

# Precision Pressure Regulators Models 4000

Precision Fluidics



ENGINEERING YOUR SUCCESS.

# 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

<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> 1.25" (31.75 mm)
<b>Height:</b> 4.47" (113.54 mm)
<b>Weight:</b> 0.31 lbs (0.14kg) (typical)
<b>Porting:</b> 1/8" compression fittings, inlet, outlet and gauge

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

### 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 psid (0.7 barg) Maximum: 250 psid (17.3 barg)

### Wetted Materials

<b>Body:</b> Aluminum
<b>Diaphragm:</b> 300 Stainless Steel
<b>O-Rings:</b> Buna-N or FKM
<b>Internal Ball Seat Valve:</b> Glass

### Non-Wetted Materials

<b>Bonnet:</b> Aluminum
<b>Range Spring:</b> Music Wire (ASTM A228)

### Performance Characteristics\*

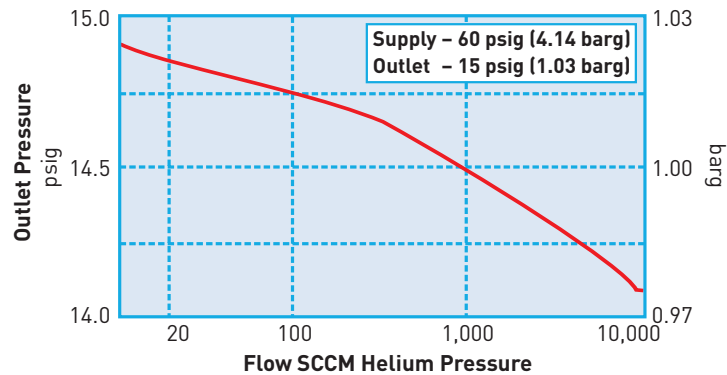
<b>Flow Capacity:</b> 15 SLPM (typical maximum flow with 60 psig helium supply pressure and 15 psig outlet)
<b>Supply Rejection:</b> 10 psig (0.69 barg) change in supply will not change outlet more than 0.05 psig (0.003 barg)
<b>Ambient Temperature Effect:</b> (Temperature coefficient) Music Wire (ASTM A228) – (60 psig (4.14 bar) range) 0.008 psig/°F (0.99 mbarg/°C)
<b>Long-Term Drift:</b> Less than 0.2% in first 15 minutes to a total of 0.6% long term
<b>Flow Regulation:</b> 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
<b>Baseline Oscillation:</b> 0.0012 psig (0.083 mbarg)
<b>Regulating Range:</b> 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)



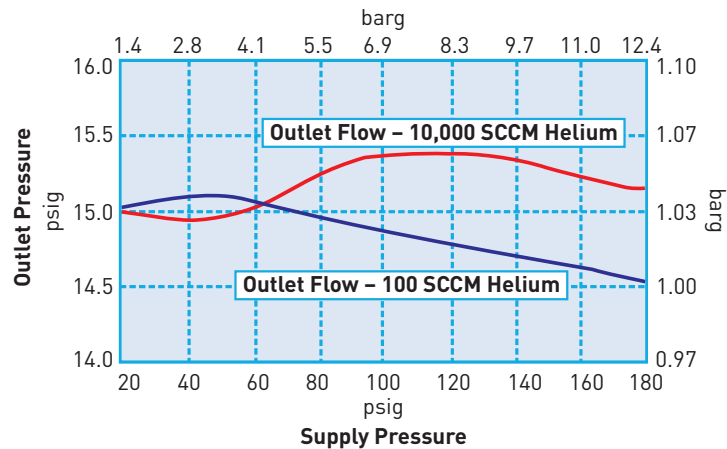
## Model 4000 Precision Pressure Regulator

### 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)



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)

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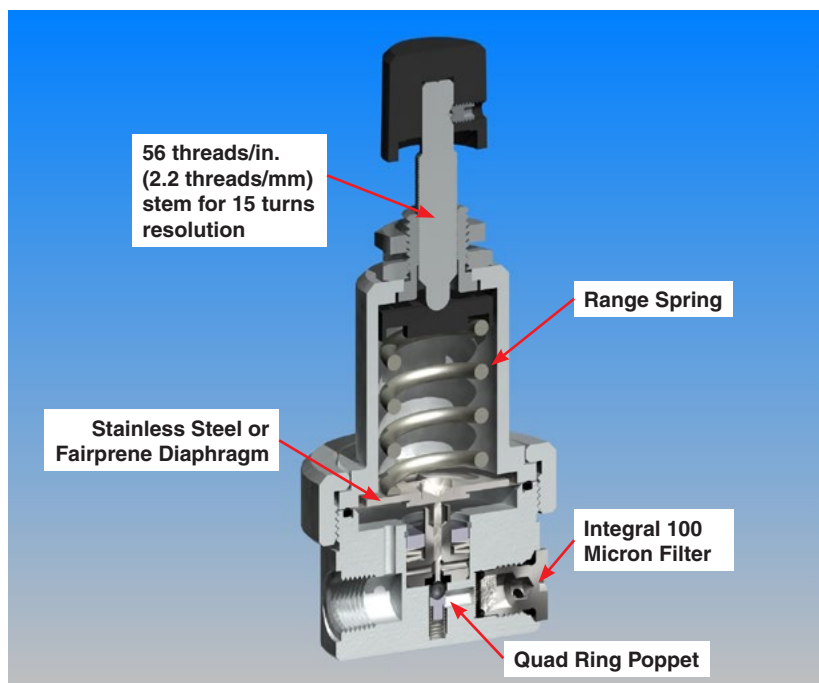
### Principle of Operation

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.



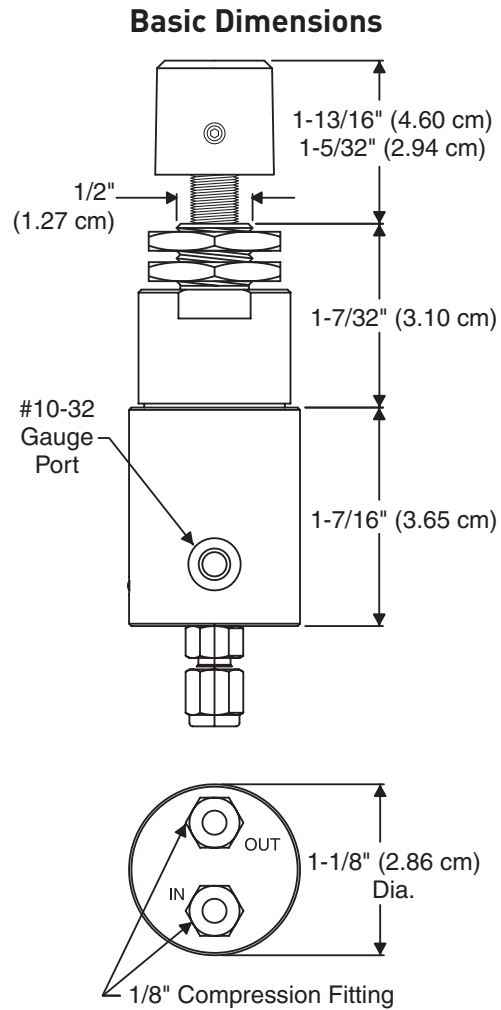
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Visit [www.parker.com/precisionfluidics](http://www.parker.com/precisionfluidics)



## Model 4000 Precision Pressure Regulator

### Mechanical Integration

#### Dimensions



Units
In (cm)

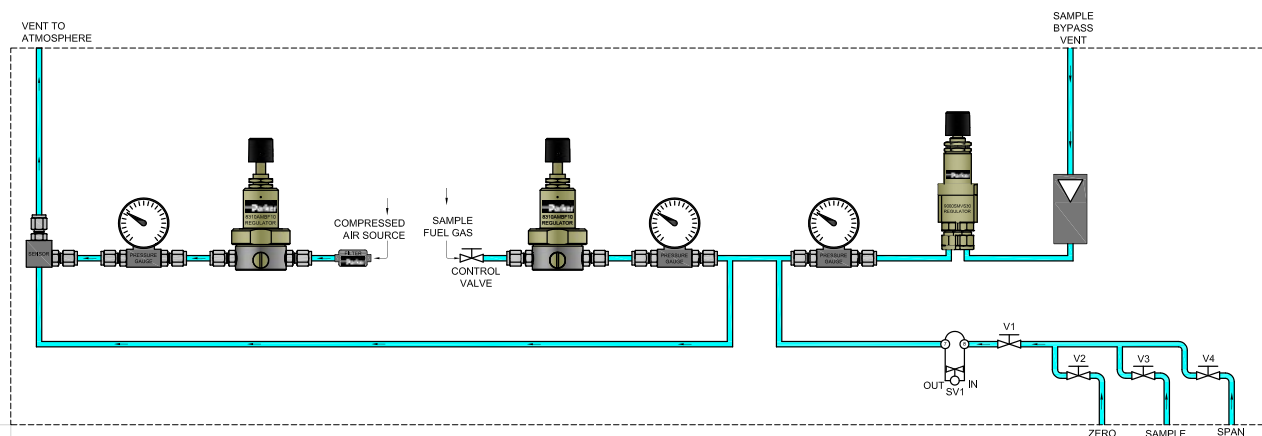
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## Model 4000 Precision Pressure Regulator

### Typical Flow Diagram

#### VOC Emissions Monitoring Analyzer



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## 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) 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.

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## Model 4000 Precision Pressure Regulator

# Portfolio Review

## Customization

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

