

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 diaphragm 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.



ENGINEERING YOUR SUCCESS.

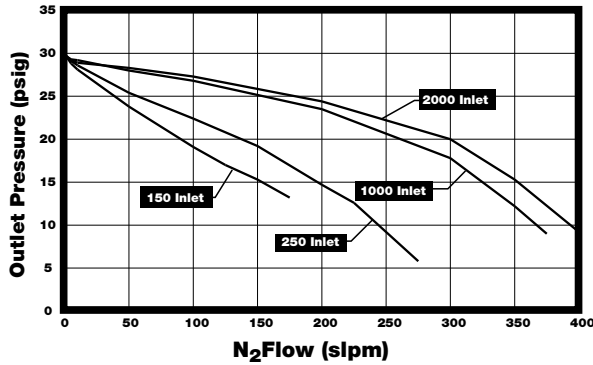
QR4000 & NPR4000

Flow Curves

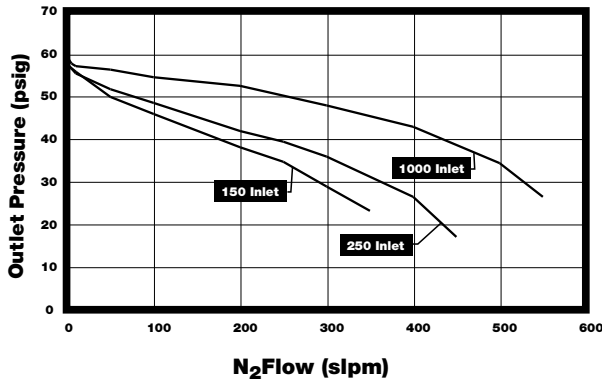
Additional flow curves available upon request

QR4000

QR4001 .06 C_v

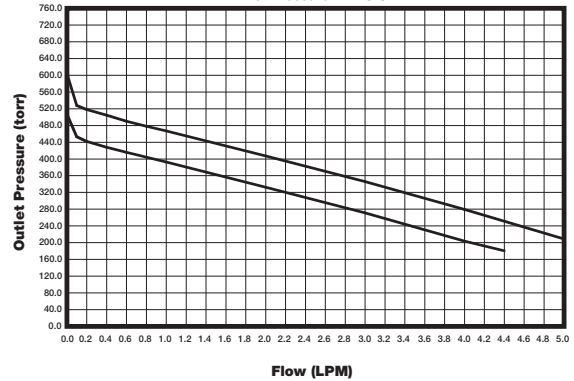


QR4002 .15 C_v



NPR4000

NPR4000 Inlet Pressure - 4 PSIG



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

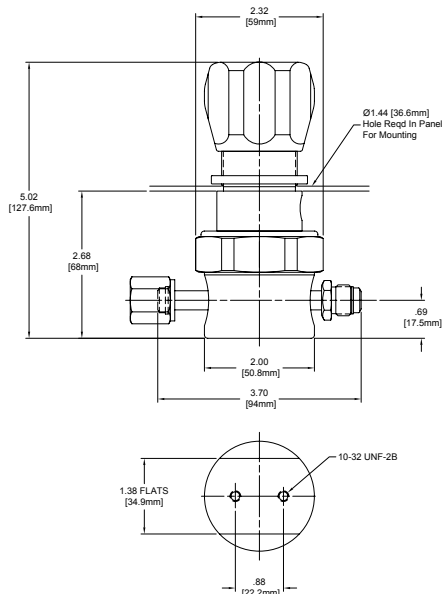
* 4000 PSIG max inlet pressure for PCTFE seats only (HP option).
1250 PSIG max inlet pressure for PEEK and Vespel seats.

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.

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® *Recommended for Nitrous Oxide (N₂O) 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® (<i>Hastelloy® Trim is std with Hastelloy® bodies</i>)
Compression Member	Inconel 625®
Diaphragm	Hastelloy C-22®
Pin	Hastelloy C-22® - <i>NPR4000 Only</i>
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) - <i>QR4000 Only</i>
	ABS (White) - <i>NPR4000 Only</i>
	Aluminum (Black)
Functional Performance	
Flow Capacity	
Cv Options	C _v 0.06, C _v 0.2, C _v 0.15
Leak Rate	
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 <i>Continued...</i>	
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)

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 Viton® is a registered trademark of DuPont Performance Elastomers L.L.C.
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 VeriClean™ is a trademark of Parker Hannifin Corporation
 Inconel® is a registered trademark of Special Metals Corporation
 PEEK™ is a trademark of Victrex plc.

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