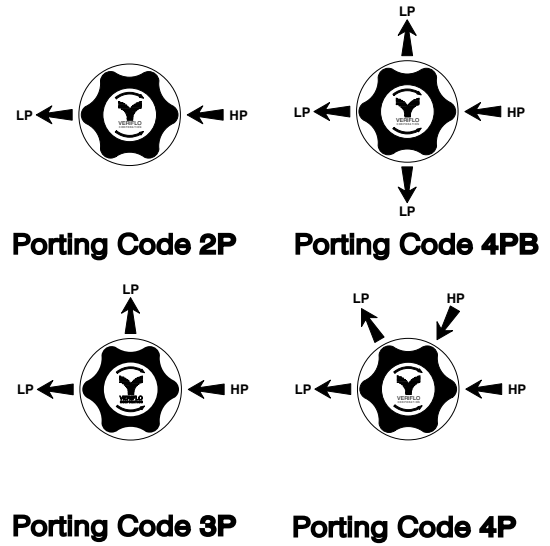


# IR5000W Series

## Flow Curves



## Porting Configurations



## Gauge Index

2P	No Gauge Ports
3P	One gauge Port
4P	Two gauge Ports
4PB	One Gauge Port



# IR6000 Series

## SS Two Stage Regulator Internally Threadless Design



Parker Hannifin Corporation's Veriflo Division presents the IR6000 Series internally threadless pressure regulator for pressure reducing industrial/analytical applications including cylinder and calibration gases.

Instrument applications include gas management in refineries, process analyzer systems, and cylinder gas pressure reduction.

The IR6000 is a high pressure regulator that can be ordered with a variety of options to meet a wide range of system design requirements.



### materials of construction

#### Wetted

Body . . . . . 316L Stainless Steel, Hastelloy C-22®, Monel®  
 Compression Member . . . . . Inconel®  
 Diaphragm . . . . . Hastelloy C-22®  
 Poppet . . . . . Elgiloy®  
 Poppet Spring . . . . . Inconel®  
 Carrier . . . . . Stainless Steel\*, Hastelloy C-22®  
 Back-up Washer . . . . . Hastelloy C-22®  
 Seat . . . . . PCTFE, PEEK™, Vespel®  
 Back-up O-ring . . . . . Viton®, optional Teflon®  
 Inlet Screen/Filter . . . . . 316L Stainless Steel, Hastelloy C-22® (Hastelloy®, Monel® bodies)

#### Non-Wetted

Cap . . . . . Nickel Plated Brass, optional Stainless Steel  
 Nut . . . . . 316L Stainless Steel, Nickel Plated Brass††  
 Knob (black) . . . . . ABS Plastic

### operating conditions

Maximum inlet . . . . . 4000 psig (276 barg)  
 Outlet . . . . . 1-10 psig (.7 barg), 2-30 psig (2 barg), 3-60 psig (4 barg), 4-100 psig (7 barg), 5-250 psig (17 barg)

#### Temperature:

PCTFE . . . . . -40°F to 150°F (-40°C to 65°C)  
 PEEK™ . . . . . -40°F to 275°F (-40°C to 135°C)  
 Vespel® . . . . . -40°F to 500°F (-40°C to 260°C)

### functional performance

#### Flow capacity:

Standard . . . . .  $C_v = .06$   
 Optional . . . . .  $C_v = .02, .15†$   
 (SEMI Flow Coefficient Test #F-32-0998)

Design Proof Pressure: . . . . . 6000 psig (414 barg)  
 Design Burst Pressure: . . . . . 12000 psig (828 barg)

#### Maximum Inboard Design

Leak Rate . . . . .  $< 2 \times 10^{-8}$  scc/sec HE

Supply Pressure Effect . . . . . 0.01 psig per 100 psig

### internal volume

8.1 cc

### approximate weight

3.5 lbs (1.6 kg)

\* Proprietary Carpenter Stainless Steel with corrosion resistance equal or better than 316 Stainless Steel.

† Refer to Range Table for specific information.

†† Nickel Plated Brass for PCTFE seat.

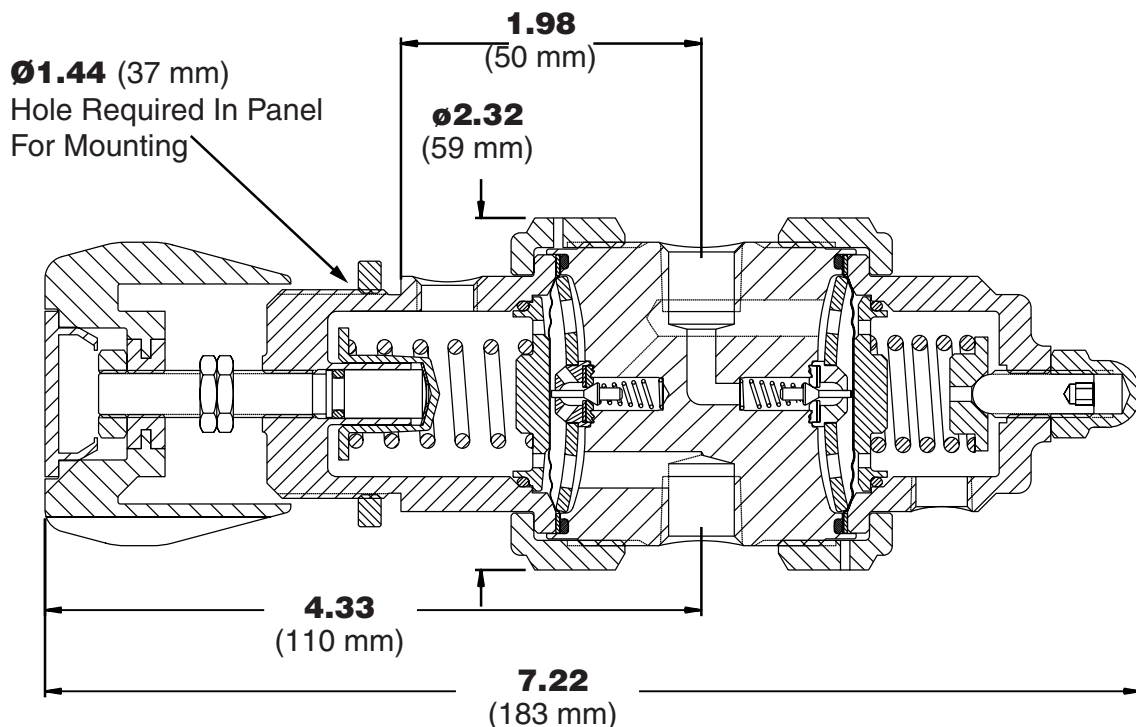


# IR6000 Series

## Product Features and Benefits

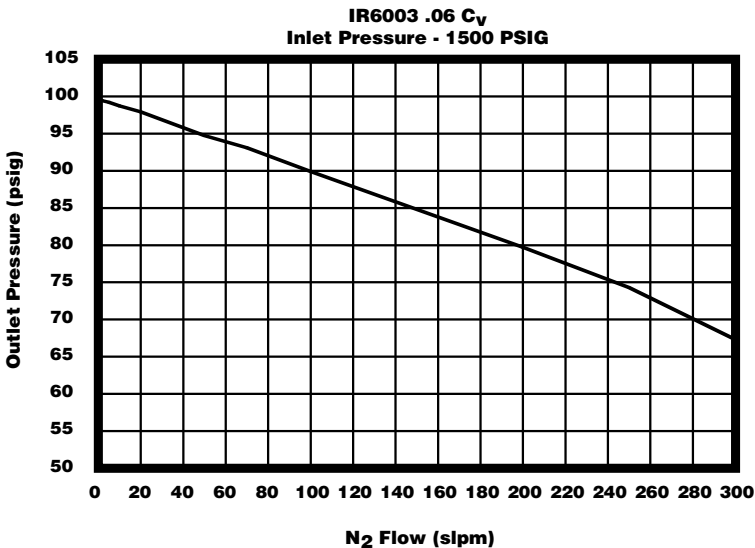
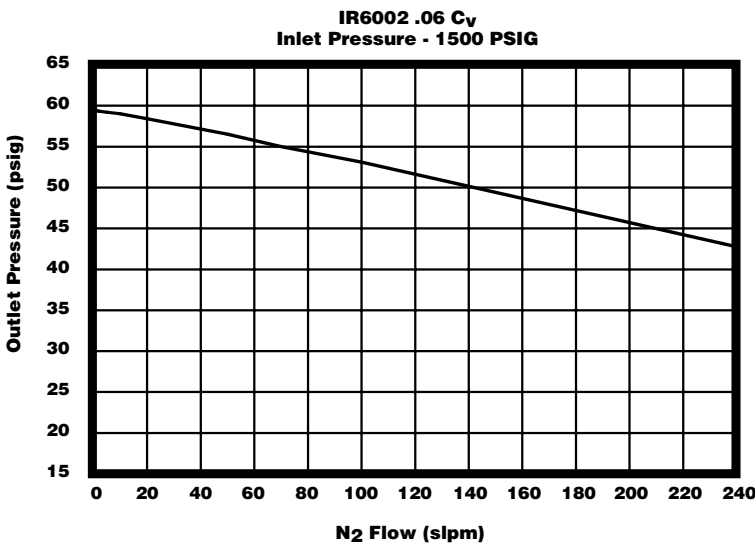
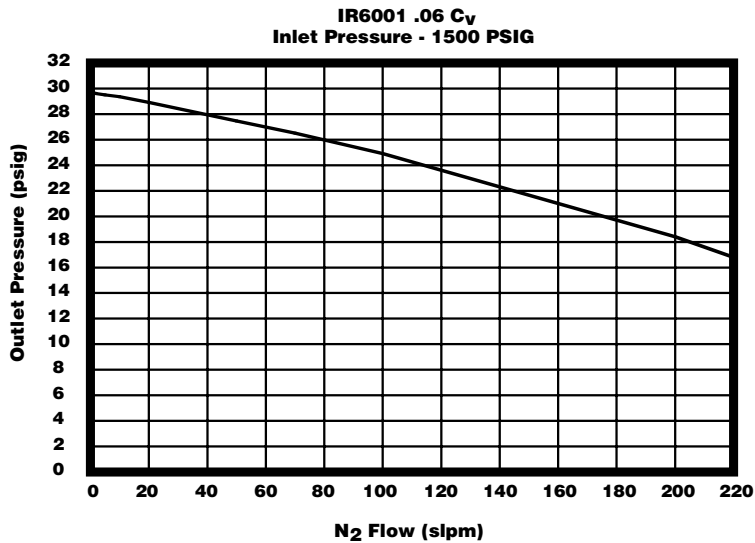
- ▶ Unique patented compression member loads the seal to the body without requiring a threaded nozzle or additional seals to atmosphere.
- ▶ Selection of seat materials for media compatibility and temperature applications.
- ▶ Meets NACE Standard MR0175.
- ▶ O<sub>2</sub> Cleaned.
- ▶ Fully swept design.
- ▶ Internally threadless seat design promotes long seat life.
- ▶ Convoluted, Hastelloy C-22<sup>®</sup> diaphragm provides high corrosion resistance and increases cycle life.
- ▶ Positive upward and downward stops increases cycle life by preventing over stroking of the diaphragm.
- ▶ Low internal volume reduces cycle and purge time.
- ▶ Captured bonnet allows for safety venting.
- ▶ Standard units can be dome loaded (with clean dry air or nitrogen).
- ▶ The use of Inconel<sup>®</sup>, Hastelloy<sup>®</sup>, and Elgiloy<sup>®</sup> provide superior corrosion resistance and high repeatability.
- ▶ Close tolerances and tight alignment of moving components minimize hysteresis.
- ▶ Unique carrier design disperses gas uniformly through the regulator to improve purging.

## Dimensional Drawing

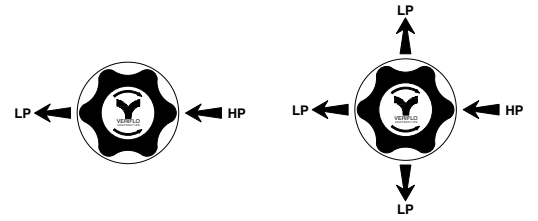


# IR6000 Series

## Flow Curves

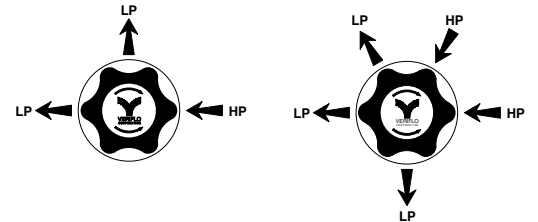


## Porting Configurations



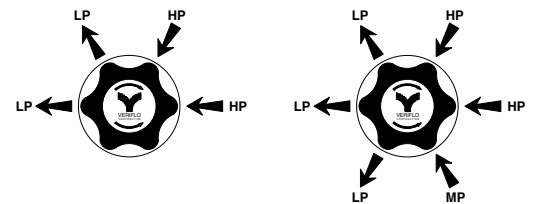
Porting Code 2P

Porting Code 4PB



Porting Code 3P

Porting Code 5P



Porting Code 4P

Porting Code 6P

Gauge Index	
2P	No Gauge Ports
3P	One gauge Port
4P	Two gauge Ports
4PB	One Gauge Port
5P	Two Gauge Ports
6P	Two Gauge Ports

# IR6000 Series

## Ordering Information

<p><b>IR6000</b></p> <p><b>BASIC SERIES</b></p> <table border="0"> <tr> <td>Range</td> <td>Outlet Gauge</td> </tr> <tr> <td>0 = 1 - 10 psig</td> <td>0 - 30 psig</td> </tr> <tr> <td>1 = 2 - 30 psig</td> <td>0 - 60 psig</td> </tr> <tr> <td>2 = 3 - 60 psig</td> <td>0 - 100 psig</td> </tr> <tr> <td>3 = 4 - 100 psig</td> <td>0 - 200 psig</td> </tr> <tr> <td>4 = 5 - 250 psig</td> <td>0 - 400 psig</td> </tr> </table> <p><b>BODY MATERIAL</b></p> <p>S = 316L Stainless Steel (Hastelloy &amp; Monel® Available Upon Request)</p> <p><b>FLOW CAPACITY</b></p> <p>= .06 Cv (Standard)</p> <p>1 = .02 Cv</p> <p>2 = .15 Cv (See Range Table)</p> <p><b>SEAT MATERIALS</b></p> <p>K = PCTFE</p> <p>P = PEEK™</p> <p>V = Vespel®</p> <p><b>PORTING</b></p> <p><b>OUTLET GAUGE</b></p> <p>See Outlet Gauge under <b>BASIC SERIES (see above)</b> for standards. (Additional ranges available upon request)</p> <p><b>INLET GAUGE</b></p> <p>3000 psig std.</p> <p><b>NOTES:</b></p> <p><b>Outlet Valve:</b> Available Upon request; Compression End Connection Outlet (A-Lok, CPI) Can Be Substituted for NPTF Connection Upon Request.</p> <p><b>ORDERING REGULATORS WITHOUT GAUGES</b></p> <p><b>Example #1</b> IR6003SK2P4B (No X required for gauges, inlet &amp; outlet ports only)</p> <p><b>Example #2</b> IR6003SK3PX4B (One X for gauge port)</p> <p><b>Example #3</b> IR6003SK4PBX4B (One X for gauge port)</p> <p><b>Example #4</b> IR6003SK5PXX4B (Two X's for gauge ports)</p>	Range	Outlet Gauge	0 = 1 - 10 psig	0 - 30 psig	1 = 2 - 30 psig	0 - 60 psig	2 = 3 - 60 psig	0 - 100 psig	3 = 4 - 100 psig	0 - 200 psig	4 = 5 - 250 psig	0 - 400 psig	<p><b>S</b></p> <p><b>4</b></p> <p><b>B</b></p>	<table border="0"> <tr> <td>2P</td> <td>—</td> <td>—</td> </tr> <tr> <td>3P</td> <td>Y/X</td> <td>—</td> </tr> <tr> <td>4P</td> <td>Y/X</td> <td>Y/X</td> </tr> <tr> <td>4PB</td> <td>Y/X</td> <td>—</td> </tr> <tr> <td>5P</td> <td>Y/X</td> <td>Y/X</td> </tr> <tr> <td>6P</td> <td>Y/X</td> <td>Y/X</td> </tr> </table> <p><b>CGA#*</b></p> <p>320</p> <p>330</p> <p>350</p> <p>510</p> <p>580</p> <p>590</p> <p>Additional Configurations Available Upon Request</p> <p><b>OPTIONAL FEATURES (See Notes)</b></p> <p>L = Teflon® Back-Up O-Ring (PCTFE &amp; PEEK™ seat only)</p> <p>R2 = Relief Valve (4PB, 5P, 6P only)</p> <p>V = Outlet Valve NOVAS44MF(STD)(See Notes)</p> <p><b>Please select ONE or NONE of the following:</b></p> <p>D = Dome Loaded</p> <p>G = Tamper Proof</p> <p>M = Metal Knob(Black)</p> <p><i>For optional color knobs consult factory</i></p> <p><b>Note: PANEL MOUNT OPTION:</b> Order Panel Nut Ring P/N 41900363 as separate line item.</p> <p><b>PORT MOUNTING</b></p> <p>B = Standard (No options)</p> <p><b>PORT STYLE</b></p> <p>4 = 1/4" NPT Female Standard (Additional sizes available upon request)</p>	2P	—	—	3P	Y/X	—	4P	Y/X	Y/X	4PB	Y/X	—	5P	Y/X	Y/X	6P	Y/X	Y/X
Range	Outlet Gauge																															
0 = 1 - 10 psig	0 - 30 psig																															
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2P	—	—																														
3P	Y/X	—																														
4P	Y/X	Y/X																														
4PB	Y/X	—																														
5P	Y/X	Y/X																														
6P	Y/X	Y/X																														

\* Do not exceed the rated pressure of the CGA connection

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Elgiloy® is a registered trademark of Elgiloy Company.

Viton® is a registered trademark of DuPont Dow Elastomers.

# IR6200 Series

## Brass Two Stage Regulator Internally Threadless Design



Parker Hannifin Corporation's Veriflo Division presents the IR6200 Series internally threadless pressure regulator for pressure reducing industrial/analytical applications including cylinder and calibration gases.

Instrument applications include gas management in refineries, process analyzer systems, and cylinder gas pressure reduction.

The IR6200 is a high pressure regulator that can be ordered with a variety of options to meet a wide range of system design requirements.



### ▶ materials of construction

#### Wetted

Body . . . . . Brass, Nickel Plated Brass  
 Compression Member . . . . . Inconel®  
 Diaphragm . . . . . Hastelloy C-22®  
 Poppet . . . . . Phosphor Bronze  
 Poppet Spring . . . . . Inconel®  
 Carrier . . . . . Stainless Steel\*  
 Back-up Washer . . . . . Phosphor Bronze  
 Seat . . . . . PCTFE  
 Back-up O-ring . . . . . Viton®  
 Inlet Screen/Filter . . . . . Copper and  
 Phosphor Bronze

#### Non-Wetted

Cap . . . . . Nickel Plated Brass  
 Nut . . . . . Nickel Plated Brass  
 Knob (black) . . . . . ABS Plastic

### ▶ operating conditions

Maximum inlet . . . . . 4000 psig (276 barg)  
 Outlet . . . . . 1-10 psig (.7 barg), 2-30 psig (2 barg),  
 3-60 psig (4 barg), 4-100 psig (7 barg),  
 5-250 psig (17 barg)

Temperature:  
 PCTFE . . . . . -40°F to 140°F (-40°C to 60°C)

### ▶ functional performance

Flow capacity:  
 Standard . . . . .  $C_v$  .06  
 Optional . . . . .  $C_v$  .02, .15  
 (SEMI Flow Coefficient Test #F-32-0998)

Design Proof Pressure: . . . . . 6000 psig (414 barg)  
 Design Burst Pressure: . . . . . 12000 psig (828 barg)

Maximum Inboard Design  
 Leak Rate . . . . .  $< 2 \times 10^{-8}$  scc/sec HE

Supply Pressure Effect . . . . . 0.01 psig per 100 psig

### ▶ internal volume

8.1 cc

### ▶ approximate weight

3.5 lbs (1.6 kg)

\* Proprietary Carpenter Stainless Steel with corrosion resistance equal or better than 316.

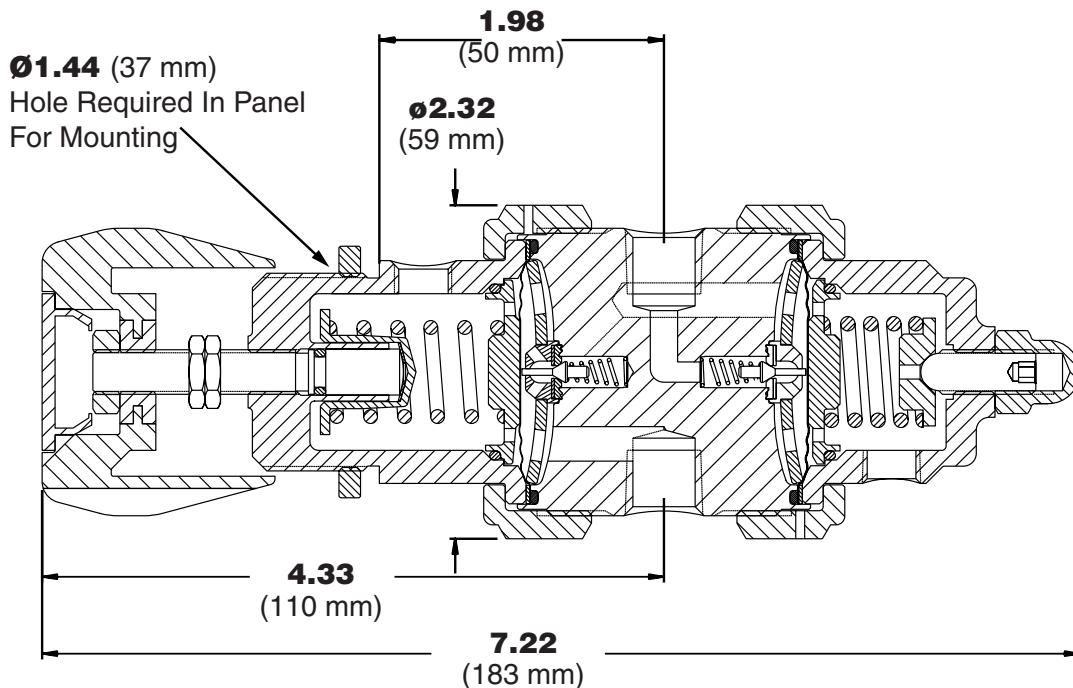


# IR6200 Series

## Product Features and Benefits

- ▶ Unique patented compression member loads the seal to the body without requiring a threaded nozzle or additional seals to atmosphere.
- ▶ O<sub>2</sub> Cleaned.
- ▶ Fully swept design.
- ▶ Internally threadless seat design promotes long seat life.
- ▶ Convolute, Hastelloy C-22<sup>®</sup> diaphragm provides high corrosion resistance and increases cycle life.
- ▶ Positive upward and downward stops increases cycle life by preventing over stroking of the diaphragm.
- ▶ Low internal volume reduces cycle and purge time.
- ▶ Captured bonnet allows for safety venting.
- ▶ Standard units can be dome loaded (with clean dry air or nitrogen).
- ▶ The use of Inconel<sup>®</sup>, Hastelloy C-22<sup>®</sup>, and Elgiloy<sup>®</sup> provide superior corrosion resistance and high repeatability.
- ▶ Close tolerances and tight alignment of moving components minimize hysteresis.
- ▶ Unique carrier design disperses gas uniformly through the regulator to improve purging.

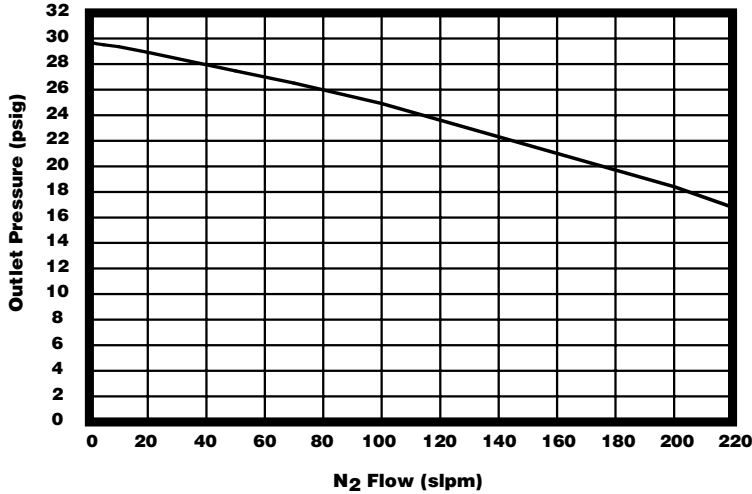
## Dimensional Drawing



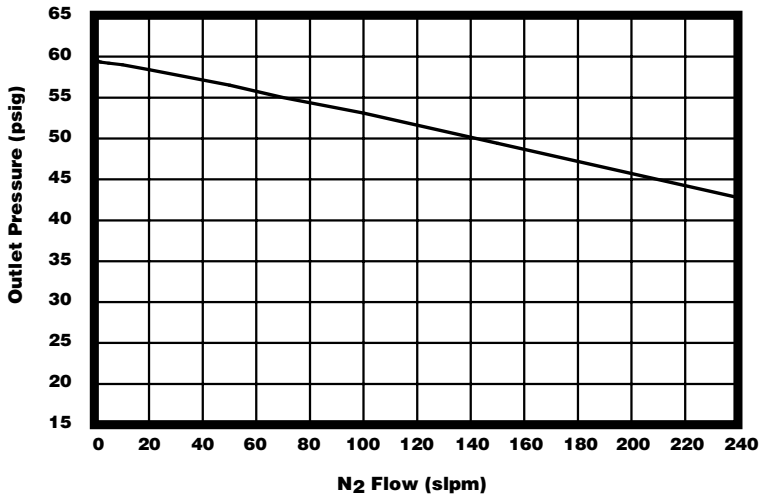
# IR6200 Series

## Flow Curves

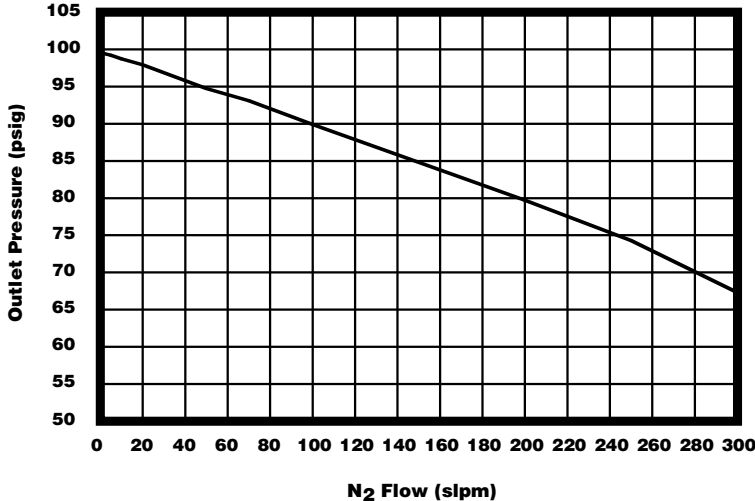
IR6201 .06 Cv  
Inlet Pressure - 1500 PSIG



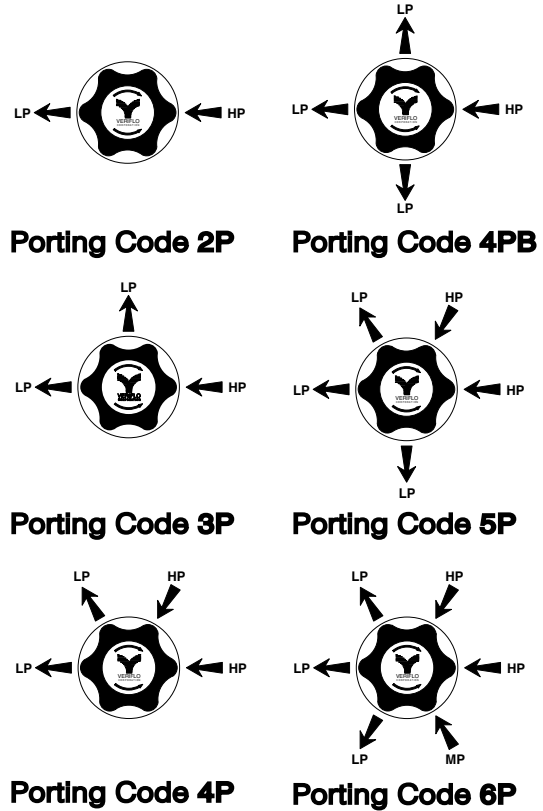
IR6202 .06 Cv  
Inlet Pressure - 1500 PSIG



IR6203 .06 Cv  
Inlet Pressure - 1500 PSIG



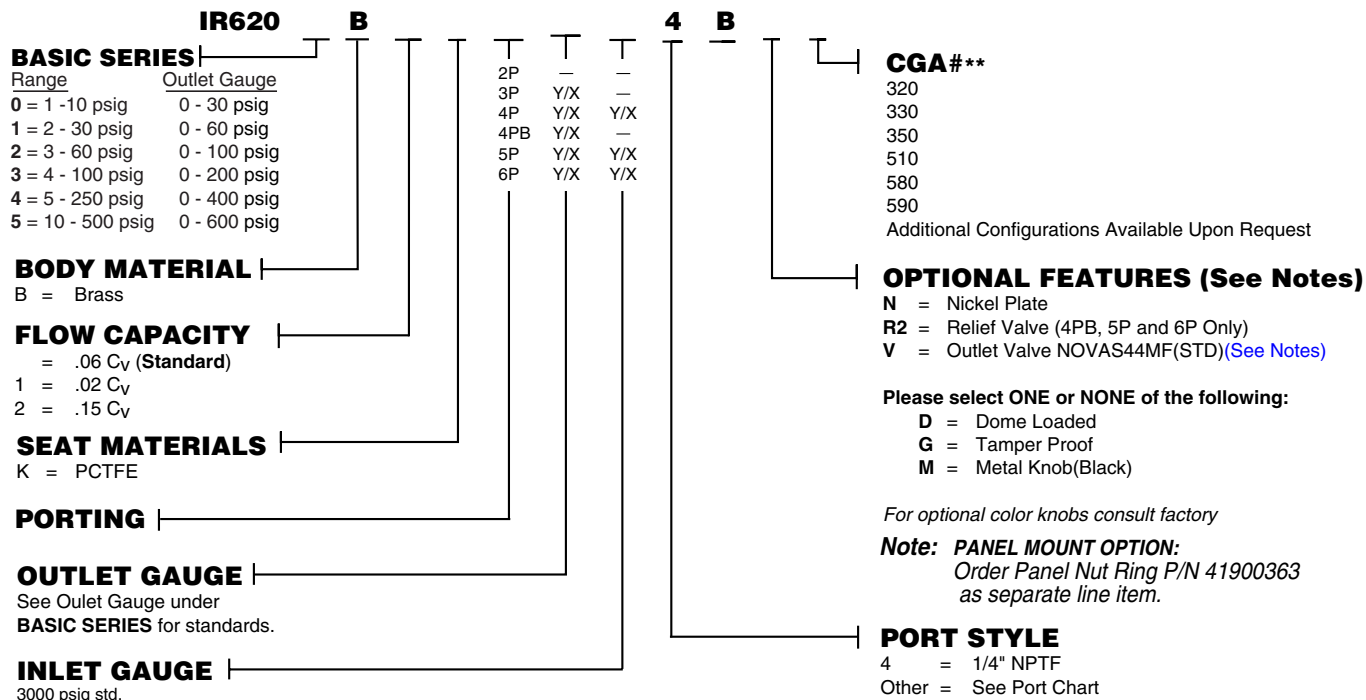
## Porting Configurations



Gauge Index	
2P	No Gauge Ports
3P	One gauge Port
4P	Two gauge Ports
4PB	One Gauge Port
5P	Two Gauge Ports
6P	Two Gauge Ports

# IR6200 Series

## Ordering Information



### Notes:

**Options:** See Option Chart For Additional Features.

**Outlet Valve:** Compression End Connection Outlet (A-Lok, CPI) Can Be Substituted For NPTF Connection Upon Request.

### ORDERING REGULATORS WITHOUT GAUGES

#### Example #1

IR6203BK2P4B (No X required for gauges, inlet & outlet ports only)

#### Example #2

IR6203BK3PX4B (One X for gauge port)

#### Example #3

IR6203BK4PBX4B (One X for gauge port)

#### Example #4

IR6203BK5PXX4B (Two X's for gauge ports)

\*\* Do not exceed the rated pressure of the CGA connection

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Inconel® is a registered trademarks of Inco Alloys International.

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Viton® is a registered trademark of DuPont Dow Elastomers.

PEEK™ is a trademark of Victrex plc.

# IR6000W Series

**Welded Two Stage  
Regulator Internally  
Threadless Design**



Parker Hannifin Corporation's Veriflo Division presents the IR6000W Series internally threadless pressure regulator for pressure reducing industrial/analytical applications including cylinder and calibration gases.

Instrument applications include gas management in refineries, process analyzer systems, and cylinder gas pressure reduction.

The IR6000W is a high pressure regulator that can be ordered with a variety of options to meet a wide range of system design requirements.



## ▶ materials of construction

### Wetted

Body . . . . . 316L Stainless Steel,  
Hastelloy C-22®  
Compression Member . . . . . Inconel®  
Diaphragm . . . . . Hastelloy C-22®  
Poppet . . . . . Elgiloy®  
Poppet Spring . . . . . Inconel®  
Carrier . . . . . Stainless Steel\*, Hastelloy C-22®  
Back-up Washer . . . . . Hastelloy C-22®  
Seat . . . . . PCTFE, PEEK™, Vespel®  
Back-up O-ring . . . . . Viton®, optional Teflon®  
Inlet Screen/Filter . . . . . 316L Stainless Steel,  
Hastelloy C-22®

### Non-Wetted

Cap . . . . . Nickel Plated Brass,  
optional Stainless Steel  
Nut . . . . . 316L Stainless Steel, Nickel Plated Brass††  
Knob (black) . . . . . ABS Plastic

## ▶ operating conditions

Maximum inlet . . . . . 4000 psig (276 barg)  
Outlet . . . . . 1-10 psig (.7 barg), 2-30 psig (2 barg),  
3-60 psig (4 barg), 4-100 psig (7 barg),  
5-250 psig (17 barg)

### Temperature:

PCTFE . . . . . -40°F to 150°F (-40°C to 65°C)  
PEEK™ . . . . . -40°F to 275°F (-40°C to 135°C)  
Vespel® . . . . . -40°F to 500°F (-40°C to 260°C)

## ▶ functional performance

### Flow capacity:

Standard . . . . .  $C_v = .06$   
Optional . . . . .  $C_v = .02, .15†$   
(SEMI Flow Coefficient Test #F-32-0998)

Design Proof Pressure: . . . . . 6000 psig (414 barg)  
Design Burst Pressure: . . . . . 12000 psig (828 barg)

### Maximum Inboard Design

Leak Rate . . . . .  $< 2 \times 10^{-8}$  scc/sec HE

Supply Pressure Effect . . . . . 0.01 psig per 100 psig

## ▶ internal volume

8.1 cc

## ▶ approximate weight

3.5 lbs (1.6 kg)

\* Proprietary Carpenter Stainless Steel with corrosion resistance equal or better than 316 Stainless Steel.

† Refer to Range Table for specific information.

†† Nickel Plated Brass for PCTFE seat.

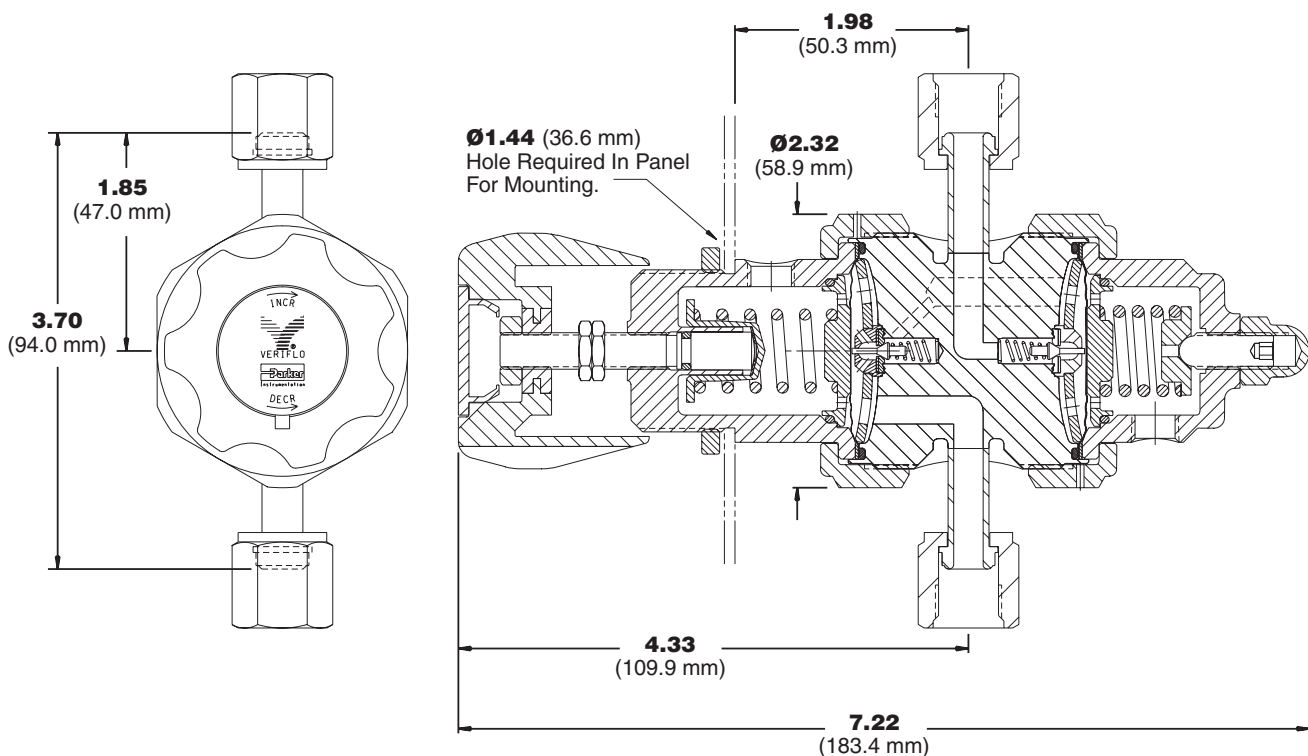


# IR6000W Series

## Product Features and Benefits

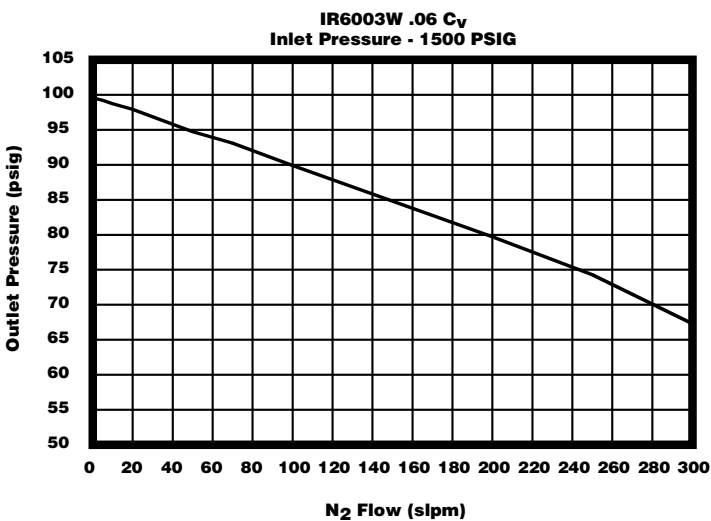
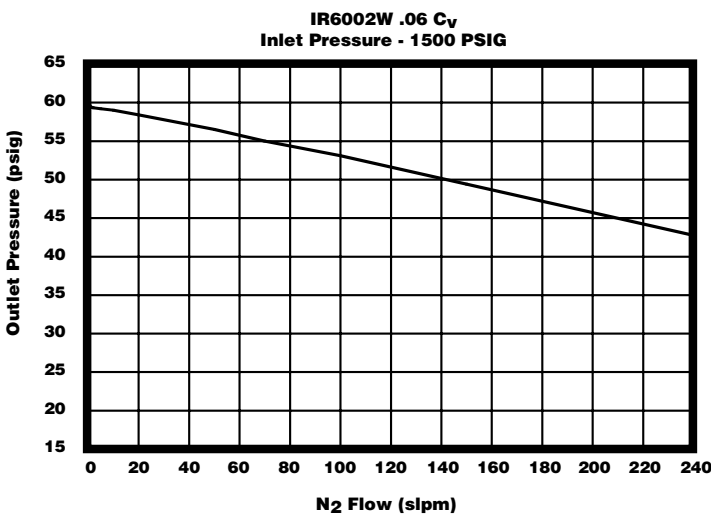
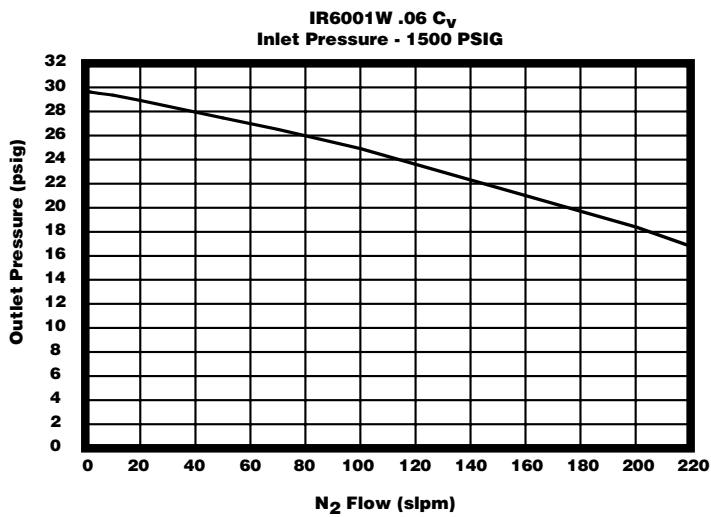
- ▶ Unique patented compression member loads the seal to the body without requiring a threaded nozzle or additional seals to atmosphere.
- ▶ Selection of seat materials for media compatibility and temperature applications.
- ▶ Meets NACE Standard MR0175.
- ▶ O<sub>2</sub> Cleaned.
- ▶ Fully swept design.
- ▶ Internally threadless seat design promotes long seat life.
- ▶ Convoluted, Hastelloy C-22<sup>®</sup> diaphragm provides high corrosion resistance and increases cycle life.
- ▶ Positive upward and downward stops increases cycle life by preventing over stroking of the diaphragm.
- ▶ Low internal volume reduces cycle and purge time.
- ▶ Captured bonnet allows for safety venting.
- ▶ Standard units can be dome loaded (with clean dry air or nitrogen).
- ▶ The use of Inconel<sup>®</sup>, Hastelloy<sup>®</sup>, and Elgiloy<sup>®</sup> provide superior corrosion resistance and high repeatability.
- ▶ Close tolerances and tight alignment of moving components minimize hysteresis.
- ▶ Unique carrier design disperses gas uniformly through the regulator to improve purging.

## Dimensional Drawing

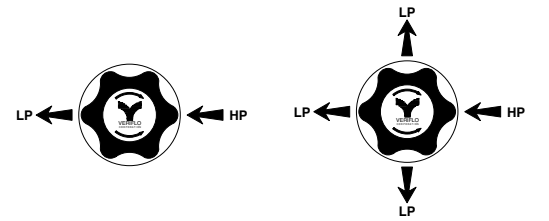


# IR6000W Series

## Flow Curves

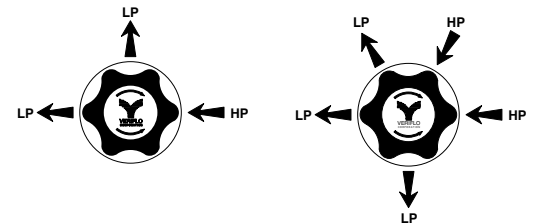


## Porting Configurations



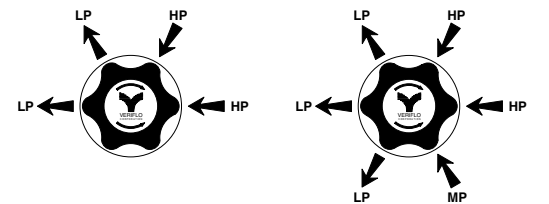
Porting Code 2P

Porting Code 4PB



Porting Code 3P

Porting Code 5P



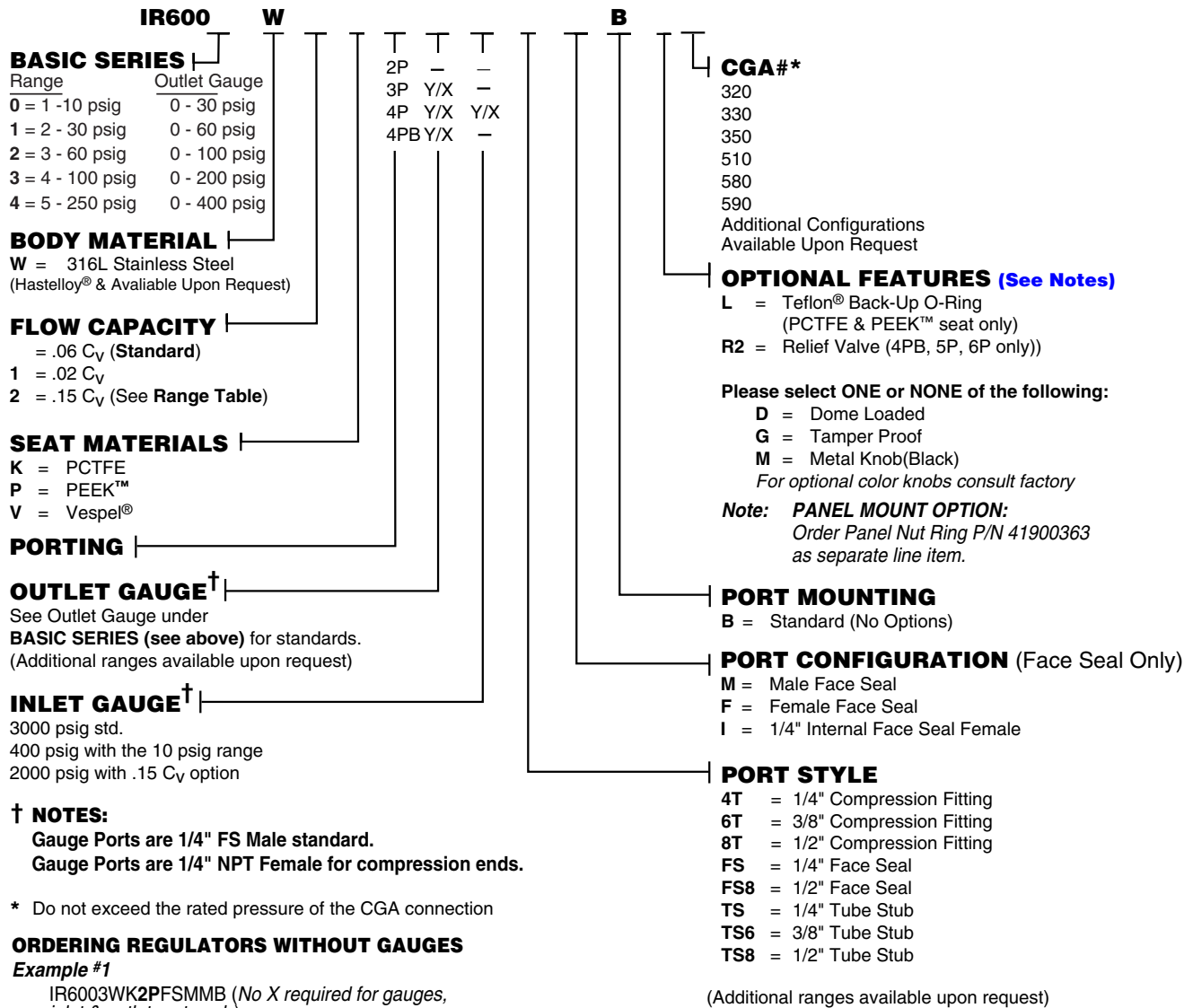
Porting Code 4P

Porting Code 6P

Gauge Index	
2P	No Gauge Ports
3P	One gauge Port
4P	Two gauge Ports
4PB	One Gauge Port
5P	Two Gauge Ports
6P	Two Gauge Ports

# IR6000W Series

## Ordering Information



Hastelloy C-22® is a registered trademark of Haynes International, Inc.  
PEEK™ is a trademark of Victrex plc.  
Inconel® is a registered trademarks of Inco Alloys International.  
Elgiloy® is a registered trademark of Elgiloy Company.  
Viton® is a registered trademark of DuPont Dow Elastomers.  
Teflon® is a registered trademark of DuPont Company.

### Dimension Table

Connection Type	End to End Dimension
1/4" Compression Fitting	3.34 ± .02 in. (84.8 ± .5 mm)
3/8" Compression Fitting	3.48 ± .02 in. (88.4 ± .5 mm)
1/2" Compression Fitting	4.38 ± .03 in. (111.3 ± .8 mm)
1/4" Face Seal	3.70 ± .02 in. (94 ± .5 mm)
1/2" Face Seal	4.82 ± .02 in. (122.4 ± .5 mm)
All Tube Stubs	3.70 ± .02 in. (94 ± .5 mm)

# NPR4100 Series

## Negative Pressure Regulator



Parker Hannifin Corporation's Veriflo Division presents the NPR4100 regulator for applications involving negative delivery pressures with low pressure gas sources for instrument/ analyzer applications.

This new regulator is specifically designed to regulate negative pressures down to -26 in Hg vacuum (100 Torr). Typical applications include the delivery of low pressure gases from liquid sources such as  $WF_6$ ,  $BCL_3$ .



### ▶ materials of construction

#### Wetted

Body . . . . . 316L, Brass, Monel®, Hastelloy C-22®  
 Compression Member . . . . . Inconel®  
 Diaphragm . . . . . Hastelloy C-22®  
 Pin . . . . . Hastelloy C-22®  
 Poppet . . . . . Elgiloy®  
 Poppet Spring . . . . . Inconel®, Hastelloy C-22®  
 Back-up O-Ring . . . . . Viton®, optional Teflon®  
 Carrier . . . . . Stainless Steel\*, Hastelloy C-22®  
 Back-up Washer . . . . . Hastelloy C-22®  
 Seat . . . . . PCTFE, PEEK™, Vespel®  
 Inlet Screen/Filter† . . . . . 316L Stainless Steel,  
 Copper and Phosphor Bronze (Brass body),  
 Hastelloy C-22® (Hastelloy®, Monel® bodies)

#### Non-Wetted

Nut . . . . . 316L Stainless Steel  
 Knob (White) . . . . . ABS Plastic  
 Cap . . . . . Nickel Plated Brass,  
 Optional Stainless Steel

### ▶ operating conditions

Maximum inlet . . . . . 250 psig (17 barg)  
 Outlet . . 100 torr to 10 psig (-26 in Hg to .7 barg)

#### Temperature:

PCTFE . . . . . -40°F to 150°F (-40°C to 65°C)  
 \*\*PEEK™ . . . . . -40°F to 275°F (-40°C to 135°C)  
 \*\*Vespel® . . . . . -40°F to 500°F (-40°C to 260°C)

### ▶ functional performance

#### Flow capacity:

Standard . . . . .  $C_v$  .06  
 Optional . . . . .  $C_v$  .02, .15  
 (SEMI Flow Coefficient Test #F-32-0998)

#### Maximum Inboard Design

Leak Rate . . . . .  $< 2 \times 10^{-8}$  scc/sec HE

### ▶ standard configurations

1/4" and 1/8" female pipe threads

### ▶ internal volume

4.0 cc

### ▶ approximate weight

1.5 lbs. (.7 kg)

\* Proprietary Carpenter Stainless Steel with corrosion resistance equal or better than 316L.

\*\* Temperature ranges available in Stainless Steel body only.

† Inlet Screen/Filter available on NPT ports only.

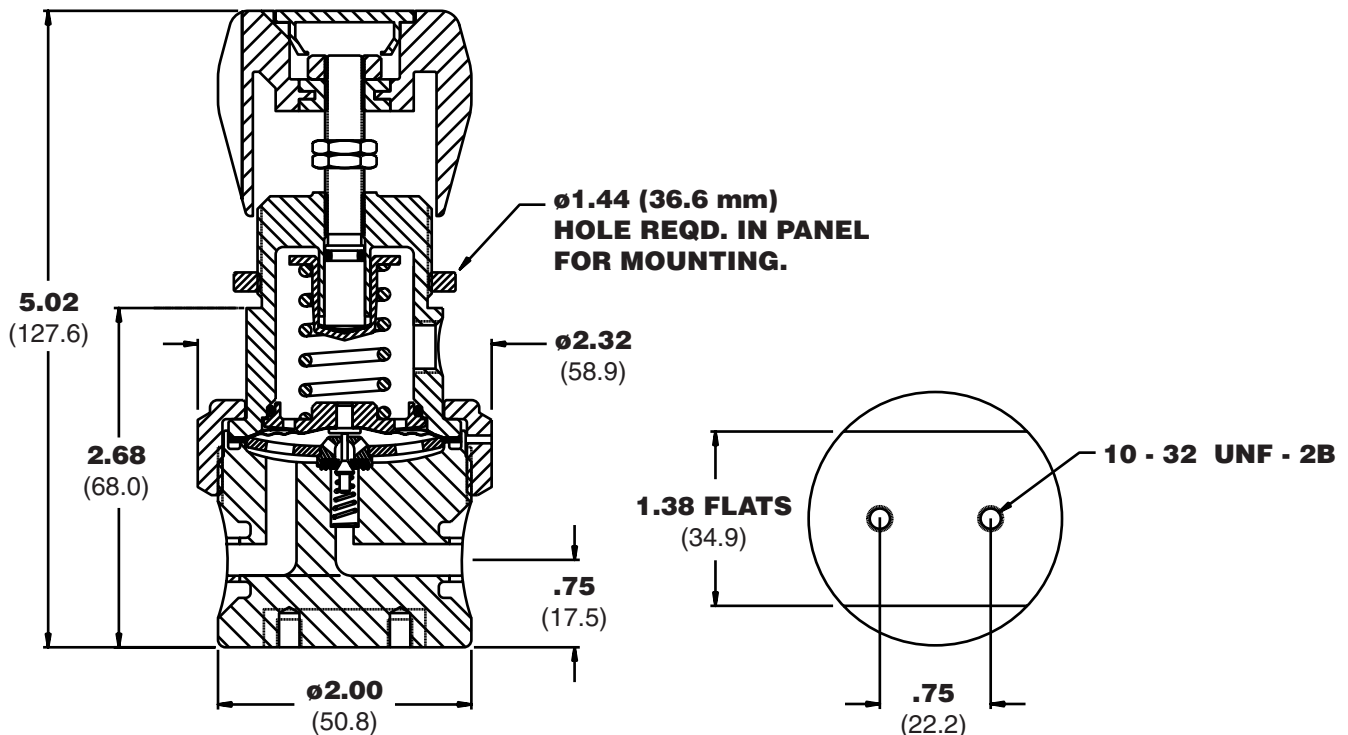


# NPR4100 Series

## Product Features and Benefits

- ▶ Unique patented compression member loads the seal to the body without requiring a threaded nozzle or additional seals to atmosphere.
- ▶ Selection of seat materials for media compatibility and temperature applications.
- ▶ Meets NACE Standard MR0175.
- ▶ O<sub>2</sub> Cleaned.
- ▶ Fully swept design.
- ▶ Internally threadless seat design promotes long seat life.
- ▶ Convoluted, Hastelloy C-22<sup>®</sup> diaphragm provides high corrosion resistance and increases cycle life.
- ▶ Positive upward and downward stops increases cycle life by preventing over stroking of the diaphragm.
- ▶ Low internal volume reduces cycle and purge time.
- ▶ Captured bonnet allows for safety venting.
- ▶ Standard units can be dome loaded (with clean dry air or nitrogen).
- ▶ The use of Inconel<sup>®</sup>, Hastelloy C-22<sup>®</sup>, and Elgiloy<sup>®</sup> provide superior corrosion resistance and high repeatability.
- ▶ Close tolerances and tight alignment of moving components minimize hysteresis.
- ▶ Unique carrier design disperses gas uniformly through the regulator to improve purging.

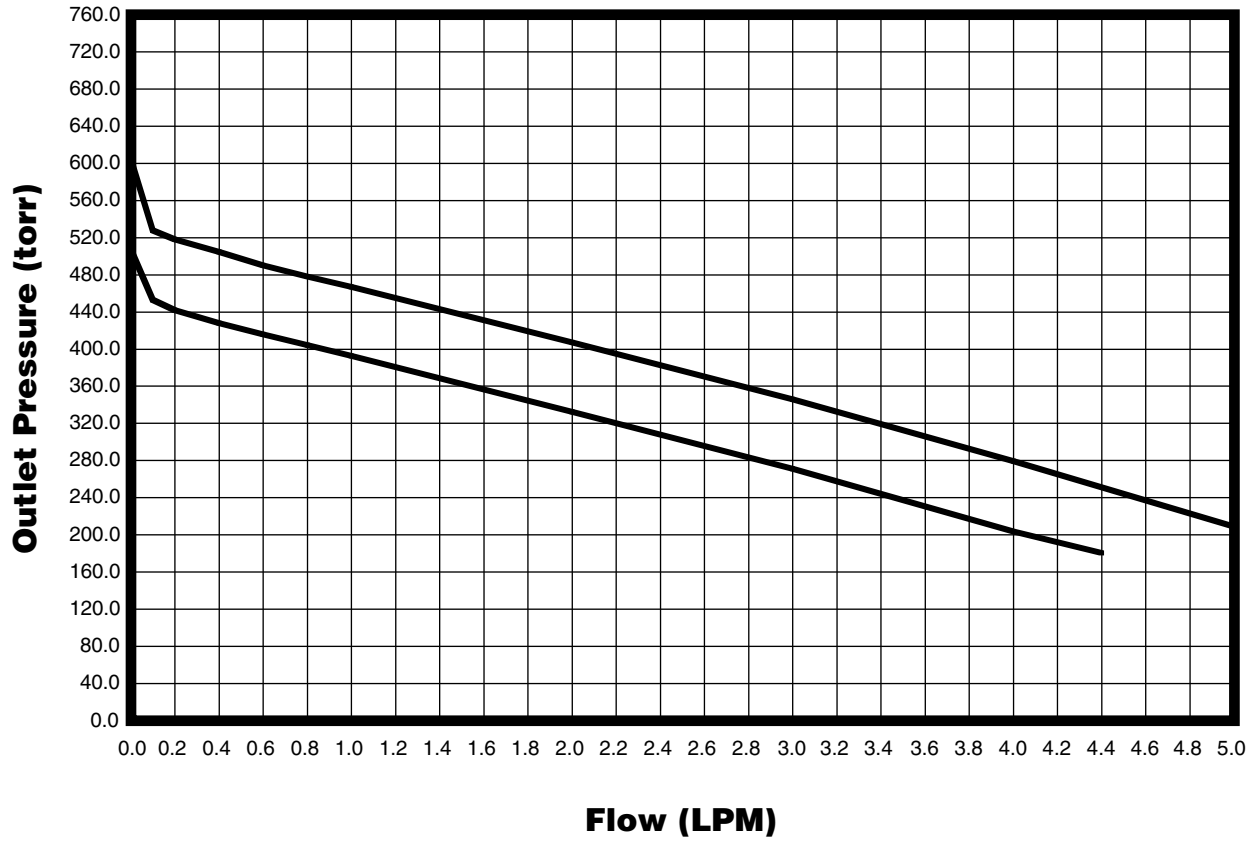
## Dimensional Drawing



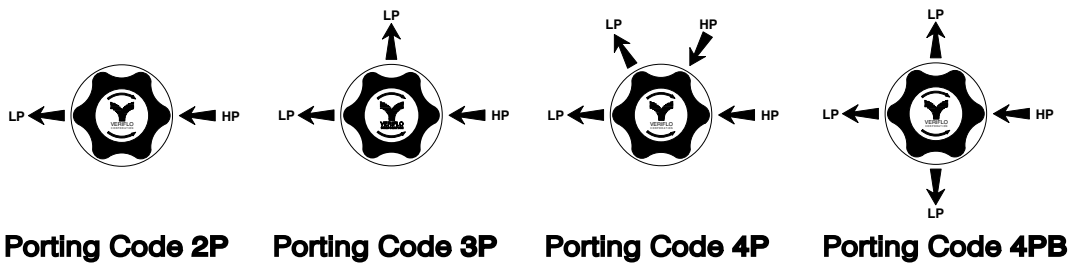
# NPR4100 Series

## Flow Curve

**NPR4000** ( $C_V = .06$ )  
 Inlet Pressure - 4 PSIG

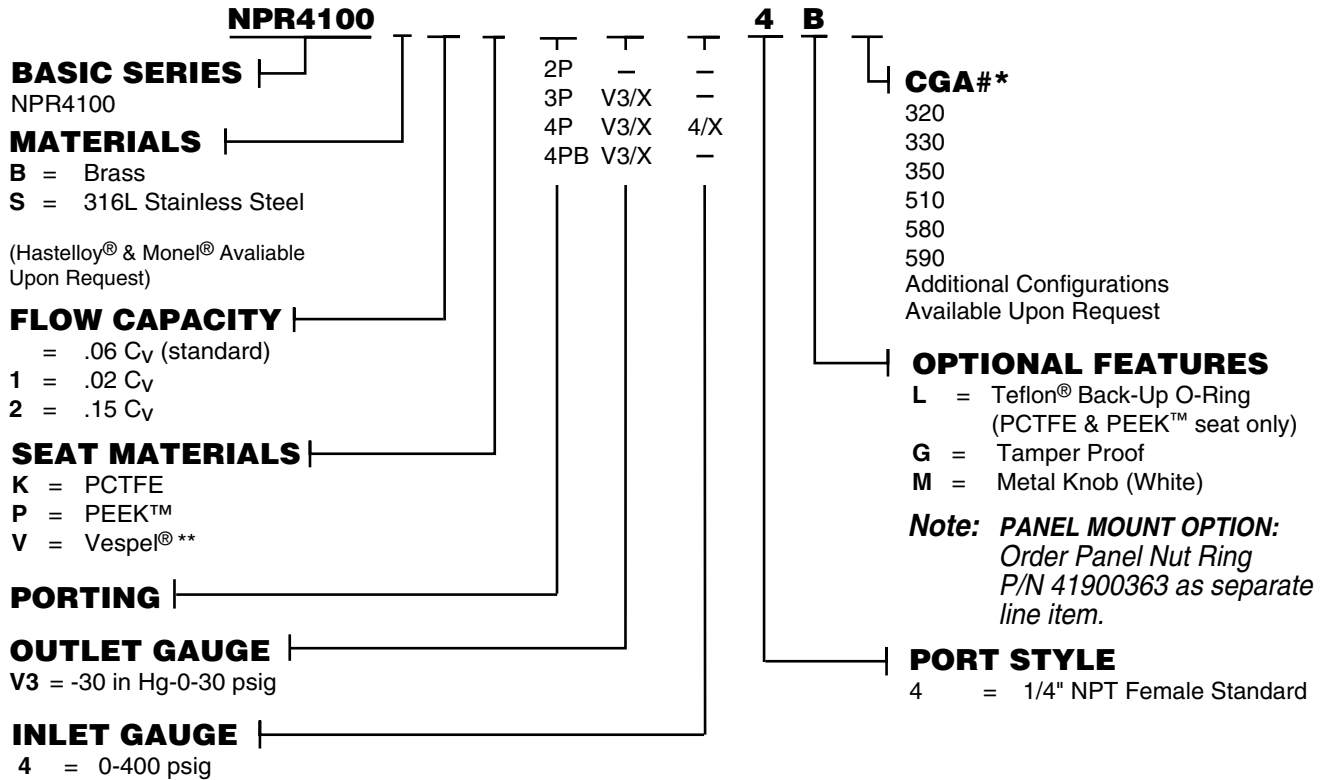


## Porting Configurations



# NPR4100 Series

## Ordering Information



### ORDERING REGULATORS WITHOUT GAUGES

#### Example #1

NPR4100SK2P4B (No X required for gauges, inlet & outlet ports only)

#### Example #2

NPR4100SK3PX4B (One X for gauge port)

#### Example #3

NPR4100SK4PBX4B (One X for gauge port)

#### Example #4

NPR4100SK4PXX4B (Two X's for gauge ports)

\* Do not exceed the rated pressure of the CGA connection

\*\* Recommended for Nitrous Oxide (N<sub>2</sub>O) Service

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VespeI® is a registered trademark of DuPont Company.  
PEEK™ is a trademark of Victrex plc.



Parker Hannifin Corporation's Veriflo Division presents the MIR700 Series regulator. The MIR 700 is a general purpose, compact regulator designed for low to medium pressure applications.

Constructed from brass or stainless steel bar stock this unit is capable of handling a broad range of media. Its reliable performance and modest size make the MIR700 Series regulator ideal for applications that require pressure control in a compact space.



### features

- ▶ Precise flexing, Hastelloy C-22® Diaphragm.
- ▶ 100% tested.
- ▶ O<sub>2</sub> Cleaned.
- ▶ Proven valve seat assembly.
- ▶ Low internal volume.
- ▶ Machined from solid bar stock.
- ▶ Meets NACE MR-01-75.

### options

- ▶ Pressure gauges.
- ▶ Miniature instrument knob.
- ▶ Panel mount.
- ▶ CGA fittings.
- ▶ Relief Valve.
- ▶ Fairprene Diaphragm.

### materials of construction

#### Wetted

- Body . . . . . 316L Stainless Steel, Nickel Plated Brass
- Poppet . . . . . 316L Stainless Steel or Brass
- Poppet Spring . . . . . Inconel® 625
- Gasket . . . . . Teflon®
- Nozzle Assy . . . . . 316 Stainless Steel or Brass
- Seat . . . . . PCTFE
- Diaphragm . . . . . Hastelloy C-22®, optional Fairprene®

#### Non-wetted

- Cap . . . . . Chrome Plated Brass
- Knob . . . . . ABS Plastic

### operating conditions

- Maximum inlet pressure . . . 3,000 psig (207 barg)
- Outlet pressure . . . . . 1-15 psig (1 barg)  
2-30 psig (2 barg), 3-100 psig (7 barg)  
4-200 psig (14 barg)
- Temperature . . . . . -40°F to 150°F (-40°C to 66°C)

### functional performance

- Flow capacity . . . . . C<sub>v</sub> = .02, (SEMI Coefficient Test #F-32-0998)
- Supply pressure effect . . . . 0.6 psig per 100 psig (0.03 barg per 6.80 barg)
- Maximum Inboard Design Leak Rate . . . . . < 2 x 10<sup>8</sup> scc/sec HE

### design parameters

- Design proof pressure . . . . 4500 psig (310 barg)
- Design burst pressure . . . . 9,000 psig (621 barg)

### standard connections

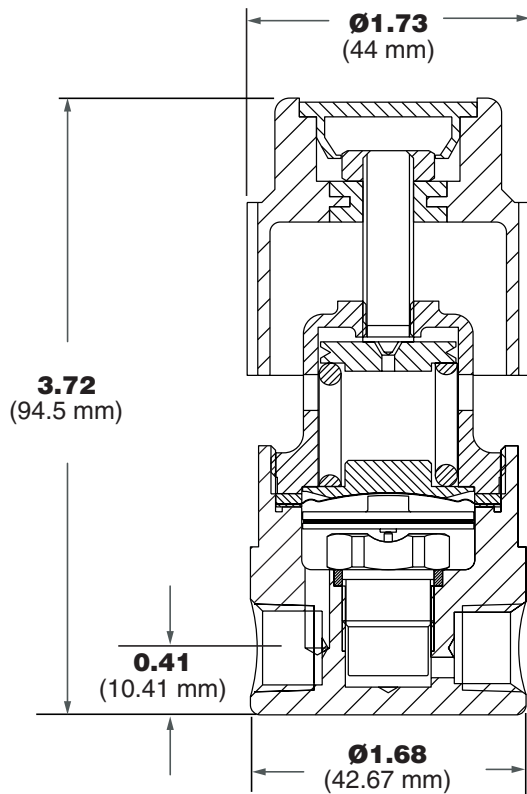
- 1/8" or 1/4" female pipe threads (NPT) or optional CGA

### approximate weight

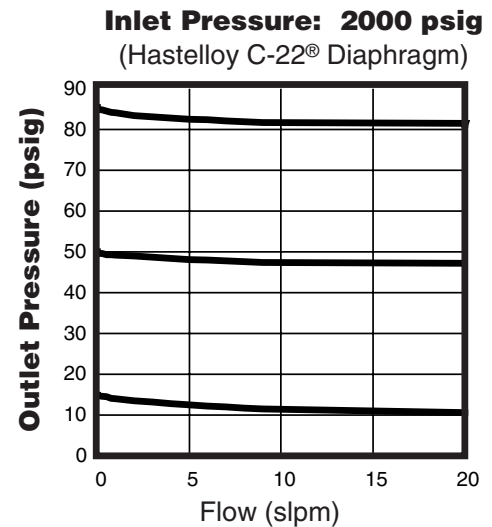
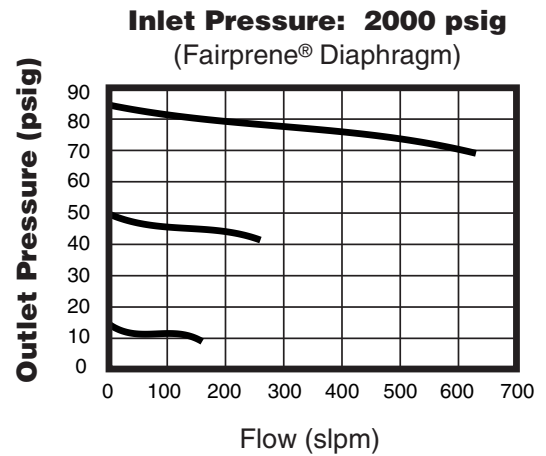
- 1.1 lbs (.5 kg)

# MIR700 Series

## Dimensional Drawing



## Flow Curves



## Ordering Information

### MIR700

#### BASIC SERIES

MIR700

#### PRESSURE SETTING

- 15 = 1 - 15 psig
- 30 = 2 - 30 psig
- 100 = 3 - 100 psig
- 200 = 4 - 200 psig

#### MATERIAL

- B = Brass
- S = 316L Stainless Steel

#### PORTING

- 2P = 2 Ports
- 3P = 3 Ports
- 4P = 4 Ports
- 4PB = 4 Ports

#### OUTLET GAUGE

- 03 = 0 - 30 psig
- 01 = 0 - 100 psig
- 2 = 0 - 200 psig
- X = No Gauge

#### OPTIONS

- CGA = Inlet Connection (Specify CGA No.)†
- FTD = Fairprene Diaphragm
- M = Miniature Instrument Knob
- MH = Mounting Holes
- PM = Panel Mount
- R = Relief Valve

#### PORT CONFIGURATION

- 2 = 1/8" NPTF
- 4 = 1/4" NPTF

#### INLET GAUGE

- 01 = 0 - 100 psig
- 2 = 0 - 200 psig
- 6 = 0 - 600 psig
- 10 = 0 - 1000 psig
- 20 = 0 - 2000 psig
- 30 = 0 - 3000 psig
- 40 = 0 - 4000 psig
- X = No Gauge

† Caution: Do not exceed the rated pressure of the CGA Connection.

Fairprene® and Teflon® are registered trademarks of DuPont Company.  
 Inconel® is a registered trademark of Inco Alloys International.  
 Hastelloy C-22® is a registered trademark of Hayes International, Inc.



# HFR900 Series

## High Flow Regulator



Parker Hannifin Corporation's Veriflo Division presents the HFR900 series is designed and engineered for use in those applications using high flow rates requiring a compact pressure regulator for control.



### features

- ▶ "VeriClean", Veriflo's low sulfur high purity 316L Stainless Steel, which enhances electropolishing, and corrosion resistance.
- ▶ Also available in Brass.
- ▶ O<sub>2</sub> Cleaned.
- ▶ Self-contained, replaceable valve seat assembly.
- ▶ Over 20 years of proven reliability.

### applications

- ▶ Fluid media: corrosive and non-corrosive gases.
- ▶ Point-of-use applications.
- ▶ Most high flow requirement with less than 500 psig supply pressure.

### materials of construction

#### Wetted

Body . . . . . "VeriClean", Veriflo's high purity type 316L Stainless Steel or Brass  
Seat Assembly. . . . . 316L Stainless Steel or Brass  
Seal . . . . . Teflon® and Viton® or Teflon® and Kalrez®  
Diaphragm. . . . . 316L Stainless Steel, Teflon® lined

#### Non-Wetted

Cap . . . . . Nickel plated Brass or Brass  
Knob (Black). . . . . ABS Plastic

### operating conditions

Maximum supply pressure:  
Viton® Seal . . . . . 500 psig (35 barg)  
Kalrez® Seal . . . . . 200 psig (14 barg)  
Outlet Pressures . . . . . 1-30 psig (.06-2 barg)  
2-75 psig (.1-5 barg)  
5-150 psig (.3-10 barg)  
Design burst pressure . . . . . 1500 psig (103 barg)  
Design proof pressure . . . . . 1000 psig (69 barg)  
Temperature . . . . . -40°F to 165°F  
(-40°C to 73°C)  
Temperature (Brass) . . . . . -40°F to 150°F  
(-40°C to 66°C)

### functional performance

Flow capacity . . . . . C<sub>v</sub> = .85  
(SEMI Flow Coefficient Test# F-32-0998)

Maximum Inboard Design  
Leak Rate . . . . . < 2 x 10<sup>-8</sup> scc/sec HE

### standard connections

1/4", 3/8" or 1/2" Female pipe threads (NPT)  
1/4", 3/8" or 1/2" Compression fittings

### internal volume

2.33 cu in (38 c.c.)

### surface finishes

Standard Ra . . . . . 15-20 micro inch  
(.38 to .5 micro meter) or less

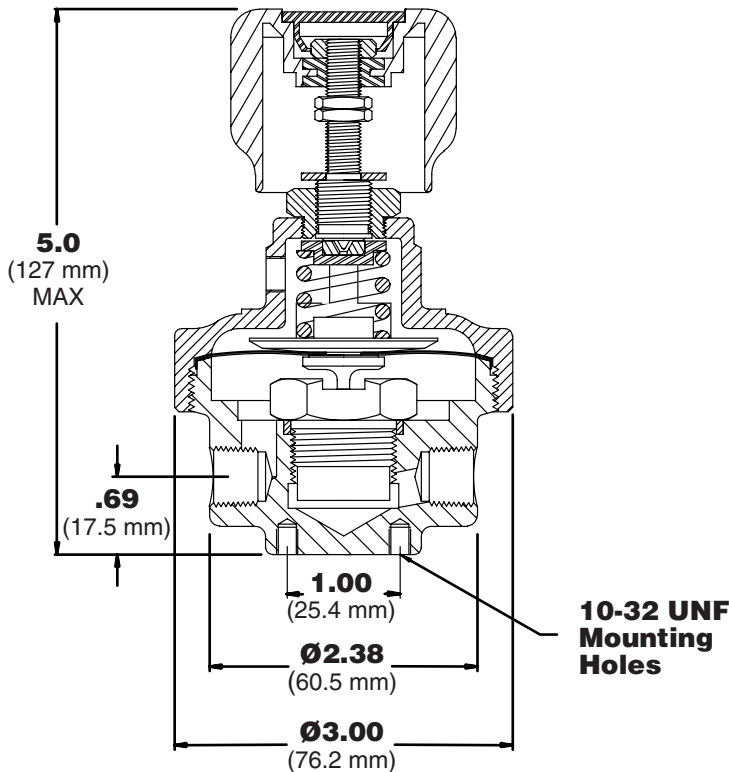
### approximate weight

2.5 lbs. (1.2 kg)

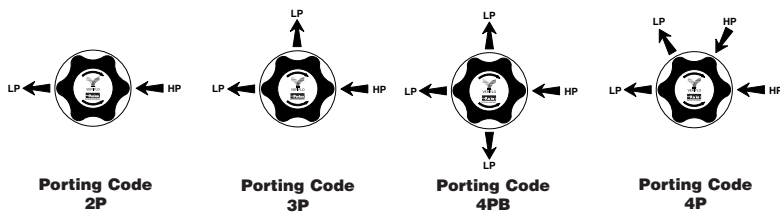


# HFR900 Series

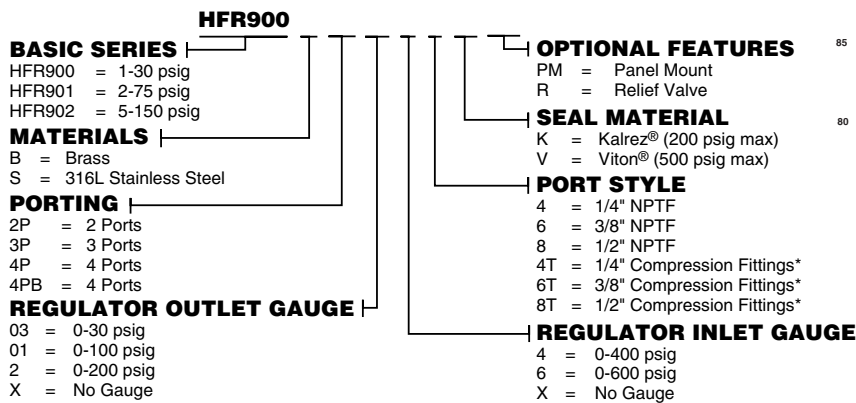
## Dimensional Drawing



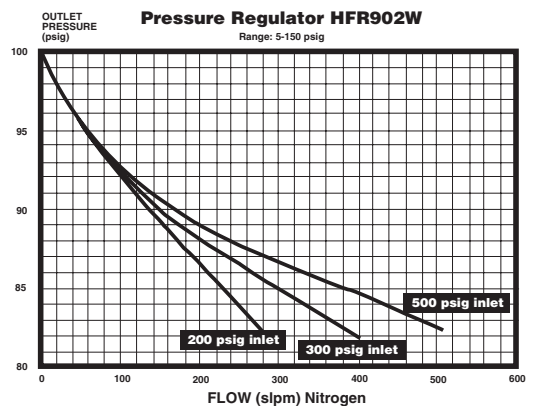
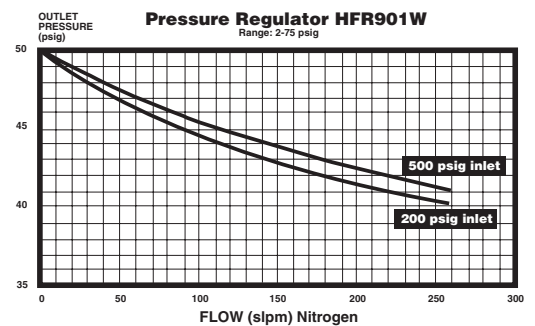
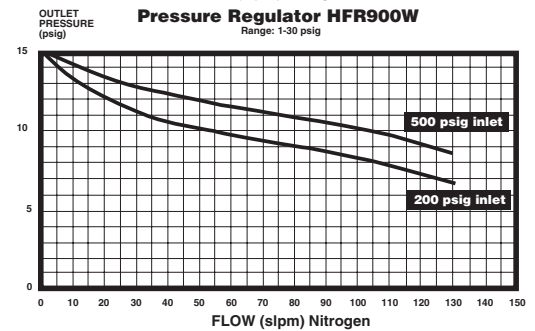
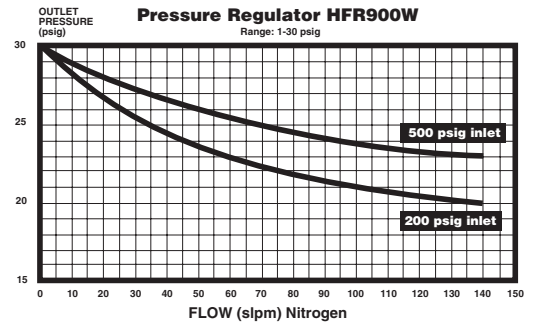
## Porting Configuration



## Ordering Information



## Flow Curves



\* Compression fittings are threaded and include nuts and ferrules.

Viton® is a registered trademark of DuPont Dow Elastomers. Kalrez® and Teflon® are registered trademarks of DuPont Company.

**Parker**  
Instrumentation

# HPR800 Series

## Pressure Regulator



Parker Hannifin Corporation's Veriflo Division presents the HPR800 Series High Pressure Regulator. The HPR800's were designed to meet those applications requiring high outlet pressures to 2500 psig.



### features

- ▶ "VeriClean", Veriflo's custom low sulfur, high purity type 316L VAR Stainless Steel, enhances electropolishing and welding.
- ▶ Also available in Brass.
- ▶ Low actuating torque.
- ▶ Diaphragm sensing regulator.
- ▶ Easily maintained.
- ▶ Self-contained valve seat assembly.
- ▶ Fluid media capabilities: Corrosive and non-corrosive gases.

### materials of construction

#### Wetted

Body . . . . . "VeriClean", Veriflo's high purity type 316L Stainless Steel or Brass  
Poppet . . . . . 316 Stainless Steel or Brass  
Poppet Spring . . . . . Inconel® 625  
Nozzle Assembly . . . . . 316 Stainless Steel, Brass  
Nozzle Assembly Seal . . . . . Teflon®  
Seat . . . . . PCTFE  
Diaphragm . . . . . 316L Stainless Steel, Teflon® lined

#### Non-wetted

Spring housing . . . . . Nickel Plated Brass, Brass  
Bushing . . . . . Nickel Plated Brass  
Stem Handle Tee . . . . . Nickel Plated Brass

### operating conditions

Maximum inlet . . . . . 5000 psig @ 70°F  
(345 barg @ 21°C)

For oxygen . . . . . 3000 psig (207 barg)  
Outlet . . . . . 10-800 psig (.7 - 55 barg) adjustable  
20-1500 psig (1.4 - 103 barg) adjustable  
50-2500 psig (3.4 - 172 barg) adjustable

Temperature . . . . . -40°F to 165°F (-40°C to 74°C)  
Temp. (Brass) . . . . . -40°F to 150°F (-40°C to 66°C)

### functional performance

Flow capacity . . . . .  $C_v = .02$   
(ANSI/ISA S75.02 1988 using water)

Design Burst Pressure . . . . . 15,000 psig (1,034 barg)  
Design Proof Pressure . . . . . 22,500 psig (1,551 barg)

Maximum Inboard Design  
Leak Rate . . . . .  $< 2 \times 10^8$  scc/sec HE

Supply pressure effect . . . . . 0.5 psig per 100 psig  
(.03 barg per 7 barg)

### standard configurations

1/4 inch female pipe threads inlet and outlet  
End to end length . . . . . 1.88 in. (47.8 mm)

Any combination of FS male and/or female fittings.  
1/4" gland to gland length 1.85 ± .02 in. (47 ± .05 mm)

### internal volume

6.5 cc

### approximate weight

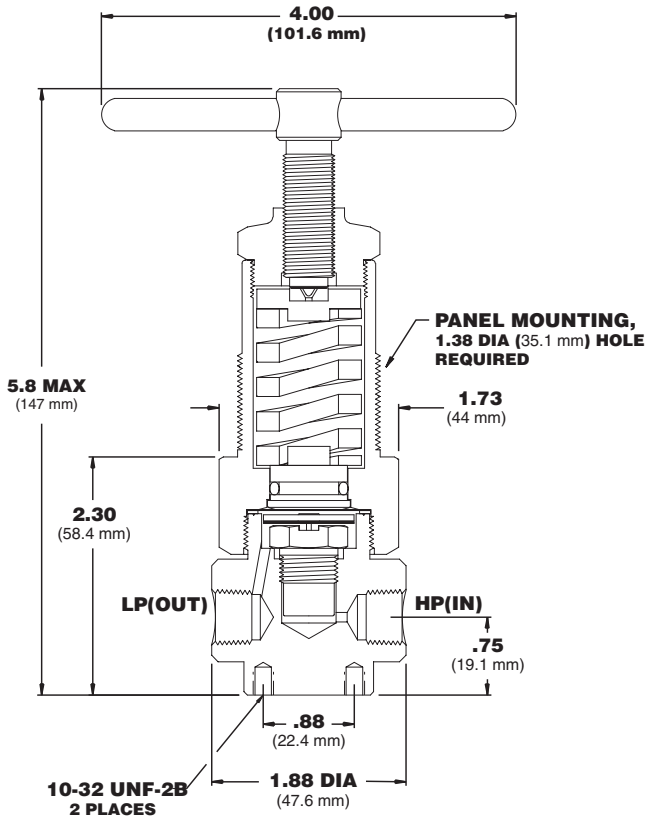
2.19 lbs. (.993 kg)



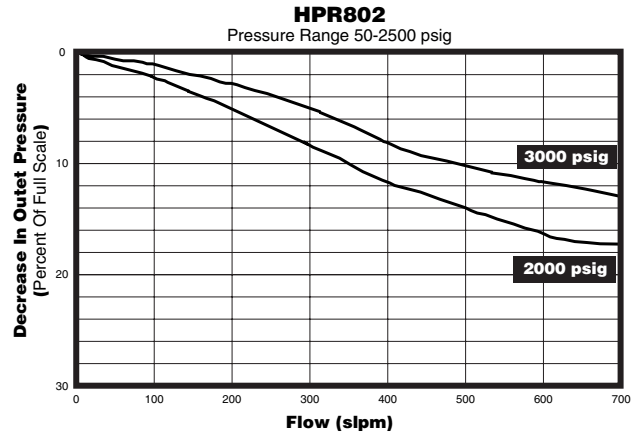
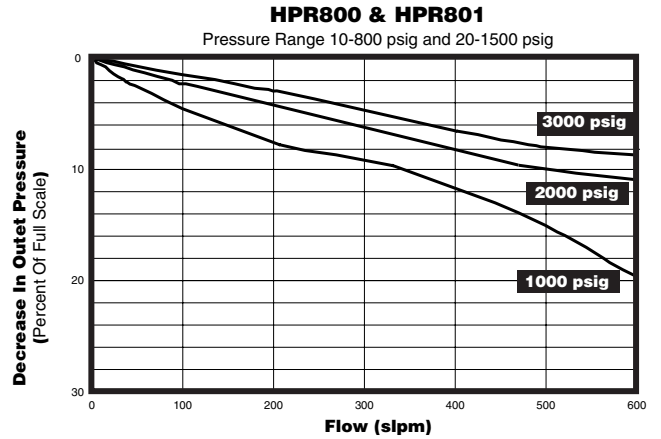


# HPR800 Series

## Dimensional Drawing



## Flow Curve



## Ordering Information

### HPR800

#### BASIC SERIES

HPR800 = 10 - 800 psig  
HPR801 = 20 - 1500 psig  
HPR802 = 50 - 2500 psig

#### MATERIALS

B = Brass  
S = 316L Stainless Steel  
W = 316L Welded Stainless Steel

#### PORTING

2P = 2 Port  
3P = 3 Port  
4P = 4 Port  
5P = 5 Port

#### REGULATOR OUTLET GAUGE

10 = 0 - 1000 psig  
20 = 0 - 2000 psig  
30 = 0 - 3000 psig  
X = No Gauge

#### OPTIONAL FEATURES

CGA = Inlet Connector (Specify CGA No.)\*  
PM = Panel Mount

#### PORT CONFIGURATION

4 = 1/4" NPTF (Standard)  
FSM = 1/4" Male Face Seal  
FSF = 1/4" Female Face Seal  
FSI = Internal Face Seal\*\*

#### REGULATOR INLET GAUGE

30 = 0 - 3000 psig  
40 = 0 - 4000 psig  
60 = 0 - 6000 psig  
X = No Gauge

\* Do not exceed the rated pressure of the CGA Connection.

\*\* Uses a 2" Diameter Body.

Teflon® is a registered trademark of Dupont.  
Incone® is a registered trademark of Inco Alloys International.

**Parker**  
Instrumentation

# APR66 Series

## Pressure Reducing Regulator



Parker Hannifin Corporation's Veriflo Division presents the APR66 Series is a high pressure reducing single-stage regulator designed to operate at inlet pressures up to 6000 psig.

The APR66 offers a full range of pressure sensing without time consuming spring and piston change outs.



### features

- ▶ Piston sensing.
- ▶ Thrust bearing allows low actuating torque and precise setability.
- ▶ O<sub>2</sub> Cleaned.
- ▶ Low friction adjusting screw sleeve provides smooth operation.
- ▶ Optional self relieving feature allows user to decrease outlet pressure in closed systems (feature is actuated by turning the adjusting knob counterclockwise).

**NOTE:** For safety purposes, the optional self-relieving feature is not recommended for toxic or flammable gases or liquids.

### materials of construction

#### Wetted

Body	316L Stainless Steel, Nickel Plated Brass
Screen	Hastelloy C-22®
Washer	Stainless Steel
Spring	Hastelloy C-22®
Poppet	Stainless Steel
Seat	PEEK™
Seat and Screw Clamp	Stainless Steel
Plug and Screw	Stainless Steel
Piston	Torlon
Piston Housing	Stainless Steel
Stem	Stainless Steel
Seals	Aflas®, Teflon® and PCTFE

#### Non-Wetted

Cap	Nickel plated brass
Cap nut	316L Stainless Steel
Knob	ABS Plastic (black) optional Metal Knob (black)

### operating conditions

Inlet pressure	6000 psig (414 barg)
Outlet pressure	100-1000 psig (69 barg) 100-2000 psig (138 barg), 100-3000 psig (207 barg), 100-6000 psig (414 barg)

Temperature . . . . -40°F to 165°F (-40°C to 74°C)

### functional performance

Design proof pressure	9000 psig (620 barg)
Design burst pressure	18000 psig (1241 barg)

Flow capacity . . . . . C<sub>v</sub> 0.05  
(SEMI Flow Coefficient Test #F-32-0998)

Supply pressure effect . . . . . 4 psig per 100 psig  
(.28 barg per 7 barg) for 100-1000, 2000 & 3000  
psig ranges (69, 138 & 207 barg) 6 psig per  
100 psig (.4 barg per 7 barg) for 100-6000 psig  
(419 barg) range

Maximum Inboard Design  
Leak Rate . . . . . < 2 x 10<sup>-8</sup> scc/sec HE

### standard connections

1/8", 1/4" female pipe threads MS 33649 or DIN  
ISO 228/1

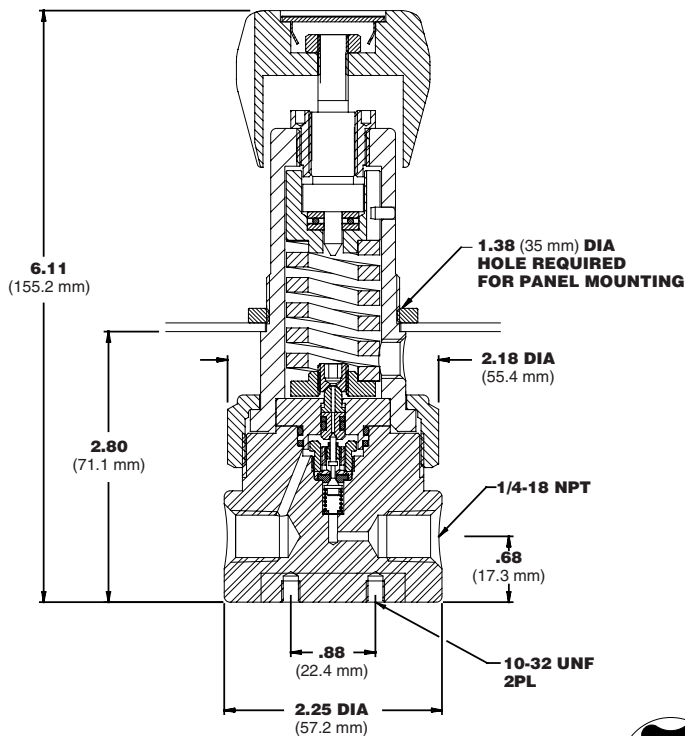
### approximate weight

3.0 lbs (1.4 kg)

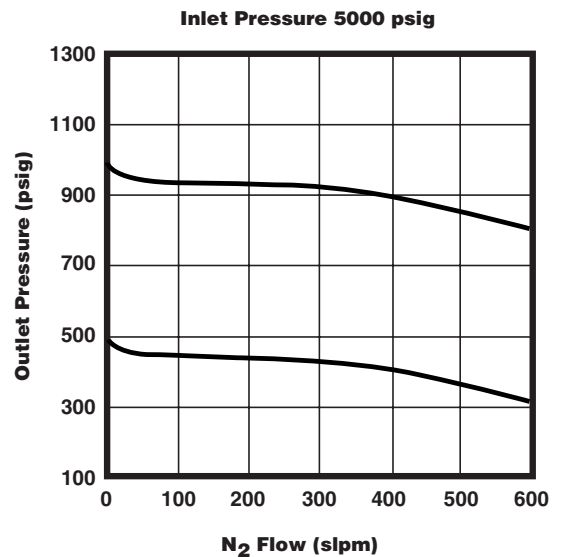


# APR66 Series

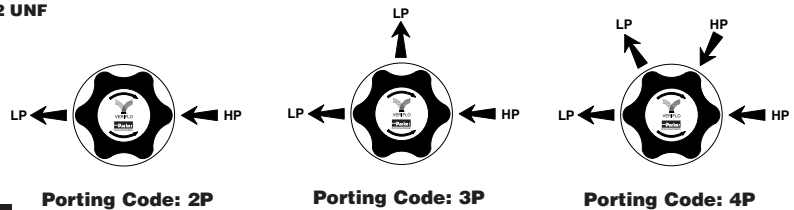
## Dimensional Drawing



## Flow Curve



## Porting Configurations



## Ordering Information

### APR66

#### BASIC SERIES

APR66

#### MATERIALS

S = 316L Stainless Steel  
B = Nickel Plated Brass

#### PORTING

2P = 2 Ports  
3P = 3 Ports  
4P = 4 Ports

#### PRESSURE RANGE

1 = 100 - 1000 psig  
2 = 100 - 2000 psig  
3 = 100 - 3000 psig  
4 = 100 - 6000 psig

\* Do not exceed the rated pressure of the CGA connection

\*\* Inlet and Outlet Ports Only

† Stainless Steel gauges only

Note: Each unit is standard with a threaded cap and panel mount nut.

Aflast® is a registered trademark of 3M Company.

Teflon® is a registered trademark of DuPont Company.

Peek™ is a trademark of Victrex plc

#### OPTIONAL FEATURES

CGA = CGA Connection (Specify CGA No.)\*  
SR = Self Relieving  
M = Metal Knob (Black)

#### PORT STYLE

2 = 1/8" NPTF  
4 = 1/4" NPTF  
D = DIN ISO 228/1\*\*  
MS = M533649\*\*

#### INLET GAUGE†

40 = 0 - 4000 psig  
60 = 0 - 6000 psig  
X = No Gauge

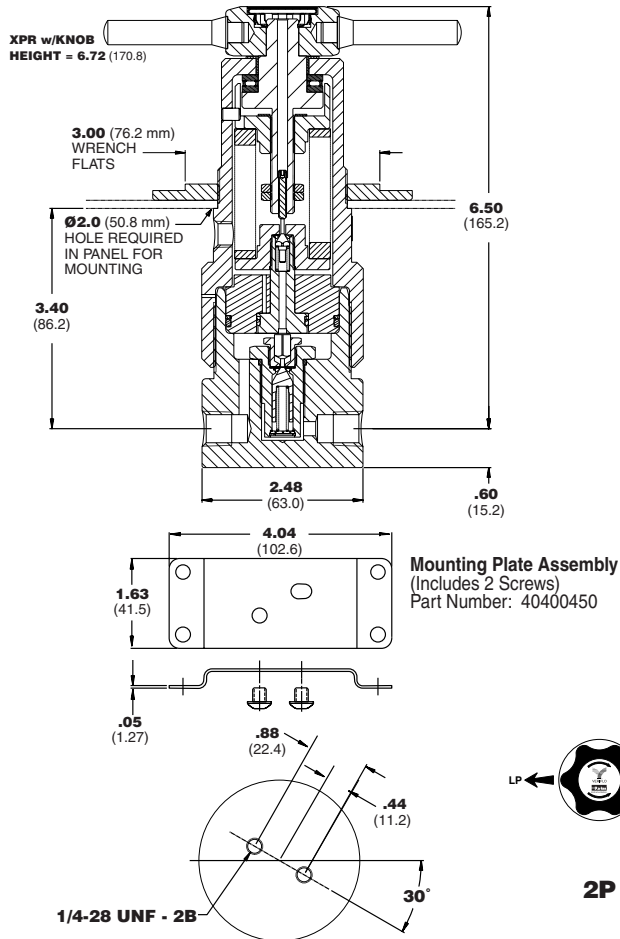
#### OUTLET GAUGE†

10 = 0 - 1000 psig  
20 = 0 - 2000 psig  
30 = 0 - 3000 psig  
40 = 0 - 4000 psig  
60 = 0 - 6000 psig  
X = No Gauge

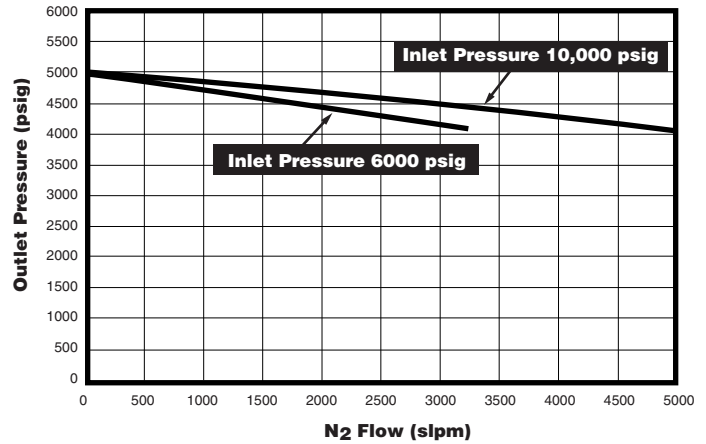


# XPR Series

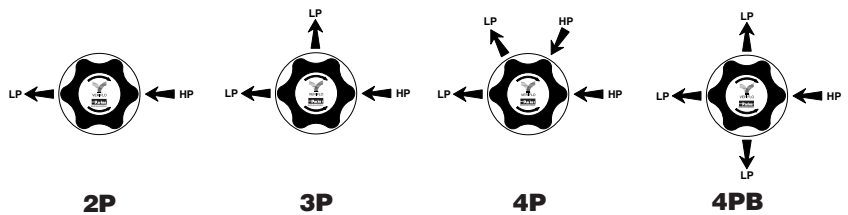
## Dimensional Drawing



## Flow Curve



## Porting Configuration



## Ordering Information

**BASIC SERIES** | XPR

**MATERIAL**  
 B = Brass (6000 psig max)  
 S = 316L Stainless Steel (10000 psig max)

Range	Outlet Gauge
5 = 50 psig to 500 psig	0 - 600 psi
8 = 50 psig to 800 psig	0 - 1000 psi
15 = 100 psig to 1500 psig	0 - 2000 psi
25 = 135 psig to 2500 psig	0 - 3000 psi
40 = 200 psig to 4000 psig	0 - 6000 psi
60 = 300 psig to 6000 psig	0 - 6000 psi
100 = 500 psig to 10000 psig*	0 - 10000 psi

**PORTING**  
 2P = 2 Ports  
 3P = 3 Ports  
 4P = 4 Ports  
 4PB = 4 Ports

\*Stainless Steel material only

Vespel®, Teflon® and Kalrez® are registered trademarks of DuPont Company.  
 Viton® is a registered trademark of DuPont Dow Elastomers.  
 Inconel® is a registered trademark of Inco Alloys International.

### OPTIONS

N = Non-Self Relieving  
 Q = Nickel Plate (Brass body only)  
 T = Tee Bar Handle

**O-RING MATERIAL**  
 O = Viton®

### PORT STYLE

2 = 1/8" NPT  
 4 = 1/4" NPT  
 6 = 3/8" NPT

### INLET GAUGE

60 = 0 - 6000 psig (standard for 5, 8, 15, 25, 40, 60)  
 100 = 0 - 10000 psig (standard for 100)

### OUTLET GAUGE

6 = 0 - 600 psig  
 10 = 0 - 1000 psig  
 20 = 0 - 2000 psig  
 30 = 0 - 3000 psig  
 60 = 0 - 6000 psig  
 100 = 0 - 10000 psig

**Note: PANEL MOUNT OPTION:**  
 Order Panel Nut Ring  
 P/N 40400440 as separate line item.





Parker Hannifin Corporation's Veriflo Division presents the Quantum 959. The 959 is a high purity, high pressure tied diaphragm regulator.

The 959 regulator controls pressure flows accurately and predictably without changing the liquids or gases and without adding particles or ions to the flowing material.

Subatmospheric pressure control available with the NPR959.



### features

- ▶ "VeriClean", Veriflo's low sulfur high purity 316L, Stainless Steel™ enhances electropolishing, welding, and corrosion resistance.
- ▶ Unique patented compression member loads the seal to the body without requiring a threaded nozzle or additional seals to atmosphere.
- ▶ Internally threadless nozzle assembly.
- ▶ Metal-to-metal diaphragm-to-body seal assures high leak integrity.
- ▶ Minimal particle generation and entrapment.
- ▶ High cycle life.
- ▶ 100% Helium leak tested.

### materials of construction

#### Wetted

Body . . . . . "VeriClean", Veriflo's high purity type 316L Stainless Steel™, Hastelloy C-22®  
 Seat . . . . . PCTFE, optional Vespele®  
 Diaphragm . . . . . 316L Stainless Steel, Hastelloy C-22®  
 Poppet . . . . . 316L Stainless Steel, Hastelloy C-22®  
 Poppet Spring . . . . . 316L Stainless Steel, Inconel®  
 Compression Member . . . . . 316L Stainless Steel™, Hastelloy C-22®  
 Screen . . . . . Hastelloy C-22®

#### Non-Wetted

Nut . . . . . 316L Stainless Steel  
 Cap . . . . . Nickel Plated Brass

#### Knob:

959 (Black) . . . . . ABS Plastic  
 NPR959 (White) . . . . . ABS Plastic

### operating conditions

Maximum inlet . . . . . 3500 psig (240 barg)  
 .2 C<sub>v</sub> . . . . . 1200 psig (83 barg)  
 Outlet . . . . . 0-30 psig (2 barg)  
 0-100 psig (7 barg), 0-150 psig (10.3 barg)  
 NPR . . . . . -25 in Hg to 30 psig  
 Temperature . . . . . -40°F to 150°F (-40°C to 65°C)

### functional performance

Flow capacity . . . . . C<sub>v</sub> = .04  
 optional C<sub>v</sub> = .2  
 (SEMI Flow Coefficient Test # F-32-0998)

#### Design Leak Rate:

Outboard . . . . . 1 x 10<sup>-9</sup> scc/sec He  
 Inboard . . . . . 2 x 10<sup>-10</sup> scc/sec He  
 Across seat . . . . . 2 x 10<sup>-9</sup> scc/sec He

### standard configurations

Any combination of FS male and/or female fittings:  
 1/4 inch Gland to gland length. . . . . 3.70 ± .02 in.  
 (94.0 ± .5 mm)  
 Optional . . . . . 3.40 ± .02 in. (86.0 ± .5 mm)

#### 1/4 inch tube stubs inlet and outlet:

End to end length . . . . . 3.70 ± .02 in. (94.0 ± .5 mm)  
 1/4 inch female pipe threads inlet and outlet:  
 End to end length . . . . . 1.88 ± .02 in. (47.7 ± .5 mm)

### internal volume

5.41 cc

### surface finishes

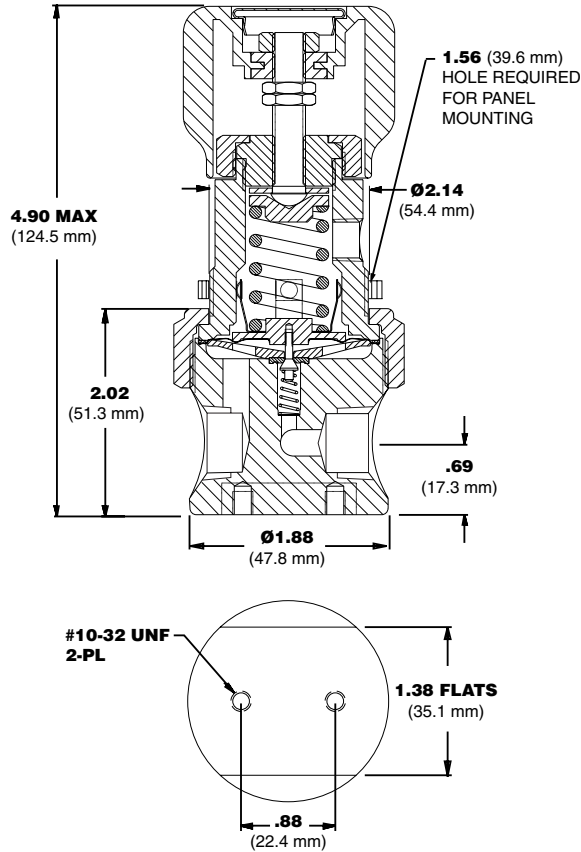
Standard Ra . . . . . 15-20 m inch  
 (.38 to .5 m meter) or less  
 Optional Ra . . . . . EX = 10 m inch (.25 m meter)  
 EV = 5 m inch (.13 to .5 m meter) or less

### approximate weight

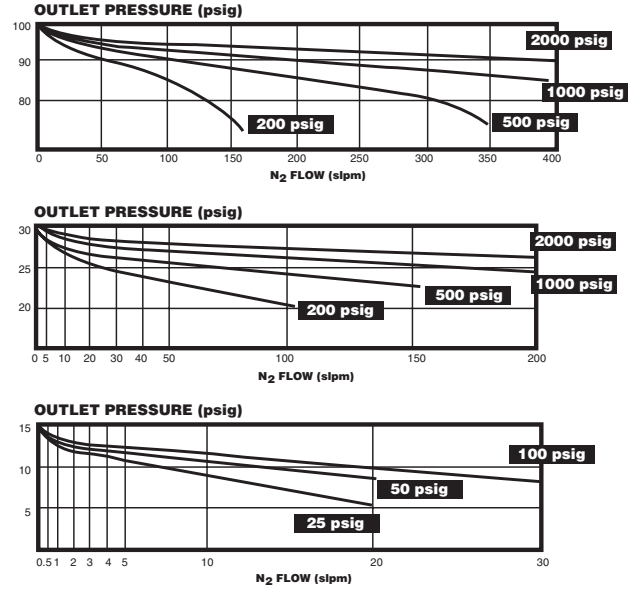
2 lbs (.9 kg)



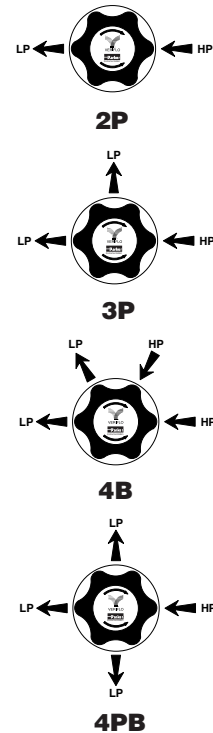
## Dimensional Drawing



## Flow Curves



## Porting Configurations



## Ordering Information

**95930**

### BASIC SERIES

95930 = 0 - 30 psig  
 959100 = 0 - 100 psig  
 959150 = 0 - 150 psig  
 NPR95930 = -25 in Hg- 0-30 psig

### MATERIALS

S = 316L Stainless Steel  
 W = Welded 316L Stainless Steel  
 H = Hastelloy C-22<sup>®</sup>\*

### PORTING

2P = 2 Ports  
 3P = 3 Ports  
 4P = 4 Ports  
 4PB = 4 Ports  
 5P = 5 Ports  
 6P = 6 Ports

### OUTLET GAUGE

V3 = -30 in Hg-0-30 psig  
 V1 = -30 in Hg-0-100 psig  
 V2 = -30 in Hg-0-200 psig  
 3 = 0 - 30 psig  
 1 = 0 - 100 psig  
 2 = 0 - 200 psig  
 X = No Gauge

### OPTIONAL FEATURES

DO = Dome Loaded  
 PM = Panel Mount  
 TH = Trim Hastelloy C-22<sup>®</sup> Internals\*\*  
 VESP = Vespel<sup>®</sup> Seat  
 (Recommended for Nitrous Oxide)  
 2 = 0.2 Cv  
 3.4 = FS Fittings 3.4" Face to Face

### PORT CONFIGURATION

M = Male  
 F = Female  
 I = Internal Face Seal\*\*\*

### PORT STYLE

FS = 1/4" Face Seal  
 4 = 1/4" NPTF  
 TS = 1/4" Tube Stub

### INLET GAUGE

V3 = -30 in Hg -0-30 psig  
 V1 = -30 in Hg -0-100 psig  
 2 = 0-200 psig  
 6 = 0-600 psig  
 10 = 0-1000 psig  
 20 = 0-2000 psig  
 30 = 0-3000 psig  
 40 = 0-4000 psig  
 X = No Gauge

\* Hastelloy C-22<sup>®</sup> Material Includes: Hastelloy C-22<sup>®</sup> Body, Compression Member, Poppet, Diaphragm, Screen, and Inconel<sup>®</sup> Spring

\*\* Trim Hastelloy C-22<sup>®</sup> Includes: 316L Stainless Steel Body, Hastelloy C-22<sup>®</sup> Compression Member, Poppet, Diaphragm, Screen, and Inconel<sup>®</sup> Spring

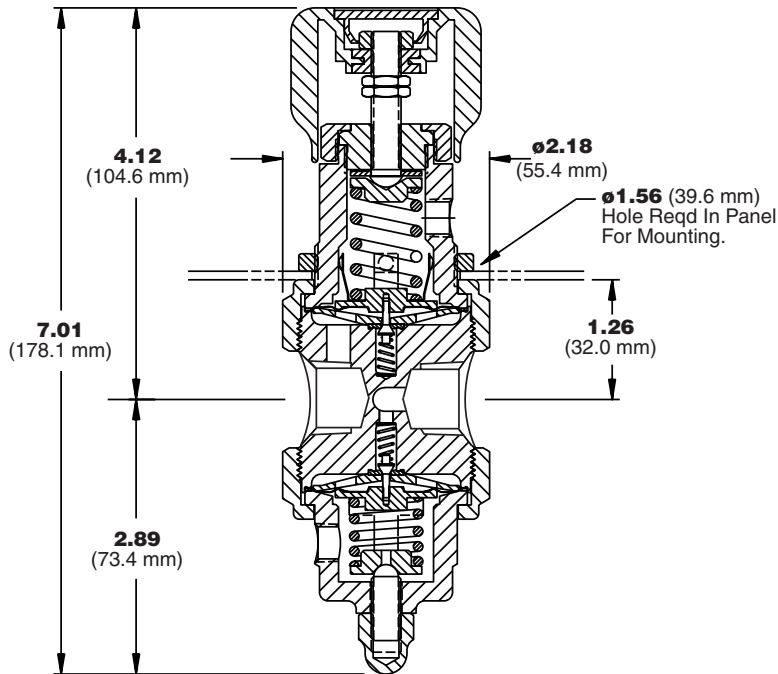
\*\*\* Use Material Code 'W'

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 Vespel<sup>®</sup> is a registered trademark of DuPont Company.  
 Inconel<sup>®</sup> is a registered trademark of Inco Alloys International

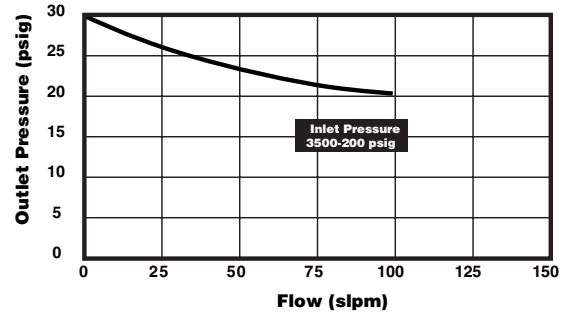
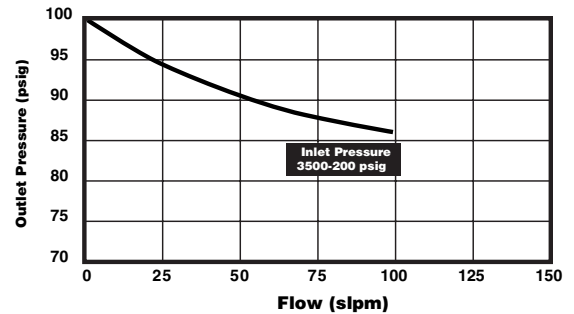




## Dimensional Drawing

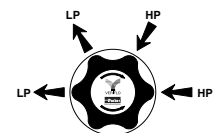


## Flow Curves

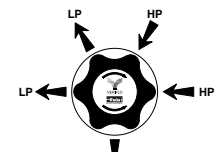


These tests were performed using Nitrogen at ambient conditions.

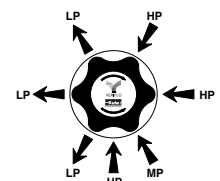
## Porting Configurations



Porting Code  
4P



Porting Code  
5P



Porting Code  
7P

## Ordering Information

73530

### BASIC SERIES

73530 = 0-30 psig  
 735100 = 0-100 psig  
 NPR73530 = -25 in Hg-0-30 psig

### MATERIALS

S = 316L Stainless Steel  
 W = Welded 316L Stainless Steel  
 H = Hastelloy C-22® \*

### PORTING

2P = 2 Ports  
 3P = 3 Ports  
 4P = 4 Ports  
 5P = 5 Ports  
 7P = 7 Ports

### REGULATOR OUTLET GAUGE

V3 = -30 in Hg-0-30 psig  
 L = -30 in Hg-0-60 psig  
 V1 = -30 in Hg-0-100 psig  
 O3 = 0-30 psig  
 OL = 0-60 psig  
 O1 = 0-100 psig  
 X = No Gauge

### OPTIONAL FEATURES

CGA = Inlet Connection (Specify CGA. No.)\*\*  
 PM = Panel Mount  
 R1 = Relief Valve, 1st Stage (7P only)  
 R2 = Relief Valve, 2nd Stage  
 R3 = Relief Valve, Both Stages (7P only)  
 TH = Hastelloy C-22® Trim\*\*\*  
 VESP = Vespel® Seat  
 (Recommended for Nitrous Oxide)  
 VQF = 944SS Outlet Valve, Female  
 VQM = 944SS Outlet Valve, Male  
 3.4 = FS Fittings 3.4" Face to Face

### PORT CONFIGURATION

M = Male  
 F = Female  
 I = Internal Female Face Seal

### PORT STYLE

FS = 1/4" Face Seal  
 TS = Tube Stubs  
 4 = 1/4" NPTF

### REGULATOR INLET GAUGE

10 = 0-1000 psig  
 20 = 0-2000 psig  
 30 = 0-3000 psig  
 40 = 0-4000 psig  
 X = No Gauge

\* Includes body, diaphragm, compression member, poppet, and spring.

\*\* Do not exceed rated pressure of CGA connection.

\*\*\* Includes diaphragm compression member, poppet, and spring.

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Inconel® is a registered trademark of Inco Alloys International

# ChangeOver System

## Continuous Gas & Fluid Management



Parker Hannifin Corporation's Veriflo Division presents the ChangeOver System. The COS is a compact turnkey module designed for continuous gas and fluid management.

The ChangeOver System combines the IR4000 Series pressure reducing regulator with the NOVA Series diaphragm valves to create a compact gas delivery system for continuous gas or fluid applications.

This unique device directs the flow of gas from two separate sources to the user's application. When one source empties, the ChangeOver System automatically draws from the second source. The first source can then be changed without flow interruption.



### materials of construction

#### Wetted

Body . . . . . Nickel Plated Brass  
or 316L Stainless Steel  
Seats . . . . . PCTFE  
Back up O-ring . . . . . Viton®  
Valve Seat . . . . . Metal to Metal  
Regulator Diaphragm . . . . . Hastelloy C-22®  
Valve Diaphragm . . . . . Elgiloy® or equivalent  
Poppet . . . . . Elgiloy®  
Poppet spring . . . . . Inconel®  
Carrier . . . . . Stainless Steel\*  
Compression Member . . . . . Inconel®

#### Non-Wetted

Regulator Cap . . . . . Nickel Plated Brass  
or 303 Stainless Steel  
Panel . . . . . Aluminum or 304 Stainless Steel  
Knobs (Black) . . . . . ABS Plastic

### operating conditions

Maximum inlet pressure . . . . . 3,500 psig  
(207 barg) maximum  
Outlet pressure . . . . . up to 250 psig  
(17 barg) maximum  
Temperature . . . . . -40°F to 150°F (-40°C to 66°C)

### functional performance

Design proof pressure . . . . 4,500 psig (310 barg)  
Design burst pressure . . . . 9,000 psig (620 barg)  
Flow capacity . . . . .  $C_v = .06^{**}$   
(SEMI Flow Coefficient Test# F-32-0998)  
Supply pressure effect . . . . 0.4 psig per 100 psig  
(.03 per 7 barg)

### standard configurations

1/4" female pipe threads (Stainless Steel, Brass)  
1/4" compression fitting (Stainless Steel, Brass)  
Welded fittings (Stainless Steel Only)

### approximate weight

8.5 lbs. 3.86 (kg)

\* Proprietary Carpenter Stainless Steel with corrosion resistance equal or better than 316.

\*\* Consult factory for additional information regarding flow capacity.

# ChangeOver System

## Features

- ▶ Prevents unnecessary downtime by providing continuous uninterrupted gas flow.
- ▶ Convoluted diaphragm provides outlet pressure stability with changes in flow.
- ▶ Integral diaphragm stop provides excellent leak integrity.
- ▶ Valve controlled high pressure purge allows user to clean or purge lines before adding a new cylinder.
- ▶ Quick changeover control enhances safety by minimizing exposure to toxic and flammable media.
- ▶ Designed for easy change of sources while in operation.
- ▶ Separate gauges to monitor both inlet sources.
- ▶ Available in Nickel Plated Brass or 316L Stainless Steel.
- ▶ Alarm sensor port for systems integration allowing user to monitor gas consumption.
- ▶ Optional outlet regulator maintains constant outlet pressure.
- ▶ All Stainless Steel panel and trim design available.
- ▶ Especially suited for continuous on-stream analyzers.

## Applications

### Specialty Gases

All Specialty Gases used for Process and Purging Applications

### Industrial / Analyzer

Refineries  
 Laboratories  
 Research and Development  
 Emission Analysis  
 Test Cells  
 Back-up System for Compressors, Generators or Other Plant Air Sources  
 Gas and Liquid Chromatography  
 High Volume Gas Manufacturing Facilities  
 Laser Gas Systems

### ChangeOver System Flow Rates

(Based on 400 psig Cylinder Change)

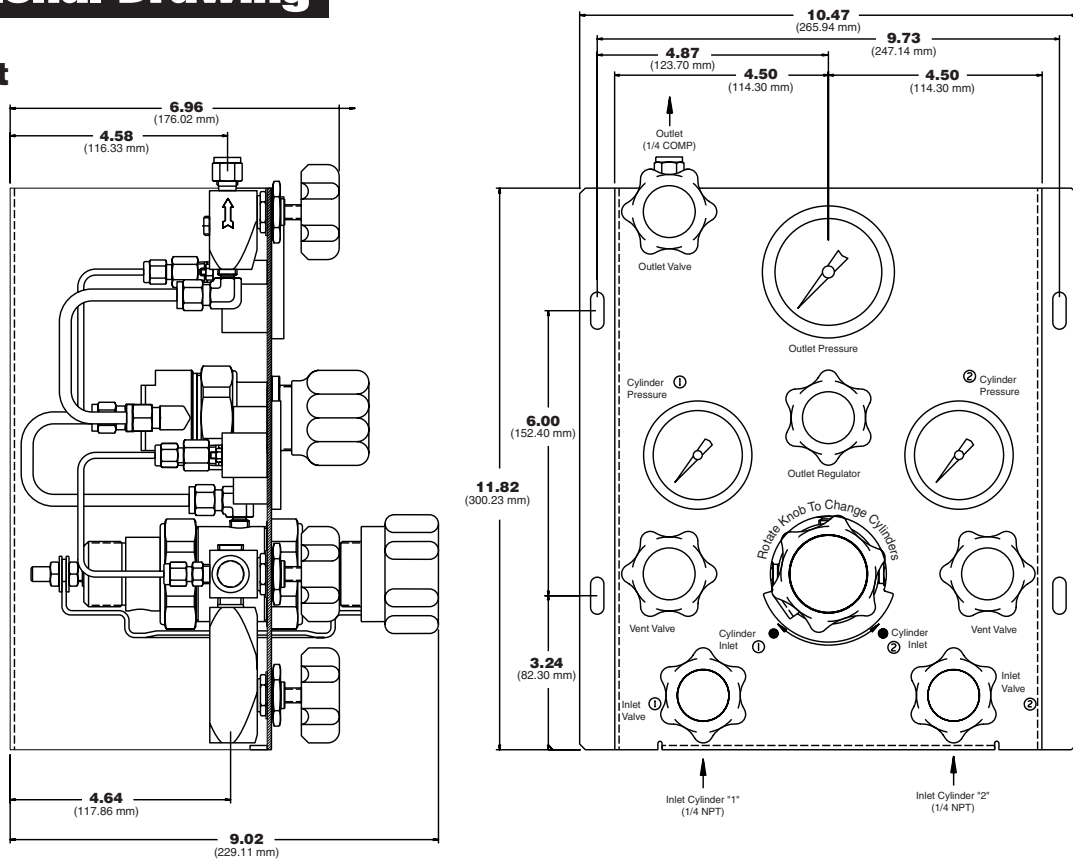
COS Model	Maximum Recommended Flow
COS 200	70 slpm N <sub>2</sub>
COS 250	70 slpm N <sub>2</sub>
COS 150	70 slpm N <sub>2</sub>
COS 100	100 slpm N <sub>2</sub>
COS XXX OR*	70 slpm N <sub>2</sub>

\* ChangeOver System with optional outlet regulators

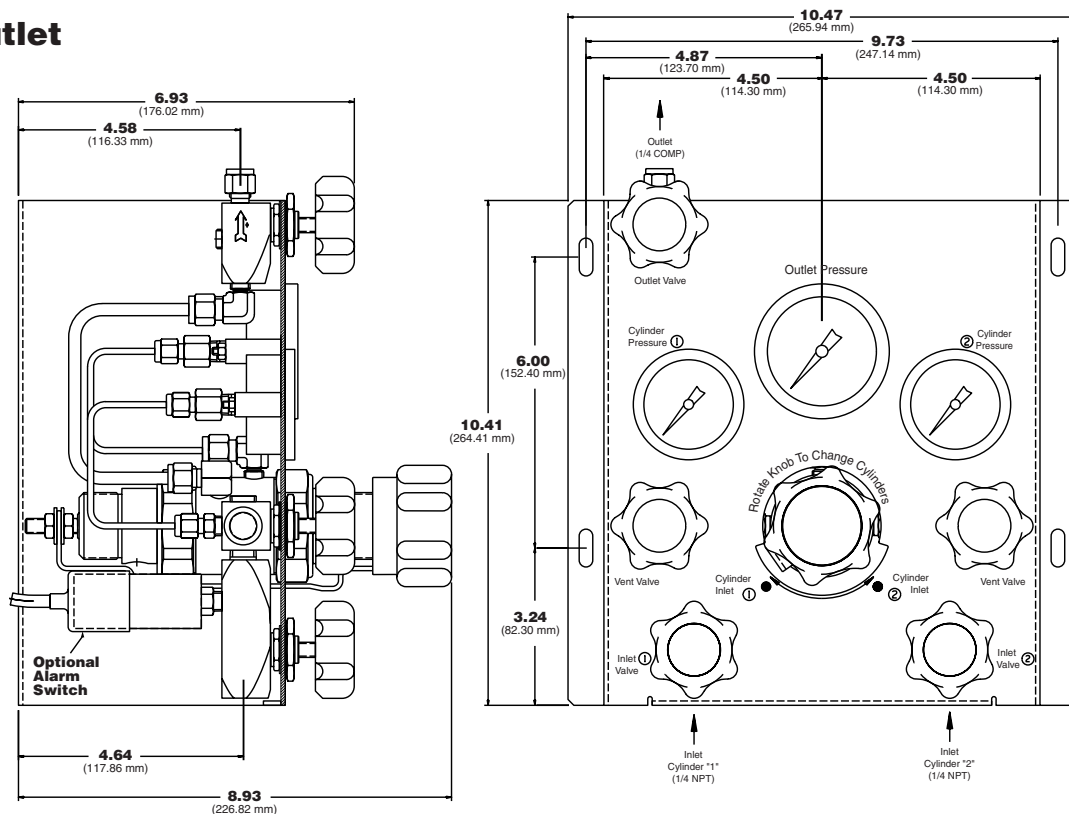
# ChangeOver System

## Dimensional Drawing

### With Outlet Regulator

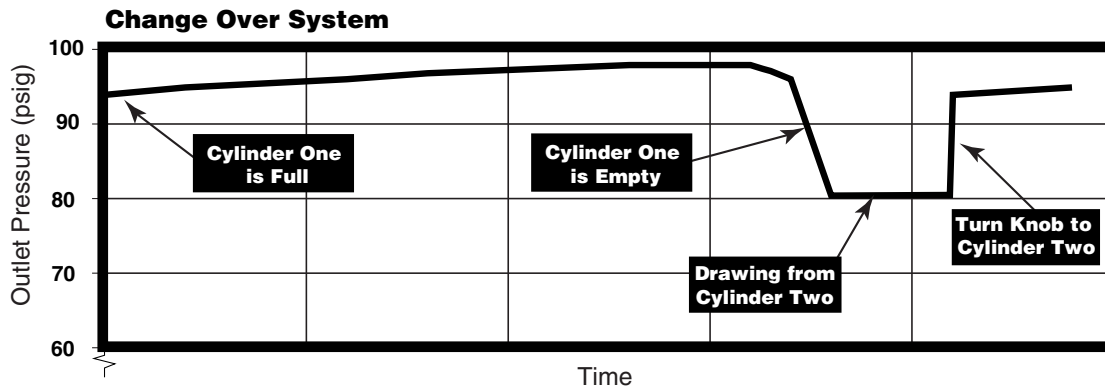
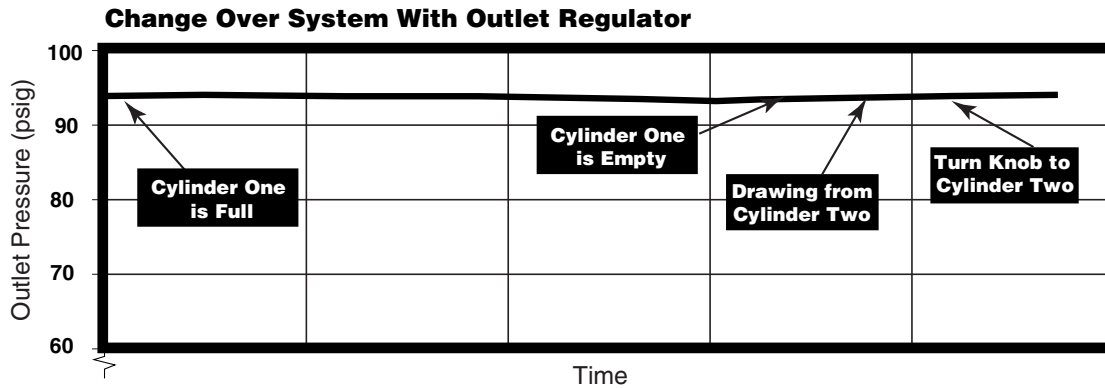


### Without Outlet Regulator



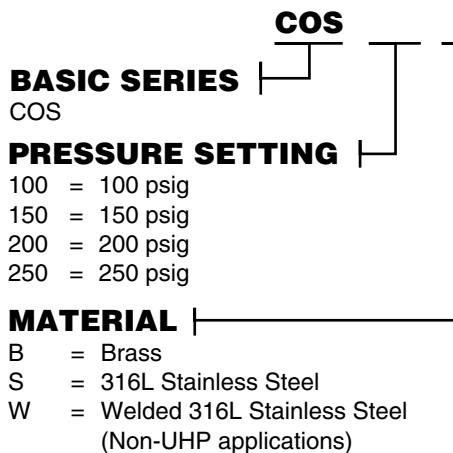
# ChangeOver System

## Pressure Drop



**Note:** Outlet pressure should drop approximately 20 psig for the 100 & 150 psig version and approximately 40 psig for the 200 & 250 psig version. Outlet flow will continue.

## Ordering Information



### OPTIONS

- A1 = Pressure Switches\*\* (includes 2 pressure switches; **Annunciator** sold separately)
- OR = Outlet Regulator
- P = Stainless Steel Panel

\* For Audio/Visual Annunciator details see COS Annunciator Literature Sheet. Annunciator ordering part number: 46600696

Note: Inlet valves and gauges are standard on all units.

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Inconel® is a registered trademark of Inco Alloys International.  
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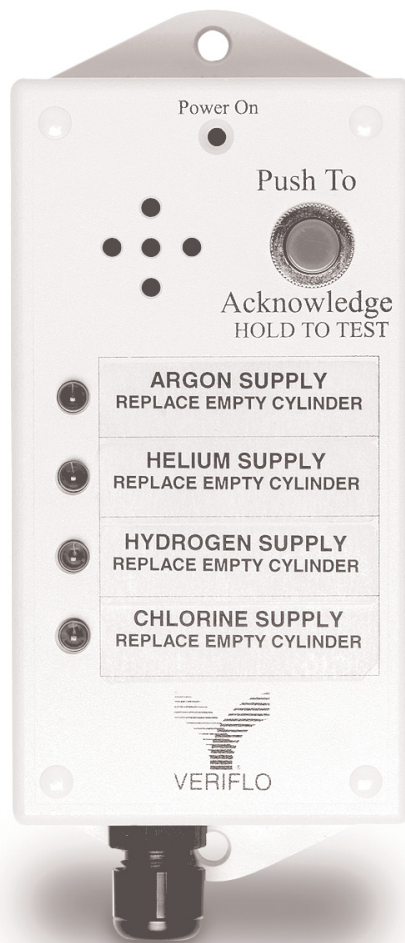
# ChangeOver System Annunciator

Audio  
& Visual  
Indicator



Parker Hannifin Corporation's Veriflo Division presents the ChangeOver System Annunciator. The Annunciator is designed to be used with the ChangeOver System. This gives users both an audible and visual indication of when it is time to change out cylinders. The Annunciator is equipped with four channels to allow for the connection of multiple ChangeOver Systems.

The alarm signal is activated when either cylinder has dropped below a preset pressure. The signal is activated through two pressure switches which are located on each inlet valve of the ChangeOver System.



## materials of construction

Outer Box .....	94HB Plastic
Strain Relief .....	Nylon 6/6
Back Plate .....	Steel

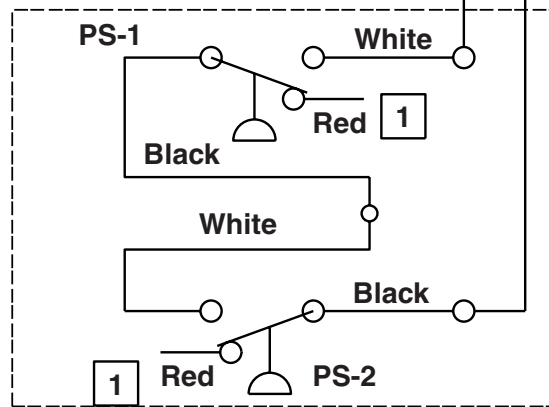
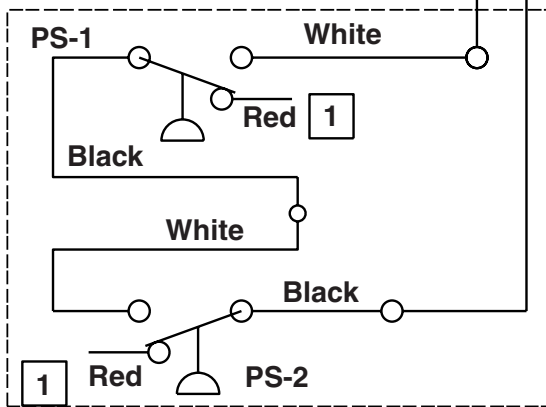
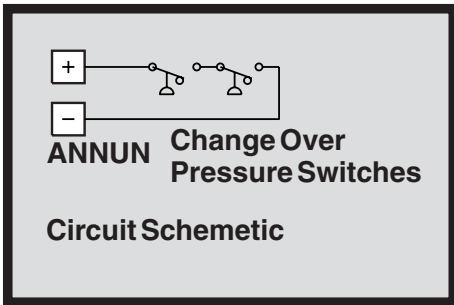
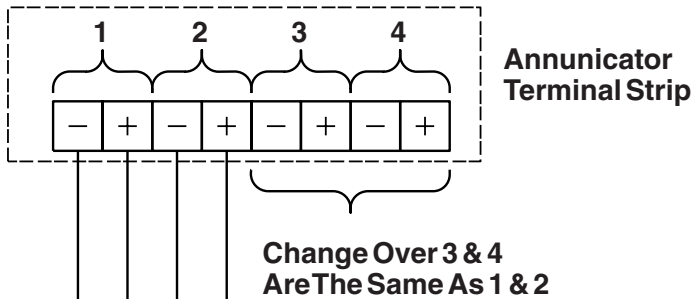


# ChangeOver System Annunciator

## Wiring Diagram

### Notes

- 1 Cut and Tape Red Wire (Not Used)
- 2 PS-1 & PS-2 Close On Increasing Pressure



## Ordering Information

ChangeOver System Annunciator: P/N 46600696



**Parker Hannifin Corporation**  
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 Fax: (216) 896-4000  
 www.parker.com

## Parker Hannifin Corporation

### About Parker Hannifin Corporation

Parker Hannifin is a leading global motion-control company dedicated to delivering premier customer service. A Fortune 500 corporation listed on the New York Stock Exchange (PH), our components and systems comprise over 1,400 product lines that control motion in some 1,000 industrial and aerospace markets. Parker is the only manufacturer to offer its customers a choice of hydraulic, pneumatic, and electromechanical motion-control solutions. Our Company has the largest distribution network in its field, with over 7,500 distributors serving nearly 400,000 customers worldwide.

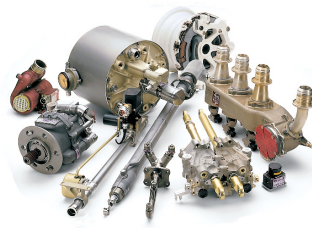
### Parker's Charter

To be a leading worldwide manufacturer of components and systems for the builders and users of durable goods. More specifically, we will design, market and manufacture products controlling motion, flow and pressure. We will achieve profitable growth through premier customer service.

### Product Information

North American customers seeking product information, the location of a nearby distributor, or repair services will receive prompt attention by calling the Parker Product Information Center at our toll-free number: 1-800-C-PARKER (1-800-272-7537). In Europe, call 00800-C-PARKER-H (00800-2727-5374).

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**The Climate & Industrial Controls Group** designs, manufactures and markets system-control and fluid-handling components and systems to refrigeration, air-conditioning and industrial customers worldwide.



**The Fluid Connectors Group** designs, manufactures and markets rigid and flexible connectors, and associated products used in pneumatic and fluid systems.



**The Seal Group** designs, manufactures and distributes industrial and commercial sealing devices and related products by providing superior quality and total customer satisfaction.



**The Hydraulics Group** designs, produces and markets a full spectrum of hydraulic components and systems to builders and users of industrial and mobile machinery and equipment.



**The Filtration Group** designs, manufactures and markets quality filtration and clarification products, providing customers with the best value, quality, technical support, and global availability.



**The Automation Group** is a leading supplier of pneumatic and electromechanical components and systems to automation customers worldwide.



**The Instrumentation Group** is a global leader in the design, manufacture and distribution of high-quality critical flow components for worldwide process instrumentation, ultra-high-purity, medical and analytical applications.





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Parker Hannifin Corporation

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