

Gas Stick Assemblies

Fittings
Valves
Regulators
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Technical Information



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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 μm)
 - 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

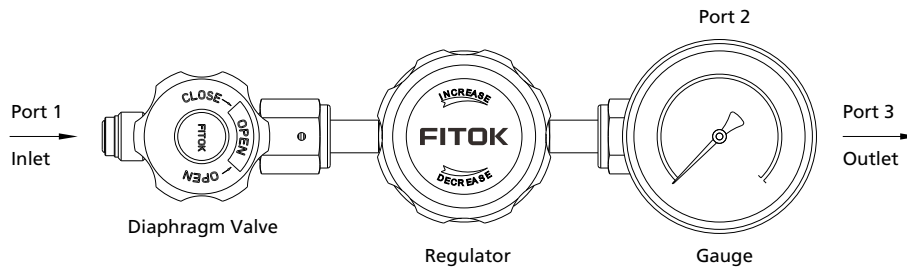
Technical Data

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

Parameters of Main Components

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

Standard Construction



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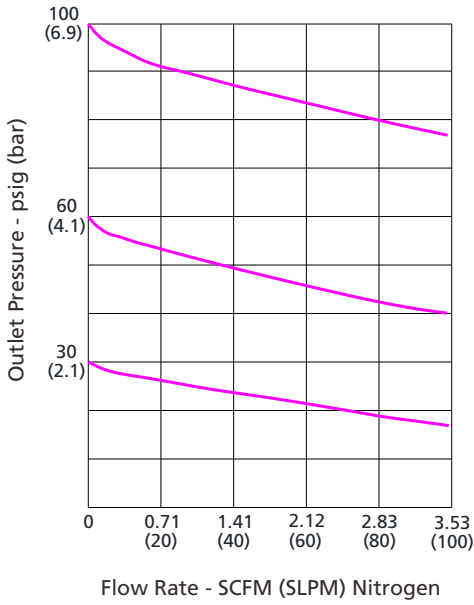
Other Products

Technical Information

Flow Chart

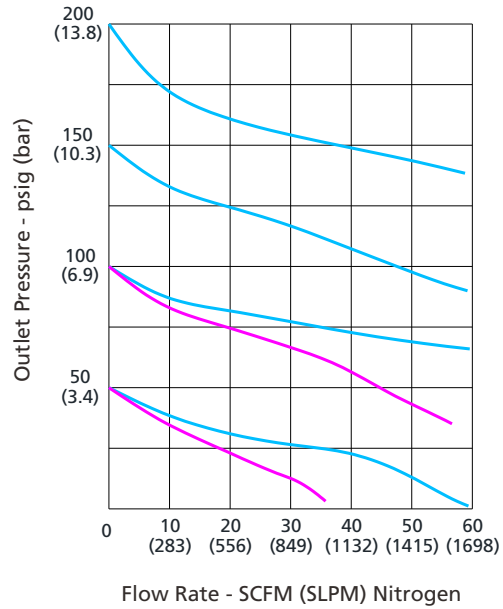
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1/4"
Cv=0.2



Inlet Pressure - psig (bar)
 — 150 (10.3)

1/2"
Cv=1.0

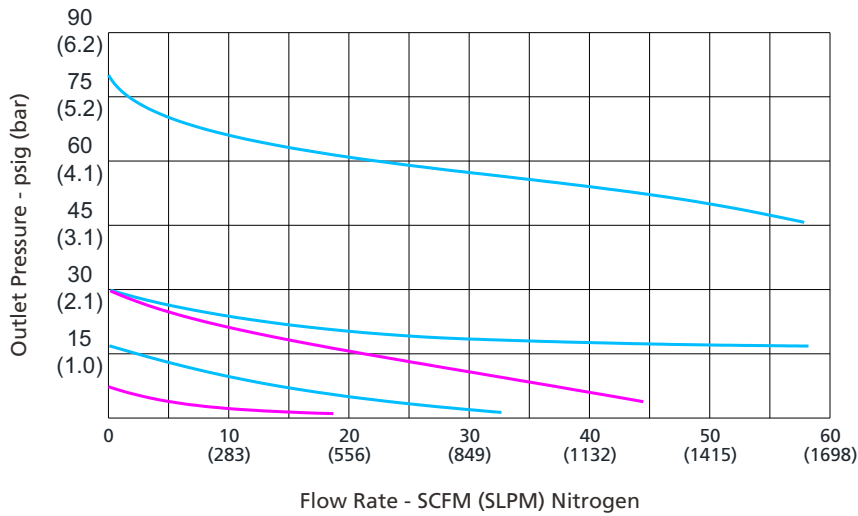


Inlet Pressure - psig (bar)
 — 300 (20.7)
 — 150 (10.3)

Flow Rate - SCFM (SLPM) Nitrogen

Flow Rate - SCFM (SLPM) Nitrogen

3/4" & 1"
Cv=1.8

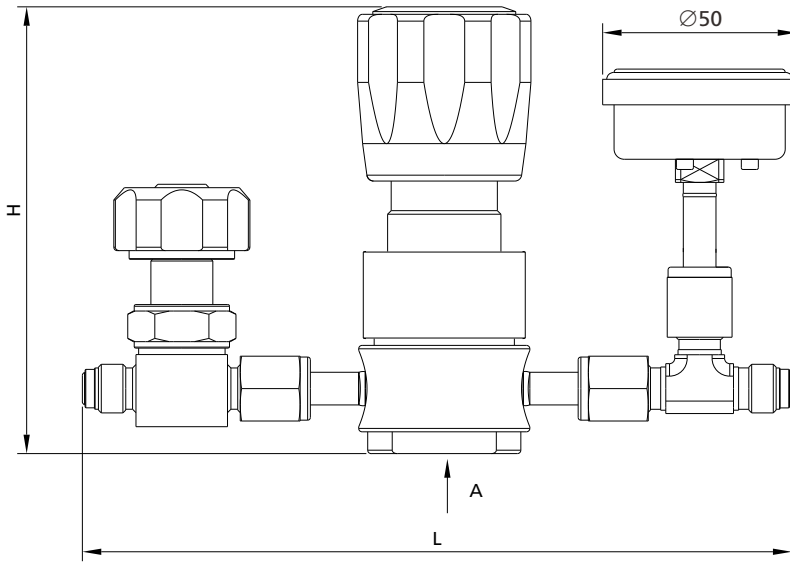


Inlet Pressure - psig (bar)
 — 300 (20.7)
 — 150 (10.3)

Flow Rate - SCFM (SLPM) Nitrogen

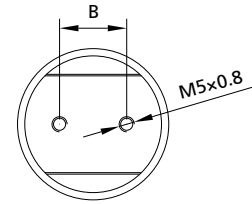
Dimensions

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

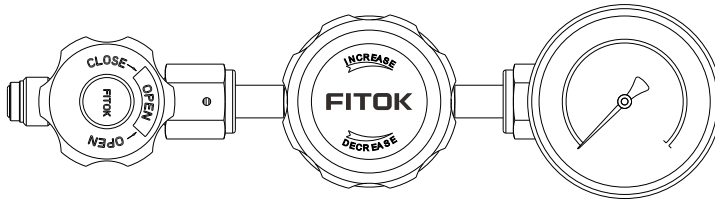
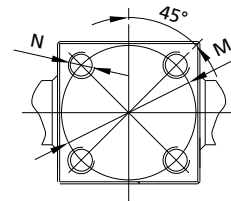


A direction

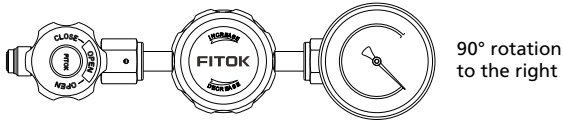
Regulator Bottom Mounting Holes



Diaphragm Valve Bottom Mounting Holes

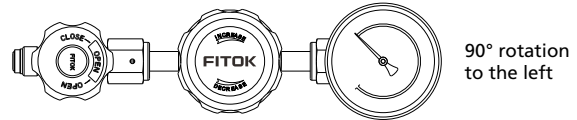


Note: Figure shows the standard gauge position, 90° rotation to the left/right is optional.



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)

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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 Metal Gasket Face Seal Fitting		Without Gauge		Same as Connection 1
6LV	316L SS VAR			50	0~50 psig			CB	With Gauge (psi/bar)		
				100	0~100 psig	FFR	Rotatable Female FR Metal Gasket Face Seal Fitting	CM	With Gauge (psi/MPa)		Accessory
				250	0~250 psig	RFR	Rotatable Male FR Metal Gasket Face Seal 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
								Center Back Mount	With Gauge 90° Rotation to the Left (psi/MPa)		Process Specification
								CBR	With Gauge 90° Rotation to the Right (psi/bar)	F3	FC-03
								CMR	With Gauge 90° Rotation to the Right (psi/MPa)		
								LB	Lower Mount With Gauge (psi/bar)		
								LM	Lower Mount With Gauge (psi/MPa)		

Regulators

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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/ft², 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

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

Parameters of Main Components

Components	Series	Parameters	
Ball Valves	BO Series	Locking Device Optional Test: Bubble Method (Helium)	Material Seat: PTFE Other Wetted Parts: Same as Body Material in Ordering Number Description
Regulators	RDG Series (1/4") RDM Series (1/2") RDH Series (3/4" & 1")	Internal Leak Rate: Bubble Method (Helium) External Leak Rate: ≤ 1x10 ⁻⁹ std cm ³ /s (Helium)	Material Seat: PCTFE Diaphragm: Hastelloy Other Wetted Parts: Same as Body Material in Ordering Number Description
Gauges	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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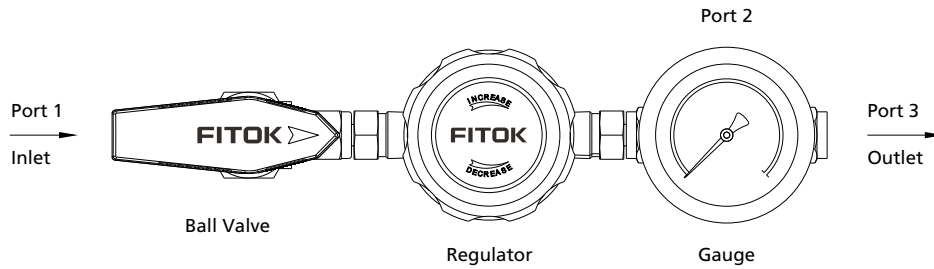
Tubing

Integrated Systems

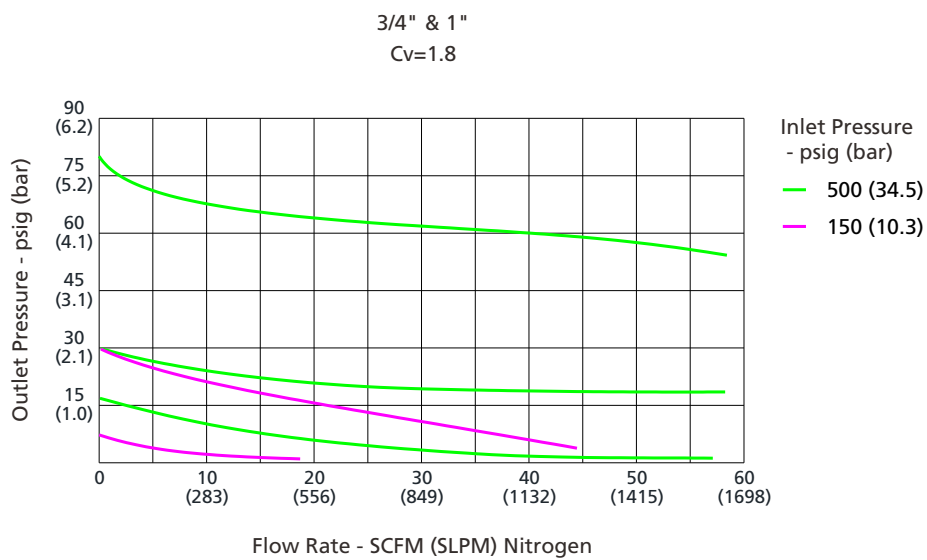
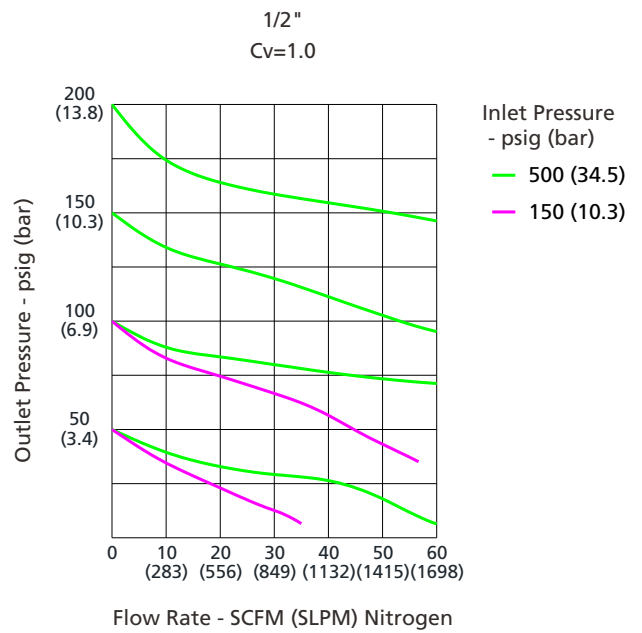
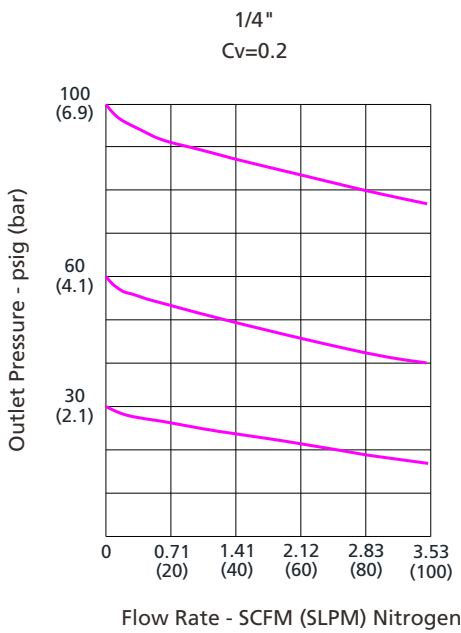
Other Products

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Standard Construction



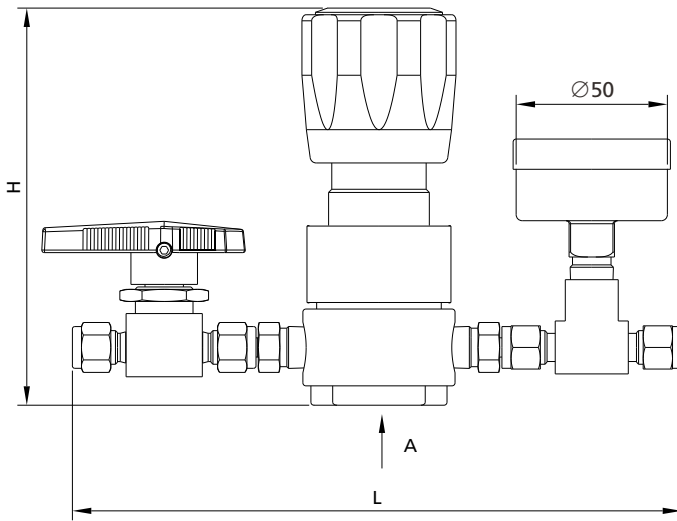
Flow Chart



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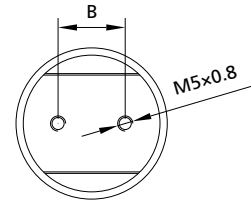
Dimensions

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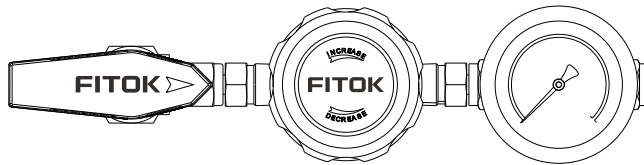
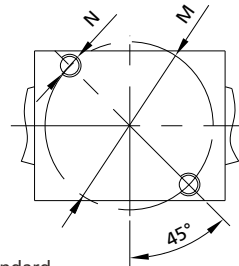


A direction

Regulator Bottom Mounting Holes



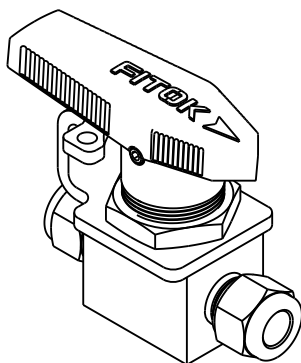
Ball Valve Bottom Mounting Holes



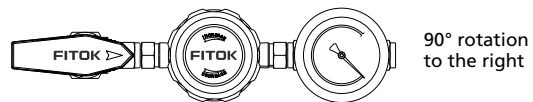
Note: Figure shows the standard gauge position, 90° rotation to the left/right is optional.

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



90° rotation to the right

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



90° rotation to the left

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

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	ML Metric Tube Fitting	CB With Gauge (psi/bar)	Accessory
		100 0~100 psig		CM With Gauge (psi/MPa)	
		250 0~250 psig		CBL With Gauge 90° Rotation to the Left (psi/bar)	L Locking Device for Ball Valves
			Connection 1 Size	CML With Gauge 90° Rotation to the Left (psi/MPa)	Process Specification
			4 1/4"	CBR With Gauge 90° Rotation to the Right (psi/bar)	F2 FC-02
			8 1/2"	CMR With Gauge 90° Rotation to the Right (psi/MPa)	
			12 3/4"	LB Lower Mount With Gauge (psi/bar)	
			16 1"	LM Lower Mount With Gauge (psi/MPa)	

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

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