

# QR4000

## High Pressure Non-Tied Diaphragm Regulator



Parker Hannifin Corporation's Veriflo Division presents the QR4000 Series pressure regulator. The QR4000 is a high purity, high pressure non-tied diaphragm regulator. The QR4000 Series utilizes a metal-to-metal diaphragm seal which provides enhanced leak integrity.



### features

- ▶ "VeriClean", Veriflo's custom low sulfur, high purity 316L Stainless Steel™ that enhances electropolishing, welding and corrosion resistance.
- ▶ Unique patented compression member loads the seal to the body without requiring a threaded nozzle or additional seals to atmosphere.
- ▶ Internally threadless nozzle assembly.
- ▶ Metal-to-metal diaphragm to body seal assures high leak integrity and life-time bonding.
- ▶ Minimal particle generation and entrapment.
- ▶ High cycle life.
- ▶ 100% Helium leak tested.

### materials of construction

#### Wetted

Body . . . . . "VeriClean", Veriflo's high purity type 316L, Stainless Steel™, Hastelloy C-22®  
 Compression Member . . . . . Inconel®  
 Diaphragm . . . . . Hastelloy C-22®  
 Poppet . . . . . Elgiloy®  
 Poppet Spring . . . . . Inconel®  
 Screen . . . . . Hastelloy C-22®  
 Carrier . . . . . Stainless Steel\*, Hastelloy C-22®  
 Backup Washer . . . . . 316 Stainless Steel™  
 Seat . . . . . PCTFE, PEEK™, Vespel®

#### Non-Wetted

Nut . . . . . 316L Stainless Steel™  
 Cap . . . . . Nickel Plated Brass, optional Stainless Steel  
 Knob (Black) . . . . . ABS Plastic

### operating conditions

Maximum inlet . . . . . 4000 psig (276 barg)  
 Outlet . . 1-10 psig† (.7 barg), 1-30 psig (2 barg),  
 1-60 psig (4 barg), 2-100 psig (7 barg),  
 2-250 psig (17 barg), 20-500 psig (35 barg)

#### Temperature:

PCTFE . . . . . -40°F to 150°F (-40°C to 65°C)  
 PEEK™ . . . . . -40°F to 275°F (-40°C to 135°C)  
 Vespel® . . . . . -40°F to 500°F (-40°C to 260°C)

### functional performance

#### Flow capacity:

Standard . . . . . C<sub>v</sub> .06  
 Optional . . . . . C<sub>v</sub> .02, .15†  
 (SEMI Flow Coefficient Test #F-32-0998)

#### Design Leak Rate:

Outboard . . . . . 1 x 10<sup>-9</sup> scc/sec He  
 Inboard . . . . . 2 x 10<sup>-10</sup> scc/sec He  
 Across seat . . . . . 4 x 10<sup>-8</sup> scc/sec He

#### Supply Pressure Effect:

.02 C<sub>v</sub> . . . . . 0.23 psig per 100 psig  
 (.016 barg per 7 barg)  
 .06 C<sub>v</sub> . . . . . 0.6 psig per 100 psig  
 (.04 barg per 7 barg)  
 .15 C<sub>v</sub> . . . . . 1.5 psig per 100 psig  
 (.1 barg per 7 barg)

### standard configurations

See Dimension Table on back page.

### internal volume

4.0 cc without fittings

### surface finishes

Standard Ra . . . . . 10 Micro Inch  
 (.25 micro meter) or less  
 Optional Ra . . . . . 5 Macro Inch  
 (.13 micro meter) or less

### approximate weight

1.5 lbs (.7 kg)

\* Proprietary Carpenter Stainless Steel

† Refer to Range Table for specific information.

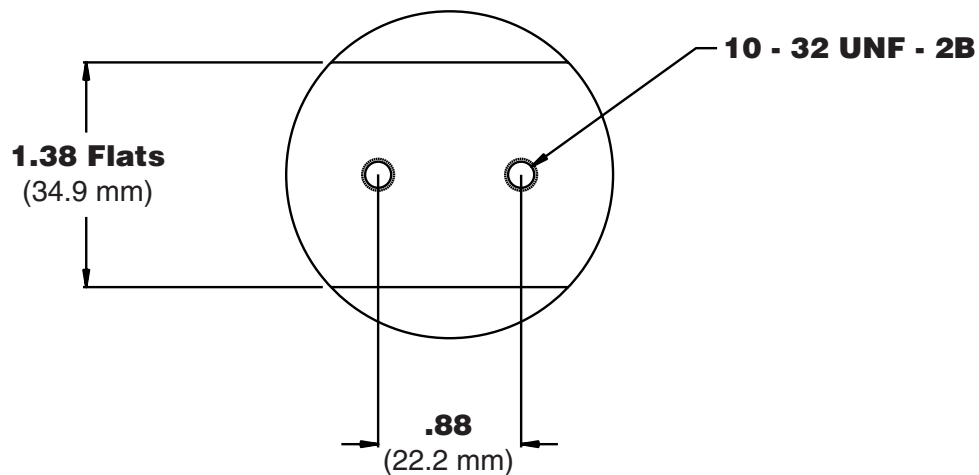
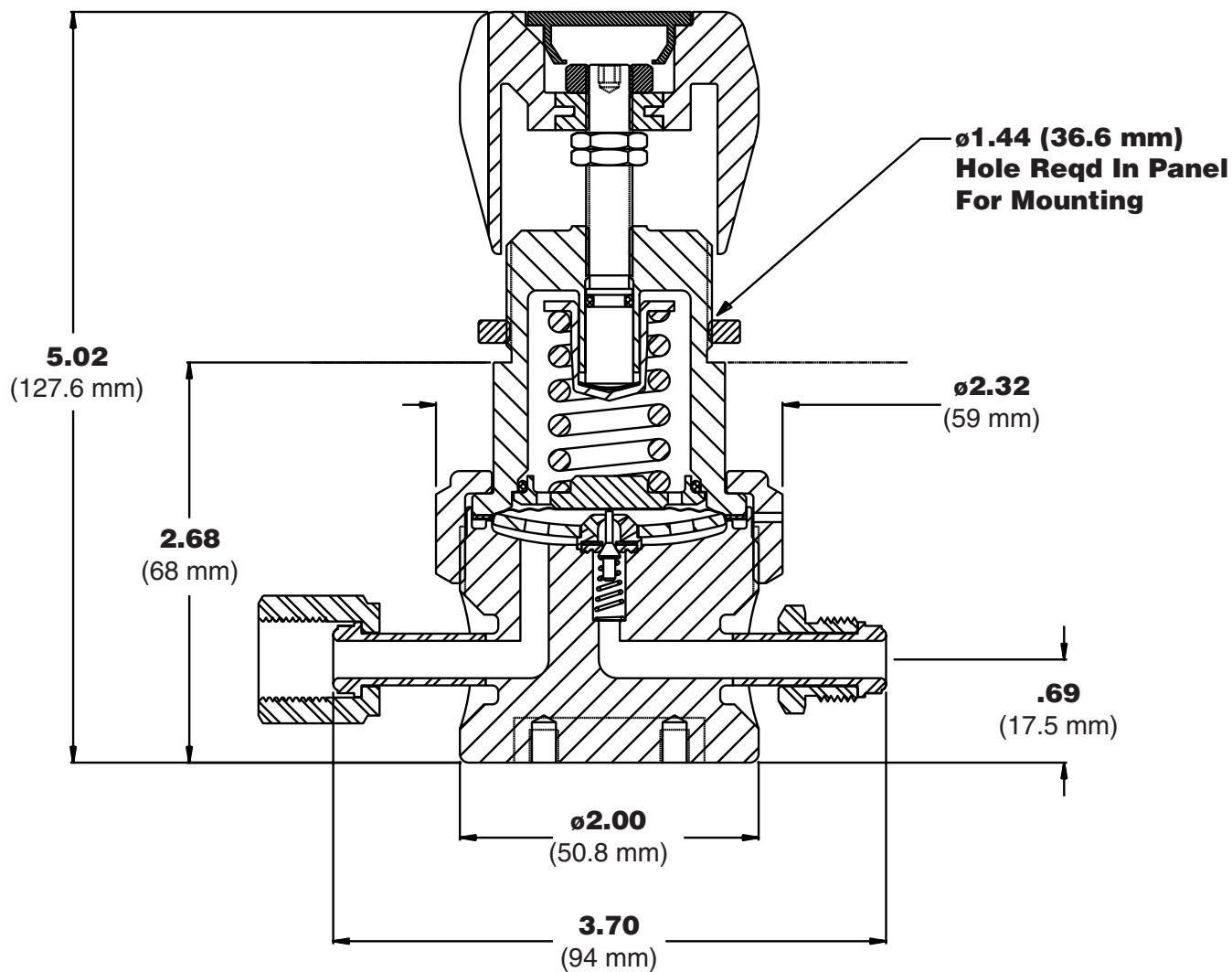
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 Revision: A • 10/03



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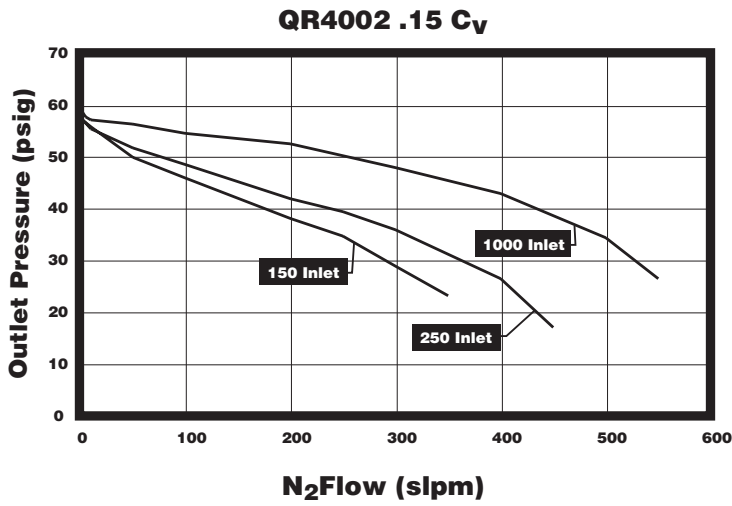
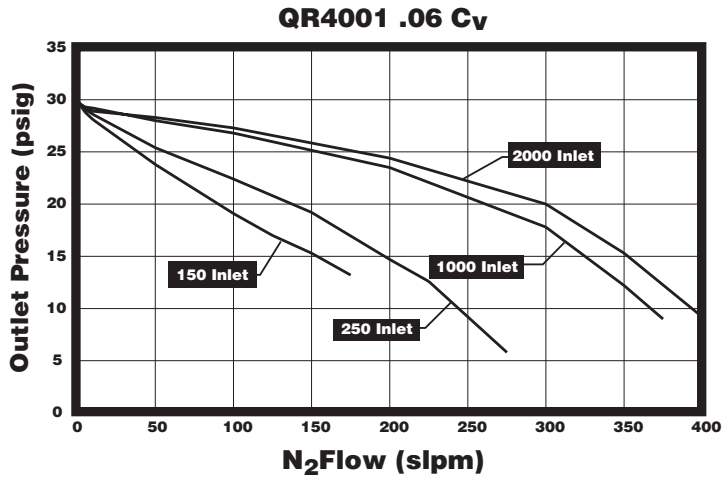
## Dimensional Drawing

All dimensions are reference and nominal.

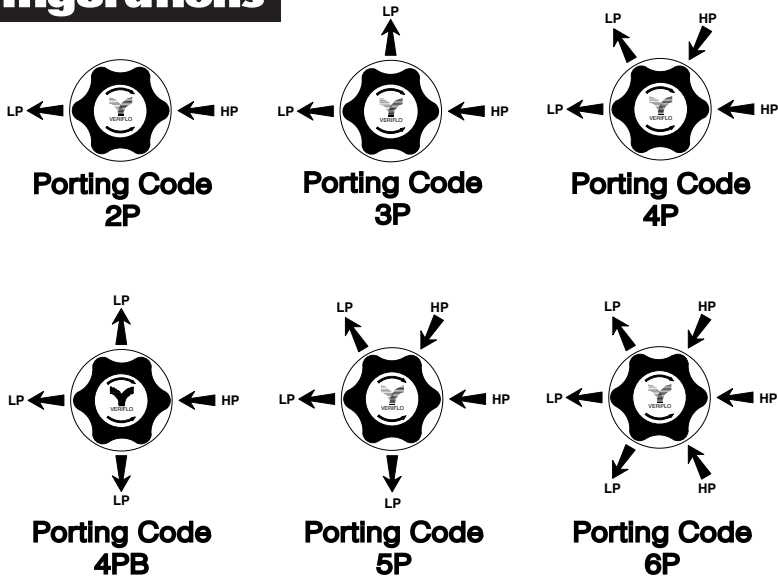


# QR4000

## Flow Curve



## Porting Configurations



# QR4000

## Ordering Information

QR4003 S K 4P 01 40 FS MMMM D

### BASIC SERIES

QR4000= 1 - 10 psig†  
 QR4001= 1 - 30 psig  
 QR4002= 1 - 60 psig  
 QR4003= 2- 100 psig  
 QR4004= 3 - 250 psig  
 QR4005= 20 - 500 psig

### MATERIALS

H = Hastelloy C-22®\*  
 S = 316L Stainless Steel

### FLOW CAPACITY†

= .06 Cv (standard)  
 1 = .02 Cv  
 2 = .15 Cv

### SEAT MATERIALS

K = PCTFE (formerly Kel-F 81®)  
 P = PEEK™  
 V = Vespel®\*\*

### PORTING

2P = 2 Ports  
 3P = 3 Ports  
 4P = 4 Ports  
 4PB = 4 Ports  
 5P = 5 Ports  
 6P = 6 Ports

### OUTLET GAUGE

OL = 0 - 60 psig  
 01 = 0 - 100 psig  
 4 = 0 - 400 psig  
 6 = 0 - 600 psig  
 X = No Gauge

### OPTIONAL FEATURES

D = Dome Loaded

#### Note: PANEL MOUNT OPTION:

Order Panel Nut Ring P/N 41900363 as separate line item.

### PORT CONFIGURATION

M = Male  
 F = Female  
 I = 1/4" Internal Face Seal Female

### PORT STYLE

FS = 1/4" Face Seal  
 FS8 = 1/2" Face Seal  
 TS = 1/4" Tube Stub  
 S6 = 3/8" Tube Stub  
 TS8 = 1/2" Tube Stub

### INLET GAUGE

01 = 0 - 100 psig  
 10 = 0 - 1000 psig  
 20 = 0 - 2000 psig  
 30 = 0 - 3000 psig  
 40 = 0 - 4000 psig  
 X = No Gauge

\* Hastelloy C-22® material includes: Hastelloy C-22® body, Hastelloy C-22® Carrier

\*\* Recommended for Nitrous Oxide (N<sub>2</sub>O) Service

† Refer to Range Table for specific information

†† Only available with .06 Cv

Hastelloy C-22® is a registered trademark of Haynes International, Inc.

Inconel® is a registered trademarks of Inco Alloys International.

Elgiloy® is a registered trademark of Elgiloy Company.

Vespel® is a registered trademark of DuPont Company.

Viton® is a registered trademark of DuPont Dow Elastomers.

PEEK™ is a trademark of Victrex plc.

### Dimension Table

Connection Type	End to End Dimension
1/4" Face Seal	3.70 ± .02 in. (94 ± .5 mm)
1/2" Face Seal	4.82 ± .02 in. (122.4 ± .5 mm)
All Tube Stubs	3.70 ± .02 in. (94 ± .5 mm)

### Range Table

Model Basic Series	Max Inlet PSIG		
	Cv		
	.06	.02	.15
QR4000	400	400	400
QR4001	4000	4000	1250
QR4002	4000	4000	1250
QR4003	4000	4000	1250
QR4004	4000	4000	1250
QR4005	4000	4000	1250