Veriflo Pressure Regulators

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Veriflo 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. For more information on Parker Hannifin visit the corporation’s web site at www.parker.com.
IR4000 Series

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®, Hastelloy C-22®
    - Diaphragm: Hastelloy C-22®, Monel®, Elgiloy®
    - Poppet: Hastelloy C-22®, Inconel®, Monel®, Monel® bodies
    - Carrier: Stainless Steel, Hastelloy C-22®
    - Seat: PCTFE, PEEK™, Vespel®
    - Back-up Washer: Hastelloy C-22®, Monel®, Monel®
    - Inlet Screen/Filter: 316L Stainless Steel, Hastelloy C-22®
  - **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: Cv = .06
    - Optional: Cv = .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 10⁻⁸ scf/sec HE
  - Supply Pressure Effect:
    - .02 Cv: .23 psig per100 psig (.016 barg per 1 barg)
    - .06 Cv: .6 psig per100 psig (.04 barg per 1 barg)
    - .15 Cv: 1.5 psig per100 psig (.1 barg per 1 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.
**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**

![Dimensional Drawing](image-url)
Flow Curves

IR4000 Series

Porting Configurations

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<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>2P</td>
<td>No Gauge Ports</td>
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<tr>
<td>3P</td>
<td>One gauge Port</td>
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<td>4P</td>
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<tr>
<td>4PB</td>
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<td>Two Gauge Ports</td>
</tr>
<tr>
<td>6P</td>
<td>Two Gauge Ports</td>
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</tbody>
</table>

IR4000 .06 CV

Outlet Pressure (psig)

Outlet Pressure (psig)

Outlet Pressure (psig)

Outlet Pressure (psig)

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Outlet Pressure (psig)

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Outlet Pressure (psig)
**Ordering Information**

### IR4000 Series

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

#### Seat Materials
- **K** = PCTFE
- **P** = PEEK™
- **V** = Vespel®

#### Flow Capacity
- **Cv** = .06 (Standard)
- **Cv** = .02
- **Cv** = .15 (See Range Table)

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

#### 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 Cv option

#### Optional Features
- **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 Style
- **4** = 1/4" NPT Female Standard
- Other = (Additional sizes available upon request)

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**Range Table**

<table>
<thead>
<tr>
<th>Model Basic Series</th>
<th>Max Inlet PSIG</th>
<th>Cv</th>
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<tbody>
<tr>
<td>IR4000</td>
<td>400</td>
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<tr>
<td>IR4005</td>
<td>4000</td>
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</tbody>
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* Do not exceed the rated pressure of the CGA connection

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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.
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: $C_v = 0.06$
  - Optional: $C_v = 0.02, 0.15†$
  - (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: $< 2 \times 10^{-8} \text{scc/sec HE}$
- Supply Pressure Effect:
  - $0.02 C_v$: 0.23 psig per 100 psig (0.16 barg per 7 barg)
  - $0.06 C_v$: 0.6 psig per 100 psig (0.4 barg per 7 barg)
  - $0.15 C_v$: 1.5 psig per 100 psig (1.0 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.
- O₂ 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

- Ø1.44 (36.6 MM) HOLE REQD IN PANEL FOR MOUNTING.
- Ø2.32 (58.9 mm)
- 4.91 (124.7 mm)
- 2.68 (68.0 mm)
- Ø2.00 (50.8 mm)
- .75 (19.1 mm)
- 10-32 UNF-2B
**Flow Curves**

**IR4200 .06 Cv**

Outlet Pressure (psig) vs. N₂ Flow (slpm)

- 400 Inlet psig
- 200 Inlet psig
- 100 Inlet psig
- 50 Inlet psig
- 20 Inlet psig

**IR4202 .06 Cv**

Outlet Pressure (psig) vs. N₂ Flow (slpm)

- 2000 Inlet psig
- 1000 Inlet psig
- 250 Inlet psig
- 150 Inlet psig

**IR4203 0.15 Cv**

Outlet Pressure (psig) vs. N₂ Flow (slpm)

- 1000 Inlet psig
- 500 Inlet psig
- 250 Inlet psig
- 150 Inlet psig

**Porting Configurations**

- **Porting Code 2P**: No Gauge Ports
- **Porting Code 3P**: One Gauge Port
- **Porting Code 4P**: Two Gauge Ports
- **Porting Code 4PB**: One Gauge Port
- **Porting Code 5P**: Two Gauge Ports
- **Porting Code 6P**: Two Gauge Ports

**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

### BASIC SERIES

<table>
<thead>
<tr>
<th>Range</th>
<th>Outlet Gauge</th>
</tr>
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<tbody>
<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>
<tr>
<td>5 = 10 - 500 psig</td>
<td>0 - 600 psig</td>
</tr>
</tbody>
</table>

### BODY MATERIAL

- **B** = Brass

### FLOW CAPACITY

- 0 = .06 CV (Standard)
- 1 = .02 CV
- 2 = .15 CV (See Range Table)

### SEAT MATERIALS

- **K** = PCTFE

### 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 CV option

### 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)

### Optional Features (See Notes)

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

Please select ONE or NONE of the following:

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

For optional color knobs consult factory

### Range Table

<table>
<thead>
<tr>
<th>Model Basic Series</th>
<th>Max Inlet PSIG</th>
<th>CV</th>
</tr>
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<tbody>
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<td></td>
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* Do not exceed the rated pressure of the CGA connection
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®
- **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®

#### 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**: \( C_v = .02 \) or \(.15^*\)
  - \([SEMI Flow Coefficient Test #F-32-0998]\)
  - **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**:
  - \(.02 C_v = 0.23 \) psig per 100 psig (0.16 barg per 7 barg)
  - \(.06 C_v = 0.6 \) psig per 100 psig (0.04 barg per 7 barg)
  - \(.15 C_v = 1.5 \) psig per 100 psig (0.1 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.
- 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

- 5.02 (127.6 mm)
- 2.68 (68 mm)
- 1.44 (36.6 mm)
- 2.00 (50.8 mm)
- 1.38 Flats (34.9 mm)
- .69 (17.5 mm)
- Hole Req'd In Panel For Mounting
- 10 - 32 UNF - 2B
- .88 (22.2 mm)
**Flow Curves**

**IR4000W .06 C<sub>V</sub>**

Outlet Pressure (psig) vs. N<sub>2</sub> Flow (slpm)

- 400 Inlet psig
- 200 Inlet psig
- 100 Inlet psig
- 20 Inlet psig
- 50 Inlet psig

**Porting Configurations**

- Porting Code 2P
- Porting Code 4PB
- Porting Code 3P
- Porting Code 4P

**Gauge Index**

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

---

**IR4002W .06 C<sub>V</sub>**

Outlet Pressure (psig) vs. N<sub>2</sub> Flow (slpm)

- 2000 Inlet psig
- 1000 Inlet psig
- 250 Inlet psig
- 150 Inlet psig

**IR4003W 0.15 C<sub>V</sub>**

Outlet Pressure (psig) vs. N<sub>2</sub> Flow (slpm)

- 150 Inlet psig
- 250 Inlet psig
- 50 Inlet psig

---

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**IR4000W Series**

**BASIC SERIES**

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<thead>
<tr>
<th>Range</th>
<th>Outlet Gauge</th>
</tr>
</thead>
<tbody>
<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>
<tr>
<td>5 = 10 - 500 psig</td>
<td>0 - 600 psig</td>
</tr>
</tbody>
</table>

**BODY MATERIAL**

W = 316L Stainless Steel (Hastelloy® Available Upon Request)

**FLOW CAPACITY**

<table>
<thead>
<tr>
<th>Cv</th>
</tr>
</thead>
<tbody>
<tr>
<td>.06</td>
</tr>
<tr>
<td>.02</td>
</tr>
<tr>
<td>.15</td>
</tr>
</tbody>
</table>

(See Range Table)

**SEAT MATERIALS**

K = PCTFE

P = PEEK™

V = Vespel®

**PORTING**

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 Cv option

**NOTES:**

Gauge Ports are 1/4" FS Male standard.

Gauge Ports are 1/4" NPT Female for compression ends.

* 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® is a registered trademark 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.

**OPTIONAL FEATURES** (See Notes)

L = Teflon® Back-Up O-Ring

(RCTFE & PEEK™ seat only)

R = Relief Valve (4PB Only)

Please select ONE or NONE of the following:

D = Dome Loaded

G = Tamper Proof

M = Metal Knob(Black)

For optional color knobs consult factory

**PORT MOUNTING**

A = .69 (17.5) port height w/ .88 mounting hole pattern

(Additional Port Mounting available upon request)

**PORT CONFIGURATION** (Face Seal Only)

M = Male Face Seal

F = Female Face Seal

I = 1/4" Internal Face Seal Female

**PORT STYLE**

4T = 1/4" Compression Fitting

6T = 3/8" Compression Fitting

8T = 1/2" Compression Fitting

FS = 1/4" Face Seal

FS8 = 1/2" Face Seal

TS = 1/4" Tube Stub

TS6 = 3/8" Tube Stub

TS8 = 1/2" Tube Stub

**Dimension Table**

<table>
<thead>
<tr>
<th>Connection Type</th>
<th>End to End Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot; Compression Fitting</td>
<td>3.34 ± .02 in. (84.8 ± .5 mm)</td>
</tr>
<tr>
<td>3/8&quot; Compression Fitting</td>
<td>3.48 ± .02 in. (88.4 ± .5 mm)</td>
</tr>
<tr>
<td>1/2&quot; Compression Fitting</td>
<td>4.38 ± .03 in. (111.3 ± .8 mm)</td>
</tr>
<tr>
<td>1/4&quot; Face Seal</td>
<td>3.70 ± .02 in. (94 ± .5 mm)</td>
</tr>
<tr>
<td>1/2&quot; Face Seal</td>
<td>4.82 ± .02 in. (122.4 ± .5 mm)</td>
</tr>
<tr>
<td>All Tube Stubs</td>
<td>3.70 ± .02 in. (94 ± .5 mm)</td>
</tr>
</tbody>
</table>
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®, Monel®
- Poppet: Bigloy®, Inconel®
- Poppet Spring: Inconel®
- Carrier: Stainless Steel®, Hastelloy C-22®, Monel®
- Back-up Washer: Hastelloy C-22®, Monel®
- Seat: PCTFE, PEEK™, Vespel®, PEEK™, Teflon®, 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: CV = .06
  - Optional: CV = .02, .15†
  

<table>
<thead>
<tr>
<th>Supply Pressure Effect</th>
<th>.02 CV</th>
<th>.12 psig per 100 psig (.008 barg per 7 barg)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.06</td>
<td>.3 psig per 100 psig (.02 barg per 7 barg)</td>
</tr>
<tr>
<td></td>
<td>.15</td>
<td>.75 psig per 100 psig (.05 barg per 7 barg)</td>
</tr>
</tbody>
</table>

- Maximum Inboard Design
- Leak Rate: < 2 x 10⁻⁹ scc/sec HE

### 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.
- 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**

![Diagram of IR5000 Series regulator with dimensions](image-url)
**Flow Curves**

**IR5003 .06 CV**

Outlet Pressure (psig)

N2Flow (slpm)

**IR5002 .15 CV**

Outlet Pressure (psig)

N2Flow (slpm)

**IR5000 .06 CV**

Outlet Pressure (psig)

N2Flow (slpm)

---

**Porting Configurations**

Porting Code 2P

Porting Code 3P

Porting Code 4P

Porting Code 4PB

---

**Gauge Index**

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

---

---

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---
Ordering Information

IR5000 Series

Basic Series

Ordering Information

<table>
<thead>
<tr>
<th>IR5000</th>
<th>S</th>
<th>4</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASIC SERIES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>Outlet Gauge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 = 0 - 5 psig</td>
<td>0 - 15 psig</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 = 1 - 30 psig</td>
<td>0 - 60 psig</td>
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<td></td>
</tr>
<tr>
<td>2 = 2 - 60 psig</td>
<td>0 - 100 psig</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 = 3 - 100 psig</td>
<td>0 - 200 psig</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 = 5 - 250 psig</td>
<td>0 - 400 psig</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Materials

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

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.

Flow Capacity

= .06 Cv (standard)
1 = .02 Cv
2 = .15 Cv (See Range Table)

Outlet Gauge

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

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 Cv option

Range Table

<table>
<thead>
<tr>
<th>Model Basic Series</th>
<th>Max Inlet PSIG</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cv</td>
</tr>
<tr>
<td></td>
<td>.06</td>
</tr>
<tr>
<td>IR5000</td>
<td>400</td>
</tr>
<tr>
<td>IR5001</td>
<td>3500</td>
</tr>
<tr>
<td>IR5002</td>
<td>3500</td>
</tr>
<tr>
<td>IR5003</td>
<td>3500</td>
</tr>
<tr>
<td>IR5004</td>
<td>3500</td>
</tr>
</tbody>
</table>

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.
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: PTFE
- 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)
  - PTFE: -40°F to 150°F (-40°C to 65°C)

### Functional Performance

- **Flow capacity:**
  - Standard: $C_v = 0.06$
  - Optional: $C_v = 0.02, 0.15^*$
  - (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:**
  - $0.02 C_v$: 0.12 psig per 100 psig (.008 barg per 7 barg)
  - $0.06 C_v$: 0.3 psig per 100 psig (.02 barg per 7 barg)
  - $0.15 C_v$: 0.75 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.
**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.
- O₂ Cleaned.
- Fully swept design.
- Internally threadless seat design promotes long seat life.
- Convoluted, Hastelloy C-22ª diaphragm provides high corrosion resistance and increases cycle life.
- Positive upward and downward stops increase 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**

![Dimensional Drawing](image.png)
IR5200 Series

Flow Curves

<table>
<thead>
<tr>
<th>Model</th>
<th>Cv</th>
<th>N2 Flow (slpm)</th>
<th>Outlet Pressure (psig)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IR5203</td>
<td>.06</td>
<td>0-450</td>
<td>0-120</td>
</tr>
<tr>
<td>IR5202</td>
<td>.15</td>
<td>0-450</td>
<td>0-70</td>
</tr>
<tr>
<td>IR5200</td>
<td>.06</td>
<td>0-45</td>
<td>0-6</td>
</tr>
</tbody>
</table>

Porting Configurations

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2P</td>
<td>No Gauge Ports</td>
</tr>
<tr>
<td>3P</td>
<td>One Gauge Port</td>
</tr>
<tr>
<td>4P</td>
<td>Two Gauge Ports</td>
</tr>
<tr>
<td>4PB</td>
<td>One Gauge Port</td>
</tr>
</tbody>
</table>

Gauge Index
**IR5200 Series**

**Ordering Information**

### IR520

<table>
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<tr>
<th>BASIC SERIES</th>
<th>Outlet Gauge</th>
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</thead>
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<td>Range</td>
<td></td>
</tr>
<tr>
<td>0 = 0 - 5 psig</td>
<td>0 - 15 psig</td>
</tr>
<tr>
<td>1 = 1 - 30 psig</td>
<td>0 - 60 psig</td>
</tr>
<tr>
<td>2 = 2 - 60 psig</td>
<td>0 - 100 psig</td>
</tr>
<tr>
<td>3 = 3 - 100 psig</td>
<td>0 - 200 psig</td>
</tr>
<tr>
<td>4 = 5 - 250 psig</td>
<td>0 - 400 psig</td>
</tr>
</tbody>
</table>

### MATERIALS

- **B** = Brass

### FLOW CAPACITY

- .06 C\textsubscript{v} (standard)
- 1 = .02 C\textsubscript{v}
- 2 = .15 C\textsubscript{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)

**NOTES:**

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

### ORDERING REGULATORS WITHOUT GAUGES

**Example #1**

IR5203BK2P4B (No X required for gauges, inlet & outlet ports only)

**Example #2**

IR5203BK3PX4B (One X for gauge port)

**Example #3**

IR5203BK4PBX4B (One X for gauge port)

**Example #4**

IR5203BK4PXX4B (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. Inconel® is a registered trademark of Inco Alloys International. Elgiloy® is a registered trademark of Elginoy Company. Vespel® and Teflon® are registered trademarks of DuPont Company. Viton® is a registered trademark of DuPont Dow Elastomers.

### CGA#

- 320
- 330
- 350
- 510
- 580
- 590

Additional Configurations Available Upon Request

### OPTIONAL FEATURES

- **N** = Nickel Plated Body
- **R** = Relief Valve (4PB 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/ 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\textsubscript{v} option

<table>
<thead>
<tr>
<th>Model Basic Series</th>
<th>Max Inlet PSIG</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>C\textsubscript{v}</td>
</tr>
<tr>
<td>IR5200</td>
<td>400</td>
</tr>
<tr>
<td>IR5201</td>
<td>3500</td>
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<tr>
<td>IR5202</td>
<td>3500</td>
</tr>
<tr>
<td>IR5203</td>
<td>3500</td>
</tr>
<tr>
<td>IR5204</td>
<td>3500</td>
</tr>
</tbody>
</table>
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: Cv = 0.6
  - Optional: Cv = 0.02, 0.15†

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

- Maximum Inboard Design Leak Rate: < 2 x 10⁻⁸ scc/sec HE

- Supply Pressure Effect:
  - 0.02 Cv: 0.12 psig per 100 psig (.008 barg per 7 barg)
  - 0.06 Cv: 0.3 psig per 100 psig (.02 barg per 7 barg)
  - 0.15 Cv: 0.75 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.
**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.
- 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**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>5.22</td>
</tr>
<tr>
<td>(132.6 mm)</td>
<td></td>
</tr>
<tr>
<td>Diameter</td>
<td>3.08</td>
</tr>
<tr>
<td>(78.2 mm)</td>
<td></td>
</tr>
<tr>
<td>Diameter</td>
<td>1.44</td>
</tr>
<tr>
<td>(36.6 mm)</td>
<td>Hole</td>
</tr>
<tr>
<td>Required in Panel</td>
<td>For Mounting</td>
</tr>
<tr>
<td>Diameter</td>
<td>3.00</td>
</tr>
<tr>
<td>(76.2 mm)</td>
<td></td>
</tr>
<tr>
<td>Diameter</td>
<td>2.38</td>
</tr>
<tr>
<td>(60.5 mm)</td>
<td></td>
</tr>
<tr>
<td>Diameter</td>
<td>4.30</td>
</tr>
<tr>
<td>(109.3 mm)</td>
<td></td>
</tr>
<tr>
<td>Diameter</td>
<td>1.00</td>
</tr>
<tr>
<td>(25.4 mm)</td>
<td>10-32 UNF-2B</td>
</tr>
</tbody>
</table>
IR5000W Series

Flow Curves

IR5003W .06 Cv

Outlet Pressure (psig)

N2Flow (slpm)

2000 psig

1000 psig

250 psig

150 psig

IR5002W .15 Cv

Outlet Pressure (psig)

N2Flow (slpm)

1250 psig

250 psig

150 psig

IR5000W .06 Cv

Outlet Pressure (psig)

N2Flow (slpm)

400 psig

100 psig

20 psig

Porting Configurations

IR5003W .06 Cv

Porting Code 2P

Porting Code 3P

Porting Code 4PB

Porting Code 4P

Gauge Index

2P  No Gauge Ports
3P  One gauge Port
4P  Two gauge Ports
4PB One Gauge Port
IR5000W Series

Ordering Information

IR500

BASIC SERIES

<table>
<thead>
<tr>
<th>Range</th>
<th>Outlet Gauge</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 = 0 - 5 psig</td>
<td>0 - 15 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>
</tbody>
</table>

MATERIALS

W = 316L Stainless Steel
(Hastelloy® Available Upon Request)

FLOW CAPACITY

- .06 CV (standard)
- .02 CV
- .15 CV (See Range Table)

SEAT MATERIALS

K = PCTFE
P = PEEK™
V = Vespel®

PORTING

L = Teflon® Back-Up O-Ring
(PCTFE & PEEK™ seat only)

Please select ONE or NONE of the following:

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

For optional color knobs consult factory

OUTLET GAUGE†

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

ORDERING REGULATORS WITHOUT GAUGES

Example #1
IR5003WK2PFSSMMA (No X required for gauges, inlet & outlet ports only)

Example #2
IR5003WK3PXFSMMMA (One X for gauge port)

Example #3
IR5003WK4BPXFSMMMA (One X for gauge port)

Example #4
IR5003WK4PXXFSMMMA (Two X’s for gauge ports)

† NOTES:
Gauge Ports are 1/4” FS Male standard.
Gauge Ports are 1/4” NPT Female for compression ends.

Do not exceed the rated pressure of the CGA connection

Hastelloy C-22® is a registered trademark of Haynes International, Inc.
Inconel® is a registered trademark 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
590
590

Additional Configurations
Available Upon Request

PORT MOUNTING

A = .69 port height w/ 1.00 mounting hole pattern.
(Additional Port Mounting available upon request)

PORT CONFIGURATION (Face Seal Only)

M = Male Face Seal
F = Female Face Seal
I = 1/4” Internal Face Seal Female

PORT STYLE

4T = 1/4” Compression Fitting
6T = 3/8” Compression Fitting
8T = 1/2” Compression Fitting
FS = 1/4” Face Seal
FS8 = 1/2” face Seal
TS = 1/4” Tube Seal
TS6 = 3/8” Tube Seal
TS8 = 1/2” Tube Seal

INLET GAUGE†

3000 psig std.
400 psig with the 10 psig range
2000 psig with .15 CV option

Range Table

<table>
<thead>
<tr>
<th>Model Basic Series</th>
<th>Max Inlet PSIG</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.06</td>
</tr>
<tr>
<td>IR5000</td>
<td>400</td>
</tr>
<tr>
<td>IR5001</td>
<td>3500</td>
</tr>
<tr>
<td>IR5002</td>
<td>3500</td>
</tr>
<tr>
<td>IR5003</td>
<td>3500</td>
</tr>
<tr>
<td>IR5004</td>
<td>3500</td>
</tr>
</tbody>
</table>

Dimension Table

<table>
<thead>
<tr>
<th>Connection Type</th>
<th>End to End Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4” Compression Fitting</td>
<td>3.92 ± .02 in. (100 ± .5 mm)</td>
</tr>
<tr>
<td>3/8” Compression Fitting</td>
<td>4.07 ± .02 in. (103 ± .5 mm)</td>
</tr>
<tr>
<td>1/2” Compression Fitting</td>
<td>4.78 ± .03 in. (121 ± .8 mm)</td>
</tr>
<tr>
<td>1/4” Face Seal</td>
<td>4.30 ± .02 in. (109 ± .5 mm)</td>
</tr>
<tr>
<td>1/2” Face Seal</td>
<td>5.22 ± .02 in. (133 ± .5 mm)</td>
</tr>
<tr>
<td>All Tube Stubs</td>
<td>4.00 ± .02 in. (102 ± .5 mm)</td>
</tr>
</tbody>
</table>

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

* Do not exceed the rated pressure of the CGA connection

† Gauge Ports are 1/4” FS Male standard.
   Gauge Ports are 1/4” NPT Female for compression ends.

3-D Drawings
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

<table>
<thead>
<tr>
<th>Component</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body</td>
<td>316L Stainless Steel, Hastelloy C-22®, Monel®</td>
</tr>
<tr>
<td>Compression Member</td>
<td>Inconel®</td>
</tr>
<tr>
<td>Diaphragm</td>
<td>Hastelloy C-22®</td>
</tr>
<tr>
<td>Poppet</td>
<td>Bigloy®</td>
</tr>
<tr>
<td>Poppet Spring</td>
<td>Inconel®</td>
</tr>
<tr>
<td>Carrier</td>
<td>Stainless Steel*, Hastelloy C-22®</td>
</tr>
<tr>
<td>Back-up Washer</td>
<td>Hastelloy C-22®</td>
</tr>
<tr>
<td>Seat</td>
<td>PCTFE, PEEK™, Vespel®</td>
</tr>
<tr>
<td>Back-up O-ring</td>
<td>Viton®, optional Teflon®</td>
</tr>
<tr>
<td>Inlet Screen/Filter</td>
<td>316L Stainless Steel, Hastelloy C-22® (Hastelloy®, Monel® bodies)</td>
</tr>
</tbody>
</table>

#### Non-Wetted

<table>
<thead>
<tr>
<th>Component</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cap</td>
<td>Nickel Plated Brass, optional Stainless Steel</td>
</tr>
<tr>
<td>Nut</td>
<td>316L Stainless Steel, Nickel Plated Brass††</td>
</tr>
<tr>
<td>Knob (black)</td>
<td>ABS Plastic</td>
</tr>
</tbody>
</table>

### operating conditions

<table>
<thead>
<tr>
<th>Case</th>
<th>Outlet Pressure (psig)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum inlet</td>
<td>4000</td>
</tr>
<tr>
<td>Outlet</td>
<td>1-10, 2-30, 3-60, 4-100, 5-250</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCTFE</td>
<td>-40°F to 150°F</td>
</tr>
<tr>
<td>PEEK™</td>
<td>-40°F to 275°F</td>
</tr>
<tr>
<td>Vespel®</td>
<td>-40°F to 500°F</td>
</tr>
</tbody>
</table>

### functional performance

<table>
<thead>
<tr>
<th>Description</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow capacity</td>
<td>CV = 0.06</td>
</tr>
<tr>
<td>Optional</td>
<td>CV = 0.02, 0.15†</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Description</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design Proof Pressure</td>
<td>6000 psig (414 barg)</td>
</tr>
<tr>
<td>Design Burst Pressure</td>
<td>12000 psig (828 barg)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Inboard Design</td>
<td>&lt; 2 x 10⁻⁸ scc/sec HE</td>
</tr>
</tbody>
</table>

### 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.
**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.
- \( \text{O}_2 \) 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**

---

**\( \text{Ø1.44} \) (37 mm)**  
Hole Required In Panel For Mounting

**\( \text{Ø2.32} \) (59 mm)**

**1.98**  
(50 mm)

**4.33**  
(110 mm)

**7.22**  
(183 mm)
### Flow Curves

**IR6001 .06 Cv**
Inlet Pressure - 1500 PSIG

- Outlet Pressure (psig) vs. N₂ Flow (slpm)
- Graph shows the relationship between outlet pressure and flow rate for different inlet pressures.

**IR6002 .06 Cv**
Inlet Pressure - 1500 PSIG

- Outlet Pressure (psig) vs. N₂ Flow (slpm)
- Graph shows the relationship between outlet pressure and flow rate for different inlet pressures.

**IR6003 .06 Cv**
Inlet Pressure - 1500 PSIG

- Outlet Pressure (psig) vs. N₂ Flow (slpm)
- Graph shows the relationship between outlet pressure and flow rate for different inlet pressures.

### Porting Configurations

- **Porting Code 2P**
- **Porting Code 4PB**
- **Porting Code 3P**
- **Porting Code 5P**
- **Porting Code 4P**
- **Porting Code 6P**

### Gauge Index

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2P</td>
<td>No Gauge Ports</td>
</tr>
<tr>
<td>3P</td>
<td>One Gauge Port</td>
</tr>
<tr>
<td>4P</td>
<td>Two Gauge Ports</td>
</tr>
<tr>
<td>4PB</td>
<td>One Gauge Port</td>
</tr>
<tr>
<td>5P</td>
<td>Two Gauge Ports</td>
</tr>
<tr>
<td>6P</td>
<td>Two Gauge Ports</td>
</tr>
</tbody>
</table>

---

**IR6000 Series**
IR6000 Series

**Ordering Information**

### IR600 S 4 B

**BASIC SERIES**

<table>
<thead>
<tr>
<th>Range</th>
<th>Outlet Gauge</th>
</tr>
</thead>
<tbody>
<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>
</tbody>
</table>

**BODY MATERIAL**

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

**FLOW CAPACITY**

= .06 Cv (Standard)
1 = .02 Cv
2 = .15 Cv (See Range Table)

**SEAT MATERIALS**

K = PCTFE
P = PEEK™
V = Vespel®

**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)

Please select ONE or NONE of the following:

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

For optional color knobs consult factory

**PORT MOUNTING**

B = Standard (No options)

**PORT STYLE**

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

**NOTES:**

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

**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)

**PORTING**

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

**INLET GAUGE**

3000 psig std.

**CGA#**

320
330
350
510
580
590

Additional Configurations Available Upon Request

**PORT GUAGE**

See Outlet Gauge under BASIC SERIES (see above)
(Additional ranges available upon request)

**INLET GAUGE**

3000 psig std.

**3-D Drawings**

**Web Site**

**Search**

**Master Table of Contents**
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: $C_v = 0.06$
  - Optional: $C_v = 0.02, 0.15$
  (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.
- 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

Ø1.44 (37 mm) Hole Required In Panel For Mounting

1.98 (50 mm)

Ø2.32 (59 mm)

4.33 (110 mm)

7.22 (183 mm)
Flow Curves

IR6201 .06 Cv
Outlet Pressure (psig)
N2 Flow (slpm)
Inlet Pressure - 1500 PSIG

IR6202 .06 Cv
Outlet Pressure (psig)
N2 Flow (slpm)
Inlet Pressure - 1500 PSIG

IR6203 .06 Cv
Outlet Pressure (psig)
N2 Flow (slpm)
Inlet Pressure - 1500 PSIG

Porting Configurations

Porting Code 2P
Porting Code 4P
Porting Code 3P
Porting Code 5P
Porting Code 4PB
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
## Ordering Information

### IR6200 Series

#### Ordering Information

<table>
<thead>
<tr>
<th>BASIC SERIES:</th>
<th>Range</th>
<th>Outlet Gauge</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 = 1 - 10 psig</td>
<td>0 - 30 psig</td>
<td></td>
</tr>
<tr>
<td>1 = 2 - 30 psig</td>
<td>0 - 60 psig</td>
<td></td>
</tr>
<tr>
<td>2 = 3 - 60 psig</td>
<td>0 - 100 psig</td>
<td></td>
</tr>
<tr>
<td>3 = 4 - 100 psig</td>
<td>0 - 200 psig</td>
<td></td>
</tr>
<tr>
<td>4 = 5 - 250 psig</td>
<td>0 - 400 psig</td>
<td></td>
</tr>
<tr>
<td>5 = 10 - 500 psig</td>
<td>0 - 600 psig</td>
<td></td>
</tr>
</tbody>
</table>

**BODY MATERIAL**

B = Brass

**FLOW CAPACITY**

= .06 Cv (Standard)

1 = .02 Cv

2 = .15 Cv

**SEAT MATERIALS**

K = PCTFE

**OUTLET GAUGE**

See Outlet Gauge under BASIC SERIES for standards.

**INLET GAUGE**

3000 psig std.

### 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**

IR6203BK5PX4B (Two X's for gauge ports)

### CGA#**

320

330

350

510

580

590

Additional Configurations Available Upon Request

### OPTIONAL FEATURES (See Notes)

N = Nickel Plate

R2 = Relief Valve (4PB, 5P and 6P 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 STYLE**

4 = 1/4" NPTF

Other = See Port Chart

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

Hastelloy C-22® is a registered trademark of Haynes International, Inc.

Inconel® is a registered trademark 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.
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: Bigloy®
- 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: Cv = .06
  - Optional: Cv = .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 10⁻⁸ scc/sec HE

- Supply Pressure Effect: 0.01 psig per100 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.
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).
- Captured bonnet allows for safety venting.
- 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

- Hole Required In Panel For Mounting.
- Ø1.44 (36.6 mm)
- Ø2.32 (58.9 mm)
- 1.98 (50.3 mm)
- 4.33 (109.9 mm)
- 7.22 (183.4 mm)
- 3.70 (94.0 mm)
- 1.85 (47.0 mm)
**Flow Curves**

![Flow Curve IR6001W.06 Cy](image1)

**Inlet Pressure - 1500 PSIG**

Outlet Pressure (psig)

N₂ Flow (slpm)

![Flow Curve IR6002W.06 Cy](image2)

**Inlet Pressure - 1500 PSIG**

Outlet Pressure (psig)

N₂ Flow (slpm)

![Flow Curve IR6003W.06 Cy](image3)

**Inlet Pressure - 1500 PSIG**

Outlet Pressure (psig)

N₂ Flow (slpm)

**Porting Configurations**

- Porting Code 2P
- Porting Code 3P
- Porting Code 4P
- Porting Code 4PB
- Porting Code 5P
- Porting Code 6P

**Gauge Index**

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<td>One gauge Port</td>
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<td>4P</td>
<td>Two gauge Ports</td>
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<td>4PB</td>
<td>One Gauge Port</td>
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<td>5P</td>
<td>Two Gauge Ports</td>
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<tr>
<td>6P</td>
<td>Two Gauge Ports</td>
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**IR6000W Series**

**PRESSURE REGULATORS**

VERIFLO CORPORATION

LP HP

3-D Drawings

Web Site

Search

Master Table of Contents
IR6000W Series

Ordering Information

IR600

BASIC SERIES

Range 
0 = 1 - 10 psig 
1 = 2 - 30 psig 
2 = 3 - 60 psig 
3 = 4 - 100 psig 
4 = 5 - 250 psig 
Outlet Gauge 
0 = 0 - 30 psig 
1 = 0 - 60 psig 
2 = 0 - 100 psig 
3 = 0 - 200 psig 
4 = 0 - 400 psig

BODY MATERIAL

W = 316L Stainless Steel
(Hastelloy® & Avaliable Upon Request)

FLOW CAPACITY

= .06 CV (Standard)
1 = .02 CV
2 = .15 CV (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 CV option

† NOTES:
Gauge Ports are 1/4" FS Male standard.
Gauge Ports are 1/4" NPT Female for compression ends.

* Do not exceed the rated pressure of the CGA connection

ORDERING REGULATORS WITHOUT GAUGES
Example #1
IR6003WK2PFSMNB (No X required for gauges, inlet & outlet ports only)
Example #2
IR6003WK3PXFSSMMB (One X for gauge port)
Example #3
IR6003WK4PBXFSMMMB (One X for gauge port)
Example #4
IR6003WK4PXXFSMMMB (Two X's for gauge ports)

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)
R2 = Relief Valve (4PB, 5P, 6P only))

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 = Standard (No Options)

PORT CONFIGURATION (Face Seal Only)
M = Male Face Seal
F = Female Face Seal
I = 1/4" Internal Face Seal Female

PORT STYLE

4T = 1/4" Compression Fitting
6T = 3/8" Compression Fitting
8T = 1/2" Compression Fitting
FS = 1/4" Face Seal
FS8 = 1/2" Face Seal
TS = 1/4" Tube Stub
TS6 = 3/8" Tube Stub
TS8 = 1/2" Tube Stub

(Additional ranges available upon request)

Dimension Table

<table>
<thead>
<tr>
<th>Connection Type</th>
<th>End to End Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot; Compression Fitting</td>
<td>3.34 ± .02 in. (84.8 ± .5 mm)</td>
</tr>
<tr>
<td>3/8&quot; Compression Fitting</td>
<td>3.48 ± .02 in. (88.4 ± .5 mm)</td>
</tr>
<tr>
<td>1/2&quot; Compression Fitting</td>
<td>4.38 ± .03 in. (111.3 ± .8 mm)</td>
</tr>
<tr>
<td>1/4&quot; Face Seal</td>
<td>3.70 ± .02 in. (94 ± .5 mm)</td>
</tr>
<tr>
<td>1/2&quot; Face Seal</td>
<td>4.82 ± .02 in. (122.4 ± .5 mm)</td>
</tr>
<tr>
<td>All Tube Stubs</td>
<td>3.70 ± .02 in. (94 ± .5 mm)</td>
</tr>
</tbody>
</table>

Hastelloy C-22® is a registered trademark of Haynes International, Inc.
PEEK™ is a trademark of Victrex plc.
Inconel® is a registered trademark 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.

Teflon® is a registered trademark of DuPont Company.
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.

**materials of construction**

**Wetted**
- Body: 316L, Brass, Monel®, Hastelloy C-22®
- Compression Member: Inconel®, Hastelloy C-22®
- Pin: Hastelloy C-22®
- Poppet: Elgiloy®, Hastelloy C-22®
- 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: Cᵥ .06
  - Optional: Cᵥ .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.
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 Eligloy® 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

![Dimensional Drawing of NPR4100 Series Pressure Regulators]

**HOLE REQD. IN PANEL FOR MOUNTING.**

- ø1.44 (36.6 mm)
- ø2.32 (58.9)
- 1.38 FLATS (34.9)
- 10-32 UNF-2B
- ø2.00 (50.8)
- ø2.00 (50.8)
- .75 (22.2)
- .75 (34.9)
NPR4100 Series

Flow Curve

NPR4000 (Cv = .06)
Inlet Pressure - 4 PSIG

Outlet Pressure (torr)

Flow (LPM)

Flow Curve

Porting Configurations

# NPR4100 Series

## Ordering Information

### Basic Series
NPR4100

### Materials
- **B** = Brass
- **S** = 316L Stainless Steel

*Hastelloy® & Monel® Available Upon Request*

### Flow Capacity
- **NPR4100SK**
  - 2P = 0.06 CV (Standard)
  - 1P = 0.02 CV
  - 2P = 0.15 CV

### Seat Materials
- **K** = PCTFE
- **P** = PEEK™
- **V** = Vespel®

### Porting
- **Outlet Gauge**
  - **V3** = -30 in Hg to 0-30 psig

- **Inlet Gauge**
  - **4** = 0-400 psig

### 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.
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.
- O₂ 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 .......................... Cv = .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 10⁻⁸ 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

Inlet Pressure: 2000 psig
(Fairprene® Diaphragm)

Outlet Pressure (psig)

Flow (slpm)

0  10  20  30  40  50  60  70  80  90

0  100  200  300  400  500  600  700

Inlet Pressure: 2000 psig
(Hastelloy C-22® Diaphragm)

Outlet Pressure (psig)

Flow (slpm)

0  5  10  15  20

0  5  10  15  20

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.
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.

**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: \( Cv = 0.85 \) (SEMI Flow Coefficient Test# F-32-0998)
- Maximum Inboard Design Leak Rate: \(< 2 \times 10^4 \text{ scc/sec HE} \)

**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)

**features**
- “VeriClean”, Veriflo’s low sulfur high purity 316L Stainless Steel, which enhances electropolishing, and corrosion resistance.
- Also available in Brass.
- O₂ 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.
**HFR900 Series**

**Dimensional Drawing**

![Dimensional Drawing](image)

**Flow Curves**

![Flow Curves](image)

**Porting Configuration**

![Porting Configuration](image)

**Ordering Information**

**BASIC SERIES**
- HFR900 = 1-30 psig
- HFR901 = 2-75 psig
- HFR902 = 5-150 psig

**MATERIALS**
- B = Brass
- S = 316L Stainless Steel

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

**REGULATOR OUTLET GAUGE**
- 03 = 0-30 psig
- 01 = 0-100 psig
- 2 = 0-200 psig
- X = No Gauge

**REGULATOR INLET GAUGE**
- 4 = 0-400 psig
- 6 = 0-600 psig
- X = No Gauge

**OPTIONAL FEATURES**
- PM = Panel Mount
- R = Relief Valve

**SEAL MATERIAL**
- K = Kalrez® (200 psig max)
- V = Viton® (500 psig max)

**PORT STYLE**
- 4 = 1/4" NPTF
- 6 = 3/8" NPTF
- 8 = 1/2" NPTF
- 4T = 1/4" Compression Fittings*
- 6T = 3/8" Compression Fittings*
- 8T = 1/2" Compression Fittings*

**FLOW (slpm) Nitrogen**

- Pressure Regulator HFR900W
  - Range: 1-30 psig
- Pressure Regulator HFR901W
  - Range: 2-75 psig
- Pressure Regulator HFR902W
  - Range: 5-150 psig

* 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 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.

### 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: \(< 2 \times 10^{-8} \text{scc/sec HE}\)
- Supply pressure effect: \(< 0.5 \text{ psig per 100 psig (.03 barg per 7 barg)}\)

### 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)

### 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.
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.  
Inconel® is a registered trademark of Inconel Alloys International.
APR66 Series

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 ..................... Telfon®
Piston Housing ........... Stainless Steel
Stem ..................... Stainless Steel
Seals ..................... 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 ................ Cᵥ 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**

Inlet Pressure 5000 psig

Outlet Pressure (psig)

N₂ Flow (slpm)

1300
1100
900
700
500
300
100

0 100 200 300 400 500 600

**Porting Configurations**

Porting Code: 2P
Porting Code: 3P
Porting Code: 4P

**Ordering Information**

**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.

**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

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Aflas® is a registered trademark of 3M Company.
Teflon® is a registered trademark of DuPont Company.
PeeK™ is a trademark of Victrex plc.
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.

**materials of construction**

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

**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)*

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: \(1 \times 10^{-4}\) scc/sec He
- Inboard: \(1 \times 10^{-4}\) scc/sec He
- Outboard: \(1 \times 10^{-4}\) scc/sec He

Flow Capacity: \(C_m = 0.07\) (SEMI Flow Coefficient Test # F-32-0998)

**internal volume**

Self Relieving: 0.853 in\(^3\) (13.99 cm\(^3\))
Non Self Relieving: 0.831 in\(^3\) (13.62 cm\(^3\))

**standard connections**

1/8 NPT, 1/4 NPT

**approximate weight**

6.5 lbs (3 kg)
**XPR Series**

**Dimensional Drawing**

Flow Curve

Outlet Pressure (psig)

<table>
<thead>
<tr>
<th>N2 Flow (slpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6000</td>
</tr>
<tr>
<td>5500</td>
</tr>
<tr>
<td>5000</td>
</tr>
<tr>
<td>4500</td>
</tr>
<tr>
<td>4000</td>
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<td>3500</td>
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<td>1500</td>
</tr>
<tr>
<td>1000</td>
</tr>
<tr>
<td>500</td>
</tr>
<tr>
<td>0</td>
</tr>
</tbody>
</table>

Inlet Pressure 10,000 psig

Inlet Pressure 6000 psig

Porting Configuration

Ordering Information

**BASIC SERIES**

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>RANGE</th>
<th>Outlet Gauge</th>
</tr>
</thead>
<tbody>
<tr>
<td>B = Brass (6000 psig max)</td>
<td>5 = 50 psig to 500 psig</td>
<td>0 - 600 psi</td>
</tr>
<tr>
<td>S = 316L Stainless Steel (10000 psig max)</td>
<td>8 = 50 psig to 800 psig</td>
<td>0 - 1000 psi</td>
</tr>
<tr>
<td>15 = 100 psig to 1500 psig</td>
<td>0 - 2000 psi</td>
<td></td>
</tr>
<tr>
<td>25 = 135 psig to 2500 psig</td>
<td>0 - 3000 psi</td>
<td></td>
</tr>
<tr>
<td>40 = 200 psig to 4000 psig</td>
<td>0 - 6000 psi</td>
<td></td>
</tr>
<tr>
<td>60 = 300 psig to 6000 psig</td>
<td>0 - 8000 psi</td>
<td></td>
</tr>
<tr>
<td>100 = 500 psig to 10000 psig*</td>
<td>0 - 10000 psi</td>
<td></td>
</tr>
</tbody>
</table>

**PORTING**

| 2P = 2 Ports |
| 3P = 3 Ports |
| 4P = 4 Ports |
| 4PB = 4 Ports |

*Stainless Steel material only

**OPTIONS**

N = Non-Self Relieving
Q = Nickel Plate
T = Tee Bar Handle

**O-RING MATERIAL**

O = Viton®

**PORT STYLE**

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

**INLET GAUGE**

60 = 0 - 6000 psi

100 = 0 - 10000 psi (standard for 100)

**OUTLET GAUGE**

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

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

Veolia, 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.

Viton® is a registered trademark of DuPont Dow Elastomers.
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.

### Materials of Construction

**Wetted**
- Body: “VeriClean”, Veriflo’s high purity type 316L Stainless Steel™, Hastelloy C-22®
- Seat: PCTFE, optional Vespel®
- 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

### Operating Conditions

- Maximum inlet: 3500 psig (240 barg)
- Outlet: 0-30 psig (2 barg)
- NPR: -25 in Hg to 30 psig
- Temperature: –40°F to 150°F (–40°C to 65°C)

### Functional Performance

- Flow capacity: \( C_v = 0.04 \) optional \( C_v = 0.2 \) (SEMI Flow Coefficient Test # F-32-0998)

### Design Leak Rate:
- Outboard: \( 1 \times 10^{-9} \text{ scc/sec He} \)
- Inboard: \( 2 \times 10^{-10} \text{ scc/sec He} \)
- Across seat: \( 2 \times 10^{-9} \text{ scc/sec He} \)

### 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: \( EX = 10 \text{ m inch} (.25 \text{ m meter}) \) \( EV = 5 \text{ m inch} (.13 \text{ to .5 m meter}) \) or less

### Approximate Weight

- 2 lbs (.9 kg)
**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®

**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® Internals**
- VESP = Vespel® Seat (Recommended for Nitrous Oxide)
- 2 = 0.2 Cv
- 3.4 = FS Fittings 3.4" Face to Face

**PORT STYLE**
- FS = 1/4" Face Seal
- I = Internal Face Seal***

**PORTING CONFIGURATIONS**

**INLET GAUGE**
- V3 = -30 in Hg - 0-30 psig
- V1 = -30 in Hg - 0-100 psig
- V2 = -30 in Hg - 0-200 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® Material Includes: Hastelloy C-22® Body, Compression Member, Poppet, Diaphragm, Screen, and Inconel® Spring
** Trim Hastelloy C-22® Includes: 316L Stainless Steel Body, Hastelloy C-22® Compression Member, Poppet, Diaphragm, Screen, and Inconel® Spring
*** Use Material Code ‘W’

Hastelloy® C-22 is a registered trademark of Haynes International, Inc.
Vespel® is a registered trademark of DuPont Company.
Inconel® is a registered trademark of Inco Alloys International.

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**Flow Curves**

**Outlet Pressure (psig)**
- 0 to 50
- 50 to 100
- 100 to 150
- 150 to 200
- 200 to 250
- 250 to 300
- 300 to 350
- 350 to 400
- 400 to 500
- 500 to 1000
- 1000 to 2000
- 2000 to 3000

**N2 Flow (slpm)**
- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 4
- 4 to 5

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**master Table of Contents**

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**3-D Drawings**
Parker Hannifin Corporation’s Veriflo Division presents the 735TDR. The two stage, tied-diaphragm regulator is designed to provide constant outlet pressure regardless of inlet pressure fluctuations.

Subatmospheric pressure control available with the NPR735.

features

- “VeriClean”, Veriflo’s custom low sulfur, high purity 316L Stainless Steel™ enhances electropolishing, welding and corrosion resistance.
- Tied diaphragm for added safety.
- Adjustment range spring may be replaced without breaking diaphragm seal to body and exposing the wetted area to contamination.
- Unique patented compression member loads seal to body without requiring a threaded nozzle or additional seals to atmosphere.
- Metal-to-metal diaphragm-to-body seal assures high leak integrity.
- 100% Helium leak tested.
- Hurricane cleaning, optional proprietary cleaning process, removes metallic ions, organic films and surface adhering particles.

materials of construction

Wetted
- Body: “VeriClean”, Veriflo’s custom high purity type 316L Stainless Steel™, Hastelloy C-22®
- Seat: PTFE, optional Vespel®, 316L Stainless Steel
- Diaphragm: 316L Stainless Steel
- Poppet: 316L Stainless Steel
- Poppet Spring: 316L Stainless Steel
- Compression Member: 316L Stainless Steel
- Filter: Hastelloy C-22®

Non-Wetted
- Nut: 316L Stainless Steel
- Cap: Nickel plated Brass

operating conditions

- Maximum inlet: 3,500 psig (240 bar)
- Outlet: 0 to 30 psig (2 bar) adjustable
- NPR: -25 in Hg to 30 psig
- Temperature: -40°F to 150°F (-40°C to 65°C)

functional performance

- Flow capacity: Cv = .04 (SEMI Flow Coefficient Test # F-32-0998)
- Design Leak Rate:
  - Outboard: 1 x 10^9 scc/sec He
  - Inboard: 2 x 10^10 scc/sec He
  - Across seat: less than 2 x 10^9 scc/sec He
- Supply pressure effect: 0.2 psi (.01 bar) per 100 psi (6.8 bar), See flow curves

standard configurations

- Any configuration of FS male and/or female fittings.
- Gland to gland length: 3.70 (94 mm)
- Optional: 3.40 (86.4 mm)
- ¼ inch female pipe threads

- Other configurations available as options, including as many as seven ports

internal volume

10.10 cc

surface finishes

- Standard Ra: 15-20 micro inch (.381 to .508 micro meter) or less
- Optional Ra: 10 micro inch (.254 micro meter) or less
- 5 micro inch (.127 micro meter) or less

approximate weight

3.5 lbs (1.6 kg)
These tests were performed using Nitrogen at ambient conditions.
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: $C_v = 0.6^{**}$
  (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.
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.

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)

<table>
<thead>
<tr>
<th>COS Model</th>
<th>Maximum Recommended Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>COS 200</td>
<td>70 slpm N₂</td>
</tr>
<tr>
<td>COS 250</td>
<td>70 slpm N₂</td>
</tr>
<tr>
<td>COS 150</td>
<td>70 slpm N₂</td>
</tr>
<tr>
<td>COS 100</td>
<td>100 slpm N₂</td>
</tr>
<tr>
<td>COS XXX OR*</td>
<td>70 slpm N₂</td>
</tr>
</tbody>
</table>

* ChangeOver System with optional outlet regulators
Change Over System

Pressure Drop

Change Over System With Outlet Regulator

Outlet Pressure (psig)

60  70  80  90  100

Time

Cylinder One is Empty
Drawing from Cylinder Two
Turn Knob to Cylinder Two

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.

Change Over System

Outlet Pressure (psig)

60  70  80  90  100

Time

Cylinder One is Full
Cylinder One is Empty
Drawing from Cylinder Two
Turn Knob to Cylinder Two

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.

Hastelloy C-22® is a registered trademark of Haynes International, Inc.
Viton® is a registered trademark of DuPont Dow Elastomers.
Inconel® is a registered trademark of Inco Alloys International.
Elgiloy® is a registered trademark of Elgiloy Company.
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.
**Wiring Diagram**

**Notes**

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

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**Ordering Information**

**ChangeOver System Annunciator:** P/N 46600696
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).