

# Gas Stick Assemblies

Fittings

Valves

Regulators

Filters

Tubing

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# High Purity Gas Stick Assemblies

## AGH Series

### Introduction

AGH series high purity gas stick assemblies are applicable for high purity gas systems in the semiconductor industry and others. AGH series integrate a diaphragm valve, a regulator and a pressure gauge into one stick to reduce site connections. FITOK has been adopting strict specifications for materials, welding and cleaning processes to ensure products meet the ultra-clean and high-performance requirements of the semiconductor manufacturing industry.



※ Figure shows the pressure gauge is connected with a T series tubular fitting

### Features

- ⦿ Ultra high purity diaphragm valve for shut-off function
- ⦿ With ultra high purity pressure gauge and regulator
- ⦿ Sizes from 1/4" to 1" optional
- ⦿ Alloy diaphragm improves strength and corrosion resistance for long cycle life
- ⦿ T series tubular fittings optional for pressure gauge connection (customized lengths available)
- ⦿ Ultra High Purity Process (FC-03)
  - Assembled and tested in ISO 4 / FED-STD-209E Class 10 Cleanroom
  - Manufactured from high purity stainless steel complying with SEMI F20 standard, wetted surfaces electropolished to an average internal surface roughness Ra of 10  $\mu\text{in}$ . (0.25  $\mu\text{m}$ )
  - Ultra high purity cleaning with continuously monitored DI water ultrasonic cleaning system
  - Double bagged with vacuum sealed polyethylene dust-free inner bag (inert gas filling optional) and sealed polyethylene outer bag

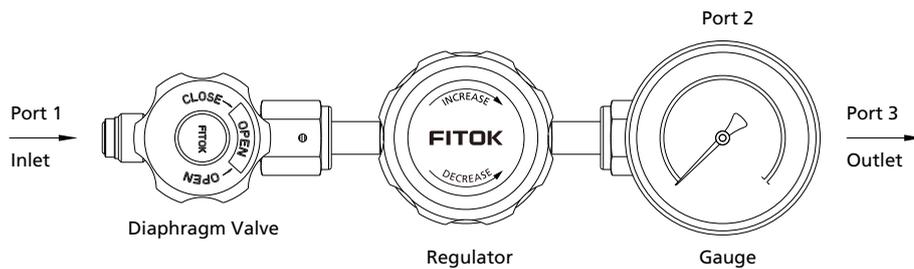
### Technical Data

<b>Max. Inlet Pressure</b>	300 psig	
<b>Outlet Pressure</b>	0 ~ 25, 0 ~ 50, 0 ~ 100, 0 ~ 250 psig	
<b>Working Temperature</b>	-9.4 ~ 140 °F (-23 ~ 60 °C)	
<b>Flow Coefficient (Regulator Cv)</b>	1/4"	0.2
	1/2"	1.0
	3/4"	1.8
	1"	

## Parameters of Main Components

Components	Series	Parameters	
<b>Diaphragm Valves</b>	DH Series (1/4") DV Series (1/2") DL Series (3/4" & 1")	Internal/External Leak Rate: ≤ 1×10 <sup>-9</sup> std·cm <sup>3</sup> /s (Helium)	Material Diaphragm: Cobalt alloy Other Wetted Parts: Same as Body Material in Ordering Number Description
<b>Regulators</b>	RDG Series (1/4") RDM Series (1/2") RDH Series (3/4" & 1")	Internal Leak Rate: Bubble Method (Helium) External Leak Rate: ≤ 1×10 <sup>-9</sup> std·cm <sup>3</sup> /s (Helium)	Material Seat: PCTFE Diaphragm: Hastelloy Other Wetted Parts: Same as Body Material in Ordering Number Description
<b>Gauges</b>	GP Series	Dial Size: 50mm Accuracy: Grade A (ASME B40.1) Protection Class: IP54 Leak Rate(Helium): ≤ 1×10 <sup>-9</sup> std·cm <sup>3</sup> /s	Material Case: 304 SS Wetted Parts: 316L SS

## Standard Construction



Fittings

Valves

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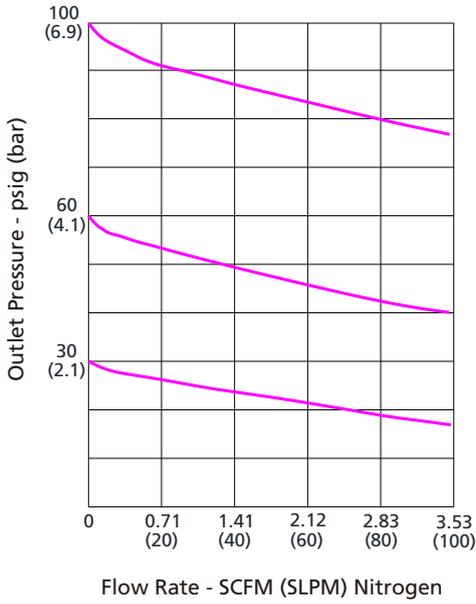
Other Products

Technical Information

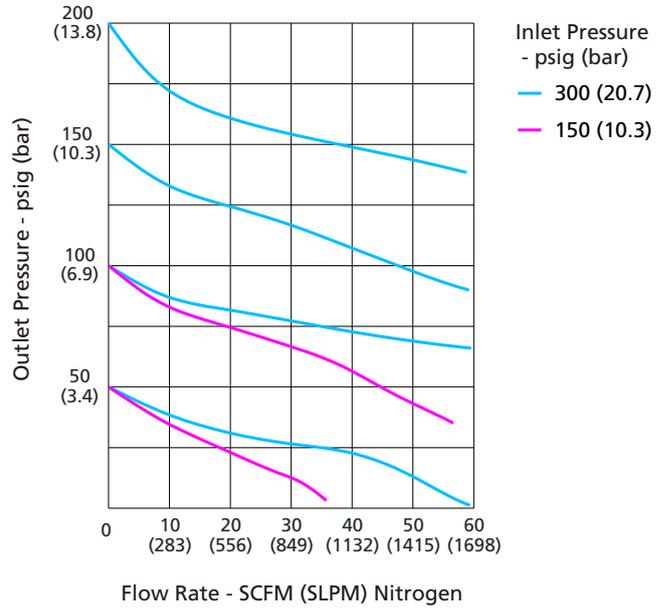
# Flow Chart

Fittings  
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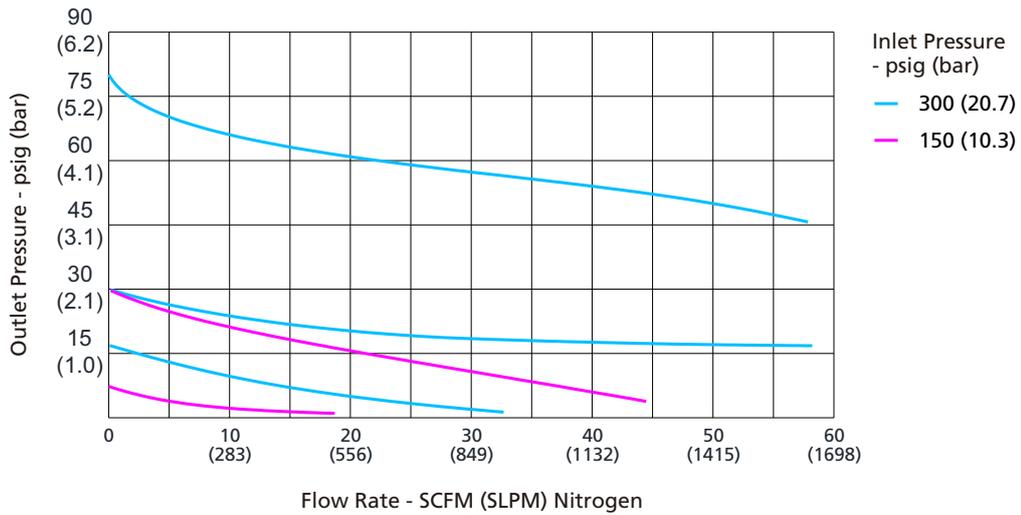
1/4"  
Cv=0.2



1/2"  
Cv=1.0

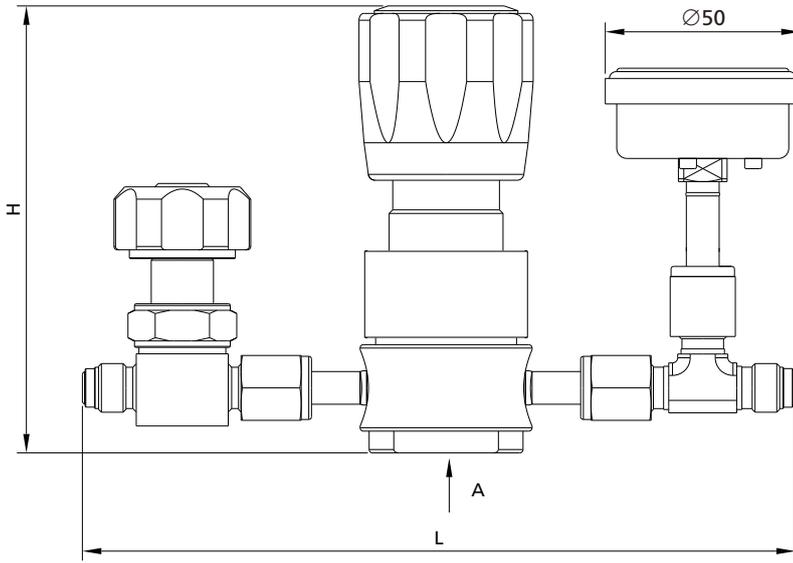


3/4" & 1"  
Cv=1.8



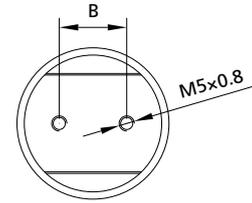
## Dimensions

Dimensions, in inches (millimeters), are for reference only.

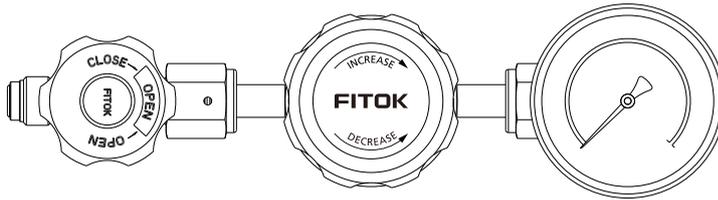
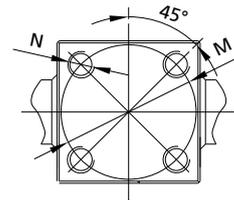


A direction

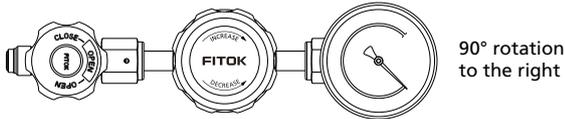
Regulator Bottom Mounting Holes



Diaphragm Valve Bottom Mounting Holes

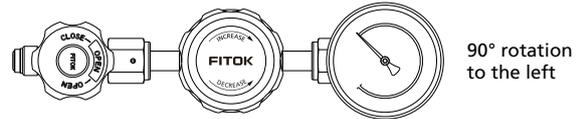


Note: Figure shows the standard gauge position, 90° rotation to the left/right is optional.



90° rotation to the right

AGH\*\*-300-\*\*-\*\*\*-CMR-\*\*\*-F3



90° rotation to the left

AGH\*\*-300-\*\*-\*\*\*-CML-\*\*\*-F3

Connection Size	Dimensions, in. (mm)				
	L	H	B	N	M
1/4"	8.23 (209.0)	4.84~5.28 (123.0~134.0)	0.87 (22.2)	M5x0.8	1.00 (25.4)
1/2"	13.74 (349.0)	5.42~5.91 (137.7~150.0)	1.37 (34.9)	M5x0.8	1.50 (38.1)
3/4"	20.22 (513.5)	5.91~6.30 (150.0~160.0)	1.37 (34.9)	M5x0.8	1.69 (43.0)
1"	20.67 (525.0)	5.91~6.30 (150.0~160.0)	1.37 (34.9)	M5x0.8	1.69 (43.0)

Fittings

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## Ordering Number Description

Fittings

AGH6L - 300 - 100 - FR4 - CB - FR4 - L - F3

Valves

Body Material		Inlet Pressure		Outlet Pressure		Connection 1 Type		Connection 2		Connection 3	
6L	316L SS	300	300 psig	25	0~25 psig	FR	Integral Male FR Fitting		Without Gauge		Same as Connection 1
6LV	316L SS VAR			50	0~50 psig	FFR	Rotatable Female FR Fitting	CB	With Gauge (psi/bar)		
				100	0~100 psig		Rotatable Male FR Fitting	CM	With Gauge (psi/MPa)		<b>Accessory</b>
				250	0~250 psig	RFR	Rotatable Male FR Fitting	CBL	With Gauge 90° Rotation to the Left (psi/bar)	L	None
								CML	With Gauge 90° Rotation to the Left (psi/MPa)		Locking Device for Diaphragm Valves
								CBR	With Gauge 90° Rotation to the Right (psi/bar)		<b>Process Specification</b>
								CMR	With Gauge 90° Rotation to the Right (psi/MPa)		F3 FC-03
								LB	Lower Mount With Gauge (psi/bar)		
								LM	Lower Mount With Gauge (psi/MPa)		

Connection 1 Size	
4	1/4"
8	1/2"
12	3/4"
16	1"

Regulators

Filters

Tubing

Note: The maximum outlet pressure range can be set at any value under 250 psig.

Integrated Systems

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# General Gas Stick Assemblies

## AGL Series

### Introduction

AGL series general gas stick assemblies are used for precise pressure control and fluid shutoff in general gas systems and oxygen-enriched environments. AGL series are integrated from a ball valve, a regulator and a pressure gauge for easy site installation. FITOK has been adopting strict specifications for materials, cleaning and packaging processes to ensure product cleanliness meets ASTM G93, Level C requirements.

### Features

- ⦿ Excellent sensitivity and set point pressure stability
- ⦿ Sizes from 1/4" to 1" optional
- ⦿ Alloy diaphragm improves strength and corrosion resistance for long cycle life
- ⦿ Special Cleaning and Packaging Process (FC-02)
  - Meet the requirements of ASTM G93 Level C specifying nonvolatile residues shall not exceed 6 mg/ft<sup>2</sup>, applicable for oxygen-enriched environments
  - Double bagged with vacuum sealed polyethylene dust-free inner bag (inert gas filling optional) and sealed polyethylene outer bag



### Technical Data

<b>Max. Inlet Pressure</b>	500 psig	
<b>Outlet Pressure</b>	0 ~ 25, 0 ~ 50, 0 ~ 100, 0 ~ 250 psig	
<b>Working Temperature</b>	-40 ~ 140 °F (-40 ~ 60 °C)	
<b>Flow Coefficient (Regulator Cv)</b>	1/4"	0.2
	1/2"	1.0
	3/4"	1.8
	1"	

### Parameters of Main Components

Components	Series	Parameters	
<b>Ball Valves</b>	BO Series	Locking Device Optional Test: Bubble Method (Helium)	Material Seat: PTFE Other Wetted Parts: Same as Body Material in Ordering Number Description
<b>Regulators</b>	RDG Series (1/4") RDM Series (1/2") RDH Series (3/4" & 1")	Internal Leak Rate: Bubble Method (Helium) External Leak Rate: ≤1x10 <sup>-9</sup> std·cm <sup>3</sup> /s (Helium)	Material Seat: PCTFE Diaphragm: Hastelloy Other Wetted Parts: Same as Body Material in Ordering Number Description
<b>Gauges</b>	GC Series	Dial Size: 50 mm Accuracy: Grade B (ASME B40.1) Protection Class: IP54	Material Case: 304 SS Wetted Parts: 316 SS

Fittings

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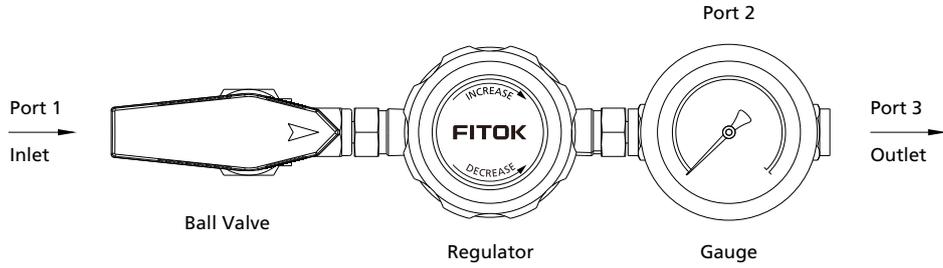
Tubing

Integrated Systems

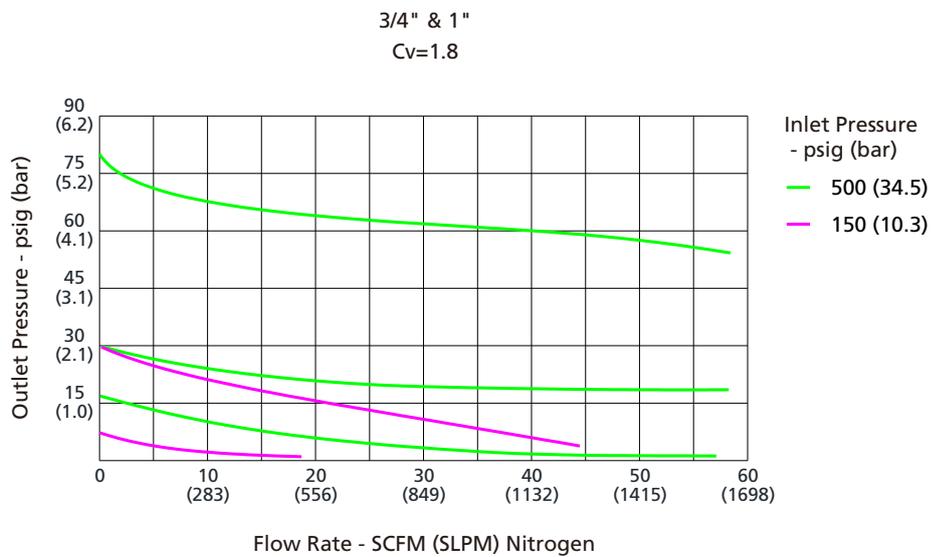
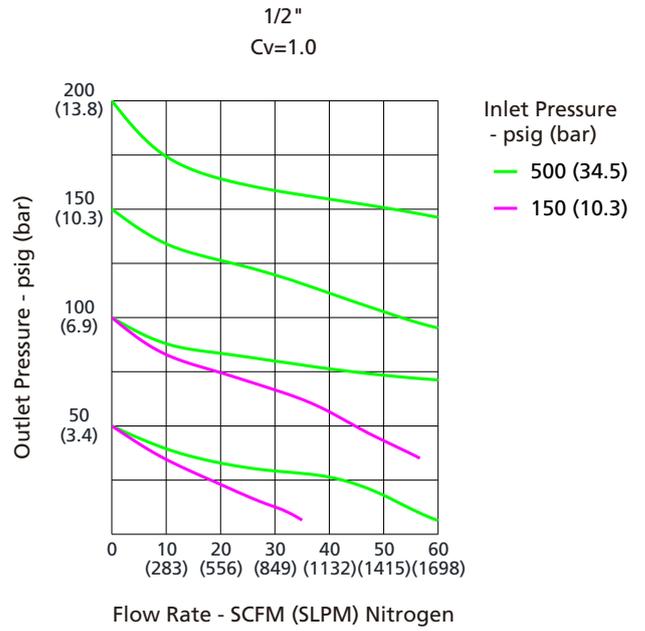
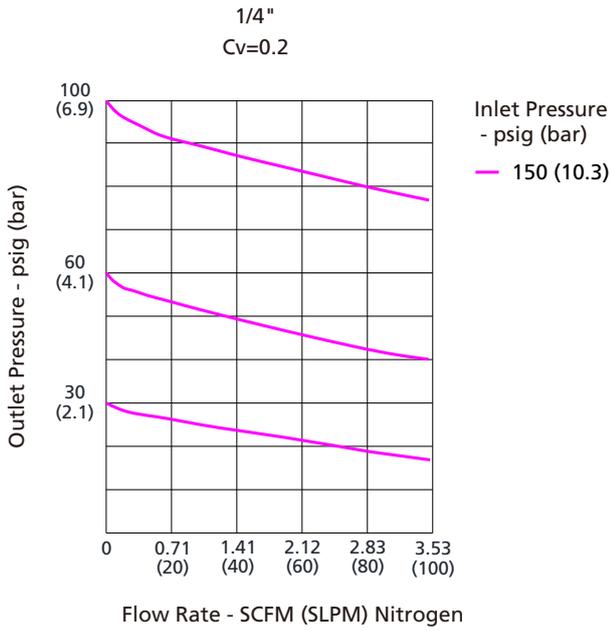
Other Products

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# Standard Construction



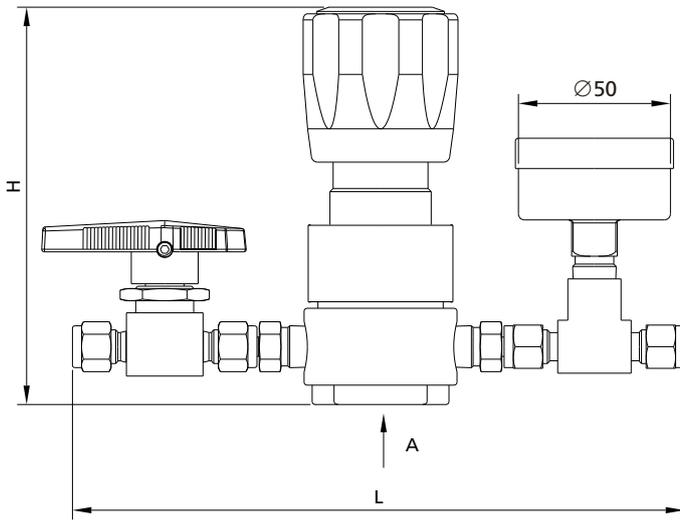
## Flow Chart



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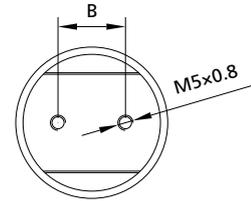
# Dimensions

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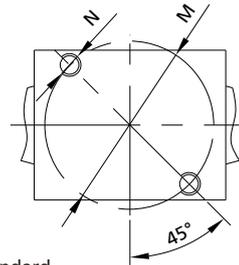


A direction

Regulator Bottom Mounting Holes



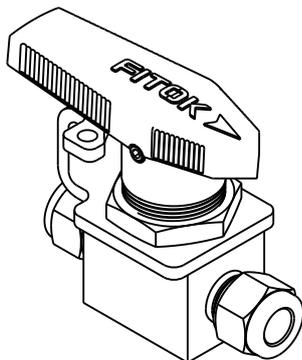
Ball Valve Bottom Mounting Holes



Note: Figure shows the standard gauge position, 90° rotation to the left/right is optional.

Connection Size	Dimensions, in. (mm)				
	L	H	B	N	M
1/4"	7.91 (201.0)	4.84~5.28 (123.0~134.0)	0.87 (22.2)	M3x0.5	0.88 (22.2)
1/2"	10.63 (270.0)	5.42~5.91 (137.7~150.0)	1.37 (34.9)	M5x0.8	1.63 (41.3)
3/4"	11.06 (281.0)	5.91~6.30 (150.0~160.0)			
1"	12.24 (311.0)	5.91~6.30 (150.0~160.0)			

## Ball Valves with Locking Device



## Gauge Position Description



AGL\*\*-500-\*\*-\*\*\*-CMR-\*\*\*-F2



AGL\*\*-500-\*\*-\*\*\*-CML-\*\*\*-F2

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## Ordering Number Description

AGL6L - 500 - 100 - FL4 - CB - FL4 - L - F2

Body Material		Inlet Pressure		Outlet Pressure		Connection 1 Type		Connection 2		Connection 3	
6L	316L SS	500	500 psig	25	0~25 psig	FL	Fractional Tube Fitting		Without Gauge		Same as Connection 1
SS	316 SS			50	0~50 psig			CB	With Gauge (psi/bar)		
				100	0~100 psig	ML	Metric Tube Fitting	CM	With Gauge (psi/MPa)		<b>Accessory</b>
				250	0~250 psig			CBL	With Gauge 90° Rotation to the Left (psi/bar)		None
								CML	With Gauge 90° Rotation to the Left (psi/MPa)		L Locking Device for Ball Valves
								CBR	With Gauge 90° Rotation to the Right (psi/bar)		
								CMR	With Gauge 90° Rotation to the Right (psi/MPa)		<b>Process Specification</b>
								LB	With Gauge (psi/bar)		F2 FC-02
								LM	With Gauge (psi/MPa)		

Connection 1 Size	
4	1/4"
8	1/2"
12	3/4"
16	1"

Note: The maximum outlet pressure range can be set at any value under 250 psig.

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