

PORTER PRESSURE REGULATORS

Technology you can trust



PORTER
INSTRUMENT COMPANY, INC.

PORTER PRECISION PRESSURE REGULATORS...

Engineered to Excel in Critical Instrumentation Applications

All 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 typical in instrumentation applications.

Porter Instrument Company, Inc. is a leading manufacturer of specialized components for analytical, industrial and medical instrumentation. Since its inception in 1968, the company's focus has been the development, manufacture and sales of precision instruments for the measurement and control of gases and liquids.

Porter Pressure Regulators are part of a unique line of control components recognized as the industry standard for critical applications in analytical, medical, semiconductor, chemical/petrochemical, water treatment, air quality monitoring and fuel cell industries.

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

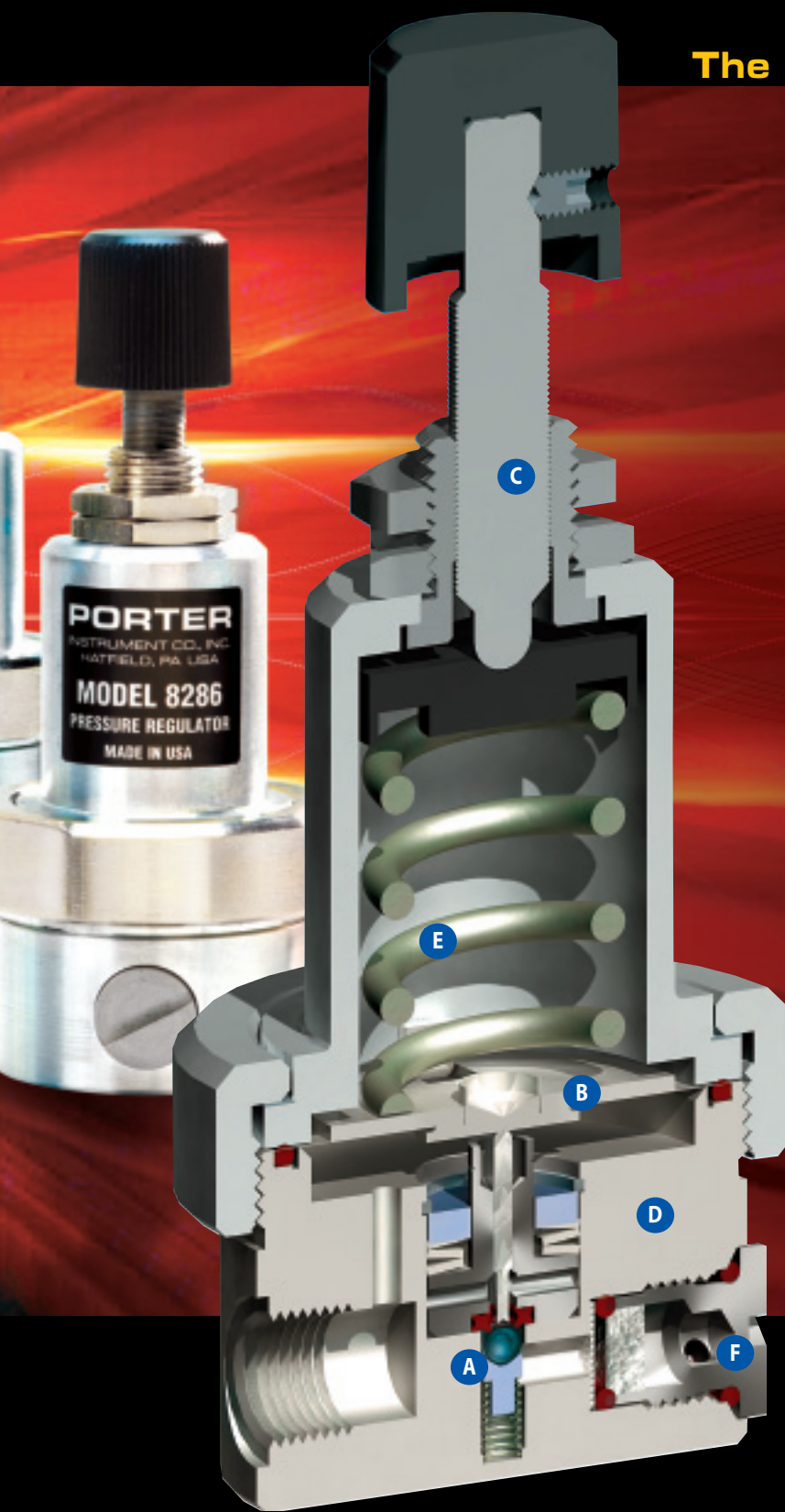


Customized OEM Pressure Regulators

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

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The PORTER Advantage



A Distinctive Valve/Seat Design

A Precision Glass Ball & Quad Ring on Models 8310 / 8311 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.

D Barstock 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.

B Choice of Diaphragm Materials

Stainless Steel Diaphragms provide extremely low permeability. Coated Fabric Diaphragms, available in Buna or Viton, offer unmatched sensitivity.

E 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.

C Fine Pitch Adjusting Stem

56 Thread per inch pitch on all regulator adjusting stems gives 15-turn resolution for precise control over incremental pressure adjustments

F Integral 100 Micron Sintered Stainless Steel Cartridge Filter

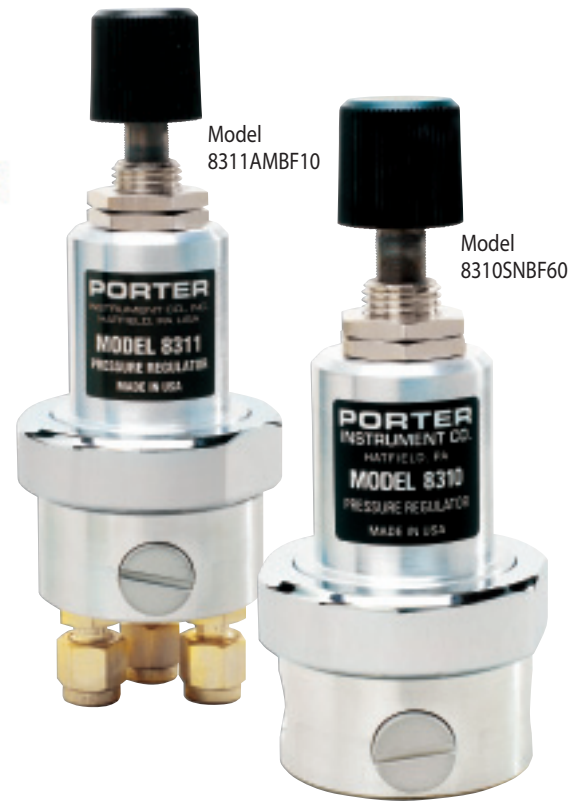
Models 8310, 8311 and 8286 are supplied with a replaceable sintered stainless steel cartridge filter on the inlet to help reduce regulator failure from media contamination.

PORTER Models 8310 & 8311

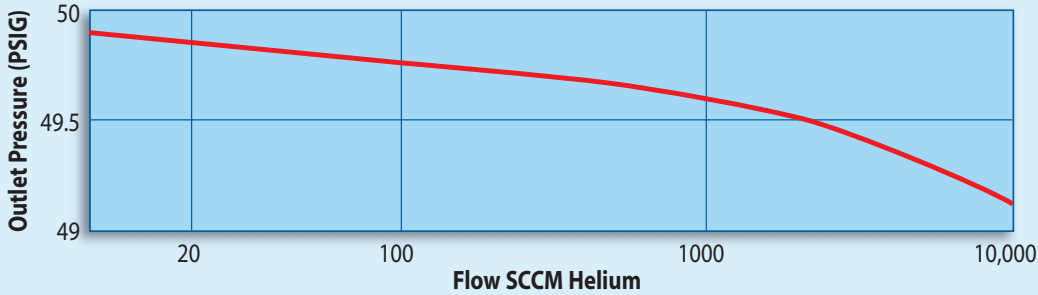
PRECISION *you can trust*

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 even at maximum supply pressure.

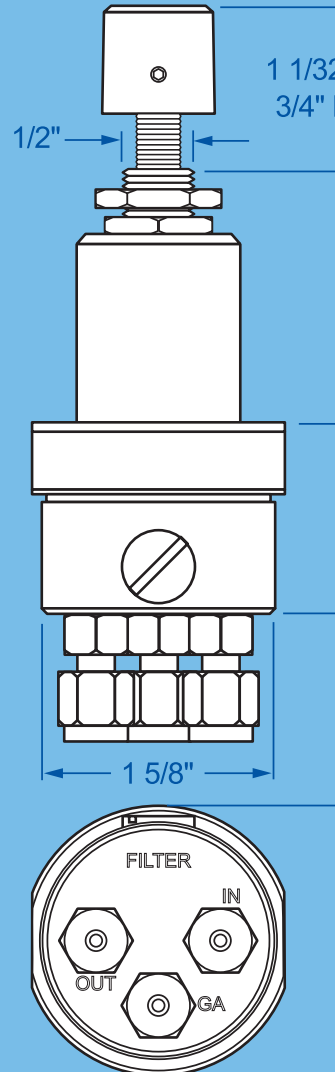
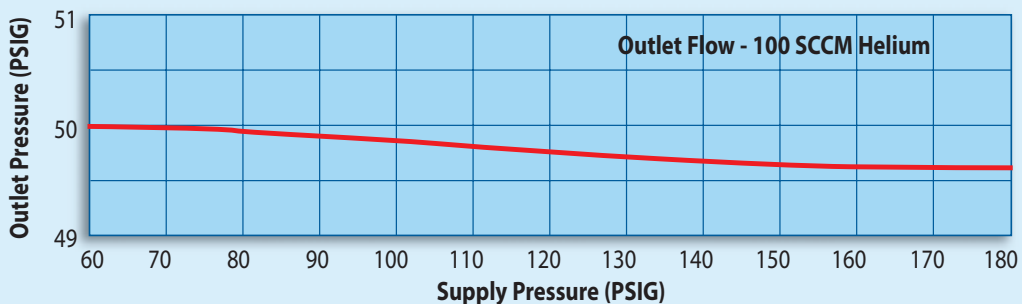
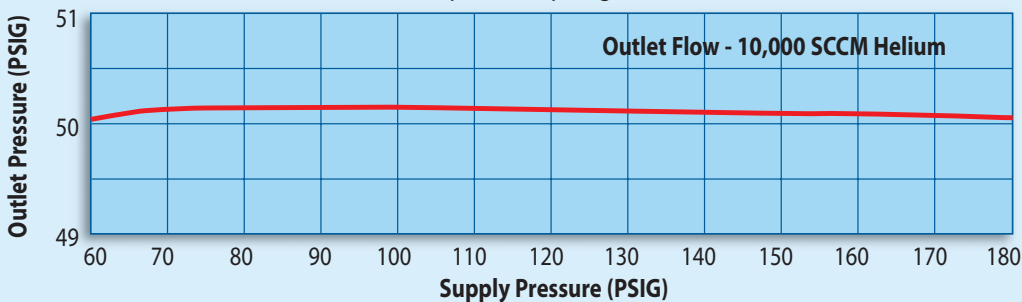
The 8310 and 8311 are direct acting, non-relieving pressure regulators supplied with a replaceable sintered stainless steel cartridge filter on the inlet. They can be equipped with stainless steel diaphragms to reduce permeability. These regulators are performance tested under simulated operating conditions and cleaned for analytical instrument service.



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)



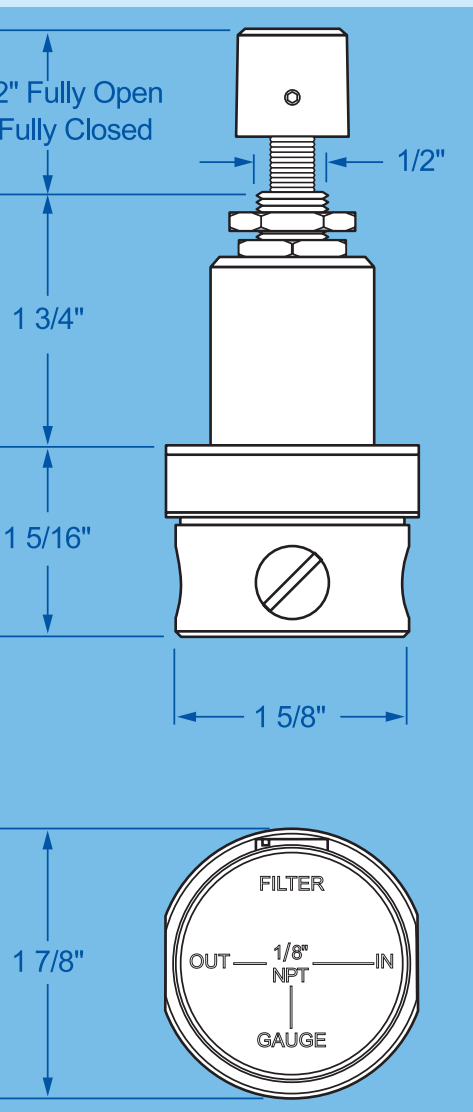
Design Features & Advantages

- 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

Specifications

Ratings: Maximum inlet pressure: 250 psig; Maximum working temperature: 160°F.

Pressure Drop: Minimum: 10 psi; Maximum: 250 psi.



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.

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.

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

Ni-Span-C® - Special Metals Corp.



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PORTER Model 8286

PRECISION

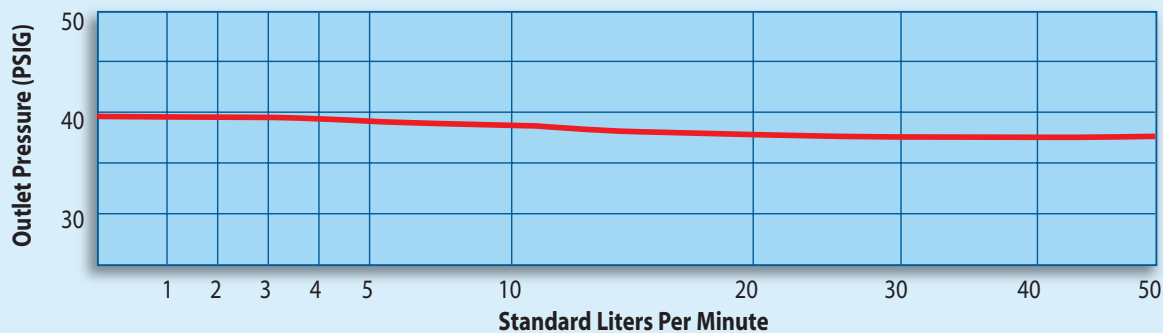
you can trust

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.

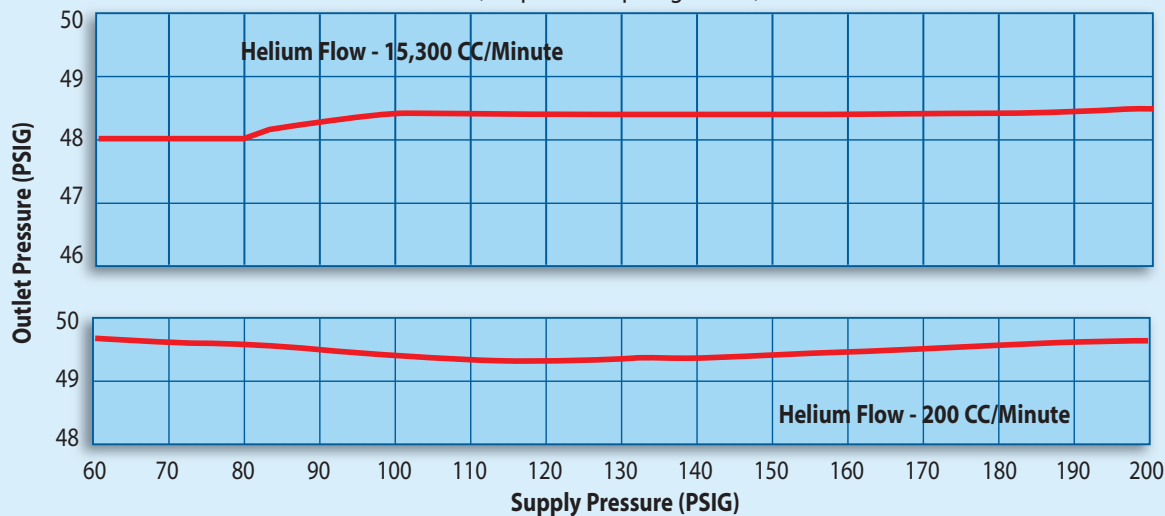


Model 8286SNV560

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)



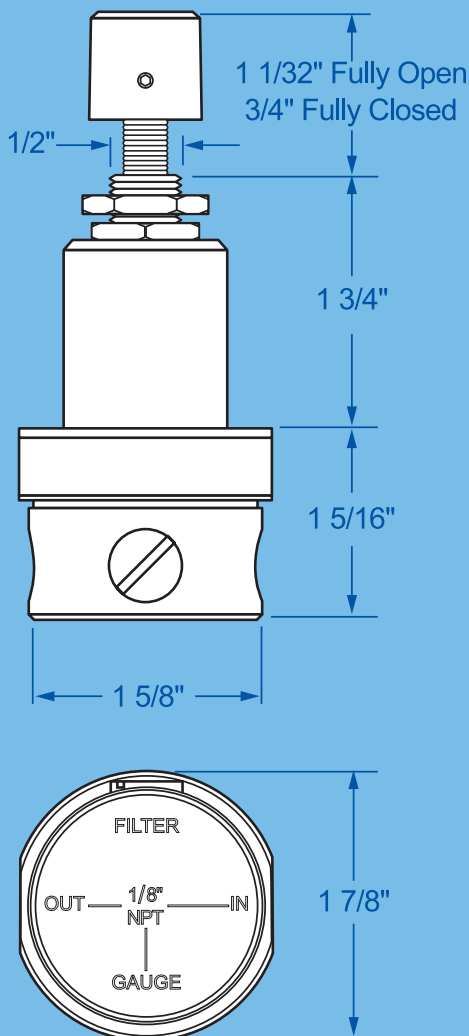
Design Features & Advantages

- 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

Specifications

Ratings: Maximum inlet pressure: 250 psig; Maximum working temperature: 160°F.

Pressure Drop: Minimum: 10 psi; Maximum: 100 psi.



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.

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 by 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.

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

Ni-Span-C® - Special Metals Corp.



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PORTER Models 4000 & 9000

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Model 4000

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 the smallest of instruments, yet its performance surpasses that of many competitive large diaphragm regulators. It is direct acting, non-relieving and provides minimal output change over a wide variation in supply pressure.



Model 4000AMVS30



Model 9000

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.

Model 9000AMBF30



Model 4000

Design Features

- Miniature size
- Direct acting
- Non-relieving
- All bar stock construction
- Suitable for panel mounting
- Cleaned for analytical 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: (60 psig helium supply pressure and 15 psig outlet).

Supply Rejection: 10 psi change will not change outlet more than 0.05 psi.

Ambient Temperature Effect (temperature coefficient): 0.013 psi/°F (0.024 psi/°C).

Materials of Construction

Body: Aluminum
Bonnet: Aluminum
Poppet: Stainless Steel
Orifice: Stainless Steel
Diaphragm: Stainless Steel
Range Spring: Music Wire

Drift: 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 psi.

Baseline Oscillation: 0.0012 psi.

Precision Adjustment (resolution): 15 turns.

Regulating Ranges:

- 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.

Ordering Information

Model Number and Description

Example:

4000	A	M	B	S	30
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Basic Model

4000

9000

Body Material

A- Aluminum

S- Stainless Steel (9000 only)

Spring Material

M- Music Wire

O-Ring Material

B- Buna N

V- Viton

Diaphragm Material

F- Fairprene BN-5029 (9000 only)

S- Stainless Steel

Range Spring PSIG

10 (4000 only)

15 (9000 only)

30

60

100

To order, specify:

- Model Number
- Spring Material
- O-Ring Material



Model 9000

Design Features

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

Specifications

Flow Capacity: 0 – 1000 sccm.

Ratings: Maximum operating temperature – 160°F.

Precision Adjustment (resolution): 15 turns.

Materials of Construction

Body: Aluminum or Stainless Steel
Bonnet: Aluminum
Orifice: Brass or Stainless Steel
Valve Seat: Viton
Diaphragm: Fairprene BN-5029 (Buna N on nylon) or Stainless Steel
Range Spring: Music Wire

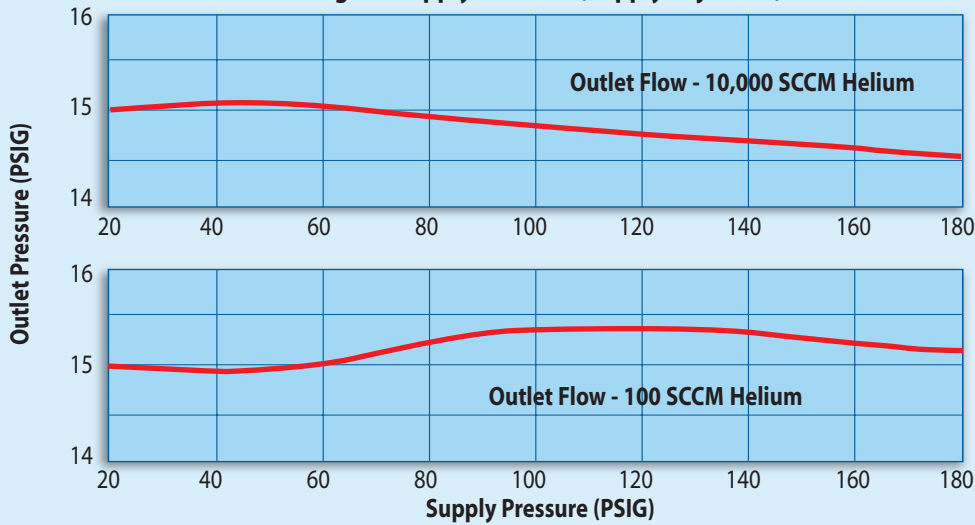
Regulating Ranges:

- 0 – 15 psig
- 0 – 30 psig
- 0 – 60 psig
- 0 – 100 psig

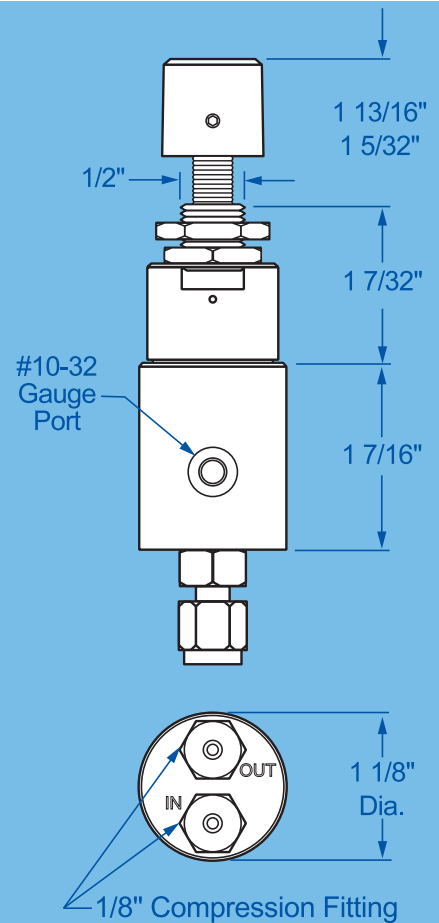
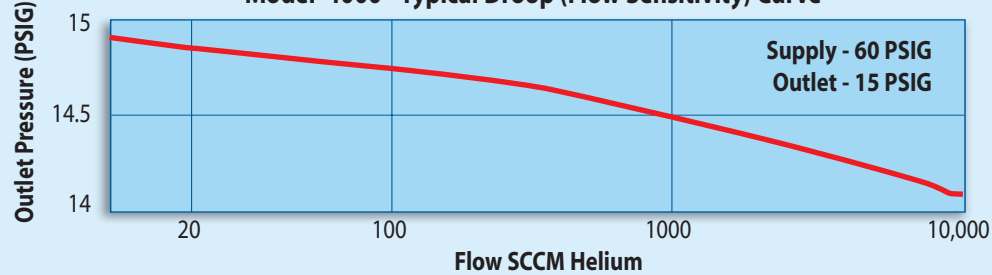
Connections: 1/8" compression fittings, inlet, outlet and gauge.

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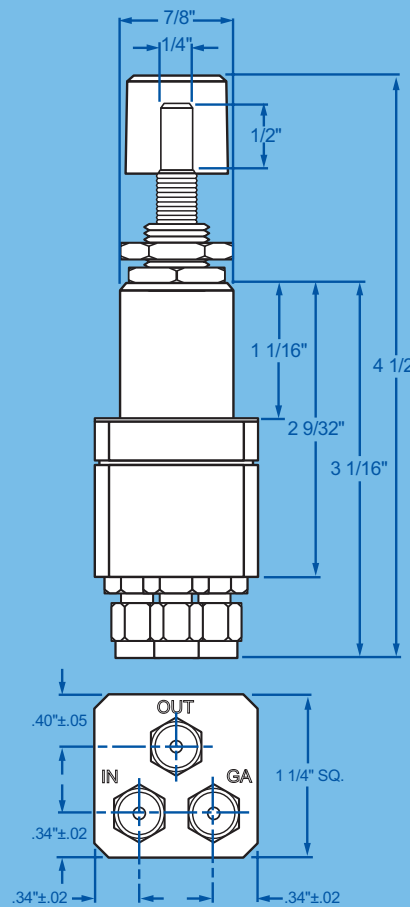
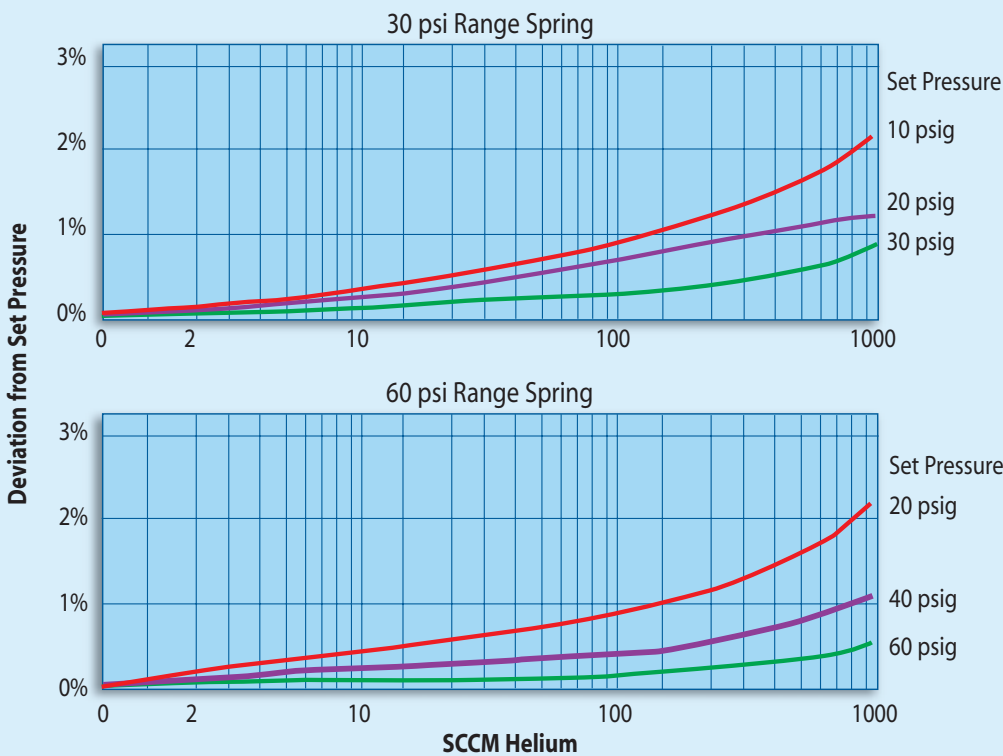
Model 4000 - Typical Regulator Output vs. Change in Supply Pressure (Supply Rejection)



Model 4000 - Typical Droop (Flow Sensitivity) Curve



Model 9000 - Typical Droop (Flow Sensitivity) Curve



CERTIFICATE OF WARRANTY

THIS WARRANTY IS GIVEN IN PLACE OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR OTHERWISE. NO PROMISE OR STATEMENT MADE BY ANY REPRESENTATIVE OR AUTHORIZED DEALER OF PORTER INSTRUMENT CO., INC. SHALL CONSTITUTE A WARRANTY BY PORTER INSTRUMENT CO., INC. PORTER INSTRUMENT CO., INC. ASSUMES NO LIABILITY FOR USE OF THIS EQUIPMENT.

Porter Instrument Co., Inc. warrants this equipment to be free from defects in workmanship and materials, when used in accordance with applicable specifications and with appropriate maintenance, for one (1) year from date of delivery to the customer, unless otherwise specified in writing.

Equipment which malfunctions may be returned, shipment prepaid, to Porter Instrument Co., Inc. for test and evaluation. Equipment determined to be defective and in warranty will be repaired or replaced at no charge to the customer.

Equipment out of warranty will be evaluated, and if the equipment does not meet original specifications and calibration, the customer will be notified of the costs before proceeding with repair or replacement. Repaired equipment will be warranted ninety (90) days from date of delivery to the customer or for the balance of the original warranty, whichever is longer.

Failures due to shipping damage, accident, misuse, improper mechanical or electrical installation or operation, or internal clogging or corrosion due to contaminated fluids or inadequate system purging are excluded from warranty coverage.

Porter Instrument Co., Inc.'s obligation for breach of this warranty, or for negligence or otherwise, shall be strictly and exclusively limited to the repair or replacement of the equipment. This warranty shall be void as to any equipment on which the serial number, if applicable, has been altered, defaced, or removed. Porter Instrument Co., Inc. shall under no circumstances be liable for incidental or consequential damages.

No other promise or statement about the equipment by any representative or authorized dealer of Porter Instrument Co., Inc. shall constitute a warranty by Porter Instrument Company, Inc. or give rise to any liability or obligation of Porter Instrument Co., Inc.

PRICES

All prices are F.O.B. Hatfield, PA, and subject to change without notice. All merchandise will be invoiced at prices in effect at time of shipment. Prices do not include insurance, freight, taxes or special handling. These charges, if applicable, will be shown separately on invoice. Minimum order \$30.00.

PAYMENT TERMS

Net 30 days after invoice date. All invoices past due are subject to a finance charge of 1 1/2 % per month (18% annual rate).

SHIPMENTS

Shipment of merchandise shall at all times be subject to credit approval and will be contingent upon fires, accidents, emergencies, acts of God, or any other causes which are beyond Porter Instrument Co., Inc.'s control.

CANCELLATIONS

No cancellations will be accepted on non-standard or special merchandise, except by payment of full purchase price. If buyer requests cancellation of any order or part thereof, and is agreed to by Porter Instrument Co., Inc. in writing, buyer will be subject to cancellation charges to cover the cost of material and/or fabrication incurred by Porter Instrument Co., Inc. to date of cancellation.

CHANGES OF ORDER

A minimum of 90 days notice is required on all changes to orders and will be subject to rescheduling as a new order at Porter Instrument Co., Inc.'s discretion.

RETURNS

No returns will be accepted unless authorized in writing by Porter Instrument Co., Inc. and accompanied by a properly completed Returned Goods Authorization. All returns are subject to restocking and possible rework charges to be determined by Porter Instrument Co., Inc.

Specifications and dimensions subject to change.



PORTER
INSTRUMENT COMPANY, INC.

PORTER INSTRUMENT COMPANY, INC.

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