

IR4000 Series

**SS High Pressure
Regulator Internally
Threadless Design**

Régulateurs de pression

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 x 10⁻⁶ scc/sec HE

Supply Pressure Effect:
 .02 C_v23 psig per 100 psig (.016 barg per 7 barg)
 .06 C_v6 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.

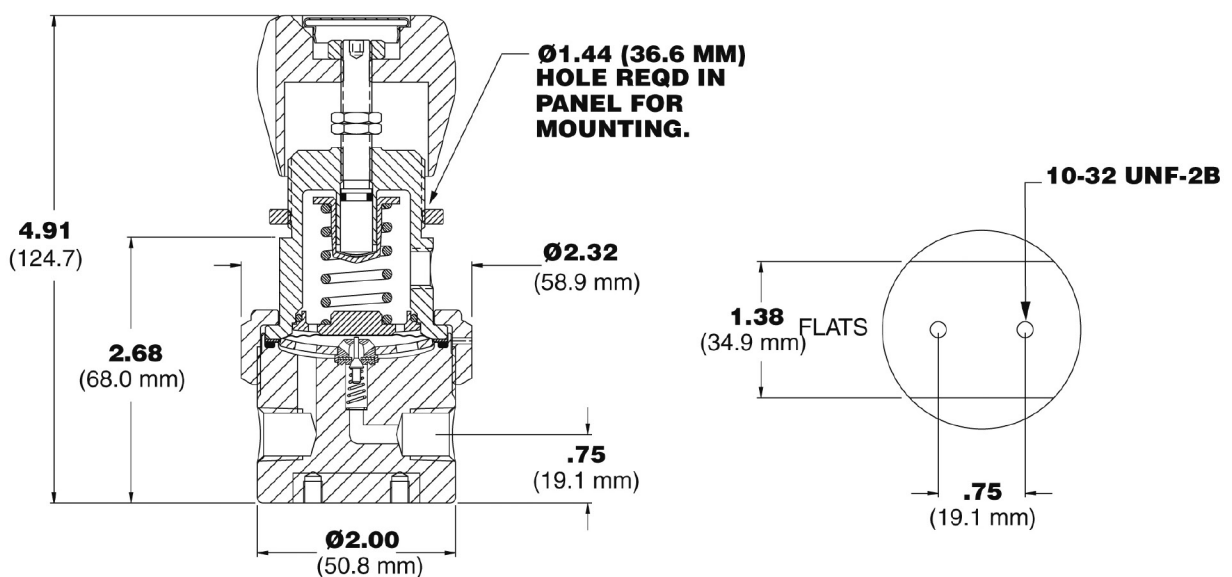


IR4000 Series

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.
- ▶ O₂ 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 C-22®, 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.

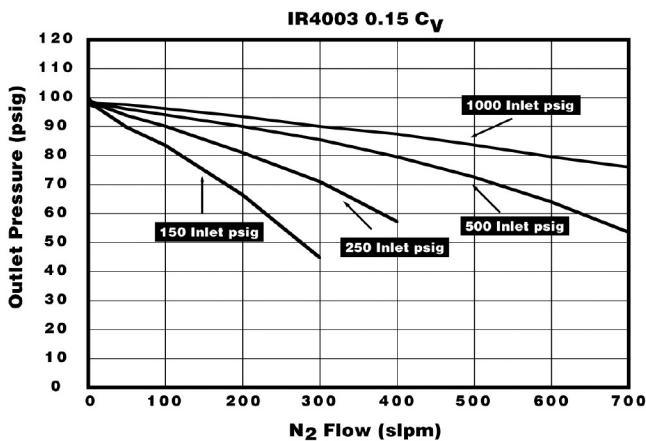
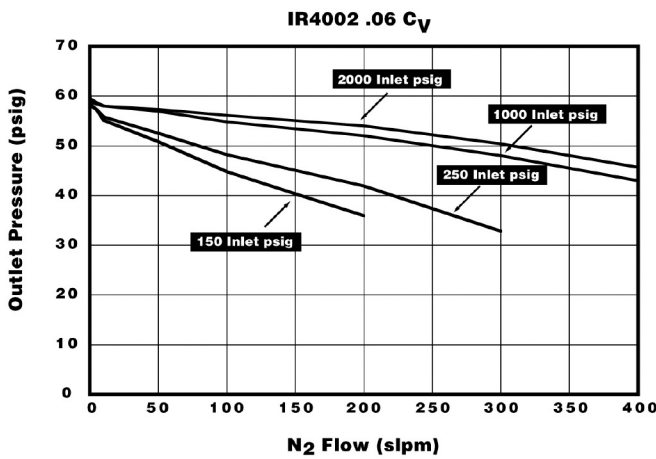
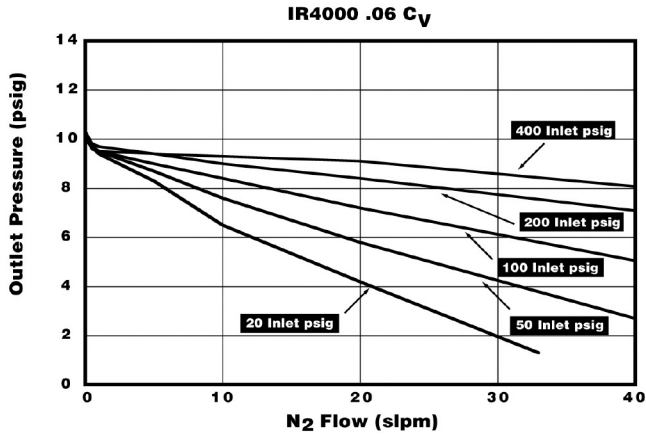
Dimensional Drawing



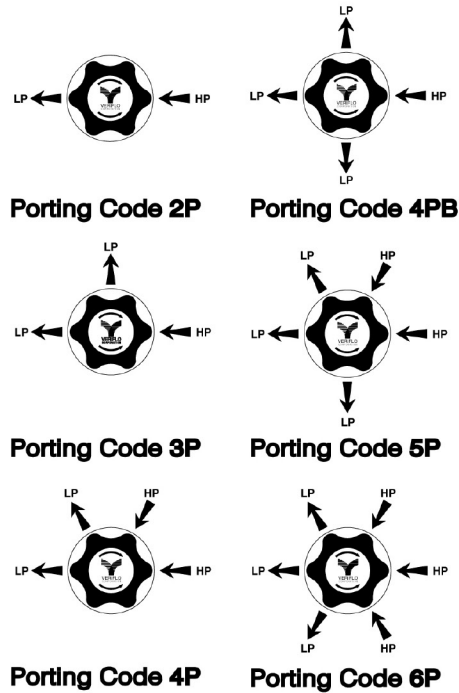
IR4000 Series

Régulateurs de pression

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

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

FLOW CAPACITY
 = .06 C_v (Standard)
1 = .02 C_v
2 = .15 C_v (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_v 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.

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)

Range Table			
Model Basic Series	Max Inlet PSIG		
	C _v		
	.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

Régulateurs de pression

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
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Supply Pressure Effect:	
.02 C_v23 psig per 100 psig (.016 barg per 7 barg)
.06 C_v6 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.



IR4200 Series

Ordering Information

IR420		B	K	4	B
BASIC SERIES	Range	Outlet Gauge	2P	—	—
0	1 - 10 psig	0 - 30 psig	3P	Y/X	—
1	2 - 30 psig	0 - 60 psig	4P	Y/X	Y/X
2	3 - 60 psig	0 - 100 psig	4PB	Y/X	—
3	4 - 100 psig	0 - 200 psig	5P	Y/X	Y/X
4	5 - 250 psig	0 - 400 psig			
5	10 - 500 psig	0 - 600 psig			

BODY MATERIAL
B = Brass

FLOW CAPACITY
= .06 C_v (Standard)
1 = .02 C_v
2 = .15 C_v (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_v 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.
Vespel® 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)

Range Table

Model Basic Series	Max Inlet PSIG		
	C _v		
	.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



IR6000 Series

REGULATION DE PRESSION

Régulateurs de pression

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 $< 2 \times 10^{-9}$ 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.

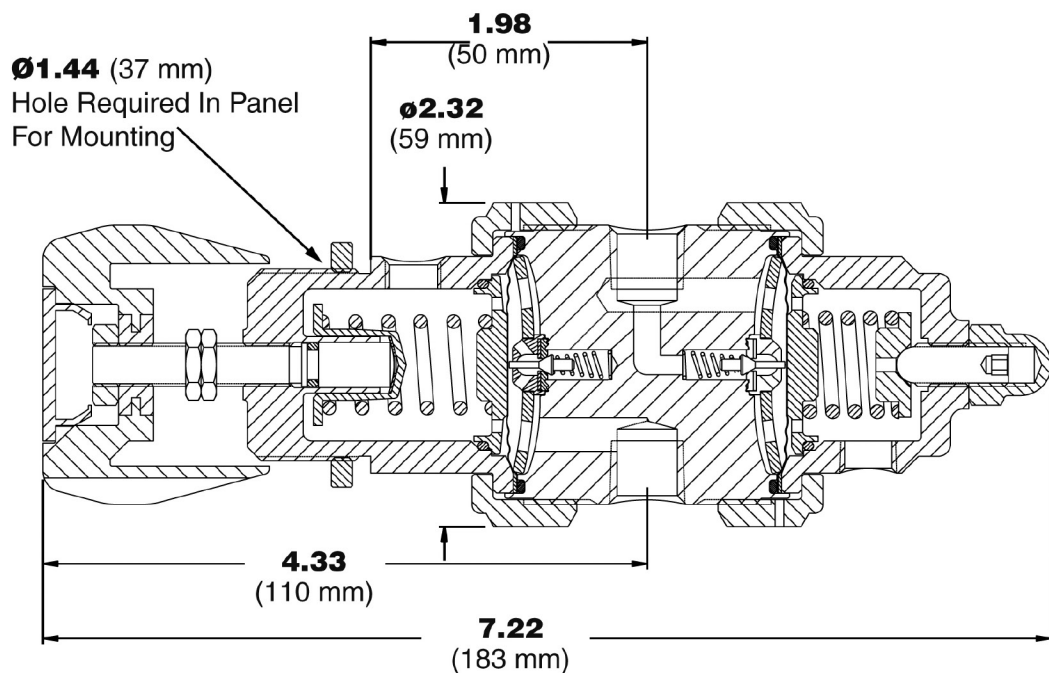
‡ Nickel Plated Brass for PCTFE seat.

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.
- ▶ O₂ 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.

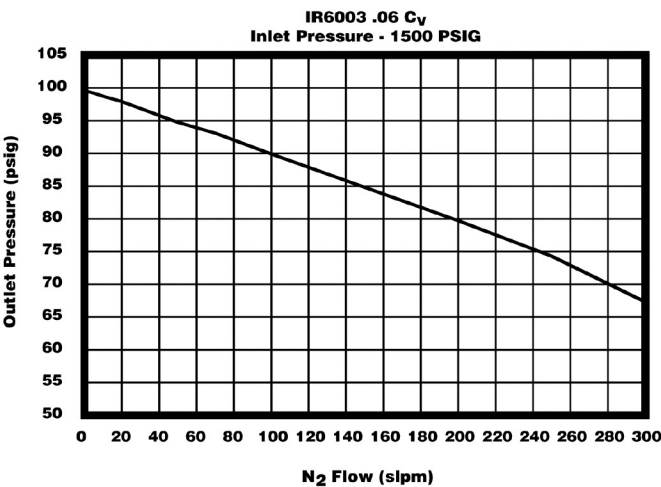
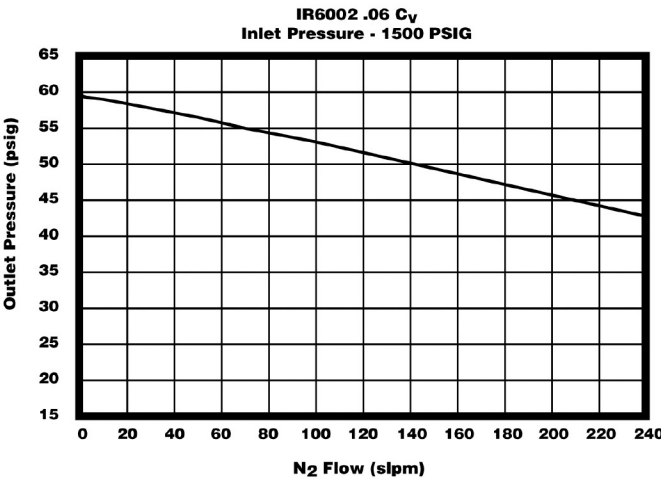
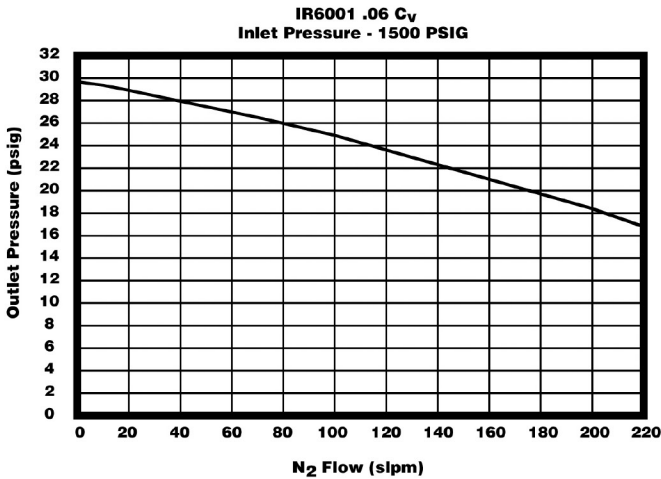
Dimensional Drawing



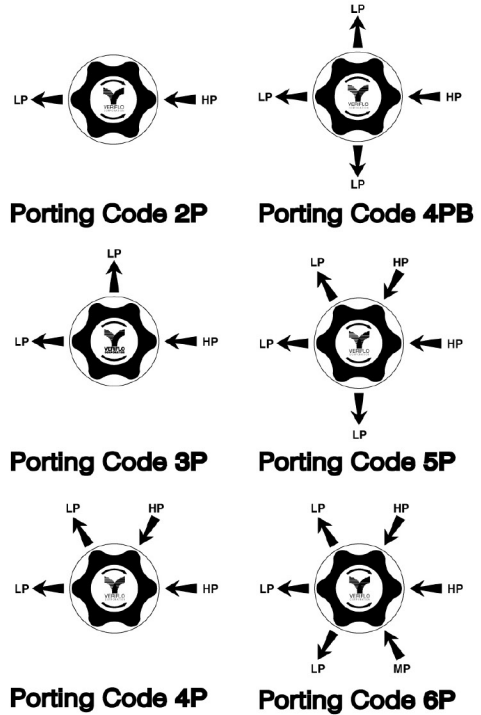
IR6000 Series

Régulateurs de pression

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

IR6000 Series

Ordering Information

<p>IR600</p> <p>BASIC SERIES 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> <p>BODY MATERIAL S = 316L Stainless Steel (Hastelloy & Monel® Available Upon Request)</p> <p>FLOW CAPACITY = .06 Cv (Standard) 1 = .02 Cv 2 = .15 Cv (See Range Table)</p> <p>SEAT MATERIALS K = PCTFE P = PEEK™ V = Vespel®</p> <p>PORTING</p> <p>OUTLET GAUGE See Outlet Gauge under BASIC SERIES (see above) for standards. (Additional ranges available upon request)</p> <p>INLET GAUGE 3000 psig std.</p> <p>NOTES: Outlet Valve: Available Upon request; Compression End Connection Outlet (A-Lok, CPI) Can Be Substituted for NPTF Connection Upon Request.</p> <p>ORDERING REGULATORS WITHOUT GAUGES Example #1 IR6003SK2P4B (No X required for gauges, inlet & outlet ports only) Example #2 IR6003SK3PX4B (One X for gauge port) Example #3 IR6003SK4PBX4B (One X for gauge port) Example #4 IR6003SK5PXX4B (Two X's for gauge ports)</p>	<p>S</p> <p>2P — — 3P Y/X — 4P Y/X Y/X 4PB Y/X — 5P Y/X Y/X 6P Y/X Y/X</p>	<p>4</p> <p>B</p>	<p>CGA#* 320 330 350 510 580 590 Additional Configurations Available Upon Request</p> <p>OPTIONAL FEATURES (See Notes) L = Teflon® Back-Up O-Ring (PCTFE & PEEK™ seat only) R2 = Relief Valve (4PB, 5P, 6P only) V = Outlet Valve NOVAS44MF(STD)(See Notes)</p> <p>Please select ONE or NONE of the following: D = Dome Loaded G = Tamper Proof M = Metal Knob(Black)</p> <p><i>For optional color knobs consult factory</i></p> <p>Note: PANEL MOUNT OPTION: Order Panel Nut Ring P/N 41900363 as separate line item.</p> <p>PORT MOUNTING B = Standard (No options)</p> <p>PORT STYLE 4 = 1/4" NPT Female Standard (Additional sizes available upon request)</p>
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* Do not exceed the rated pressure of the CGA connection
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.
Viton® is a registered trademark of DuPont Dow Elastomers.

IR6200 Series

REGULATION DE PRESSION

Régulateurs de pression

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 x 10⁻⁶ scc/sec HE

Supply Pressure Effect 0.01 psig per 100 psig

► internal volume

8.1 cc

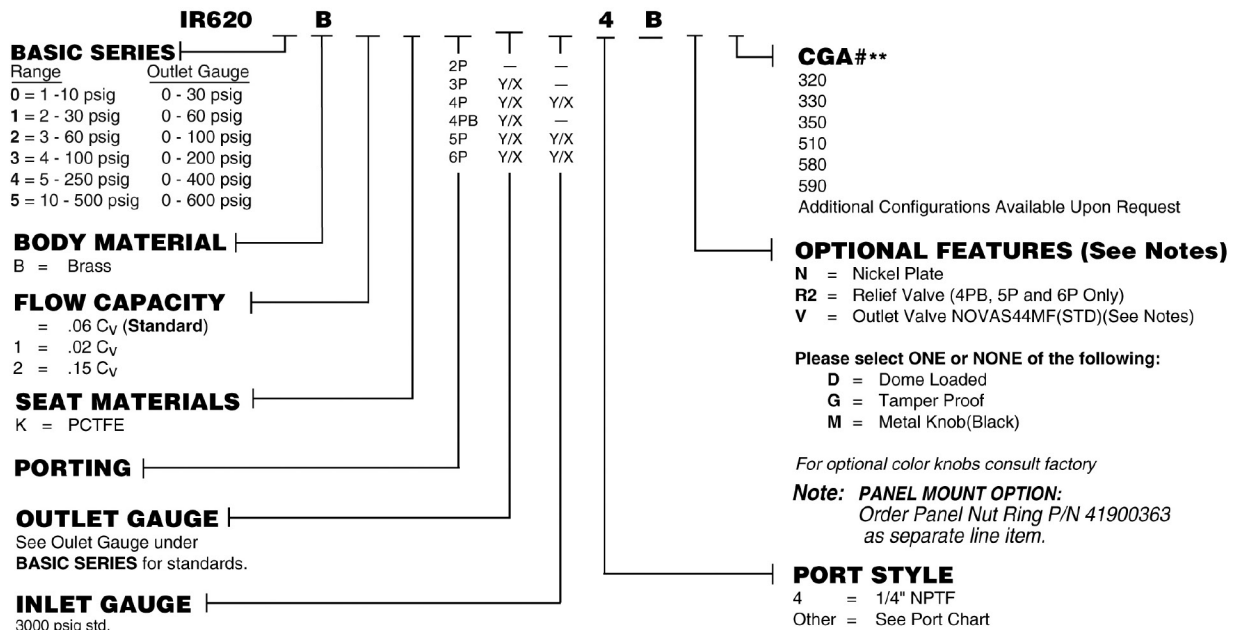
► approximate weight

3.5 lbs (1.6 kg)

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

IR6200 Series

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

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.
Viton® is a registered trademark of DuPont Dow Elastomers.
PEEK™ is a trademark of Victrex plc.

Negative Pressure
Regulator

NPR4100 Series

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 WF₆, BCL₃.



Régulateurs de pression

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 x 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.

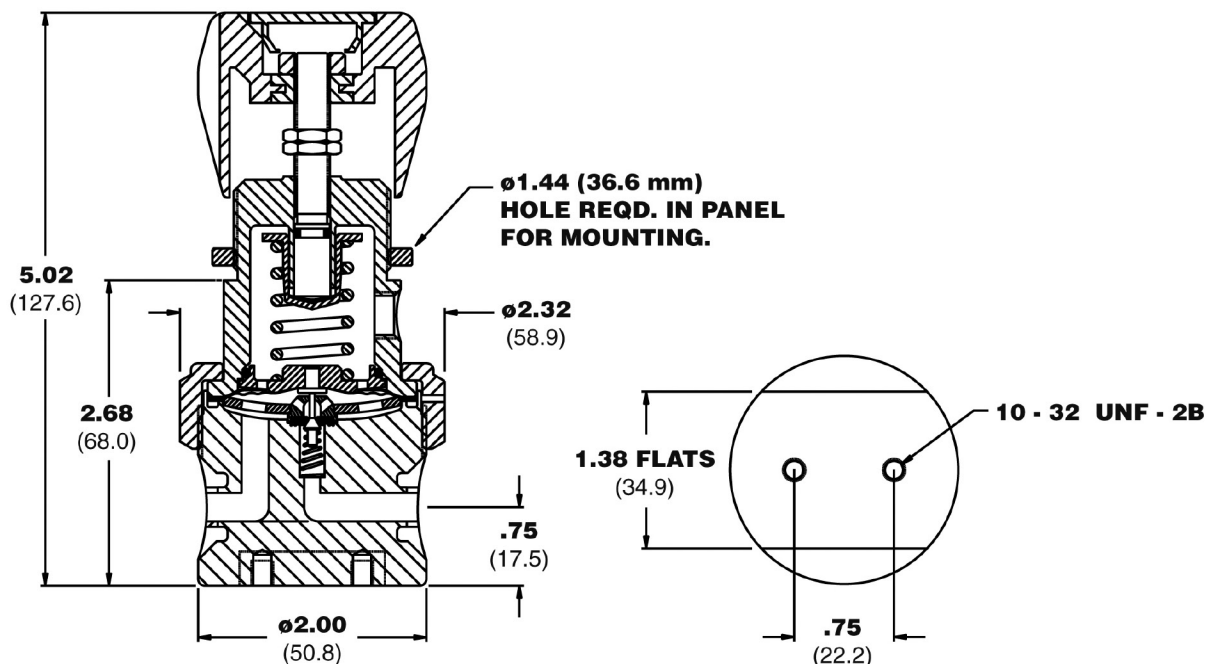
† Inlet Screen/Filter available on NPT ports only.

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.
- ▶ O₂ 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 C-22[®], 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

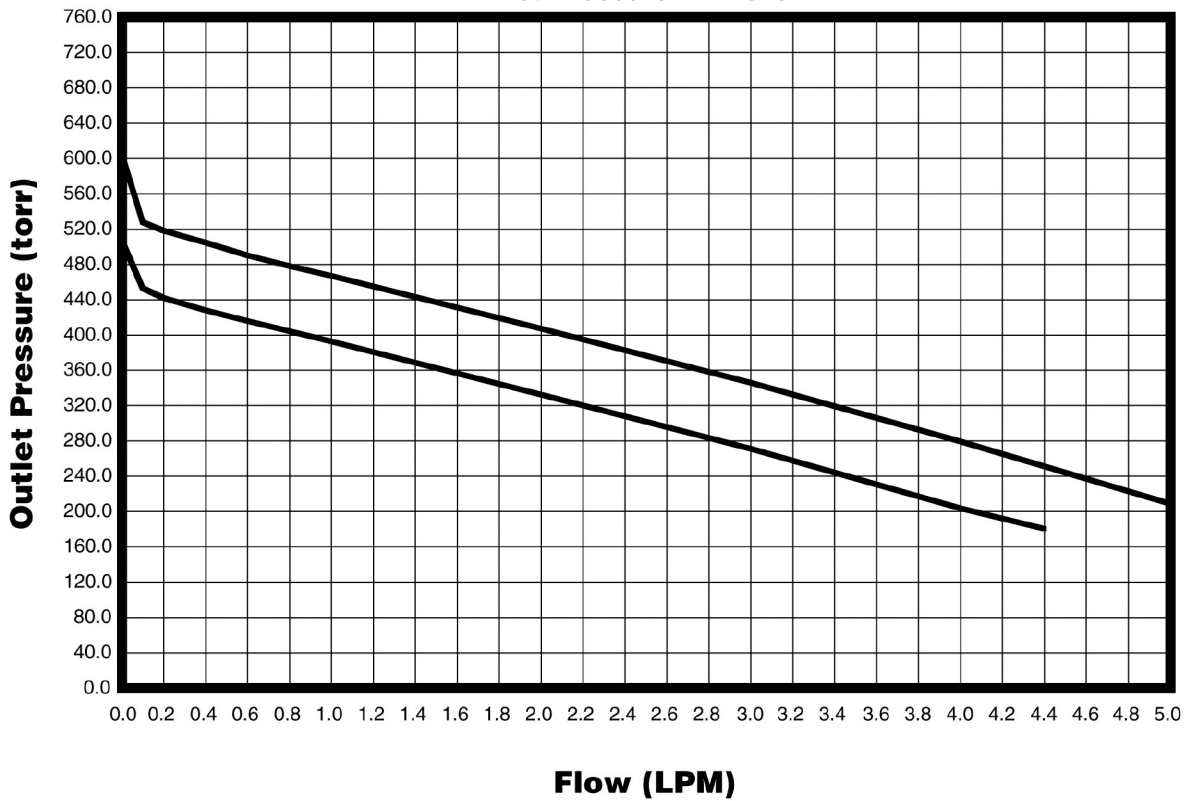


NPR4100 Series

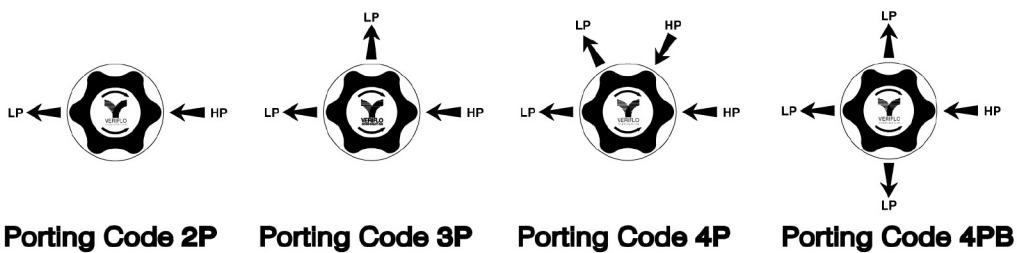
Régulateurs de pression

Flow Curve

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

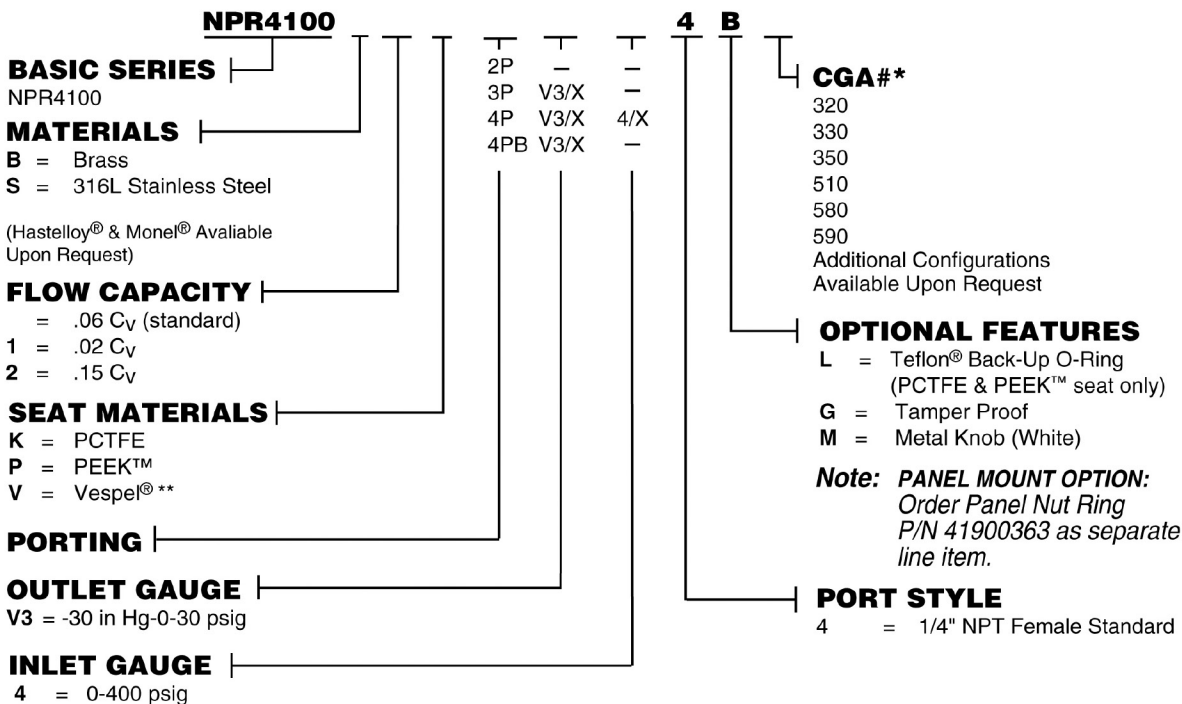


Porting Configurations



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

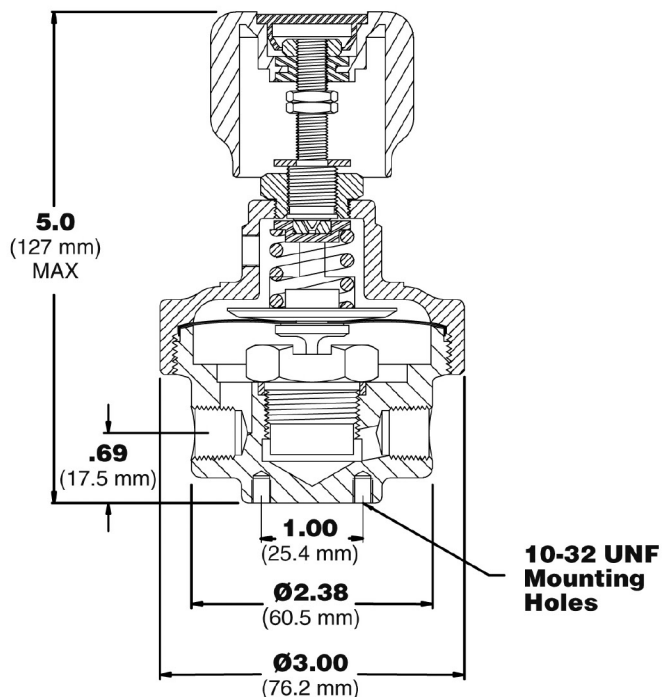
NPR4100SK4PXX4B (Two X's for gauge ports)

* Do not exceed the rated pressure of the CGA connection
** Recommended for Nitrous Oxide (N₂O) Service

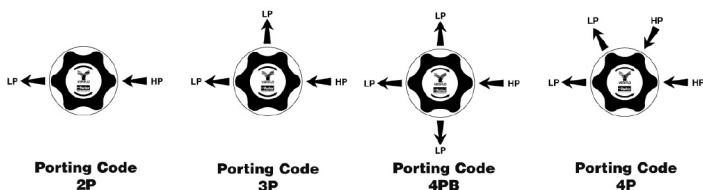
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Inconel® and Monel® are registered trademarks of Inco Alloys International.
Elgiloy® is a registered trademark of Elgiloy Company.
Vespel® is a registered trademark of DuPont Company.
PEEK™ is a trademark of Victrex plc.

HFR900 Series

Dimensional Drawing



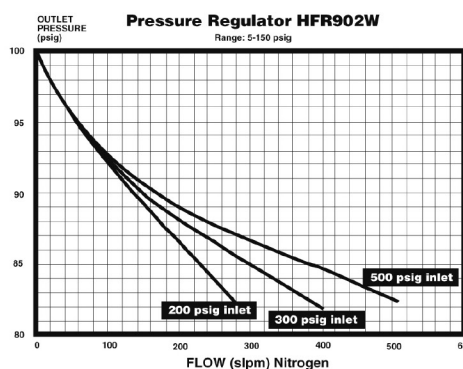
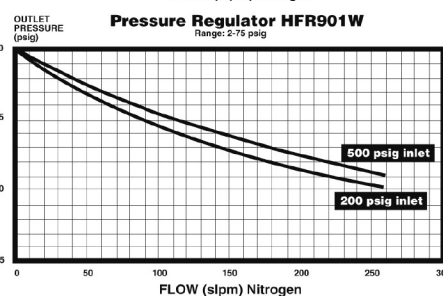
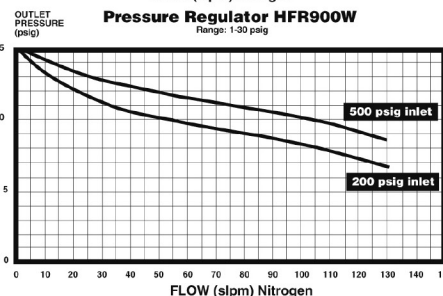
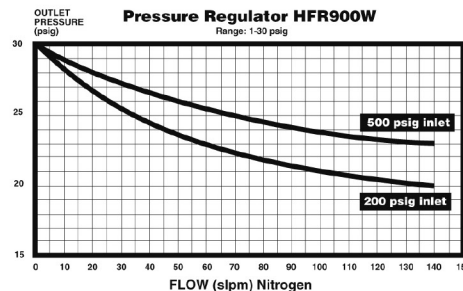
Porting Configuration



Ordering Information

HFR900	
BASIC SERIES	OPTIONAL FEATURES
HFR900 = 1-30 psig	PM = Panel Mount
HFR901 = 2-75 psig	R = Relief Valve
HFR902 = 5-150 psig	SEAL MATERIAL
MATERIALS	K = Kalrez® (200 psig max)
B = Brass	V = Viton® (500 psig max)
S = 316L Stainless Steel	PORT STYLE
PORTING	4 = 1/4" NPTF
2P = 2 Ports	6 = 3/8" NPTF
3P = 3 Ports	8 = 1/2" NPTF
4P = 4 Ports	4T = 1/4" Compression Fittings*
4PB = 4 Ports	6T = 3/8" Compression Fittings*
REGULATOR OUTLET GAUGE	8T = 1/2" Compression Fittings*
03 = 0-30 psig	REGULATOR INLET GAUGE
01 = 0-100 psig	4 = 0-400 psig
2 = 0-200 psig	6 = 0-600 psig
X = No Gauge	X = No Gauge

Flow Curves



* Compression fittings are threaded and include nuts and ferrules.

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HPR800 Series

Pressure Regulator

Régulateurs de pression

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**

¼ 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

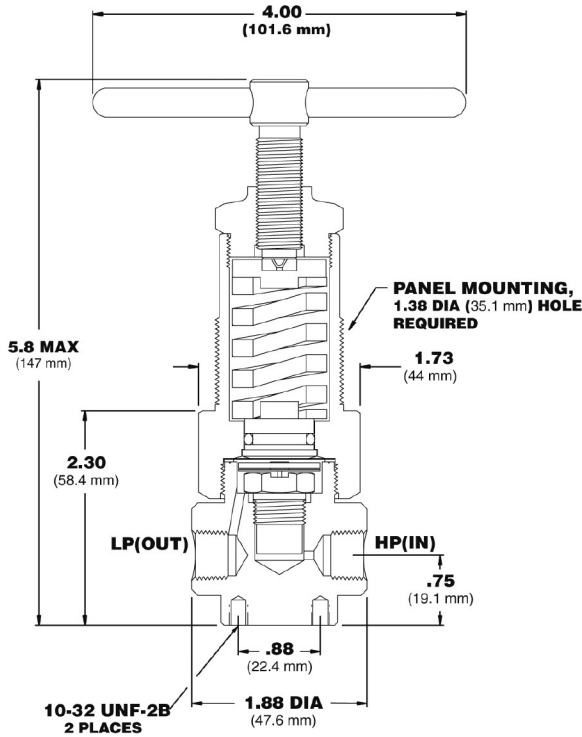
▶ **approximate weight**

2.19 lbs. (.993 kg)

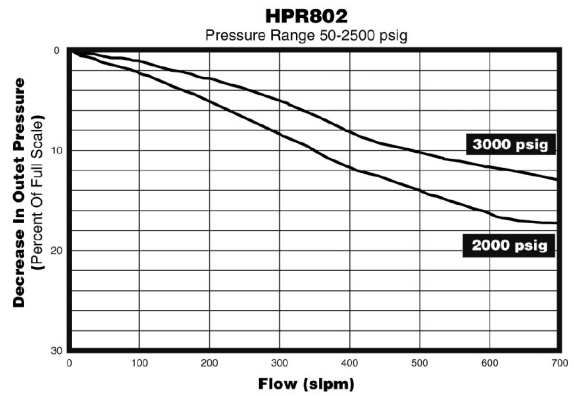
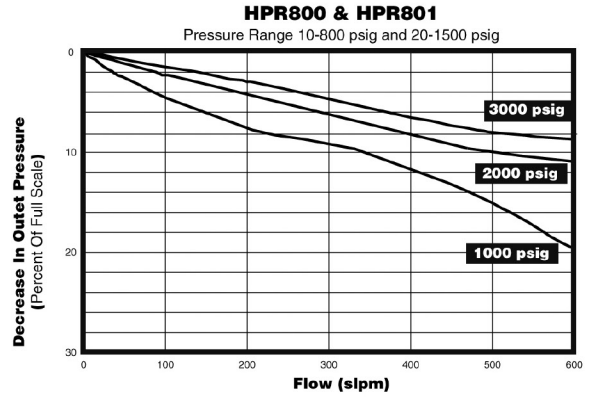
HPR800 Series

Régulateurs de pression

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.

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Inconel® is a registered trademark of Inco Alloys International.



APR66 Series

Pressure Reducing Regulator

Régulateurs de pression

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.
- ▶ O₂ 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_v 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 10⁻⁸ scc/sec HE

▶ **standard connections**

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

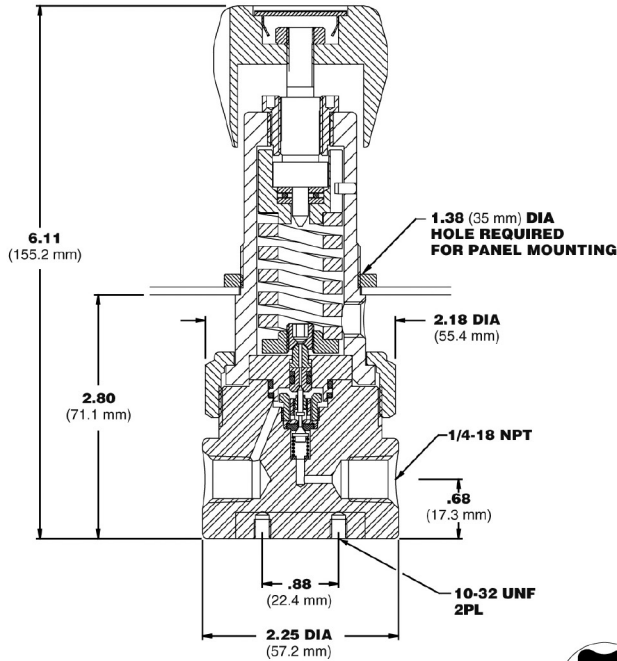
▶ **approximate weight**

- 3.0 lbs (1.4 kg)

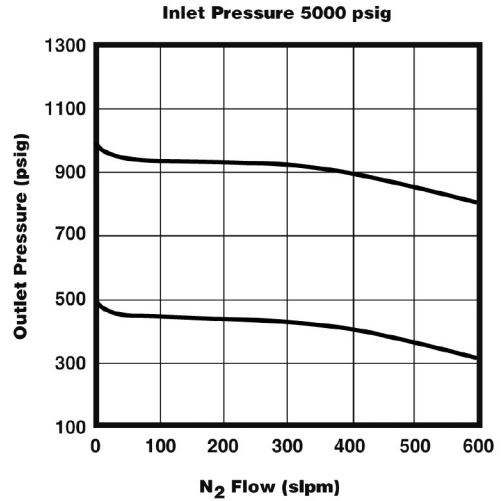


APR66 Series

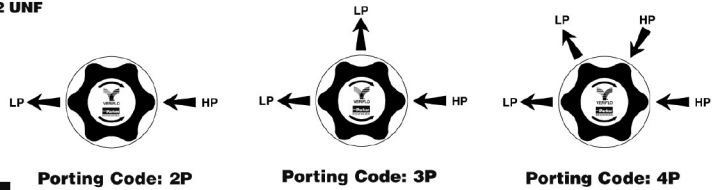
Dimensional Drawing



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

elneo instruments XPR Series

REGULATION DE PRESSION

High Pressure Regulator

Régulateurs de pression

Parker Hannifin Corporation's Veriflo Division presents the XPR Series High Pressure Regulator. The new regulator safely reduces pressures from 10,000 psig (6,000 psig Brass) inlet down to as low as 50 psig by utilizing seven different ranges. The new self relieving feature comes standard with all XPR Series regulators.



features

- ▶ Bonnet assembly allows easy changeout.
- ▶ Self relieving adjustment with allen wrench.
- ▶ Self relieving allows downstream pressure to be vented through regulator.
- ▶ Optional "T" handle.
- ▶ O₂ cleaned.
- ▶ Seven range assemblies available.
- ▶ Non-self relieving option available.
- ▶ Available for Panel Mounting (panel mount ring sold separately).
- ▶ Bottom mounting holes (mounting bracket sold separately).

materials of construction

Wetted

Body 316L Stainless Steel, Brass
 Seat Vespe®
 Piston 316L Stainless Steel
 Poppet 316L Stainless Steel
 Poppet Spring Inconel®
 Back Up Ring Teflon®
 O-Rings Viton®
 Self-Relieving Seat Vespe®

Non-wetted

Cap 316L Stainless Steel, Nickel Plated Brass
 Knob (black) ABS Plastic
 "T" Handle Nickel Plated Brass

operating conditions

Maximum inlet pressure:

316L Stainless Steel 10,000 psig (690 barg)

Brass 6,000 psig (414 barg)

Outlet pressure 50-500 psig (3.5 - 34.5 barg)

50-800 psig (3.5 - 55.2 barg)

100-1500 psig (7 - 103.4 barg)

135-2500 psig (9.3 - 172.4 barg)

200-4000 psig (17 - 276 barg)

300-6000 psig (20.7 - 414 barg)

*500-10,000 psig (34.5 - 690 barg)

*316L Stainless Steel Only

Temperature -40°F to 150°F (-40°C to 66°C)

surface finishes

Standard Ra 63 Ra

functional performance

Design proof pressure:

316L Stainless Steel 15,000 psig (1035 barg)

Brass 9,000 psig (620 barg)

Design burst pressure:

316L Stainless Steel 30,000 psig (2070 barg)

Brass 18,000 psig (1240 barg)

Design Leak Rate:

Across Seat 1 x 10⁻⁴ scc/sec He

Inboard 1 x 10⁻⁴ scc/sec He

Outboard 1 x 10⁻⁴ scc/sec He

Flow Capacity C_v .07

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

internal volume

Self Relieving 0.853 in³ (13.99 cm³)

Non Self Relieving 0.831 in³ (13.62 cm³)

standard connections

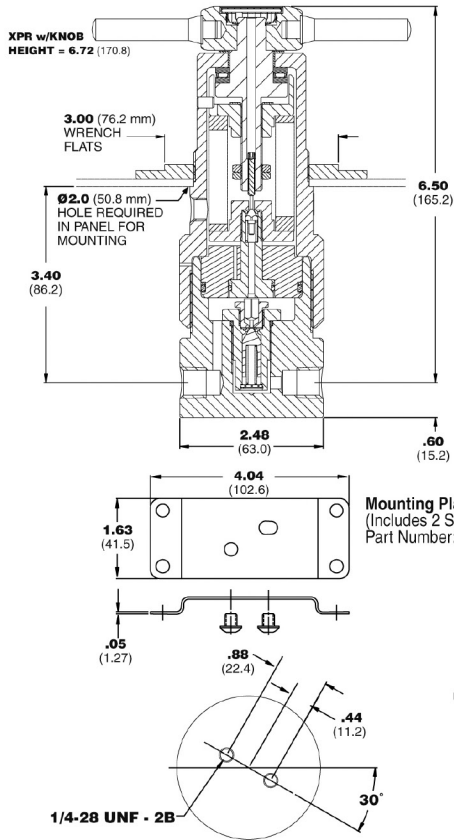
1/8 NPT, 1/4 NPT

approximate weight

6.5 lbs (3 kg)

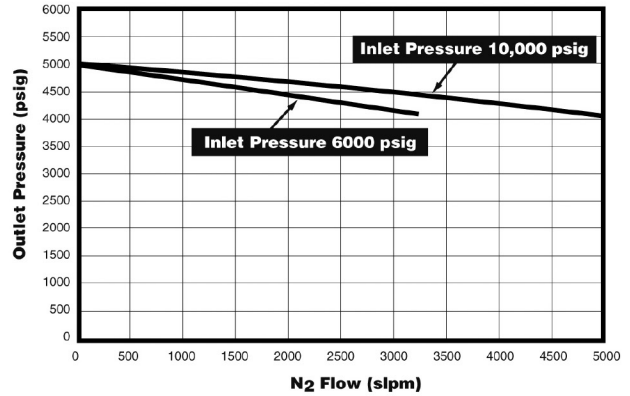


Dimensional Drawing

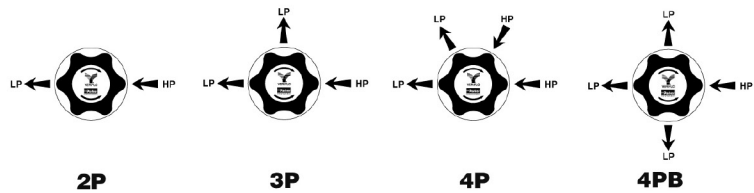


Mounting Plate Assembly
(Includes 2 Screws)
Part Number: 40400450

Flow Curve



Porting Configuration



Ordering Information

BASIC SERIES		XPR
XPR		
MATERIAL		
B	= Brass (6000 psig max)	
S	= 316L Stainless Steel (10000 psig max)	
RANGE		
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

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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

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

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

elneo instruments

ChangeOver System

REGULATION DE PRESSION

Régulateurs de pression

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 ₂
COS 250	70 slpm N ₂
COS 150	70 slpm N ₂
COS 100	100 slpm N ₂
COS XXX OR*	70 slpm N ₂

* ChangeOver System with optional outlet regulators

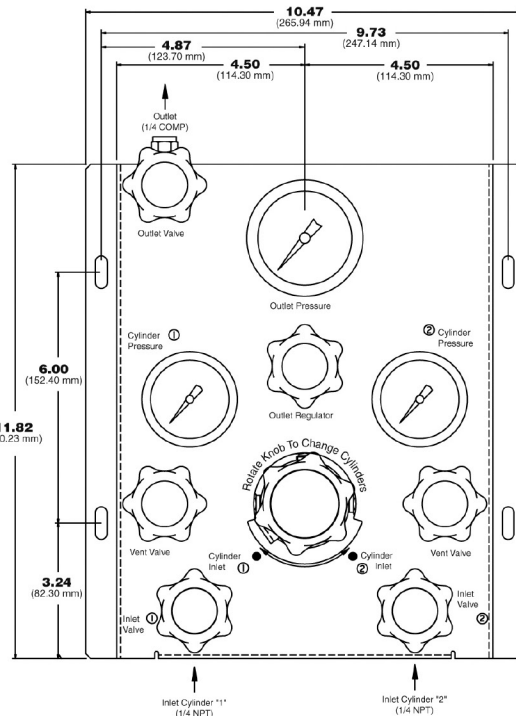
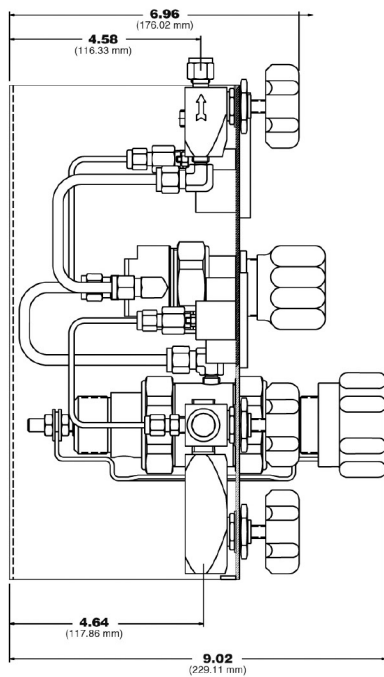
ChangeOver System

REGULATION DE PRESSION

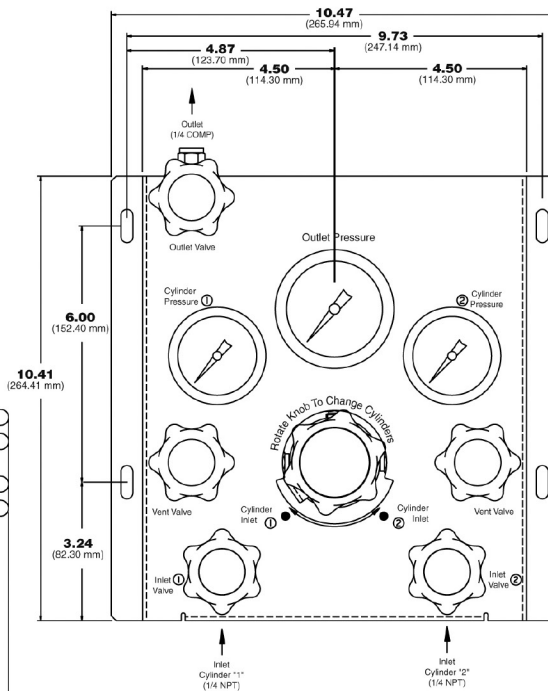
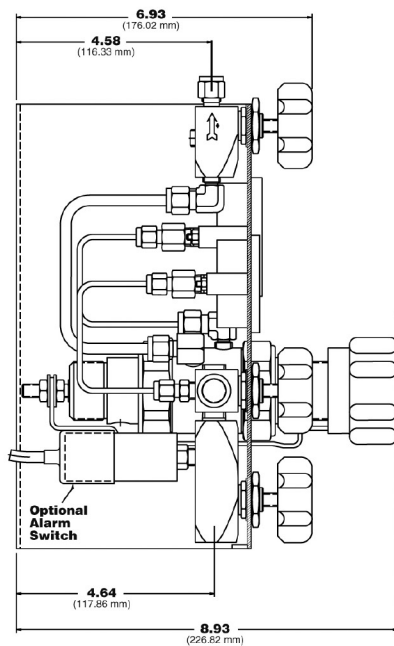
Régulateurs de pression

Dimensional Drawing

With Outlet Regulator



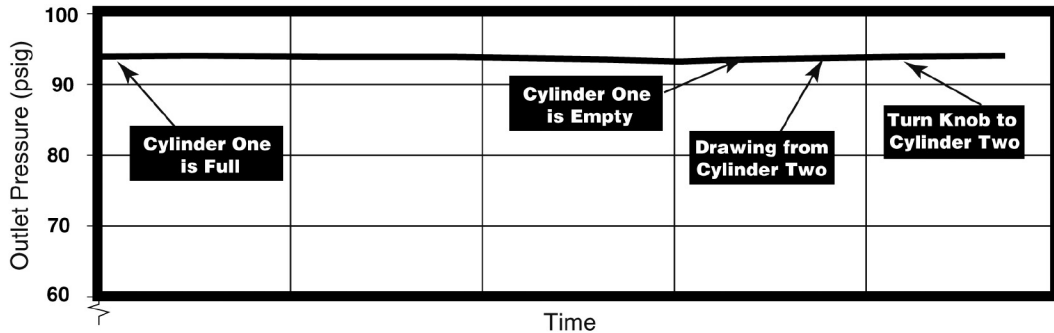
Without Outlet Regulator



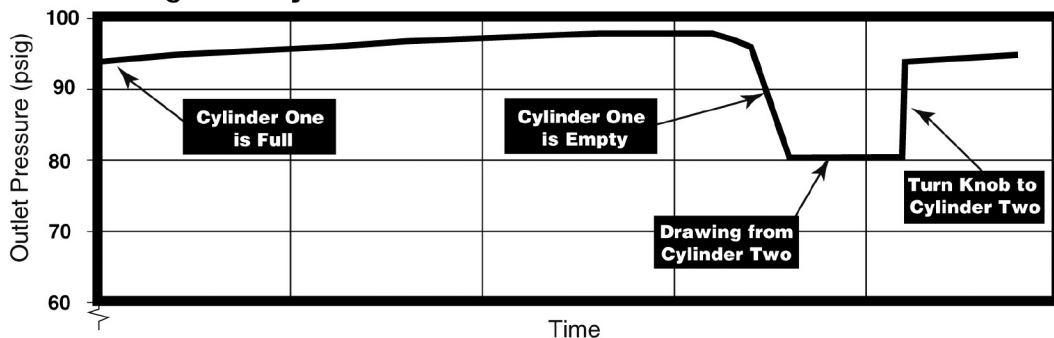
ChangeOver System

Pressure Drop

Change Over System With Outlet Regulator



Change Over System



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

BASIC SERIES

COS

PRESSURE SETTING

- 100 = 100 psig
- 150 = 150 psig
- 200 = 200 psig
- 250 = 250 psig

MATERIAL

- B = Brass
- S = 316L Stainless Steel
- W = Welded 316L Stainless Steel (Non-UHP applications)

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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Viton® is a registered trademark of DuPont Dow Elastomers.
Incone® is a registered trademark of Inco Alloys International.
Elgiloy® is a registered trademark of Elgiloy Company.



ChangeOver System Annunciator

**Audio
& Visual
Indicator**

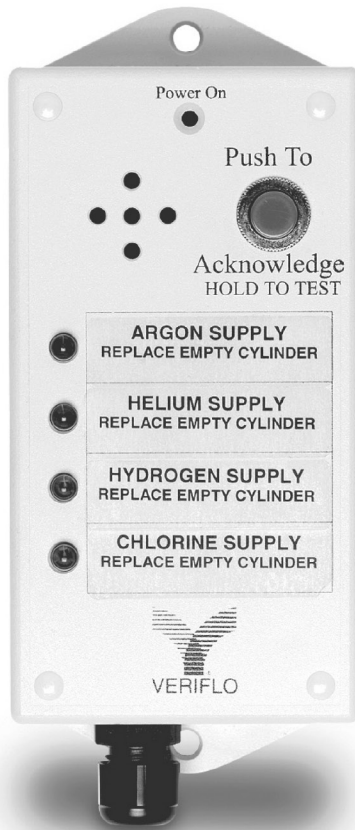
Régulateurs de pression

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

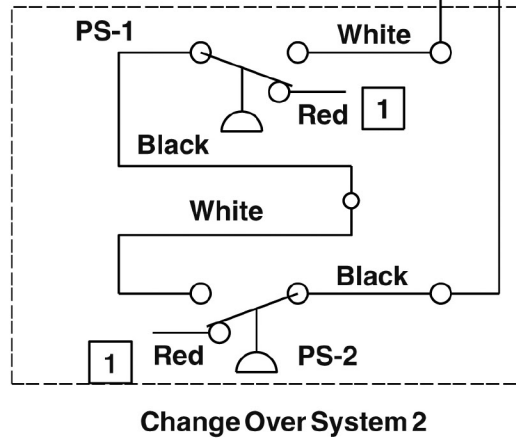
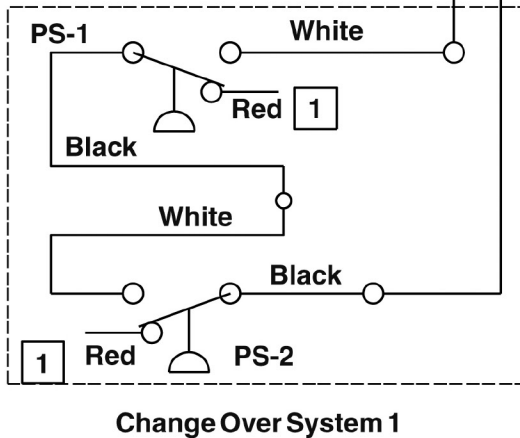
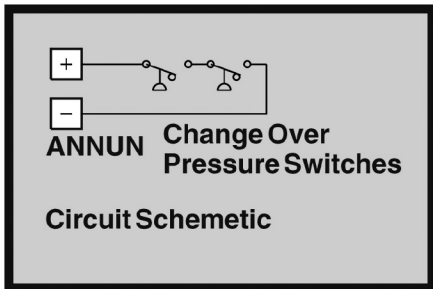
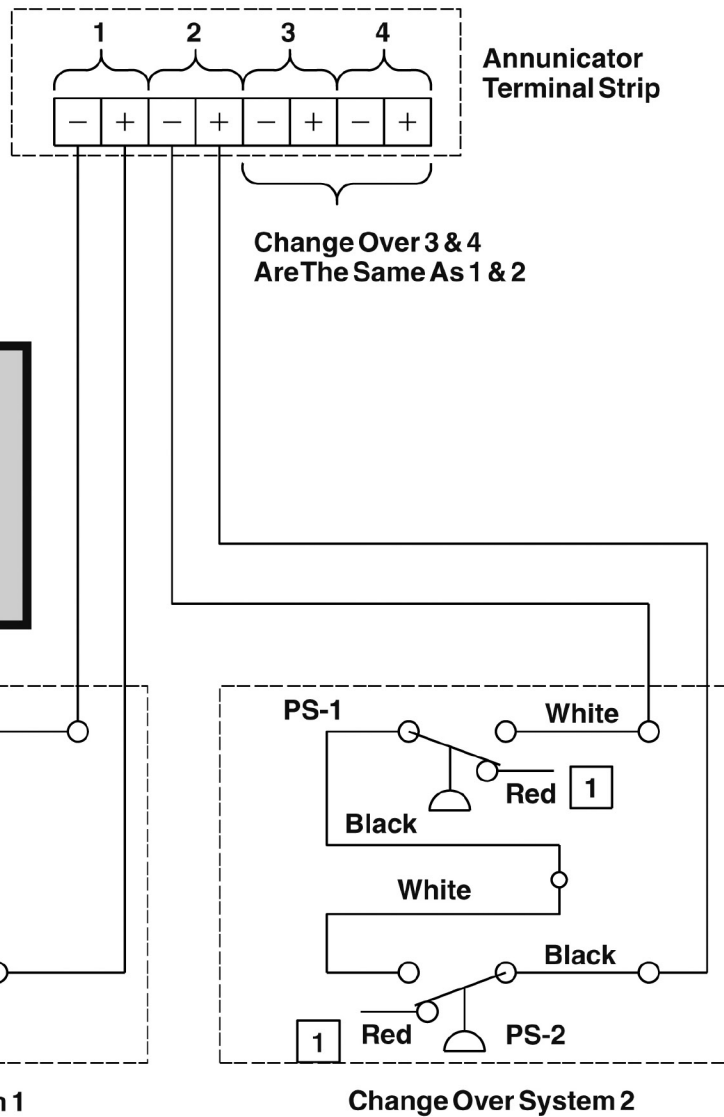


ChangeOver System Annunciator

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

