

PR-1 Series*

Adjustable Pressure Control Regulator



The PR-1 Series is a versatile specialty pressure reducing control regulator designed to fulfill a wide range of needs in instrumentation sample systems and other applications such as semiconductor processing gases. The many features of the PR-1 make it ideal for a wide range of applications controlling pressures at low to moderate flows in gas or liquid service. 316L material is used to facilitate welded connections. Stainless steel caps and adjusting screws prevent atmospheric corrosion and maintain appearance. Enhanced internal body surface finish of better than 25 Ra plus electropolishing allows easier cleaning and potentially less particle contamination in the flow stream.

Six different seat materials, three alternate orifice sizes and eight pressure control ranges with stainless diaphragms offer the user a wide spectrum of capabilities for pressure control with inlet pressures up to 6,000 psig and standard operating temperatures up to 500° F (260° C).

* Replaces the LPR and MR Series.

Features & Specifications

- Gas or liquid service
- 316L stainless steel, Inconel®, Teflon®, and Tefzel® only in flow stream
- Electropolished 316L body with better than 25 Ra diaphragm cavity surface finish
- Stainless steel cap with stainless steel adjusting screw
- Inlet pressures of up to 6,000 psi
- Adjustable outlet pressure ranges of 0–6 psig, 0–10 psig, 0–25 psig, 0–50 psig, 0–100 psig, 0–250 psig, 0–500 psig, and 0–750 psig
- Operating temperatures of –40° F to +500° F (–40° C to +260° C)
- 20µ filters
- Bubble-tight shutoff under most conditions
- Cv flow coefficient: 0.06

Options

- Wetted materials of construction: Monel®, Hastelloy® and titanium
- Diaphragm attached poppet
- Special fittings
- Diaphragm assist spring for vacuum purging
- Larger Cv's of 0.2 and 0.5, smaller Cv's of 0.025
- Panel mount (1 $\frac{3}{8}$ " mounting hole)

Maximum Temperature & Operating Inlet Pressures

Seat Material	Maximum Temperature*	@	Maximum Operating Inlet Pressure
Tefzel®	150° F (66° C)	@	3,600 psig (24.82 MPa)
High density Teflon®	150° F (66° C)	@	3,600 psig (24.82 MPa)
CF Teflon®	175° F (80° C)	@	3,600 psig (24.82 MPa)
PCTFE (formerly Kel-F® 81)	175° F (80° C)	@	6,000 psig (41.37 MPa)
Polyimide	500° F (260° C)	@	3,600 psig (24.82 MPa)
Polyimide	175° F (80° C)	@	6,000 psig (41.37 MPa)
PEEK™	500° F (260° C)	@	3,600 psig (24.82 MPa)
PEEK™	175° F (80° C)	@	6,000 psig (41.37 MPa)

* Temperatures in excess of 175° F (80° C) require the use of a metal knob or the tamper-proof option.

Circle Seal Controls

2301 Wardlow Circle • Corona, CA 92880
 Phone (951) 270-6200 • Fax (951) 270-6201
 www.circle-seal.com

pressure regulators

PR-1 Series

How to Order

K/ PR1 - 1 A 1 1 A 3 C 1 1 1 C

REPAIR KIT

BODY MATERIALS

- 1 316L stainless steel
- 4 Monel®
- 5 Hastelloy® B
- 6 Hastelloy® C
- 7 Titanium
- 0 Inconel® 625

PORT CONFIGURATION

- A Standard (one inlet & one outlet port)
- For more port configurations, see page 35.

PROCESS PORT TYPES

- 0 1/8" FNPT
- 1 1/4" FNPT
- 3 1/4" sch 80 pipe (1/4" FNPT gauge ports)
- 4 3/8" FNPT
- 8 SAE J514 (1/4" NPT gauge ports)
- 9 MS33649 (1/4" NPT gauge ports)
- A 1/4" ISO 7-Rc taper
- H 1/2" sch 160 pipe
- K 1/4" sch 40 pipe

CAVITY FINISH

- 1 < 25 Ra, standard

SEAT MATERIALS

- A Tefzel®
- B CF Teflon®
- C Polyimide, high temperature service
- H PCTFE (formerly Kel-F® 81)
- I High-density Teflon®
- N Polyimide, low temperature service
- Q PEEK™

FLOW COEFFICIENT

- 3 0.06 (standard)
- 5 0.2
- C 0.025
- H 0.50

OUTLET RANGE

- C 0-10 psig
- D 0-25 psig
- E 0-50 psig
- G 0-100 psig
- I 0-250 psig
- J 0-500 psig
- L 0-6 psig
- W 0-750 psig

CAP ASSEMBLY

- 1 Standard stainless steel
- 4 Panel mount, stainless steel
- 5 Captured vent, aluminum
- 6 Captured vent, panel mount, aluminum
- 8 Tamper-proof, stainless steel
- 9 Fine adjust, 1/2" panel mount, aluminum
- 0 Fine adjust, 1/8" panel mount, aluminum
- A Captured vent, tamper-proof, aluminum
- E Tamper-proof, panel mount, aluminum
- H 1/4" NPT dome-loaded, stainless steel

DIAPHRAGM FACING/BACKING

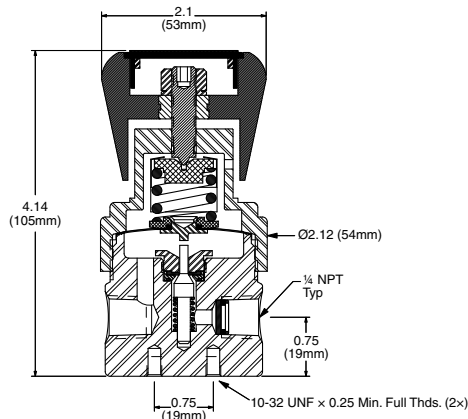
- 1 Teflon®/stainless steel
- 2 Teflon®/Viton® (0-50 psig max.)
- 6 Tefzel® ring/stainless steel
- 7 Viton®/stainless steel
- 8 Teflon®/Inconel®
- 9 Teflon®/Hastelloy® B
- 0 Teflon®/Hastelloy® C
- A Teflon®/tantalum
- B Teflon®/Inconel® 625
- J Tefzel® ring/Inconel®

DIAPHRAGM TYPE

- 1 Standard diaphragm
- 2 Diaphragm attached poppet
- 3 Self-relieving
- 4 Vacuum assist spring, standard diaphragm
- 5 Vacuum assist spring, diaphragm attached poppet
- 6 Vacuum assist spring, self-relieving
- 7 Liquid service

Outline & Mounting Dimensions

Weight = 1.9 lbs (0.86kg)

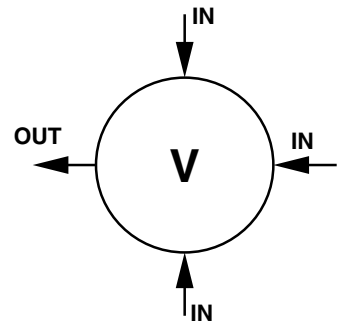
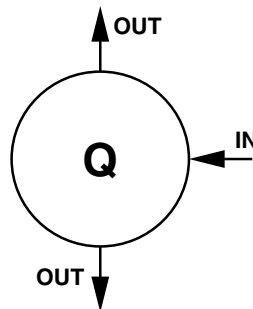
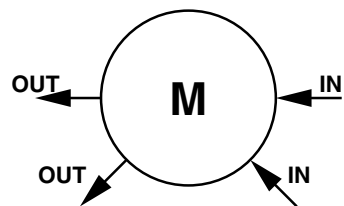
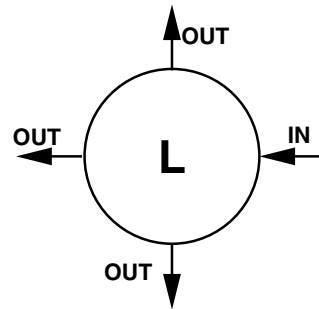
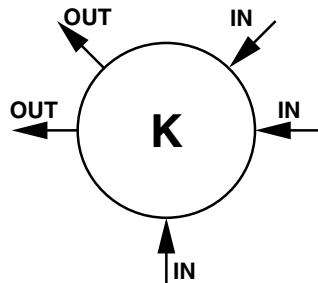
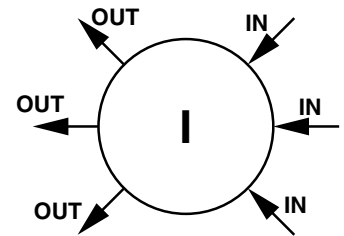
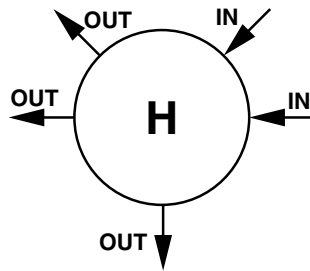
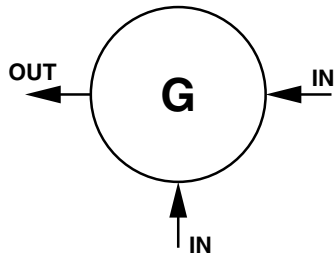
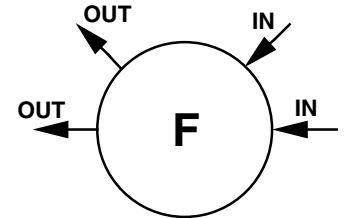
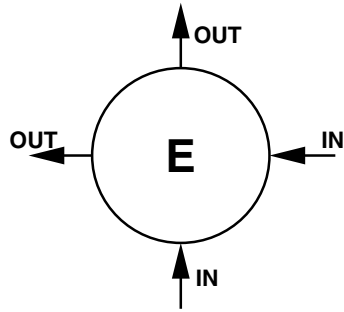
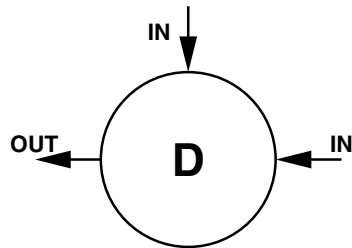
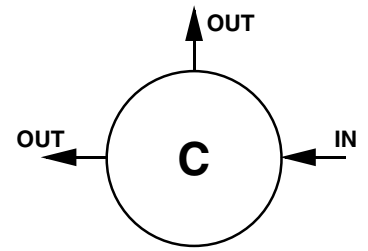
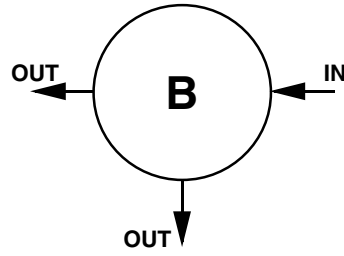
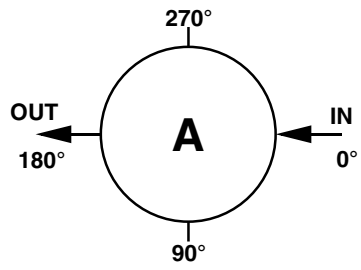


For Your Safety

It is solely the responsibility of the system designer and user to select products suitable for their specific application requirements and to ensure proper installation, operation, and maintenance of these products. Material compatibility, product ratings and application details should be considered in the selection. Improper selection or use of products described herein can cause personal injury or property damage.

Teflon® and Tefzel® are registered trademarks of the DuPont Company.
 PEEK™ is a trademark of Victrex PLC.
 Inconel® and Monel® are registered trademarks of Special Metals Corporation.
 Hastelloy® is a registered trademark of Haynes International, Inc.
 Kel-F® is a registered trademark of 3M Company.

Porting Configurations for Pressure Regulators



Location Of Ports From Top View