

aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding



Porter Pressure Regulators



ENGINEERING YOUR SUCCESS.

Porter Precision Pressure Regulators

Engineered to Excel in Critical Applications

The Porter Instrument Division of Parker Hannifin Corporation is a leading manufacturer of specialized control components for analytical, industrial and medical applications. Since its inception in 1968, Porter's focus has been the development, manufacture and sales of precision instruments for the measurement and control of gases and liquids.

Our Pressure Regulators are part of a unique range of control devices recognized as the industry standard for critical analytical instrument applications in the chemical/ petrochemical, food & beverage quality monitoring, drug analysis, forensics

and environmental quality monitoring industries. All regulator models are direct acting, non-relieving and are cleaned for analytical

instrument service. They are designed specifically to provide high resolution control at the low flow rates and pressures typical in analytical instrumentation applications.

We are proud of the quality reputation that our products have earned. We are ready to help you achieve increased performance, efficiency and reliability in your application, with either a standard product or an OEM special configuration designed to your specific requirements.

Models At a Glance

■ 8310 & 8311

The industry standard for precision gas pressure control. Regulates pressure at flow rates from 1 SCCM up to 3 SPLM. For Specification and Details see **page 4**.

■ 8286

Balanced Poppet for superior supply rejection. Regulates pressure at flow rates from 1 SLPM up to 40 SLPM. For Specification and Details, see **page 6**.

■ 4000

Excellent Performance in a compact package designed for smaller instruments. Regulates at flow rates from 500 SCCM up to 10 SLPM.

For Specifications and Details, see **page 8**.

■ 9000

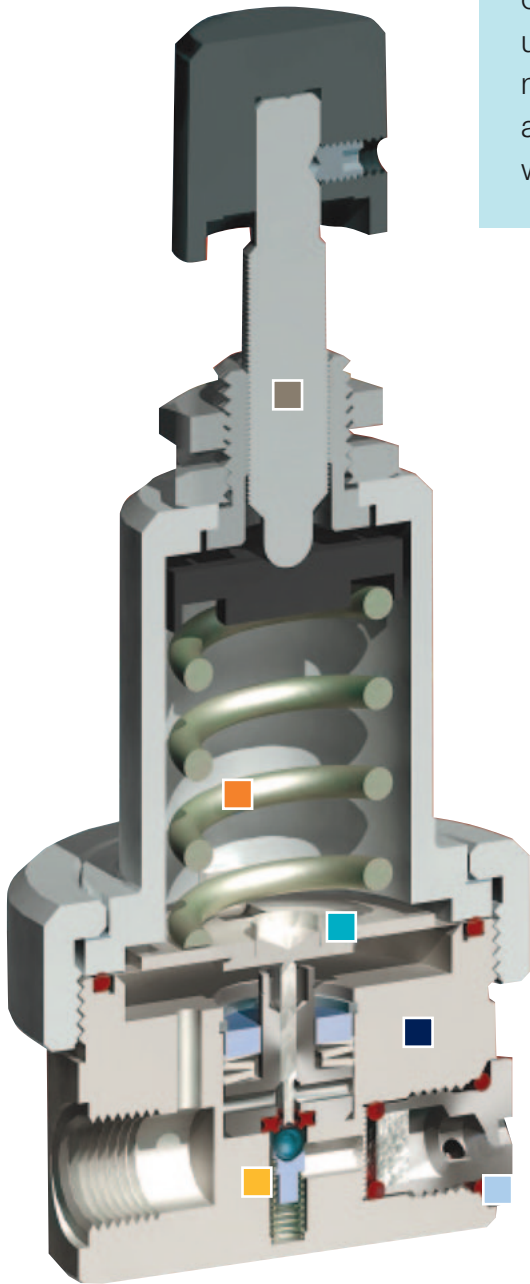
Low flow back pressure control. Regulates at flow rates from 10 SCCM up to 1 SLPM.

For Specifications and Details, see **page 10**.



Customized OEM Pressure Regulators

In addition to our standard regulator configurations, we can also provide OEM units with special port locations, manifold mount configurations, or integration into a larger, multi-functional package. We welcome your inquiries



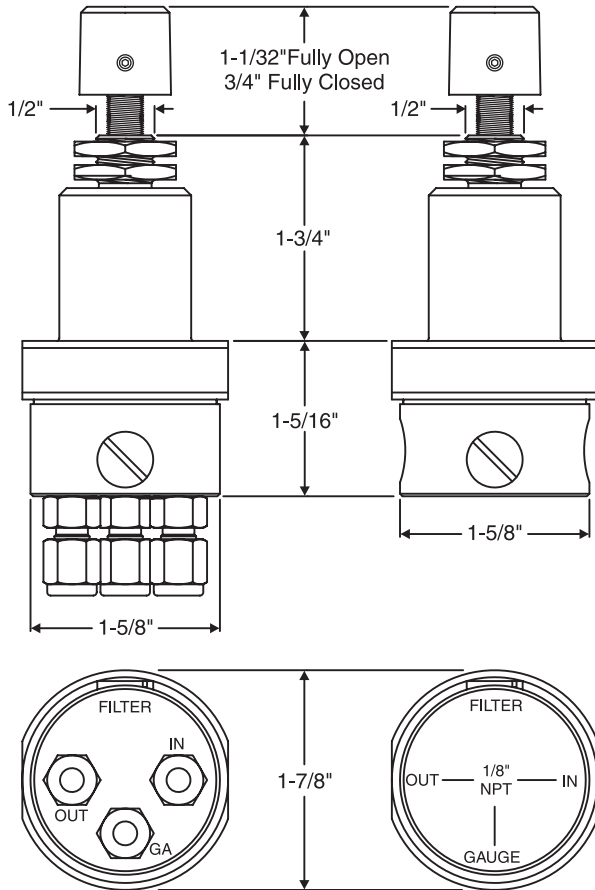
The Porter Advantage

- **Distinctive Valve/Seat Design.** On Models 8310 and 8311, a Precision Glass Ball & Quad Ring provide exacting regulation in a variety of low flow instrument specific applications. The Model 8286's Pneumatically Balanced Poppet minimizes supply pressure effect in higher flow applications.
- **Choice of Diaphragm Materials.** Stainless Steel Diaphragms provide extremely low permeability. Coated Fabric Diaphragms, available in Buna or Viton®, offer unmatched sensitivity.
- **Fine Pitch Adjusting Stem.** 56 Thread per inch pitch on all regulator adjusting stems gives precise control over incremental pressure adjustments
- **Bar Stock Construction and Analytical Service Cleaning.** Porter regulators are machined from bar stock in your choice of aluminum or stainless steel. All parts are cleaned to procedures developed specifically for analytical service. This minimizes contaminant generation in low-level analyzer applications.
- **Extensive Choice of Range Springs.** 2.5, 5, 10, 30, 60, 100 PSI Maximum ranges in Music Wire or Ni-Span-C® are available in most models. This ensures maximum resolution at specific pressure and temperature requirements.
- **Integral 100 Micron Sintered Stainless Steel Cartridge Filter.** Models 8310, 8311 and 8286 are supplied with a replaceable sintered stainless steel cartridge filter on the inlet to help reduce regulator failure from media contamination.

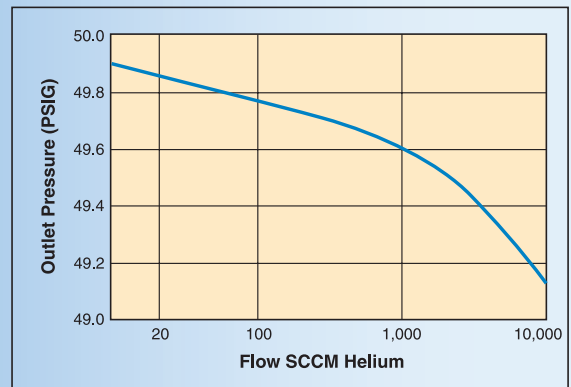
Porter Models 8310 & 8311



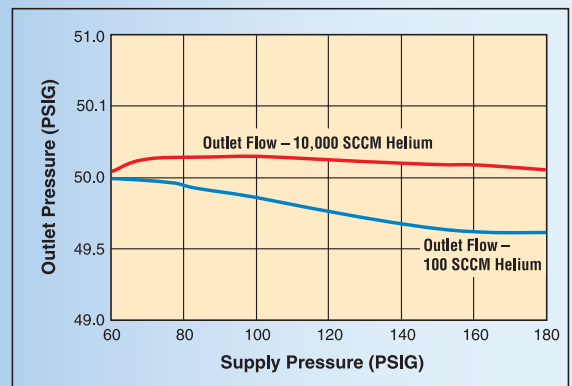
- Direct acting
- Non-relieving
- Pressure gauge connection
- Compact design
- Suitable for panel mounting
- All bar stock construction
- Bubble tight shut-off
- Cleaned for analytical service



Models 8310 & 8311
Typical Droop (Flow Sensitivity) Curve
 (Fairprene Diaphragm Unit)



Models 8310 & 8311
Typical Regulator Output vs. Change in Supply Pressure
 (Supply Rejection)
 (Fairprene Diaphragm Unit)



The Porter Models 8310 and 8311 Regulators incorporate a threadless valve seat assembly with a precision glass ball. They are ideal for very low flow applications and provide bubble tight shut-off under most conditions. The 8310 and 8311 are direct acting, non-relieving pressure regulators supplied with a replaceable sintered stainless steel cartridge filter on the inlet. They can be equipped with stainless steel diaphragms to reduce permeability. These regulators are performance tested under simulated operating conditions and cleaned for analytical instrument service.



Specifications

Ratings:

Maximum inlet pressure: 250 PSIG
Maximum working temperature: 160°F

Pressure Drop:

Minimum: 10 PSI
Maximum: 250 PSI

Performance:

(Based on 60 PSIG helium supply pressure at 50 PSIG outlet pressure)

Supply Rejection:

10 PSI change in supply will not change outlet more than 0.07 PSI

Ambient Temperature Effect

(temperature coefficient):

Music wire – (60 PSIG range) 0.008 PSI/°F
Ni-Span-C® – (60 PSIG range) 0.004 PSI/°F

Drift (Fairprene diaphragm):

Less than 0.1% in first 15 minutes to a total of 0.2% long term

(Stainless steel diaphragm): Less than 0.2% in first 15 minutes to a total of 0.8% long term

Flow Regulation: From 2 SCCM to 250 SCCM helium, outlet pressure will not decrease more than 0.17 PSI for unit with Fairprene diaphragm, 0.3 PSI for unit with stainless steel diaphragm

Baseline Oscillation: 0.0012 PSI

Precision Adjustment (resolution): 15 turns

Regulating Range:

0 - 2.5 PSIG
0 - 5 PSIG
0 - 10 PSIG
0 - 30 PSIG
0 - 60 PSIG
0 - 100 PSIG

Connections:

8310: 1/8" FNPT side ports, inlet, outlet and gauge

8311: Bottom ports with 1/8" compression fittings, inlet, outlet and gauge

Materials of Construction

Body: Aluminum or Stainless Steel

Bonnet: Aluminum

Orifice: Stainless Steel

Diaphragm: Fairprene BN-5029 (Buna N on nylon), Stainless Steel or Viton®

Range Spring: Music wire or Ni-Span-C®

O-Rings: Buna N or Viton®

Filter Element: Sintered Stainless Steel

Ordering Information

Model Number and Description

Example:

8310	A	M	B	F	10
------	---	---	---	---	----

Basic Model

8310
8311

Body Material

A - Aluminum
S - Stainless Steel

Spring Material

M - Music Wire
N - Ni-Span C®

O-Ring Material

B - Buna N
V - Viton®

Diaphragm Material

F - Fairprene BN-5029
S - Stainless Steel

Spring Range

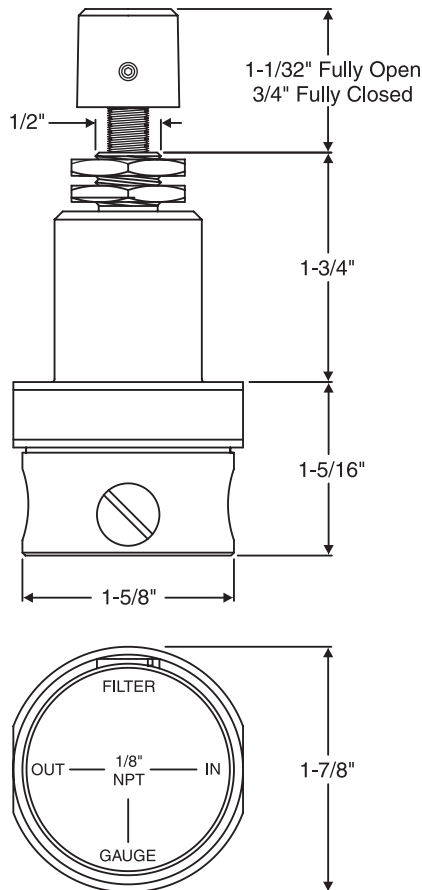
2.5	5
10	30
60	100

To order, specify:

- Model Number
- Body Material
- Spring Material & Range
- Diaphragm Material
- O-Ring Material

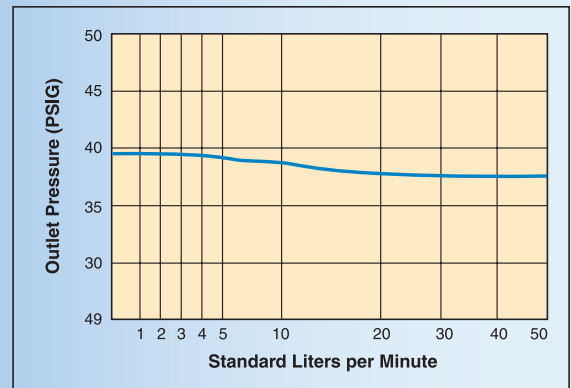
Viton® is a registered trademark of DuPont Performance Elastomers L.L.C.
Ni-Span-C® is a registered trademark of Special Metals Corp.

Porter Model 8286

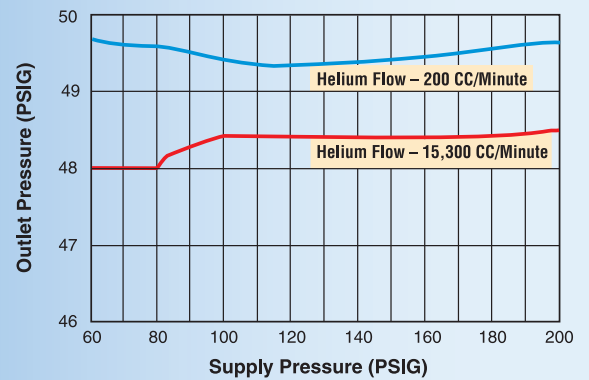


- Direct acting
- Non-relieving
- Pressure gauge connection
- Compact design
- Suitable for panel mounting
- All bar stock construction
- Pneumatically balanced poppet valve
- Cleaned for analytical service

Model 8286
Typical Droop (Flow Sensitivity) Curve
(Fairprene Diaphragm Unit)



Model 8286
Typical Regulator Output vs. Change in Supply Pressure
(Supply Rejection)
(Fairprene Diaphragm Unit)



The Porter Model 8286 Regulator utilizes a pneumatically balanced poppet valve to ensure maximum stability over wide variations in supply pressure. It is direct acting, non-relieving, and is supplied with a replaceable sintered stainless steel cartridge filter on the inlet. 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.



Specifications

Ratings:

Maximum inlet pressure: 250 PSIG
Maximum working temperature: 160°F

Pressure Drop:

Minimum: 10 PSI
Maximum: 100 PSI

Performance:

(Based on 60 PSIG helium supply pressure at 50 PSIG outlet pressure)

Supply Rejection:

10 PSI change in supply will not change outlet more than 0.07 PSI

Ambient Temperature Effect

(temperature coefficient):

Music wire – (60 PSIG range) 0.008 PSI/°F

Ni-Span-C® - (60 PSIG range) 0.004 PSI/°F

Drift (Fairprene diaphragm):

Less than 0.1% in first 15 minutes to a total of 0.2% long term

(Stainless steel diaphragm): Less than 0.2% in first 15 minutes to a total of 0.8% long term

Flow Regulation: From 1 SLPM to 20 SLPM, outlet pressure will not decrease more than 1 PSIG for unit with Fairprene diaphragm

Baseline Oscillation: 0.0012 PSI

Precision Adjustment (resolution): 15 turns

Regulating Range:

0 - 2.5 PSIG

0 - 5 PSIG

0 - 10 PSIG

0 - 30 PSIG

0 - 60 PSIG

0 - 100 PSIG

Connections:

1/8" FNPT side ports, inlet, outlet and gauge

Materials of Construction

Body: Aluminum or Stainless Steel

Bonnet: Aluminum

Poppet: Stainless Steel and Buna N or Viton®

Orifice: Stainless Steel

Diaphragm: Fairprene BN-5029 (Buna N on nylon) or Stainless Steel

Range Spring: Music wire or Ni-Span-C®

O-Rings: Buna N or Viton®

Filter Element: Sintered Stainless Steel

Ordering Information

Model Number and Description

Example:

8286 A M B F 10

Basic Model

8286

Body Material

A - Aluminum

S - Stainless Steel

Spring Material

M - Music Wire

N - Ni-Span C®

O-Ring Material

B - Buna N

V - Viton®

Diaphragm Material

F - Fairprene BN-5029

S - Stainless Steel

Spring Range

2.5 5

10 30

60 100

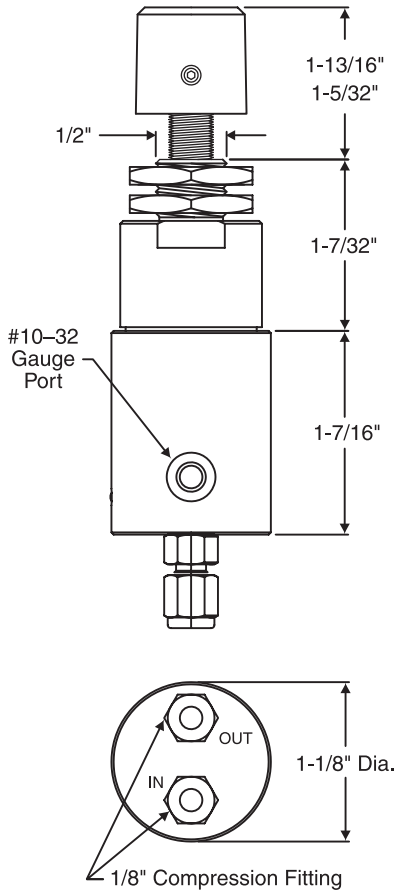
To order, specify:

- Model Number
- Body Material
- Spring Material & Range
- Diaphragm Material
- O-Ring Material

Viton® is a registered trademark of DuPont Performance Elastomers L.L.C.

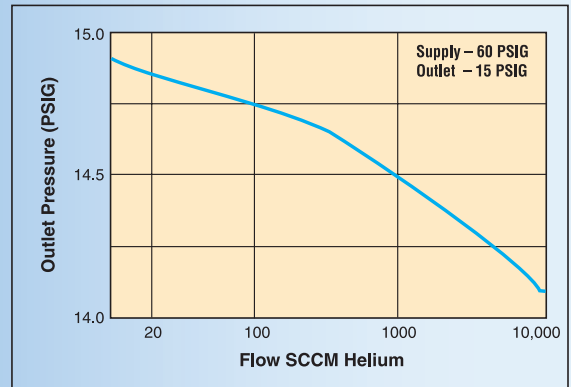
Ni-Span-C® is a registered trademark of Special Metals Corp.

Porter Model 4000

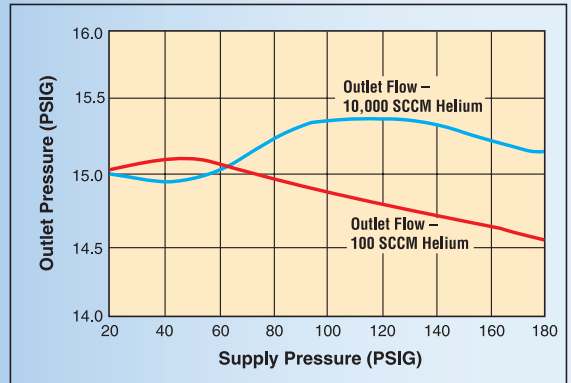


- Miniature size
- Direct acting
- Non-relieving
- Suitable for panel mounting
- All bar stock construction
- Cleaned for analytical service

Model 4000
Typical Droop (Flow Sensitivity) Curve



Model 4000
Typical Regulator Output vs. Change in Supply Pressure (Supply Rejection)



The Porter 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. It is direct acting, non-relieving and cleaned for analytical instrument service.



Specifications

Flow Capacity:

15 SLPM (typical maximum flow with 60 PSIG helium supply pressure and 15 PSIG outlet)

Ratings:

Maximum operating pressure: 250 PSIG
Maximum operating temperature: 160°F

Total Pressure Drop:

Minimum: 10 PSI
Maximum: 250 PSI

Performance:

(Based on 60 PSIG helium supply pressure at 15 PSIG outlet pressure)

Supply Rejection:

10 PSI change in supply will not change outlet more than 0.05 PSI

Ambient Temperature Effect

(temperature coefficient):
0.013 PSI/°F (0.024 PSI/°C)

Drift (Fairprene diaphragm):

Less than 0.2% in first 15 minutes to a total of 0.6% long term

Flow Sensitivity (droop):

From 2 SCCM to 250 SCCM helium outlet pressure will not change more than 0.2 PSIG for unit with Fairprene diaphragm

Baseline Oscillation:

0.0012 PSI
Precision Adjustment (resolution):
15 turns

Regulating Range:

0 - 10 PSIG
0 - 30 PSIG
0 - 60 PSIG
0 - 100 PSIG

Connections:

1/8" compression fittings, inlet and outlet, 10-32 UNF-2B gauge

Materials of Construction

Body: Aluminum

Bonnet: Aluminum

Poppet: Stainless Steel

Orifice: Stainless Steel

Diaphragm: Stainless Steel

Range Spring: Music wire

Ordering Information

Model Number and Description

Example:

4000	A	M	B	S	30
------	---	---	---	---	----

Basic Model
4000

Body Material
A - Aluminum

Spring Material
M - Music Wire

O-Ring Material
B - Buna N
V - Viton®

Diaphragm Material
S - Stainless Steel

Spring Range
10 30
60 100

To order, specify:

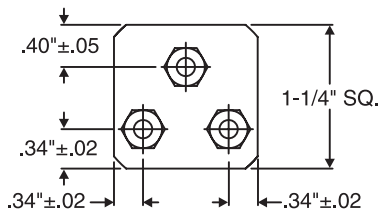
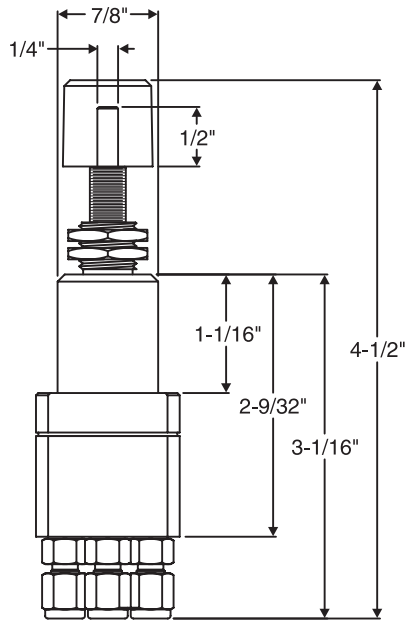
- Model Number
- Spring Material
- O-Ring Material

Viton® is a registered trademark of DuPont Performance Elastomers L.L.C.
Ni-Span-C® is a registered trademark of Special Metals Corp.

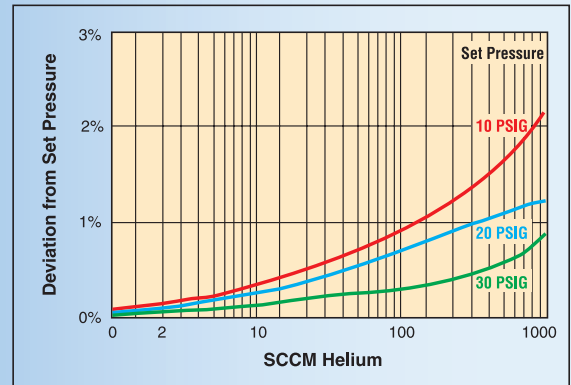
Porter Model 9000



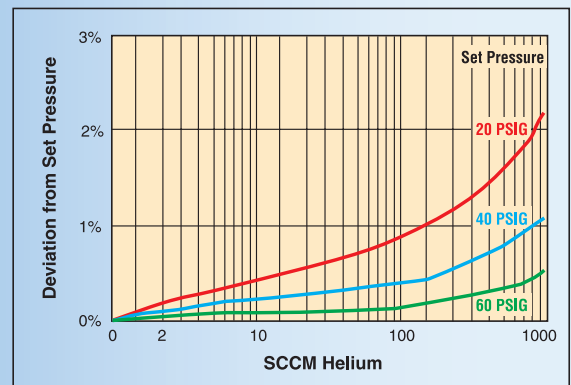
- Compact size
- Soft seat
- All bar stock construction
- Pressure gauge connections
- Suitable for panel mounting



Model 9000
Typical Droop (Flow Sensitivity) Curve
 30PSI Range Spring



Model 9000
Typical Droop (Flow Sensitivity) Curve
 60PSI Range Spring



The Porter 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.



Specifications

Flow Capacity: 0 - 1000 SCCM

Ratings:

Maximum operating temperature: 160°F

Precision Adjustment (resolution):

15 turns

Regulating Range:

0 - 15 PSIG

0 - 30 PSIG

0 - 60 PSIG

0 - 100 PSIG

Connections:

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

Materials of Construction

Body: Aluminum or Stainless Steel

Bonnet: Aluminum

Orifice: Stainless Steel

Valve Seat: Viton®

Diaphragm: Fairprene BN-5029 (Buna N on nylon) or Stainless Steel

Range Spring: Music wire

Ordering Information

Model Number and Description

Example:

9000	A	M	B	S	30
------	---	---	---	---	----

Basic Model

9000

Body Material

A - Aluminum

S - Stainless Steel

Spring Material

M - Music Wire

O-Ring Material

B - Buna N

V - Viton®

Diaphragm Material

F - Fairprene BN-5029

S - Stainless Steel

Spring Range

15 30

60 100

To order, specify:

- Model Number
- Spring Material
- O-Ring Material

Viton® is a registered trademark of DuPont Performance Elastomers L.L.C.

Ni-Span-C® is a registered trademark of Special Metals Corp.

⚠ WARNING – USER RESPONSIBILITY

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker-Hannifin Corporation, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise.

The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.

To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

Offer of Sale

The items described in this document are hereby offered for sale by Parker-Hannifin Corporation, its subsidiaries or its authorized distributors. This offer and its acceptance are governed by the provisions stated in the detailed "Offer of Sale" elsewhere in this document or available at www.parker.com/offersale.