

# FR1400 Series

UHP High Flow, Tied Diaphragm, Single Stage, Pressure Reducing Regulator



## Precise Control, High Flow Performance

The FR1400 Series ultra high purity, pressure reducing regulator offers high flow capability with an inlet pressure up to 3000 psig and is an excellent choice for cylinder or point of use bulk and specialty gas applications.

The large, tied Hastelloy C-22® diaphragm provides stable control over its full operational range while providing a robust seal for hazardous gas applications.

The FR1403SA is for applications involving negative delivery pressures with low pressure gas sources.



## Contact Information:

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## Product Features:

- 316L stainless steel body
- Manufactured for ultra high purity semiconductor gas applications
- Metal-to-metal diaphragm seal
- 10  $\mu$  in. Ra surface finish
- Passivated & Electropolished
- Tied diaphragm design
- Hastelloy C-22® diaphragm and poppet standard
- Flows up to 800 slpm (28 scfm)

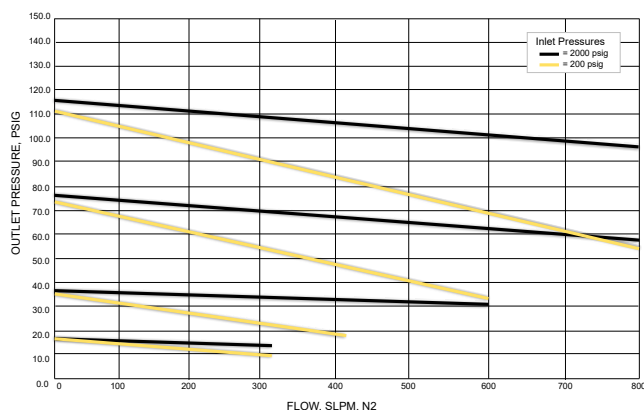


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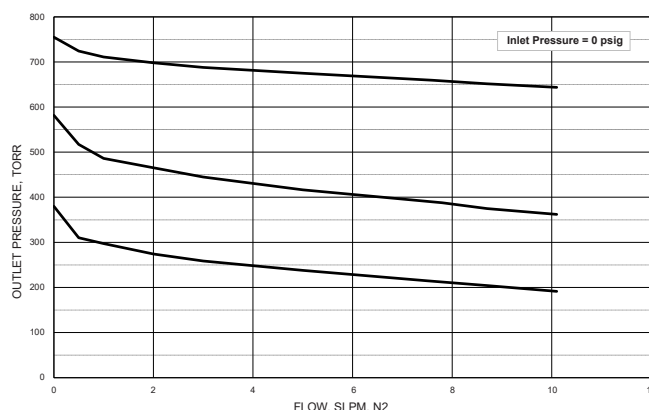
## Flow Curves

FR1400



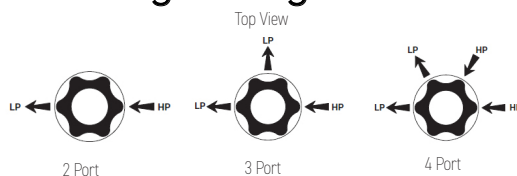
Additional flow curves available upon request

FR1403SA

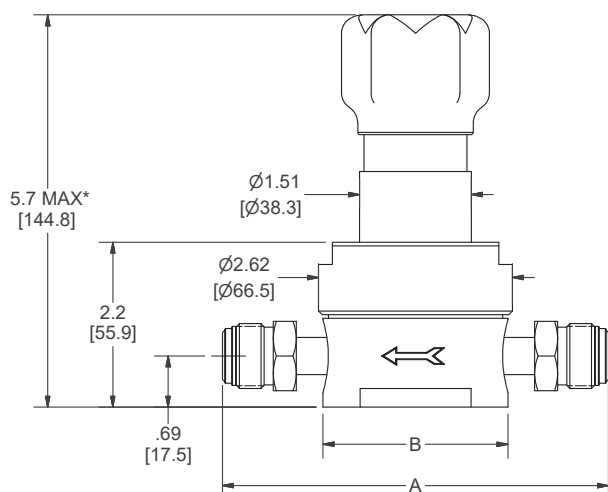


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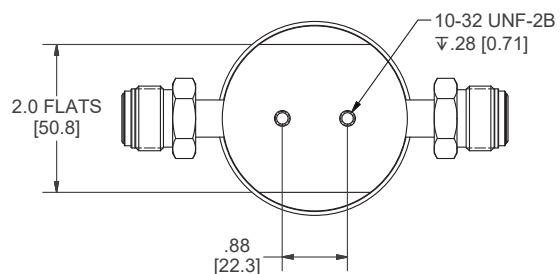
## Porting Configurations



## Dimensional Drawings



All dimensions in inches. Metric dimensions are for reference only.  
\* Actual height varies by outlet pressure range.



DIMENSION TABLE

Body Style	Connection Type	End to End Dimension (A)	Body Diameter (B)
Single Melt	1/4" Face Seal	4.30 in. [109.2 mm]	Ø2.38
	1/4" Face Seal (female)	3.70 in. [94.0 mm]	Ø2.38
Double Melt	1/4" Face Seal (male)	4.00 in. [101.6 mm]	Ø2.38
	1/4" Tube Stub	3.46 in. [87.9 mm]	Ø2.38
	3/8" Face Seal	5.22 in. [132.6 mm]	Ø2.50
Single/Double Melt	3/8" Tube Stub	4.00 in. [101.6 mm]	Ø2.50
	1/2" Face Seal	5.22 in. [132.6 mm]	Ø2.50
	1/2" Tube Stub	4.34 in. [110.2 mm]	Ø2.50
Double Melt	3/4" Face Seal	6.26 in. [159.0 mm]	Ø2.50
	3/4" Tube Stub	5.00 in. [127.0 mm]	Ø2.50

Safety Guide and Installation and Operating Instructions available at  
[www.parker.com/veriflo](http://www.parker.com/veriflo)












# FR1400 Series

## Ordering Information

Build an FR1400 Series regulator by replacing the numbered symbols with an option from the corresponding tables below.

Contact factory for most up to date lead time information.

Blue = Configurations that have selections in blue will require a price quote and lead time from the factory.

Sample:  **FR1415**  **H**  **S**  **5**  **K**  **2P**    **FS6**  **FF**  **PM**

Finished Order: **FR1415HS5K2PFS6FFPM**

### **Basic Series**

FR1403SA = 100 mm Hg - 30 psig  
FR1403 = 1 - 30 psig  
FR1406 = 5 - 60 psig  
FR1410 = 10 - 100 psig  
FR1415 = 15 - 150 psig

### **Source Pressure Range\***

H = 0 - 3000 psig  
L = 0 - 300 psig

*\* For low inlet pressure applications below 300 psig, specify "L" model for improved droop performance.  
FR1403SA only available with "L" model.*

### **Body Material**

S = 316L SS (Single melt)  
SC = 316L SS (Single melt with Captured Bonnet)\*  
D = 316L SS (Double melt) \*

*\* Captured bonnet with 1/8" FNPT vent port standard with 316L SS double melt body.  
FR1403SA only available with "D" option.*

### **Flow Capacity**

5 = 0.5 Cv

### **Seat Material**

K = PCTFE  
V = Polyimide

### **Porting\***

2P = 2 Ports  
3P = 3 Ports  
4P = 4 Ports

*\* Refer to the Regulator Porting Guide, 25000156, for additional porting.*

### **Outlet Gauge\***

X = No Gauge  
03 = 0 - 30 psig  
0L = 0 - 60 psig  
01 = 0 - 100 psig  
2 = 0 - 200 psig  
4 = 0 - 400 psig

*\* Only include with "3P" or "4P" body configurations.*

### **Inlet Gauge\***

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

*\* Only include with "4P" body configuration.*

### **Port Style**

TS = 1/4" Tube Stub  
FS = 1/4" Face Seal  
FS6 = 3/8" Face Seal \*  
TS6 = 3/8" Tube Stub  
FS8 = 1/2" Face Seal  
TS8 = 1/2" Tube Stub

*\* Provided with 1/2" face seal nuts.*

*\*\* Combinations of Port Style options may have an extended lead time.*

### **Port Configuration**

M = Male  
F = Female  
I = Internal Face Seal  
(gauge ports only)

*1/4" FS-M Gauge Ports are Standard.  
Any other gauge port configuration may have an extended lead time.*

### **Optional Features**

This section can have multiple options

Blank = None  
EV = 5 Ra microinch internal surface finish  
PM = Panel Mount (not available for FR1403SA)  
TH = Ni-Cr-Mo alloy seat retainer (Hastelloy® or equivalent)

# FR1400 Series

## Specifications

### Wetted Materials of Construction

Body	316L SS (std), Vericlean 316L Stainless Steel or 316L SS Double melt
Diaphragm	Ni-Cr-Mo alloy (Hastelloy® or equivalent)
Poppet	Ni-Cr-Mo alloy (Hastelloy® or equivalent)
Poppet Spring	316 SS
Seat Retainer	316L SS (std), Ni-Cr-Mo alloy (Hastelloy® or equivalent)
Seat	PCTFE (std), Polyimide
Finish	Passivated & Electropolished

For additional information on materials of construction, functional performance, and operating conditions, please refer to Veriflo report RI.EN.RP016 and RI.EN.RP023.

All specifications subject to change without notice.

### Functional Performance

<b>Flow Capacity (Cv)<sup>3</sup></b>	0.5
Internal Leakage (Seat)	$\leq 4 \times 10^{-8}$ scc/sec He
External Leakage (Inboard)	$\leq 2 \times 10^{-10}$ scc/sec He
<b>Supply Pressure Effect</b>	1.6 psig / 100 psig
<b>Internal Volume</b>	
<b>1/4" Face Seal</b>	.20 in <sup>3</sup> (3.3 cm <sup>3</sup> ) <sup>1</sup>
<b>1/2" Face Seal</b>	1.07 in <sup>3</sup> (17.5 cm <sup>3</sup> ) <sup>1</sup>
<b>Proof Pressure</b>	4,500 psig
<b>Burst Pressure</b>	9,000 psig

### Operating Conditions

Maximum Inlet Pressure	
FR1400 <sup>2</sup>	300 or 3000 psig
FR1403SA	Vacuum to 300 psig
Temperature	-40°F to 150°F (-40°C to 65°C)
	Surface (std.)
Mounting	Panel (1.56 in. [39.6mm] hole required) (not available for FR1403SA)

1. Internal volume includes end connections.
2. Pressure rating based on nominal temperature conditions. Refer to Veriflo report RI.EN.RP016 for specific information regarding regulator performance at temperature.
3. 0.5 Cv applicable for 1/2" connection size only.

### OFFER OF SALE:

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