QR4000 & NPR4000 Series

High Purity Internally Threadless Pressure Regulator

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

Customer Value Proposition:

The QR4000 is a high purity, high pressure non-tied diaphragm regulator. It utilizes a metal-to-metal diaphram seal which provides enhanced leak integrity.

The NPR4000 regulator is for applications involving negative delivery pressures with low pressure gas sources. Typical applications include the delivery of low pressure gases from liquid sources such as WF6, BCL3.

Contact Information:

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Product Features:

- "VeriClean", Veriflo's custom low sulfur high purity 316L Stainless Steel™ enhances electropolishing, welding and corrosion resistance.
- Unique compression member loads the seal to the body without requiring a threaded nozzle or additional seals to atmosphere.
- Threadless internal nozzle assembly.
- Metal-to-metal diaphragm to body seal assures high leak integrity.
- Minimal particle generation and entrapment.
- Positive upward and downward diaphragm stops.

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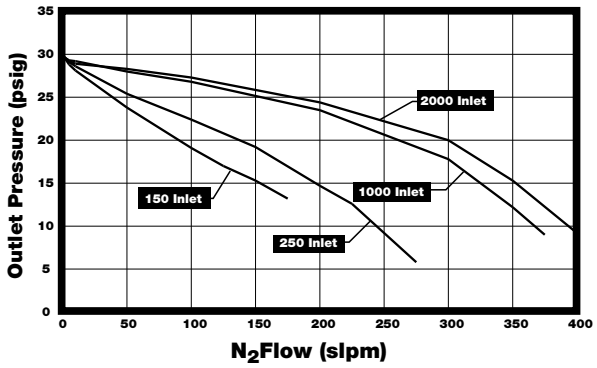
QR4000 & NPR4000

Flow Curves

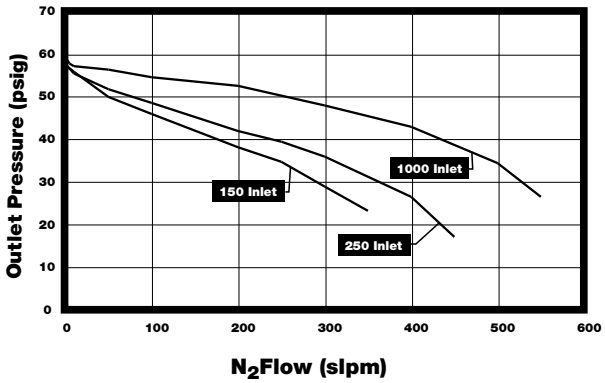
Additional flow curves available upon request

QR4000

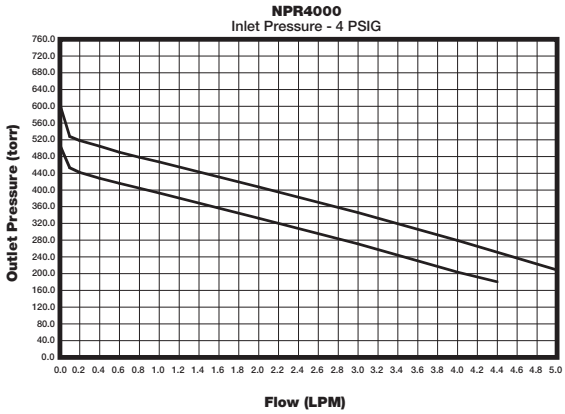
QR4001 .06 C_V



QR4002 .15 C_V



NPR4000



RANGE TABLE			
Basic Model	Max Inlet PSIG		
	0.06 C_V	0.02 C_V	0.15 C_V
QR4000	400	400	400
QR4001	4000	4000	1250
QR4002	4000	4000	1250
QR4003	4000	4000	4000*
QR4004	4000	4000	1250
QR4005	4000	4000	1250
QR4015	4000	4000	4000*
NPR4000	250	250	250

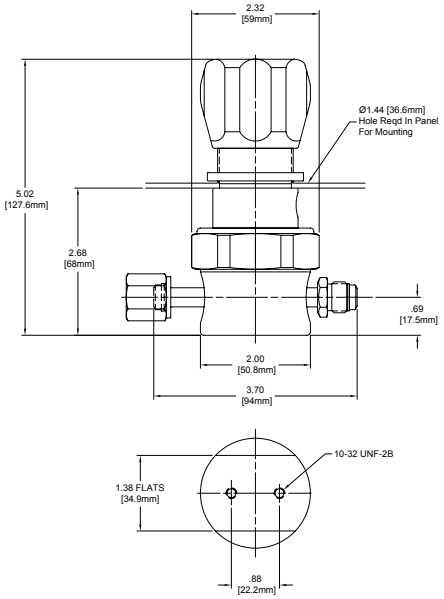
* 4000 PSIG max inlet pressure for PCTFE seats only (HP option). 1250 PSIG max inlet pressure for PEEK and Vespel seats.

When setting the delivery pressure, ensure that the maximum outlet pressure of the regulator is not exceeded for any operating condition including increases in delivery pressure due to flow shutoff and supply pressure effect. Supply pressure effect will result in a significant rise in outlet pressure as the inlet pressure decreases.

The stop settings will be adjusted to accommodate typical inlet and outlet pressure ranges. Please contact the factory if specific stop settings are required.

Refer to the Safety Guide 25000194 and the Pressure Regulators Installation and Operation Guide 25000169 for more information.

Dimensional Drawing



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)

Safety Guide and Installation and Operating Instructions available at
www.parker.com/veriflo

QR4000 & NPR4000

Ordering Information

Build a QR4000 or NPR4000 Series regulator by replacing the numbered symbols with an option from the corresponding tables below.

	1	2	3	4	5	6	7	8	9	10	11
Sample:	**QR40**	**03**	**S**		**K**	**4P**	**01**	**40**	**FS**	**MMMM**	**D**

Finished Order: **QR4003SK4P0140FSMMMMD**

1 Basic Series

QR40
NPR40

2 Pressure Ranges

QR40

- 00 = 1 - 10 psig
- 01 = 1 - 30 psig
- 02 = 1 - 60 psig
- 03 = 2 - 100 psig
- 15 = 5 - 150 psig
- 04 = 3 - 250 psig
- 05 = 20 - 500 psig

NPR40

- 00 = -26” Hg - 10 psig
- 01 = -26” Hg - 30 psig
- 02 = -26” Hg - 60 psig

3 Body Material

- S = 316L Stainless Steel
- H = Hastelloy C-22® *Hastelloy C-22® materials include: Hastelloy C-22® body, Hastelloy C-22® Carrier*

4 Flow Capacity

- = *0.06 C_V Standard*
- 1 = 0.02 C_V
- 2 = 0.15 C_V

5 Seat Material

- K = PCTFE
- P = PEEK™
- V = Vespel® *Recomended for Nitrous Oxide (N_2O) service*

6 Porting

- 2P = 2 Ports *No X required for gauges, Inlet & outlet ports only*
- 3P = 3 Ports *One X for gauge port*
- 4P = 4 Ports *Two X’s for gauge ports*
- 4PB = 4 Ports *One X for gauge port*
- 5P = 5 Ports *Two X’s for gauge ports*

See Regulator Porting Guide for additional options and port layouts

7 Outlet Gauge

- V3 = -30 in Hg 0 - 30 psig
- V1 = -30 in Hg 0 - 100 psig
- OL = 0 - 60 psig
- 01 = 0 - 100 psig
- 4 = 0 - 400 psig
- 6 = 0 - 600 psig
- X = No Gauge

Additional ranges available upon request

8 Inlet Gauge

- V3 = -30 in Hg 0 - 30 psig
- V1 = -30 in Hg 0 - 100 psig
- 01 = 0 - 100 psig
- 4 = 0 - 400 psig
- 10 = 0 - 1000 psig
- 20 = 0 - 2000 psig
- 30 = 0 - 3000 psig
- 40 = 0 - 4000 psig
- X = No Gauge

Additional ranges available upon request

9 Port Style

- FS = 1/4” Face Seal
- FS8 = 1/2” Face Seal
- TS = 1/4” Tube Stub
- TS6 = 3/8” Tube Stub
- TS8 = 1/2” Tube Stub

10 Port Configuration

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

1/4” FS-M Gauge Ports are Standard

11 Optional Features

This section can have multiple options

- D = Dome Loaded *- QR4000 only. Not available with G or M options*
- M = Metal Knob (Black) *Not available with D option. Required for temperatures above 150° F*
- T = Hastelloy C-22® Trim *Includes carrier and back-up washer*
- HP = 4000 psig Max Inlet Pressure *For .15 C_V QR4003 and QR4015 with PCTFE seats only*

Note: Panel Mount Option: *Order Panel Nut Ring p/n: 41900363 as a separate line item.*

QR4000 & NPR4000

Specifications

Materials of Construction	
Wetted	
Body Options	316L Stainless Steel (std) or Hastelloy C-22® (*Hastelloy® Trim is std with Hastelloy® bodies)*
Compression Member	Inconel 625®
Diaphragm	Hastelloy C-22®
Pin	Hastelloy C-22® - *NPR4000 Only*
Poppet	Hastelloy C-276®
Poppet Spring	Inconel X750®
Screen	Hastelloy C-22®
Seat Options	PCTFE, PEEK™ or Vespel®
Carrier Options	316L Stainless Steel (std) or Hastelloy C-22®
Washer Back-up	316 Stainless Steel (std) or Hastelloy C-276®
Non-wetted	
Cap	Nickel Plated Brass
Nut	316L Stainless Steel
Knob Options	ABS (Black) - *QR4000 Only*
	ABS (White) - *NPR4000 Only*
	Aluminum (Black)

Functional Performance	
Flow Capacity	
Cv Options	C_V 0.06, C_V 0.2, C_V 0.15
Leak Rate	Inboard Test Method
External	2 x 10^{-10} scc/sec He
Internal	4 x 10^{-8} scc/sec He

For additional information on materials of construction, functional performance and operating conditions, please contact factory.

Functional Performance *Continued...*	
Supply Pressure Effect	
QR4000	
0.02 C_V	0.23 psig/100 psig (0.16 barg/7 barg)
0.06 C_V	0.6 psig/100 psig (0.04 barg/7 barg)
0.15 C_V	1.5 psig/100 psig (0.1 barg/7 barg)
Internal Volume	4.0 cc without fittings
Approx. Weight	1.5 lbs. (0.7 kg)

Operating Conditions	
Maximum Inlet	Refer to Range Table for specific information
Outlet Options	
QR4000	1 - 10 psig (.07 barg), 1 - 30 psig (2 barg), 1 - 60 psig (4 barg), 2 - 100 psig (7 barg), 3 - 250 psig (17 barg), 5 - 150 psig, (10 barg), 20 - 500 psig (35 barg)
NPR4000	100 torr - 10 psig (-26 in Hg - 0.7 barg), 100 torr - 30 psig (-26 in Hg - 2 barg), 100 torr - 60 psig (-26 in Hg - 4 barg)
Temperature	Metal Knob required for temperatures above 150°F
PCTFE	-40°F to 150°F (-40°C to 66°C)
PEEK™	-40°F to 275°F (-40°C to 135°C)
Vespel®	-40°F to 500°F (-40°C to 260°C)

Vespel® is a registered trademark of DuPont Performance Elastomers L.L.C.
Viton® is a registered trademark of DuPont Performance Elastomers L.L.C.
Hastelloy C-22® is a registered trademark of Haynes International, Inc.
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