

# Precision Pressure Regulators

Precision Fluidics



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# This is increased efficiency.






Precision low flow carrier gas control for gas chromatography.

Parker precision regulators, valves and controllers are designed specifically for critical service in analytical instrumentation. All regulator models are direct-acting, non-relieving, and are supplied with a sintered stainless steel cartridge filter on the inlet. We offer several distinct models with a variety of process connections, spring ranges and diaphragm materials to satisfy the most demanding instrument applications.



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# Model 8310/8311 Precision Pressure Regulator

## Forward Pressure Regulators



Parker Precision Fluidics Model 8310/8311 Regulators incorporate a threadless valve seat assembly with a precision glass ball. It is ideal for very low flow carrier gas applications and provides bubble tight shut-off. The 8310/8311 is a direct-acting, non-relieving pressure regulator supplied with a replaceable sintered stainless steel cartridge filter on the inlet. It can be configured with a stainless steel diaphragm to reduce permeability. Each regulator is performance tested and ideally suited for manufacturers of analytical equipment.

### Typical Applications

- Environmental Analyzers — Helium or Hydrogen Carrier Gas
- Precision Nitrogen Control for Chemical Analysis
- Laboratory and Process Gas Chromatography applications

### Features

- Direct-acting and non-relieving
- Compact design enables panel mounting
- All bar stock construction reduces production variation
- Bubble tight shut-off
- Cleaned for Analytical Service Use
- Pressure gauge port included
- RoHS and REACH compliant



## Product Specifications

### Physical Properties

#### Valve Technology:

Quad Ring Poppet

#### Media:

Air, Nitrogen, Helium, Argon, Hydrogen, Oxygen, Krypton, Neon, Xenon, and other non-corrosive gases

**Width:** 1.875" (47.63 mm)

#### Height:

Model 8310 – 3.06" (77.72 mm) without compression fittings

Model 8311 – 3.81" (96.77 mm) with compression fittings

**Weight:** 0.5 lbs (0.23 kg) (typical)

#### Porting:

1/8" FNPT, Side Ports (8310 Model) 5/16-24 UNF-2-A, Bottom Ports, Supplied with 1/8" Compression Fittings (8311 Model)

### Performance Ratings

#### Ratings:

Max inlet pressure:  
250 psig (17.3 barg)

Max working temperature:  
160°F (71°C)

#### Pressure Drop:

Minimum: 10 psid (0.7 barg)  
Maximum: 250 psid (17.3 barg)

### Wetted Materials

#### Body:

Aluminum or 303 Stainless Steel

#### Diaphragm:

Fairprene BN-5029 (Buna-N on Nylon), 300 Series Stainless Steel, or FKM on Nomex®

**O-Rings:** Buna-N or FKM

#### Filter Element:

Sintered Stainless Steel (100 micron)

**Internal Ball Seat Valve:** Glass

### Non-Wetted Materials

**Bonnet:** Aluminum

#### Range Spring:

Music Wire (ASTM A228) or Nickel Iron Alloy (AMS 5221)

### Performance Characteristics<sup>1</sup>

#### Supply Pressure Effect:

10 psi change < 0.07 psi  
(0.69 barg change ≤ 0.005 barg)

#### Ambient Temperature Effect: (Temperature coefficient)

Music Wire (ASTM A228) –  
(60 psig (4.14 bar) range)  
0.008 psig/°F (0.99 mbarg/°C)  
Nickel Iron Alloy (AMS 5221) –  
(60 psig (4.14 bar) range)  
0.004 psig/°F (0.50 mbarg/°C)

#### Long-Term Drift:

Fairprene diaphragm: 0.2%  
Stainless steel diaphragm: 0.8%

#### Flow Regulation:

From 2 sccm to 250 sccm Helium, outlet pressure will not decrease more than 0.17 psig (0.01 barg) for unit with elastomer diaphragm, 0.3 psig (0.02 barg) for unit with stainless steel diaphragm

#### Regulating Range:

0 - 2.5 psig (0 - 0.17 barg)<sup>2</sup>  
0 - 5 psig (0 - 0.35 barg)<sup>2</sup>  
0 - 10 psig (0 - 0.69 barg)  
0 - 15 psig (0 - 1.03 barg)  
0 - 30 psig (0 - 2.07 barg)  
0 - 60 psig (0 - 4.14 barg)  
0 - 100 psig (0 - 6.89 barg)

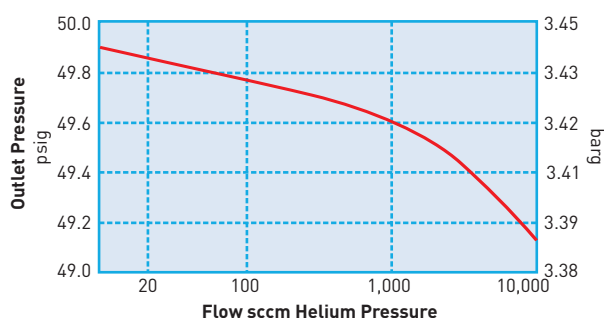
<sup>1</sup> Performance characteristics are based on 60 psig (4.14 barg) helium supply pressure at 50 psig (3.45 barg) outlet pressure.

<sup>2</sup> Available in Music Wire (ASTM A228) only.

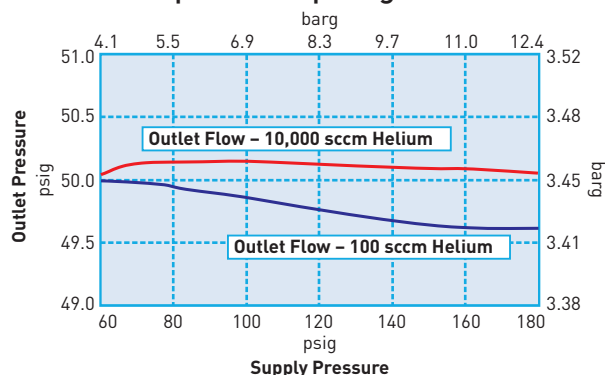
## Model 8310/8311 Precision Pressure Regulator

### Typical Flow Curves

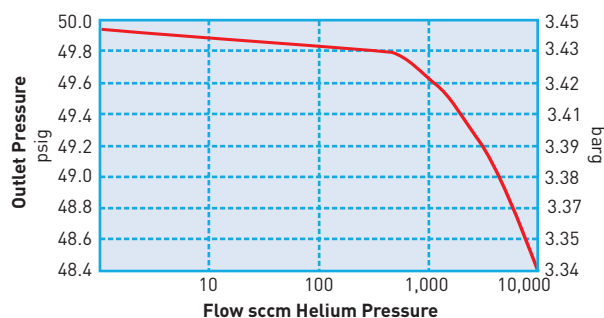
Typical Droop  
(Flow Sensitivity) Curve  
(Fairprene Diaphragm Unit)



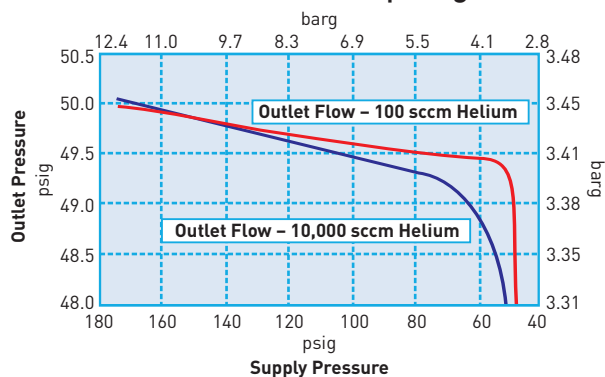
Typical Regulator Output vs.  
Change in Supply Pressure  
(Supply Pressure Effect)  
(Fairprene Diaphragm Unit)



Typical Droop  
(Flow Sensitivity) Curve  
(Stainless Steel Diaphragm)



Typical Regulator Output vs.  
Change in Supply Pressure  
(Supply Pressure Effect)  
(Stainless Steel Diaphragm)



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## Model 8310/8311 Precision Pressure Regulator

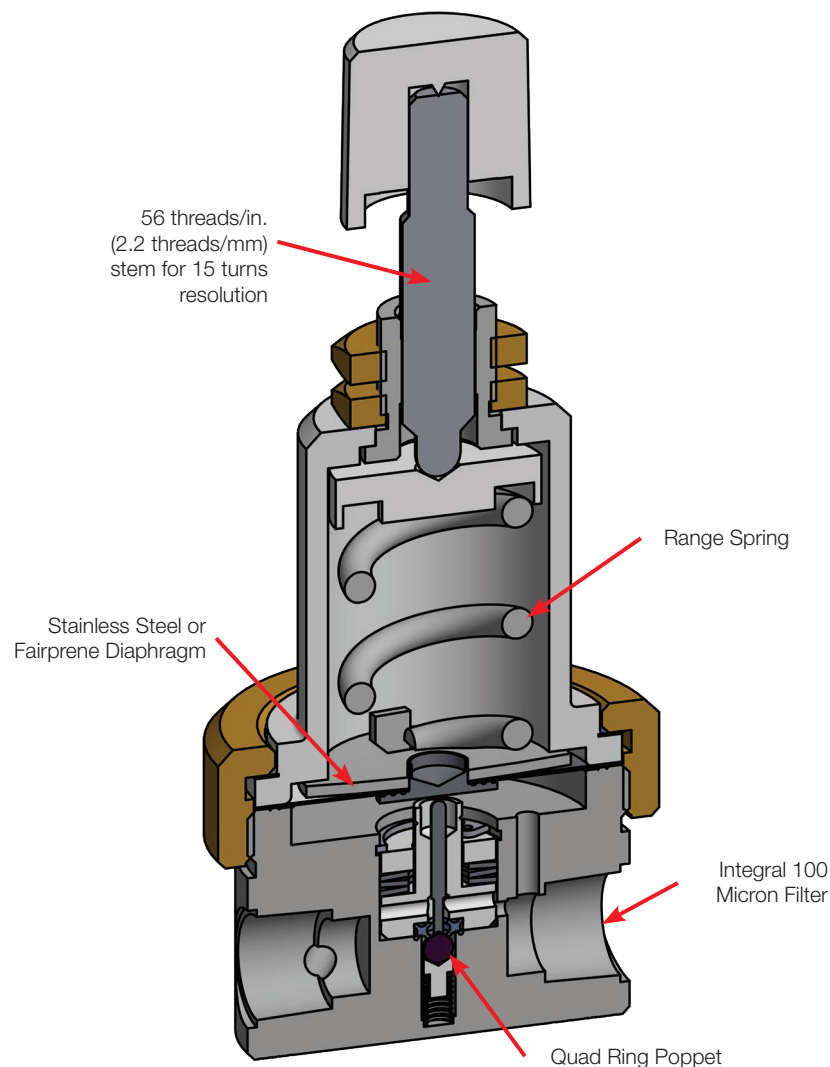
### Principle of Operation

As gas enters the regulator body from the inlet (left), the pressure rises which pushes the diaphragm, closing the control inlet valve and preventing any more gas from entering the regulator.

When gas is drawn from the outlet (right) side, the pressure inside the regulator body falls. As a result, the diaphragm is pushed back by the spring and the valve opens, allowing more gas in from the supply until equilibrium is reached between the outlet pressure and the spring.

The outlet pressure is a function of the spring force which may be modified by the adjustment knob.

The outlet pressure and the inlet pressure hold the quad ring poppet assembly in the closed position against the force of the spring.



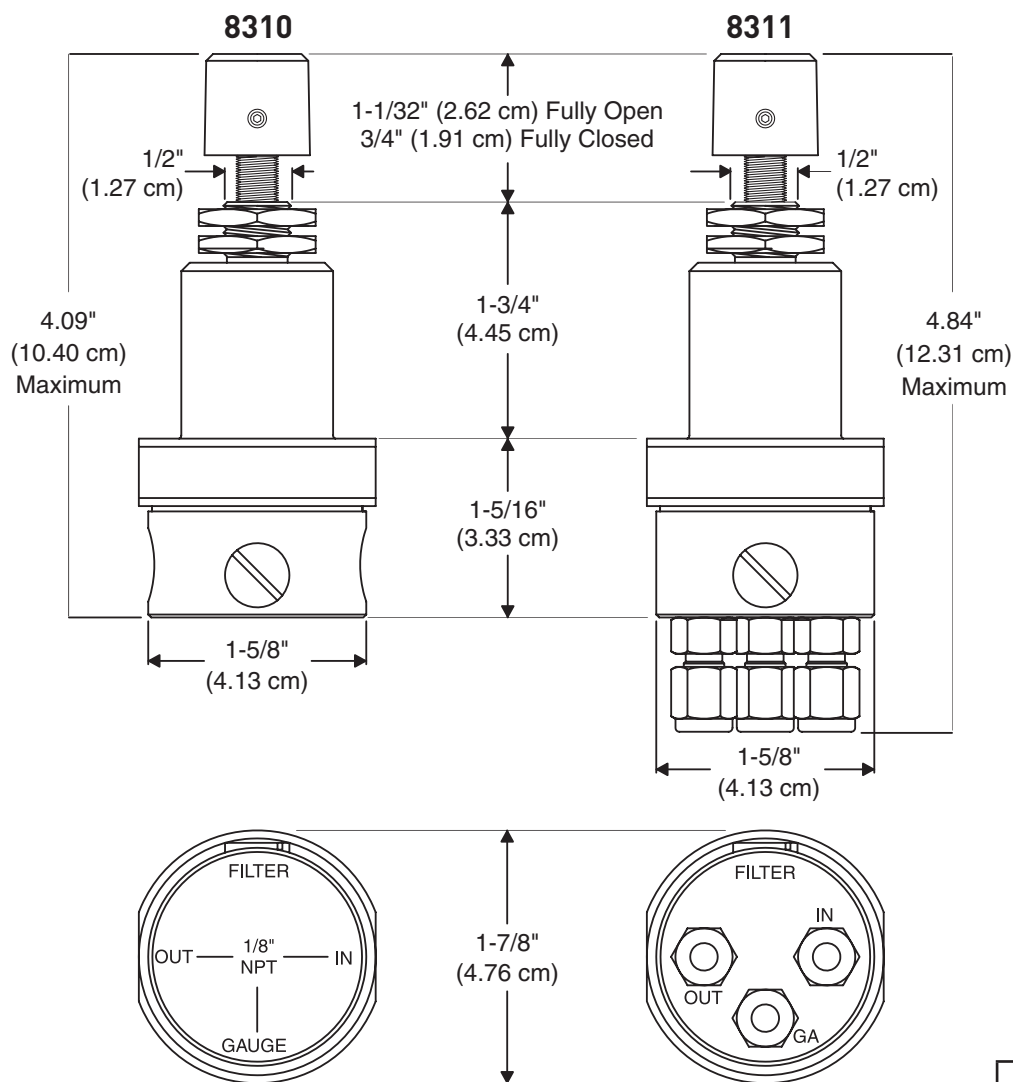
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## Model 8310/8311 Precision Pressure Regulator

### Mechanical Integration

#### Dimensions

#### Basic Dimensions



Units
In (cm)

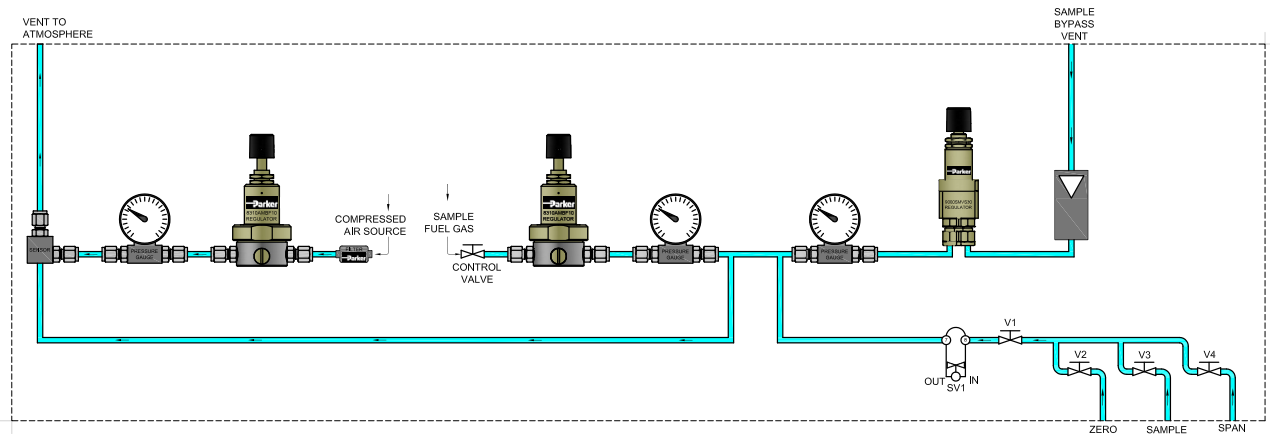
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## Model 8310/8311 Precision Pressure Regulator

### Typical Flow Diagram

#### VOC Emissions Monitoring Analyzer



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## Model 8310/8311 Precision Pressure Regulator

### Ordering Information

Sample Part #	8310	A	M	B	F	10
Description	Model	Body Material	Spring Material	O-Ring Material	Diaphragm Material	Pressure Range
Options	8310 8311	A: Aluminum* S: Stainless Steel	M: Music Wire (ASTM A228) N: Nickel Iron Alloy (AMS 5221)	B: Buna-N V: FKM	F: Fairprene BN-5029 S: Stainless Steel V: FKM and Nomex	2.5**: 2.5 psig (0.17 barg) 5**: 5 psig (0.34 barg) 10: 10 psig (0.69 barg) 15: 15 psig (1.03 barg) 30: 30 psig (2.07 barg) 60: 60 psig (4.14 barg) 100: 100 psig (6.89 barg)

\* Supplied with Brass Fittings

\*\* Available in Music Wire (ASTM A228) only

**NOTE:** In order to provide the best possible solution for your application, please provide the following requirements when contacting Applications Engineering:

- Media, Inlet & Outlet Pressures
- Minimum Required Flow Rate.

Please click on the ORDER ON-LINE button (or go to [www.parker.com/precisionfluidics/regulators](http://www.parker.com/precisionfluidics/regulators)) to configure your Precision Pressure Regulator. For more detailed information, visit us on the web or call Applications Engineering.



### Installation Guide

- For NPT connections, a high quality sealant compatible with the customer's process gas must be used.
- May be installed in any orientation.
- Support inlet and outlet piping to reduce strain on regulator body.

### Key Things to Remember:

- To minimize your Helium gas costs, consider using 2.5 or 5 psig Pressure Range (0.17 or 0.34 barg) only available from Parker.
- Choice of Diaphragm Materials – Stainless Steel Diaphragms provide extremely low permeability. Coated Fabric Diaphragms, available in Buna or FKM, offer unmatched sensitivity.
- Fine Pitch Adjusting Stem – 56 threads/in. (2.2 threads/mm) stem for 15 turns resolution pitch on all regulator adjusting stems gives precise control over incremental pressure adjustments.
- Bar Stock Construction and Analytical Service Cleaning – Machined from bar stock in your choice of aluminum or stainless steel. All parts are cleaned to procedures developed specifically for analytical service use, minimizing contaminant generation in low-level analyzer applications.
- Extensive Choice of Pressure Range – This ensures maximum resolution at specific pressure and temperature requirements.

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# Model 8286 Precision Pressure Regulator

## Balanced Poppet Regulator



### Typical Applications

- Environmental Analyzers – Helium or Hydrogen Carrier Gas
- Precision Nitrogen Control for Chemical Analysis
- Laboratory and Process Gas Chromatography applications

The Parker Precision Fluidics Model 8286 Regulator utilizes a pneumatically balanced poppet valve to ensure maximum stability over wide variations in supply pressure. Based on Parker's popular 8310 model, the 8286 offers higher flow capability combined with precision pressure control. It can be equipped with a stainless diaphragm for reduced permeability. The Model 8286 is performance tested under simulated operating conditions and is cleaned for analytical instrument service.

### Features

- Direct-acting and non-relieving
- Compact design enables panel mounting
- All bar stock construction reduces production variation
- Bubble tight shut-off
- Cleaned for Analytical Service Use
- Pressure gauge port included
- RoHS and REACH compliant



## Product Specifications

### Physical Properties

<b>Valve Technology:</b> Quad Ring Poppet
<b>Media:</b> Air, Nitrogen, Helium, Argon, Hydrogen, Oxygen, Krypton, Neon, Xenon, and other non-corrosive gases
<b>Width:</b> 1.875" (47.63 mm)
<b>Height:</b> 3.06" (77.72 mm)
<b>Weight:</b> 0.5 lb (0.23 kg) (typical)
<b>Porting:</b> 1/8" FNPT side ports, inlet, outlet and gauge

<sup>1</sup> Performance characteristics are based on 60 psig (4.14 barg) helium supply pressure at 50 psig (3.45 barg) outlet pressure.

<sup>2</sup> Available in Music Wire (ASTM A228) only.

### Performance Ratings

<b>Ratings:</b> Max inlet pressure: 250 psig (17.3 barg) Max working temperature: 160°F (71°C)
<b>Pressure Drop:</b> Minimum: 10 psig (0.7 barg) Maximum: 250 psig (17.3 barg)

### Wetted Materials

<b>Body:</b> Aluminum or 303 Stainless Steel
<b>Diaphragm:</b> Fairprene BN-5029 (Buna-N on Nylon), 300 Series Stainless Steel, or FKM on Nomex <sup>®</sup>
<b>O-Rings:</b> Buna-N or FKM
<b>Filter Element:</b> Sintered Stainless Steel (100 micron)
<b>Internal Ball Seat Valve:</b> Glass

### Non-Wetted Materials

<b>Bonnet:</b> Aluminum
<b>Range Spring:</b> Music Wire (ASTM A228) or Nickel Iron Alloy (AMS 5221)

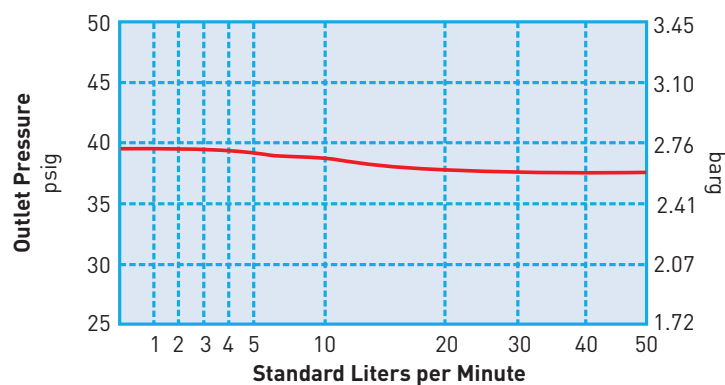
### Performance Characteristics<sup>1</sup>

<b>Supply Pressure Effect:</b> 10 psi change < 0.07 psi (0.69 barg change ≤ 0.005 barg)
<b>Ambient Temperature Effect:</b> (Temperature coefficient) Music Wire (ASTM A228) – (60 psig (4.14 barg) range) 0.008 psig/°F (0.99 mbarg/°C) Nickel Iron Alloy (AMS 5221) – (60 psig (4.14 barg) range) 0.004 psig/°F (0.50 mbarg/°C)
<b>Long-Term Drift:</b> Fairprene diaphragm: 0.2% Stainless steel diaphragm: 0.8%
<b>Flow Regulation:</b> From 1 slpm to 20 slpm helium, outlet pressure will not decrease more than 1 psig (0.069 barg) for unit with elastomer diaphragm
<b>Regulating Range:</b> 0 - 2.5 psig (0 - 0.17 barg) <sup>2</sup> 0 - 5 psig (0 - 0.35 barg) <sup>2</sup> 0 - 10 psig (0 - 0.69 barg) 0 - 30 psig (0 - 2.07 barg) 0 - 60 psig (0 - 4.14 barg) 0 - 100 psig (0 - 6.89 barg)

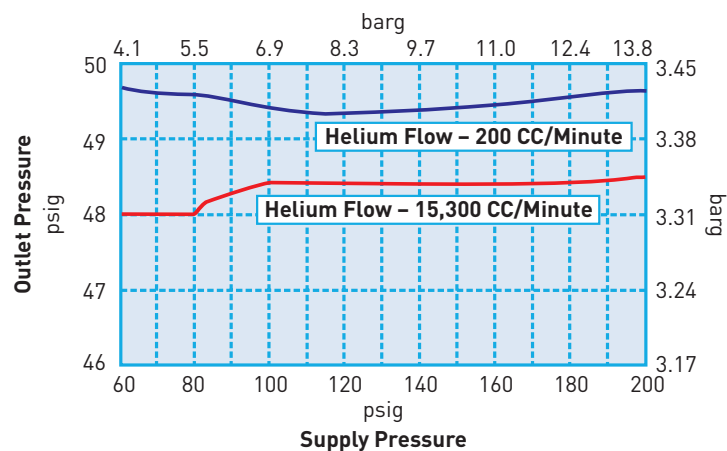
## Model 8286 Precision Pressure Regulator

### Typical Flow Curves

Typical Droop  
(Flow Sensitivity) Curve  
(Fairprene Diaphragm Unit)



Typical Regulator Output vs.  
Change in Supply Pressure  
(Supply Pressure Effect)  
(Fairprene Diaphragm Unit)



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## Model 8286 Precision Pressure Regulator

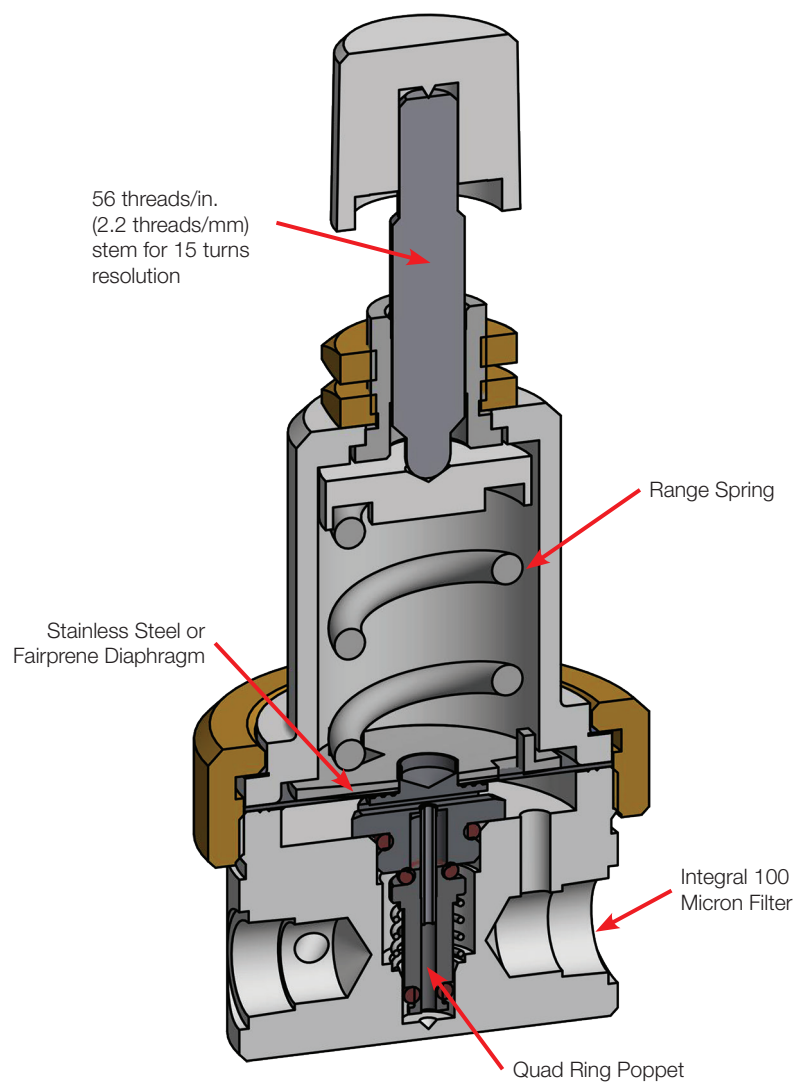
### Principle of Operation

As gas enters the regulator body from the inlet (left), the pressure rises which pushes the diaphragm, closing the control inlet valve and preventing any more gas from entering the regulator.

When gas is drawn from the outlet (right) side, the pressure inside the regulator body falls. As a result, the diaphragm is pushed back by the spring and the valve opens, allowing more gas in from the supply until equilibrium is reached between the outlet pressure and the spring.

The outlet pressure is a function of the spring force which may be modified by the adjustment knob.

The outlet pressure and the inlet pressure hold the dual poppet assembly in the closed position against the force of the spring.

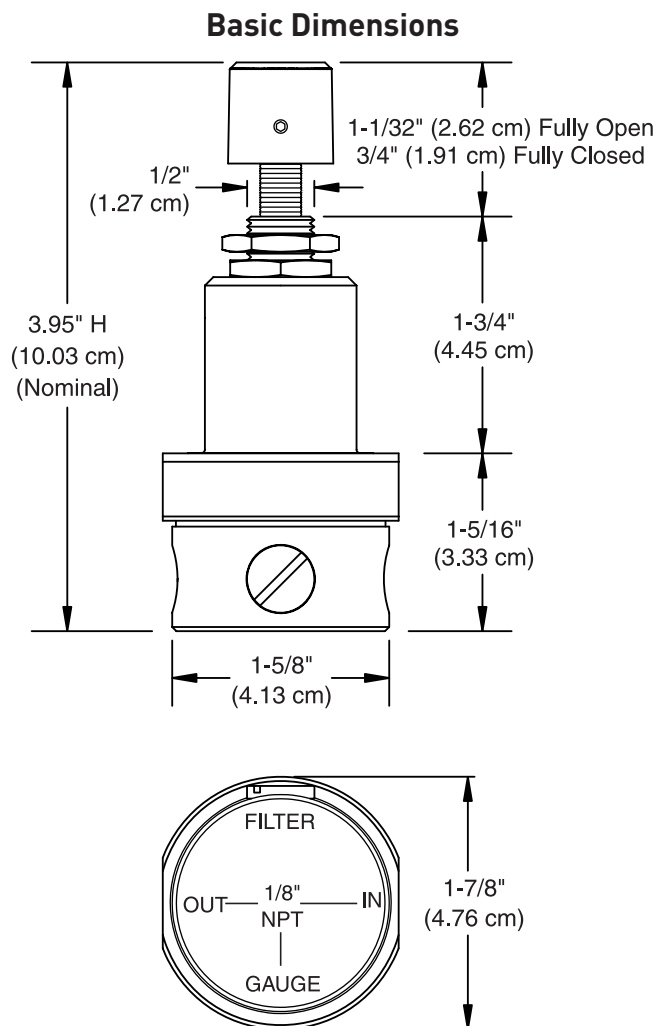


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## Model 8286 Precision Pressure Regulator

### Mechanical Integration

#### Dimensions



Units
In (cm)

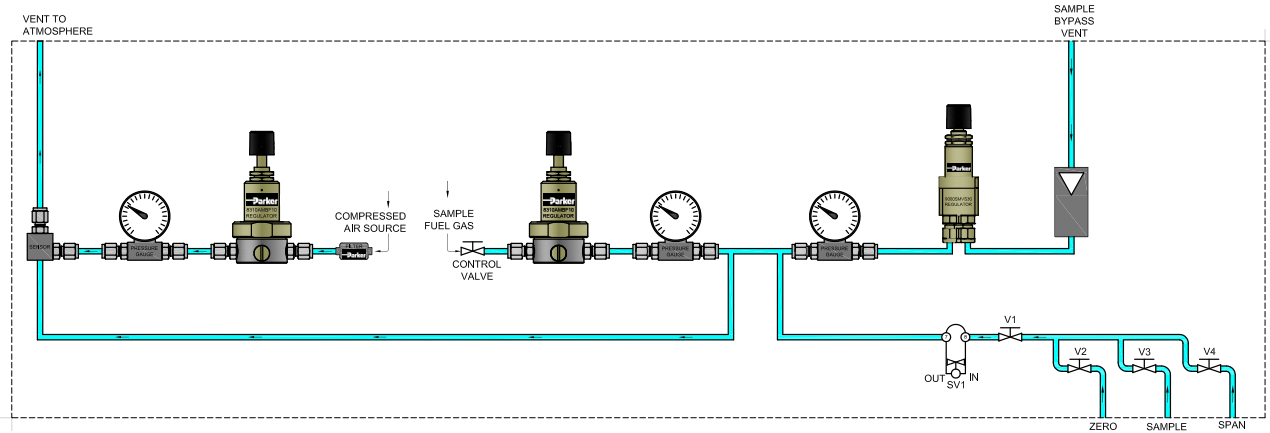
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## Model 8286 Precision Pressure Regulator

### Typical Flow Diagram

#### VOC Emissions Monitoring Analyzer



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## Model 8286 Precision Pressure Regulator

### Ordering Information

Sample Part #	8286	A	M	B	F	10
Description	Model	Body Material	Spring Material	O-Ring Material	Diaphragm Material	Pressure Range
Options	8286	A: Aluminum* S: Stainless Steel	M: Music Wire (ASTM A228) N: Nickel Iron Alloy (AMS 5221)	B: Buna-N V: FKM	F: Fairprene BN-5029 S: Stainless Steel V: FKM and Nomex	2.5*: 2.5 psig (0.17 barg) 5*: 5 psig (0.34 barg) 10: 10 psig (0.69 barg) 30: 30 psig (2.07 barg) 60: 60 psig (4.14 barg) 100: 100 psig (6.89 barg)

\* Supplied with Brass Fittings

\*\* Available in Music Wire (ASTM A228) only

**NOTE:** In order to provide the best possible solution for your application, please provide the following requirements when contacting Applications Engineering:

- Media, Inlet & Outlet Pressures
- Minimum Required Flow Rate.

Please click on the ORDER ON-LINE button (or go to [www.parker.com/precisionfluidics/regulators](http://www.parker.com/precisionfluidics/regulators)) to configure your Precision Pressure Regulator. For more detailed information, visit us on the web or call Applications Engineering.



### Installation Guide

- For NPT connections, a high quality sealant compatible with the customer's process gas must be used.
- May be installed in any orientation.
- Support inlet and outlet piping to reduce strain on regulator body.

### Key Things to Remember:

- To minimize your Helium gas costs, consider using 2.5 or 5 psig Pressure Range (0.17 or 0.34 barg) only available from Parker.
- Choice of Diaphragm Materials – Stainless Steel Diaphragms provide extremely low permeability. Coated Fabric Diaphragms, available in Buna or FKM, offer unmatched sensitivity.
- Fine Pitch Adjusting Stem – 56 threads/in. (2.2 threads/mm) stem for 15 turns resolution pitch on all regulator adjusting stems gives precise control over incremental pressure adjustments.
- Bar Stock Construction and Analytical Service Cleaning – Machined from bar stock in your choice of aluminum or stainless steel. All parts are cleaned to procedures developed specifically for analytical service use, minimizing contaminant generation in low-level analyzer applications.
- Extensive Choice of Pressure Range – This ensures maximum resolution at specific pressure and temperature requirements.

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# Model 4000 Precision Pressure Regulator

## High Performance Pressure Regulator



### Typical Applications

- Environmental Analyzers — Helium or Hydrogen Carrier Gas
- Precision Nitrogen Control for Chemical Analysis
- Laboratory and Process Gas Chromatography applications

The Parker Precision Fluidics Model 4000 Regulator is a high performance miniature size pressure regulator. With a compact diameter of only 1-1/8", it fits easily into small instruments, yet its performance surpasses that of many competitive large diaphragm regulators. Model 4000 is a direct-acting, non-relieving performance regulator tested under simulated operating conditions and is cleaned for analytical instrument service.

### Features

- Direct-acting and non-relieving
- Compact design enables panel mounting
- All bar stock construction reduces production variation
- Bubble tight shut-off
- Cleaned for Analytical Service Use
- Pressure gauge port included
- RoHS and REACH compliant



## Product Specifications

### Physical Properties

#### Valve Technology:

Quad Ring Poppet

#### Media:

Air, Nitrogen, Helium, Argon, Hydrogen, Oxygen, Krypton, Neon, Xenon, and other non-corrosive gases

**Width:** 1.25" (31.75 mm)

#### Height:

4.47" (113.54 mm)

#### Weight:

0.31 lbs (0.14kg) (typical)

#### Porting:

1/8" compression fittings, inlet, outlet and gauge

### Performance Ratings

#### Ratings:

Max inlet pressure:  
250 psig (17.3 barg)

Max working temperature:  
160°F (71°C)

#### Pressure Drop:

Minimum: 10 psig (0.7 barg)

Maximum: 250 psig (17.3 barg)

### Wetted Materials

**Body:** Aluminum

**Diaphragm:** 300 Stainless Steel

**O-Rings:** Buna-N or FKM

**Internal Ball Seat Valve:** Glass

### Non-Wetted Materials

**Bonnet:** Aluminum

#### Range Spring:

Music Wire (ASTM A228)

### Performance Characteristics\*

**Flow Capacity:** 15 slpm (typical maximum flow with 60 psig (4.14 barg) helium supply pressure and 15 psig (1.03 barg) outlet)

**Supply Rejection:** 10 psig (0.69 barg) change in supply will not change outlet more than 0.05 psig (0.003 barg)

**Ambient Temperature Effect:** (Temperature coefficient)  
Music Wire (ASTM A228) –  
(60 psig (4.14 barg) range)  
0.008 psig/°F (0.99 mbarg/°C)

**Long-Term Drift:** Less than 0.2% in first 15 minutes to a total of 0.6% long term

**Flow Regulation:** From 2 sccm to 250 sccm helium outlet pressure will not change more than 0.2 psig (0.014 barg) for unit with elastomer diaphragm

**Baseline Oscillation:**  
0.0012 psig (0.083 mbarg)

**Regulating Range:**  
0 - 10 psig (0 - 0.69 barg)  
0 - 15 psig (0 - 1.03 barg)  
0 - 30 psig (0 - 2.07 barg)  
0 - 60 psig (0 - 4.14 barg)  
0 - 100 psig (0 - 6.89 barg)

\* Performance characteristics are based on 60 psig (4.14 barg) helium supply pressure at 50 psig (3.45 barg) outlet pressure.

For more information, visit [www.parker.com/precisionfluidics](http://www.parker.com/precisionfluidics)

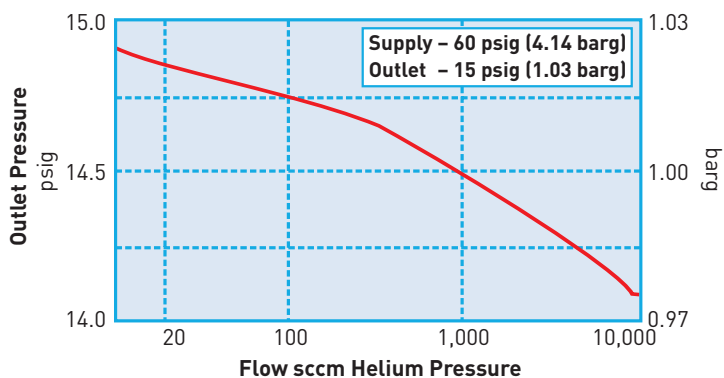




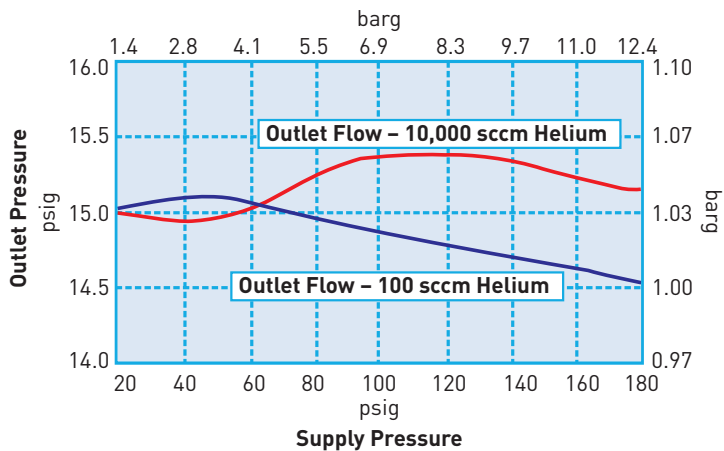
# Model 4000 Precision Pressure Regulator

## Typical Flow Curves

Typical Droop  
(Flow Sensitivity) Curve  
(Fairprene Diaphragm Unit)



Typical Regulator Output vs.  
Change in Supply Pressure  
(Supply Pressure Effect)  
(Fairprene Diaphragm Unit)



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## Model 4000 Precision Pressure Regulator

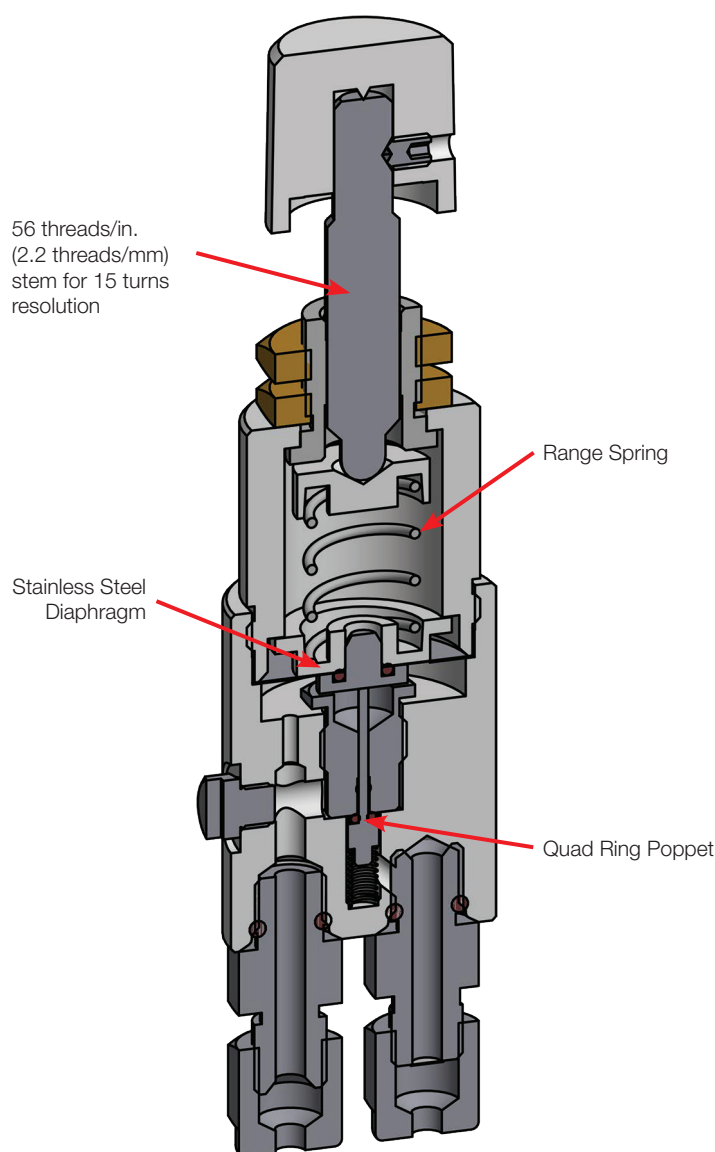
### Principle of Operation

As gas enters the regulator body from the inlet (left), the pressure rises which pushes the diaphragm, closing the control inlet valve and preventing any more gas from entering the regulator.

When gas is drawn from the outlet (right) side, the pressure inside the regulator body falls. As a result, the diaphragm is pushed back by the spring and the valve opens, allowing more gas in from the supply until equilibrium is reached between the outlet pressure and the spring.

The outlet pressure is a function of the spring force which may be modified by the adjustment knob.

The outlet pressure and the inlet pressure hold the quad ring poppet assembly in the closed position against the force of the spring.

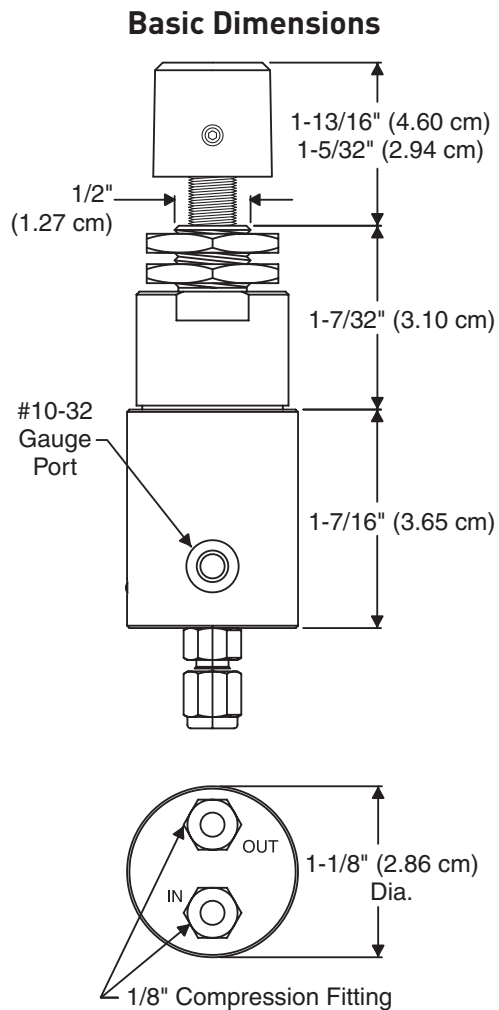


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## Model 4000 Precision Pressure Regulator

### Mechanical Integration

#### Dimensions



Units
In (cm)

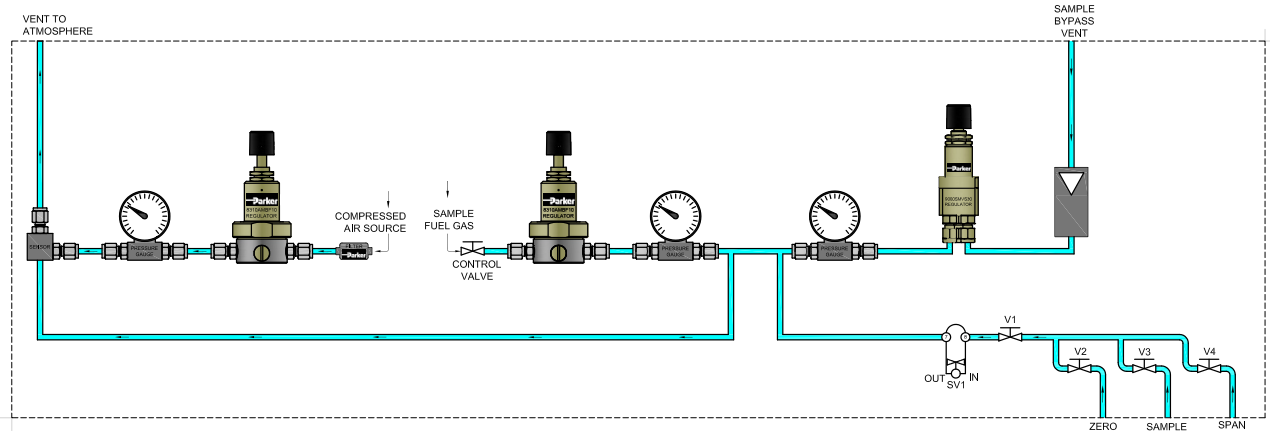
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## Model 4000 Precision Pressure Regulator

### Typical Flow Diagram

#### VOC Emissions Monitoring Analyzer



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 Visit [www.parker.com/precisionfluidics](http://www.parker.com/precisionfluidics)



## Model 4000 Precision Pressure Regulator

### Ordering Information

Sample Part #	4000	A	M	B	S	30
Description	Model	Body Material	Spring Material	O-Ring Material	Diaphragm Material	Pressure Range
Options	4000	A: Aluminum*	M: Music Wire (ASTM A228)	B: Buna-N V: FKM	S: Stainless Steel	10: 10 psig (0.69 barg) 15: 15 psig (1.03 barg) 30: 30 psig (2.07 barg) 60: 60 psig (4.14 barg) 100: 100 psig (6.89 barg)

\* Supplied with Brass Fittings

**NOTE:** In order to provide the best possible solution for your application, please provide the following requirements when contacting Applications Engineering:

- Media, Inlet & Outlet Pressures
- Minimum Required Flow Rate.

Please click on the ORDER ON-LINE button (or go to [www.parker.com/precisionfluidics/regulators](http://www.parker.com/precisionfluidics/regulators)) to configure your Precision Pressure Regulator. For more detailed information, visit us on the web or call Applications Engineering.



### Installation Guide

- May be installed in any orientation.

#### Key Things to Remember:

- Fine Pitch Adjusting Stem – 56 threads/in. (2.2 threads/mm) stem for 15 turns resolution pitch on all regulator adjusting stems gives precise control over incremental pressure adjustments.
- Bar Stock Construction and Analytical Service Cleaning – Machined from bar stock in your choice of aluminum or stainless steel. All parts are cleaned to procedures developed specifically for analytical service use, minimizing contaminant generation in low-level analyzer applications.
- Extensive Choice of Pressure Range – This ensures maximum resolution at specific pressure and temperature requirements.

For more information call +1 603 595 1500 or email [ppfinfo@parker.com](mailto:ppfinfo@parker.com)  
Visit [www.parker.com/precisionfluidics](http://www.parker.com/precisionfluidics)



# Model 9000

## Precision Pressure Regulator

### Back Pressure Regulator



The Parker Precision Fluidics Model 9000 Regulator is a compact, spring-loaded, diaphragm operated back pressure regulator. Designed specifically for precision regulation in low-flow gas applications, it controls upstream pressure rather than downstream pressure and is similar to a relief valve in operation. Model 9000 is performance tested under simulated operating conditions and is cleaned for analytical instrument service.

### Typical Applications

- Environmental Analyzers — Helium or Hydrogen Carrier Gas
- Precision Nitrogen Control for Chemical Analysis
- Laboratory and Process Gas Chromatography applications
- Argon Gas Regulation for BioReagent Manufacturing

### Features

- Direct-acting and non-relieving
- Compact design enables panel mounting
- All bar stock construction reduces production variation
- Bubble tight shut-off
- Panel mount applications
- Cleaned for Analytical Service Use
- Pressure gauge port included
- RoHS and REACH compliant



## Product Specifications

### Physical Properties

#### Valve Technology:

Quad Ring Poppet

#### Media:

Air, Nitrogen, Helium, Argon, Hydrogen, Oxygen, Krypton, Neon, Xenon, and other non-corrosive gases

**Width:** 1.25" (31.75 mm)

**Height:** 4.5" (114.3 mm)

#### Weight:

0.375 lbs (0.17kg) (typical)

#### Porting:

1/8" compression fittings, inlet, outlet and gauge

### Performance Ratings

**Flow Capacity:** 0 - 1000 sccm

#### Ratings:

Max. operating temperature: 160°F (71°C)

### Wetted Materials

#### Body:

Aluminum or 303 Stainless Steel

#### Diaphragm:

Fairprene BN-5029 (Buna-N on nylon), 300 Stainless Steel, or FKM and Nomex

**O-Rings:** Buna N or FKM

#### Filter Element:

Sintered Stainless Steel (100 micron)

**Internal Ball Seat Valve:** Glass

### Non-Wetted Materials

**Bonnet:** Aluminum

#### Range Spring:

Music Wire (ASTM A228)

### Performance Characteristics\*

#### Ambient Temperature Effect:

(Temperature coefficient)  
60 psig (4.14 barg) range  
0.008 psig/°F (0.99 mbarg/°C)

#### Long-Term Drift:

Fairprene diaphragm: 0.2%  
Stainless steel diaphragm: 0.8%

#### Flow Regulation:

From 10 sccm to 1 sccm Helium, outlet pressure will not decrease more than 1 psig (0.069 barg) for unit with elastomer diaphragm

#### Baseline Oscillation:

0.0012 psig (0.083 mbarg)

#### Regulating Range:

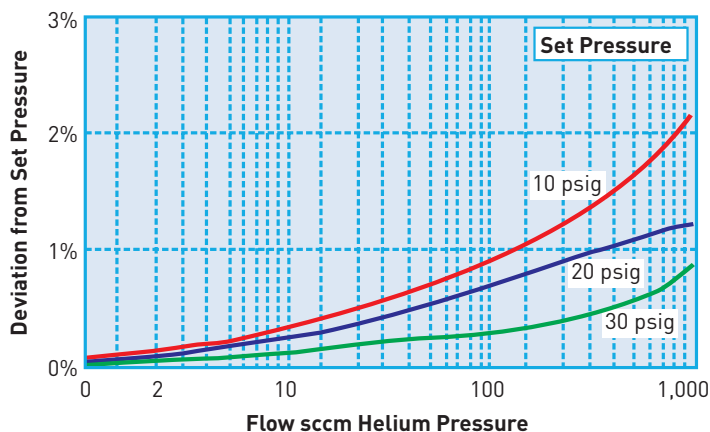
0 - 15 psig (0 - 1.03 barg)  
0 - 30 psig (0 - 2.07 barg)  
0 - 60 psig (0 - 4.14 barg)  
0 - 100 psig (0 - 6.89 barg)

\* Performance characteristics are based on 60 psig (4.14 barg) helium supply pressure at 50 psig (3.45 barg) outlet pressure.

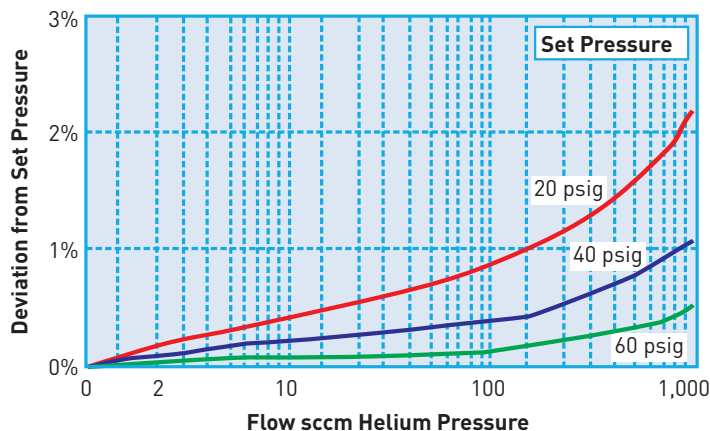
## Model 9000 Precision Pressure Regulator

### Typical Flow Curves

Typical Droop  
(Flow Sensitivity) Curve  
30 psig (2.07 barg) Range Spring



Typical Droop  
(Flow Sensitivity) Curve  
60 psig (4.14 barg) Range Spring



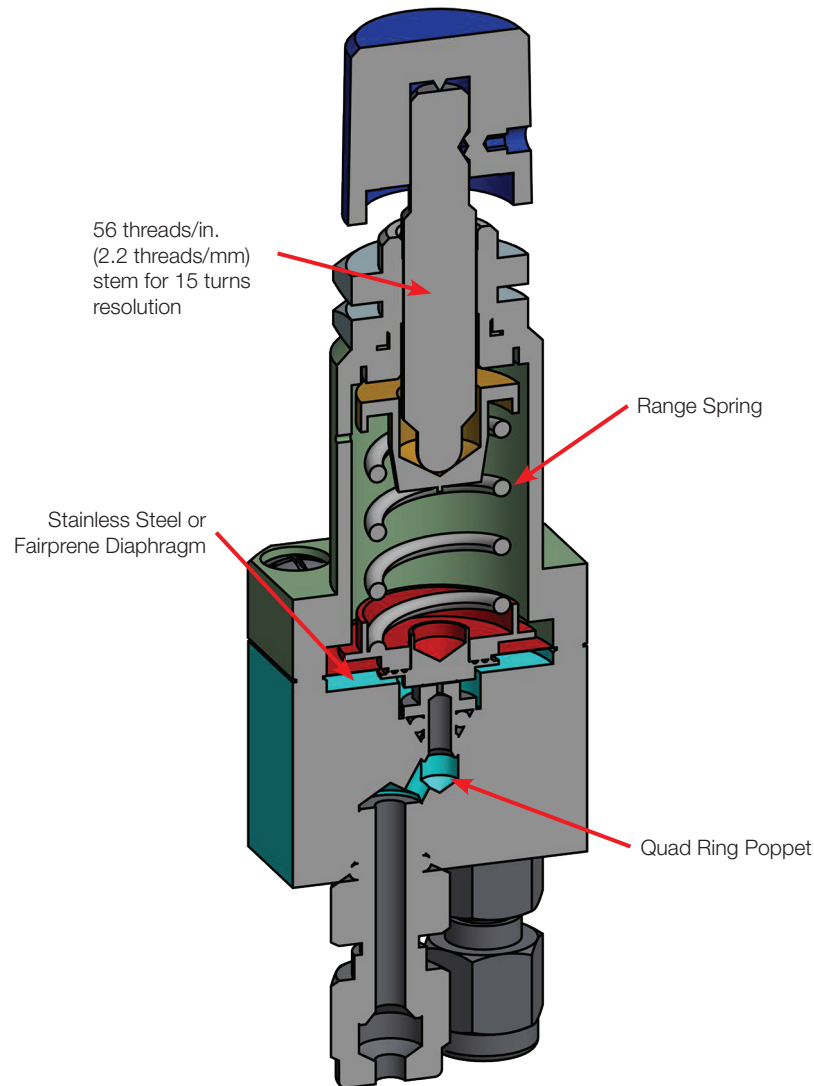
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## Model 9000 Precision Pressure Regulator

### Principle of Operation

A backpressure regulator is designed to regulate inlet pressure. The force of the regulator spring holds the valve closed. When the inlet pressure of the process fluid overcomes the spring setting the valve begins to open. Using a backpressure regulator to precisely control upstream gas pressure is typically more accurate than a relief valve.



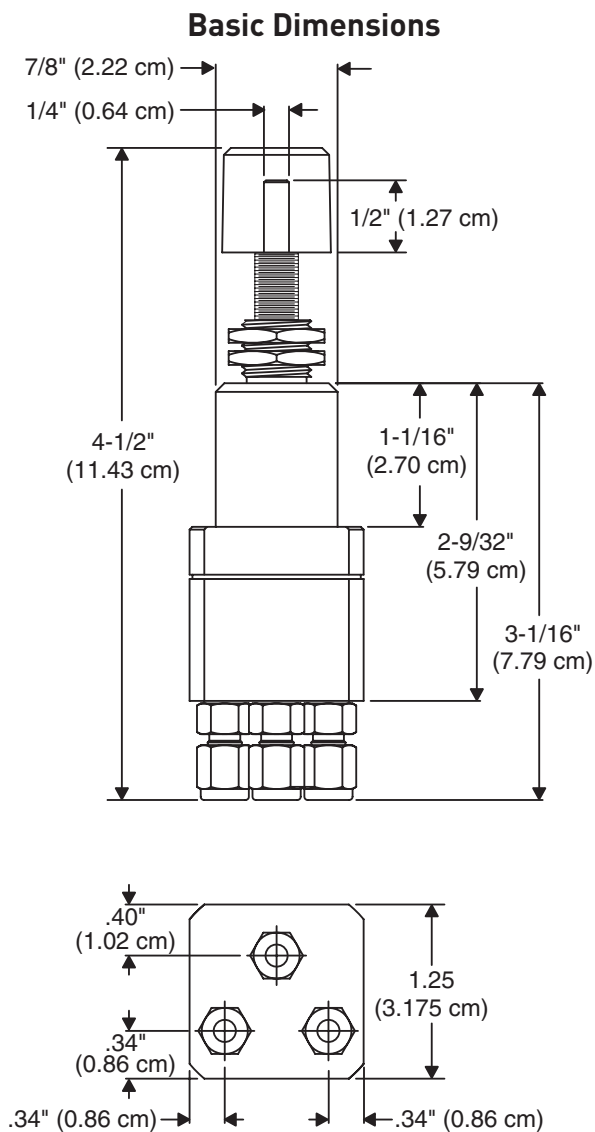
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## Model 9000 Precision Pressure Regulator

### Mechanical Integration

#### Dimensions



Units
In (cm)

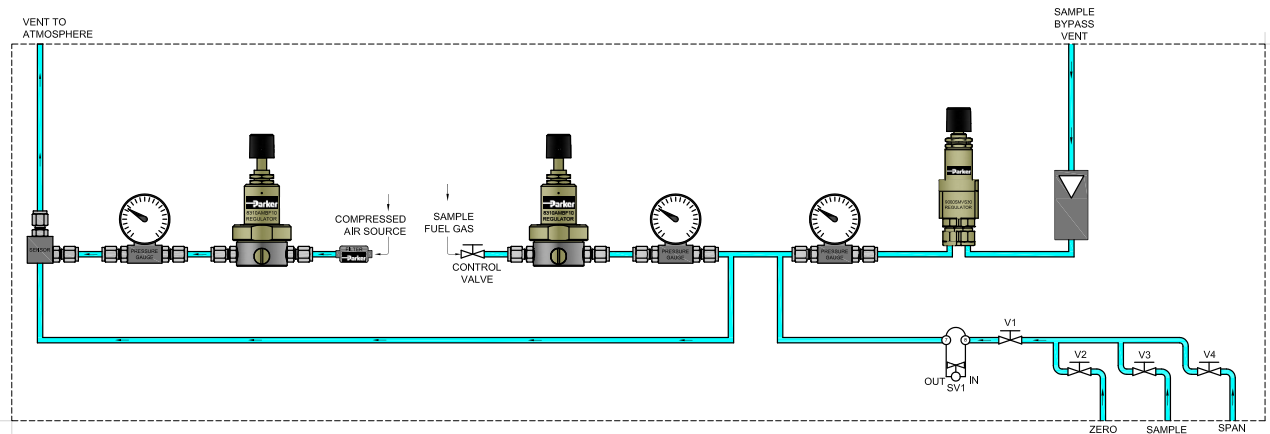
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## Model 9000 Precision Pressure Regulator

### Typical Flow Diagram

#### VOC Emissions Monitoring Analyzer



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## Model 9000 Precision Pressure Regulator

### Ordering Information

Sample Part #	9000	A	M	B	S	30
Description	Model	Body Material	Spring Material	O-Ring Material	Diaphragm Material	Pressure Range
Options	9000	A: Aluminum* S: Stainless Steel	M: Music Wire (ASTM A228)	B: Buna-N V: FKM	F: Fairprene BN-5029 S: Stainless Steel	15: 15 psig (1.03 barg) 30: 30 psig (2.07 barg) 60: 60 psig (4.14 barg) 100: 100 psig (6.89 barg)

\* Supplied with Brass Fittings

**NOTE:** In order to provide the best possible solution for your application, please provide the following requirements when contacting Applications Engineering:

- Media, Inlet & Outlet Pressures
- Minimum Required Flow Rate.

Please click on the ORDER ON-LINE button (or go to [www.parker.com/precisionfluidics/regulators](http://www.parker.com/precisionfluidics/regulators)) to configure your Precision Pressure Regulator. For more detailed information, visit us on the web or call Applications Engineering.



### Installation Guide

- May be installed in any orientation.
- Support inlet and outlet piping to reduce strain on regulator body.

### Key Things to Remember:

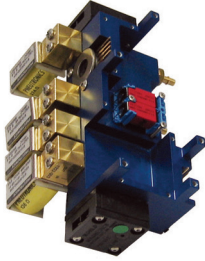
- Choice of Diaphragm Materials – Stainless Steel Diaphragms provide extremely low permeability. Coated Fabric Diaphragms, available in Fairprene BN-5029, offer unmatched sensitivity.
- Fine Pitch Adjusting Stem – 56 threads/in. (2.2 threads/mm) stem for 15 turns resolution pitch on all regulator adjusting stems gives precise control over incremental pressure adjustments.
- Bar Stock Construction and Analytical Service Cleaning – Machined from bar stock in your choice of aluminum or stainless steel. All parts are cleaned to procedures developed specifically for analytical service use, minimizing contaminant generation in low-level analyzer applications.
- Extensive Choice of Pressure Range – This ensures maximum resolution at specific pressure and temperature requirements.

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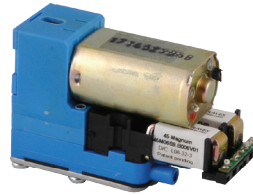
# Value Added Application-Specific Solutions

## Gassing Control System



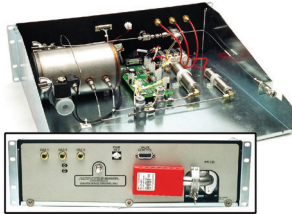
- Mixed gassing logic design includes VSO® proportional valves, X-Valve®, pressure switch, pressure sensors, and PCB interface

## Pneumatic Module



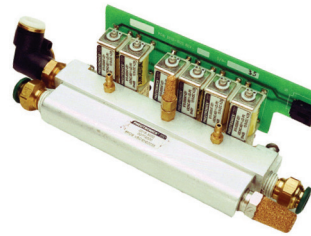
- Integrated valve manifold
- Compact design
- Single electrical connection
- Valves configured per specifications

## Vacuum Gas Control Module



- Tested to  $1 \times 10^{-7}$  cc/sec/atm Helium
- Assembly tested on mass spectrometer

## 6 Position VSO® Proportional Valve Pneumatic Manifold Assembly



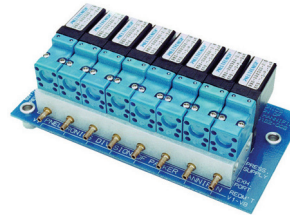
- Quick connect fittings
- Circuit board with mass electrical termination

## Magnum Manifold Assembly



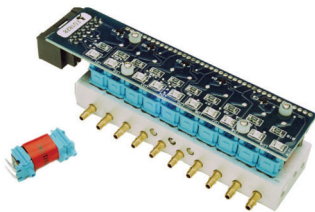
- Integrated circuit board with single connection
- Compact design
- Easily adaptable
- 2 way and 3 way designs

## 8 Position SRS Model Pneumatic Manifold



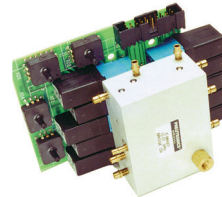
- Integrated circuit board mounting
- Mass electrical termination

## 10 Position X-Valve® Pneumatic Manifold



- Mixed pneumatic logic design
- Ultra-miniature design with PCB for mass termination

## 10 Position SRS Model Pneumatic Manifold



- Circuit board with transducers
- Pressed in barbed fittings

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## NOTES

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## Precision Pressure Regulators

# Portfolio Review

### Customization

Contact Division Applications at (603) 595 1500 or [ppinfo@parker.com](mailto:ppinfo@parker.com).

#### Models 8310 & 8311



Flow control from  
1 sccm to 3 slpm

#### Model 8286



Flow control from  
1 slpm to 40 slpm

#### Model 4000



Flow control from  
0.5 slpm to 10 slpm

Smaller Size

#### Model 9000



Flow control from  
10 sccm to 1 slpm

Back Pressure  
Regulator

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Visit [www.parker.com/precisionfluidics](http://www.parker.com/precisionfluidics)