



**VALVES AND REGULATORS
FOR HIGH & ULTRA HIGH PURITY GASES**

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SELECTING THE RIGHT PRODUCT

To choose the right valve or regulator for your application, and to get the best results, you should identify the following technical parameters:

TECHNICAL PARAMETER	EXAMPLES
Gas	Inert, flammable, oxidizing, corrosive, noble
Operating pressure	Bar or psig
Operating temperature	Range to be given in °C, °F or K
Flow	Volumic or mass flow
Actuation	Manual, pneumatic (normally open), pneumatic (normally closed)
End connection type	BWO, Face seal etc.
End connection size	In or mm
Surface finish	Ra 0.40 µm, Ra 0.25 µm or Ra 0.13 µm
Application	Photovoltaic, microelectronic, research, etc.
Atex requirement	Yes / No
Options	Limit switches, constant bleed, purge ports etc.

Each product page is designed to provide you the essential technical information at a glance :

The image shows a product page for a diaphragm pressure regulator. Two red circles highlight specific areas:

- Left Circle:** Encloses the 'KEY FEATURES' section, which lists technical details such as '100% operational & failure load test performed', 'High Flow (HF) version (S-2) available', 'Autoclaving, wetting & packaging in diaphragm class (S-4)', 'Inherently leak-tight for full responsibility', 'Electropolished surface treatments per ISO 11719 part 1', 'Low intrinsic leakage', '1500 hMT* constant bleed rate per SEMI C22 option available', 'Equipped per factory at low sound pressure', 'Food specific: see material in standard options', and 'Additional model options'.
- Right Circle:** Encloses the 'SPECIFICATIONS' table, which provides key performance metrics:

Max. inlet pressure	Rated pressure	100% of operating pressure	Sanitized max. inlet
Standard: 10 bar (150 psig)	100% of operating pressure	100% of operating pressure	Sanitized max. inlet: 1 to 10* (max. 1)
High Flow (HF): 20 bar (300 psig)	100% of operating pressure	100% of operating pressure	Sanitized max. inlet: 1 to 10* (max. 1)
High Flow (HF): 20 bar (300 psig)	100% of operating pressure	100% of operating pressure	Sanitized max. inlet: 1 to 10* (max. 1)

Other visible sections include 'DIMENSIONS' with technical drawings, 'FLOW CURVES' with performance graphs, and a 'PRODUCT CONFIGURATOR' table at the bottom.

DIAPHRAGM VALVES

**M4SI** P. 8

Technology	Diaphragm
Max. Working Pressure	240 bar (3481 psig)
Temperature Range	-40°C to +150°C (-40°F to 302°F)
Flow Capacity (Cv)	0.2
Material	Stainless steel 316L / VAR

**M8SI** P. 10

Technology	Diaphragm
Max. Working Pressure	240 bar (3481 psig)
Temperature Range	-40°C to +150°C (-40°F to 302°F)
Flow Capacity (Cv)	0.5
Material	Stainless steel 316L / VAR

**M8.1** P. 12

Technology	Diaphragm
Max. Working Pressure	240 bar (3481 psig)
Temperature Range	-40°C to +150°C (-40°F to 302°F)
Flow Capacity (Cv)	0.35
Material	Stainless steel 316L

**M12** P. 14

Technology	Diaphragm
Max. Working Pressure	15 bar (218 psig)
Temperature Range	-40°C to +150°C (-40°F to 302°F)
Flow Capacity (Cv)	1.75
Material	Stainless steel 316L / VAR

**M20** P. 16

Technology	Diaphragm
Max. Working Pressure	15 bar (218 psig)
Temperature Range	-40°C to +150°C (-40°F to 302°F)
Flow Capacity (Cv)	3.5
Material	Stainless steel 316L / VAR

REGULATORS



	RX1000	P. 18
Technology	Diaphragm	
Inlet Pressure	Standard: 200 bar (2901 psig) HF: 50 bar (725 psig)	
Outlet Pressure	2/4/7/10 bar (29/58/102/145 psig)	
Temperature Range	-20°C to +65°C (-4°F to +149°F)	
Flow Capacity (Cv)	Standard: 0.09 HF: 0.2	
Material	Stainless steel 316L / VAR	
SLPM	Up to 100	



	RX2200	P. 20
Technology	Diaphragm	
Inlet Pressure	240 bar (3481 psig)	
Outlet Pressure	3/8/10/15/25/50 bar (44/116/145/218/363/725 psig)	
Temperature Range	-20°C to +65°C (-4°F to +149°F)	
Flow Capacity (Cv)	0.2	
Material	Stainless steel 316L / VAR	
SLPM	Up to 1150	



	RX2400	P. 22
Technology	Diaphragm	
Inlet Pressure	240 bar (3481 psig)	
Outlet Pressure	2/4/7/10 bar (29/58/102/145 psig)	
Temperature Range	-20°C to +65°C (-4°F to +149°F)	
Flow Capacity (Cv)	Standard: 0.09 HF: 0.2	
Material	Stainless steel 316L / VAR	
SLPM	Up to 300	



	RX2500	P. 24
Technology	Diaphragm	
Inlet Pressure	Standard: 240 bar (3481 psig) HF: 50 bar (725 psig)	
Outlet Pressure	5/8/10 bar (73/116/145 psig)	
Temperature Range	-20°C to +65°C (-4°F to +149°F)	
Flow Capacity (Cv)	Standard: 0.45 HF: 1.2	
Material	Stainless steel 316L / VAR	
SLPM	Up to 1150	

M4SI | DIAPHRAGM VALVE

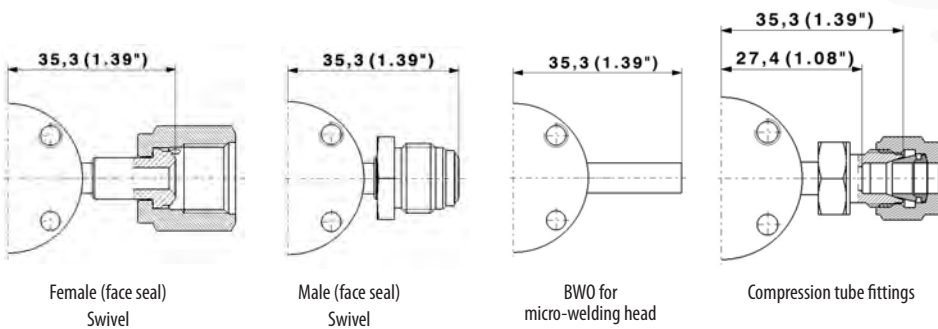
KEY FEATURES & BENEFITS

- 100% Helium Leak Test performed
- Assembling, testing & Packaging in cleanroom: Class ISO 4
- Reverse seat design for high life cycle
- Individual serial number for full traceability
- Electropolished surface roughness per SEMI F19 UHP Grade
- Fluid specific seat material as standard options
- Low internal volume
- Constant bleed option available
- 316L VAR® stainless steel double melt per SEMI F20 option available
- Additional Multi-port options
- 270° multiturn handwheel with open/close indicator



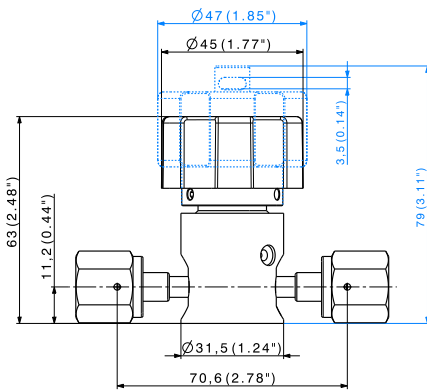
HANDWHEEL COLORS:

Standard: Blue
On demand: Red, black, yellow, green

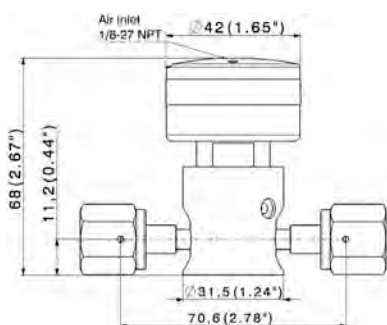


DIMENSIONS

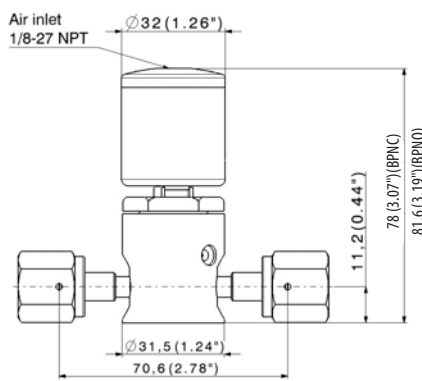
M4SI - MULTI-TURN VALVE (HM, LM, MSF) WITH OPEN/CLOSE WINDOW



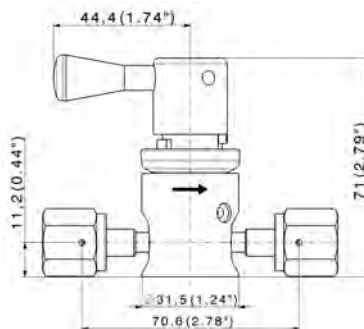
M4SI - PNEUMATIC VALVE MEDIUM PRESSURE (LPNC, LPNO)



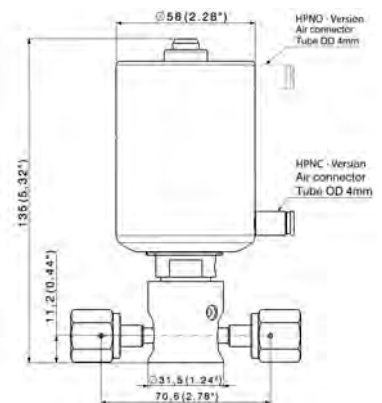
M4SI - PNEUMATIC VALVE LOW PRESSURE (BPNC, BPNO)



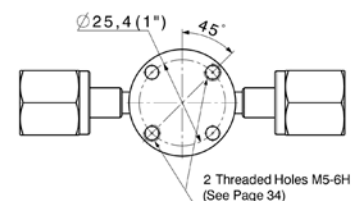
M4SI - QUARTER-TURN VALVE (LQ, HQ)



M4SI - PNEUMATIC VALVE HIGH PRESSURE (HPNC, HPNO)



M4SI - BOTTOM VIEW



Dimensions are for reference only and are subject to change without notice

SPECIFICATIONS

Max. working pressure	See table below	Flow capacity (Cv)	0.2	Certified max. Helium outboard leak rate	≤ 1 x 10 ⁻⁹ mbar.l/s
Pneumatic actuator opening pressure	5 to 7 bar (73 to 102 psig)*	Nominal seat diameter	4 mm (0,16")	Certified max. Helium across the seat leak rate (at max. pressure)	≤ 1 x 10 ⁻⁹ mbar.l/s
Temperature range	See table below	Wetted volume	< 1.2 cm ³	Certified max. Helium inboard leak rate (at max. pressure)	≤ 1 x 10 ⁻⁹ mbar.l/s
		Burst pressure	> 700 bar (10152 psig)		

*4 - 7 bar available for BPNC and BPNO pneumatic actuator

CONSTRUCTION MATERIAL

	Parts	Material
Wetted parts	Body	SS 316L, VAR
	Seat	PCTFE, PVDF, VESPEL®
	Diaphragm	Phynox®
Non-wetted parts	Backup diaphragm	Phynox®
	Handwheel	Aluminium
	Actuator Body	SS 316L or Aluminium
	Others	Stainless Steel and Alloys

SURFACE FINISH

S	V
Ra 0.4 µm (15 µin)	Ra 0.25 µm EP (10 µin)

TEMPERATURE RANGE

Seat (Actuation type)	Temperature Range
PCTFE / PVDF (manual & pneumatic*)	-40°C to +65°C (-40°F to +149°F)
VespeL® (manual & pneumatic*)	-40°C to +150°C (-40°F to +302°F)

*-20C° pneumatic versions

VALVE VERSION / MAX. WORKING PRESSURE

Valve	Max. working pressure
M4SI (LM) Multiturn handwheel ^{1,2}	20 bar
M4SI (HM) Multiturn handwheel ^{1,2}	240 bar
M4SI (LQ) Quarter turn handwheel ¹	20 bar
M4SI (HQ) Quarter turn handwheel ¹	240 bar
M4SI (BP*) Pneumatically actuated	10 bar
M4SI (LP*) Pneumatically actuated	20 bar
M4SI (HP*) Pneumatically actuated	240 bar

¹FT (Panel Mounting) option available
²MSF LOTO option available

MANUAL ACTUATION

Parts for all valve grades	
Upper spindle	Brass
Handle	Aluminium
All others	Stainless Steel

PNEUMATIC ACTUATION

Parts	
Actuator Body	Aluminium / Stainless Steel
Piston	Brass / Aluminium / Stainless Steel
O-ring	NBR
All others	Stainless Steel

All specifications subject to change without notice

PRODUCT CONFIGURATOR

M4SI	Surface Finish		Actuation		Porting Configuration	Body Material		Seat Material		End Connection		Options					
	S	V	LM	HM	2V1	-	A	K	A/B: B¼	V¼F	V¼M	B¼	B6	FT	CI	MSF	FPT
	Ra 0.4 µm (15 µin)		Multi-Turn Handwheel (20bar)		See page 26	SS 316L		PCTFE (Kel-F®)	K	Metal face seal ¼" - Female				Panel Mounting ¹			
	Ra 0.25 µm EP (10 µin)		Multi-Turn Handwheel (240bar)	HM		VAR*		PI (VespeL®)	V	Metal face seal ¼" - Male				Electric limit switch*			
			Pneumatically actuated (10bar)	BP*		Monel*	M	PVDF	P	BWO ¼"				LOTO ²			
			Pneumatically actuated (20bar)	LP*		Hastelloy®*	H			BWO 6 mm				Constant bleed			FPT
			Pneumatically actuated (240bar)	HP*						Compression tube fittings	RDB ¼			*On HP and LP actuators only			
			Quarter-Turn Handwheel (20bar)	LQ						Compression tube fittings	RDB 6						
			Quarter-Turn Handwheel (240 bar)	HQ													

*Add NO for normally open or NC for normally closed



Special configuration on demand

M8SI | DIAPHRAGM VALVE

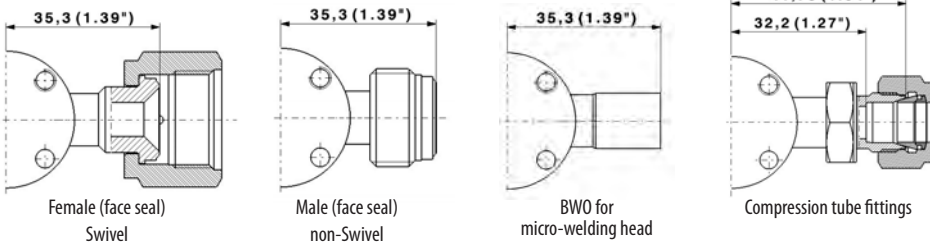
KEY FEATURES & BENEFITS

- 100% Helium Leak Test performed
- Assembling, testing & Packaging in cleanroom: Class ISO 4
- Reverse seat design for high life cycle
- Individual serial number for full traceability
- Electropolished surface roughness per SEMI F19 UHP Grade
- Fluid specific seat material as standard options
- Low internal volume
- 316L VAR® stainless steel double melt per SEMI F20 option available
- Additional Multi-port options
- 270° multiturn handwheel with open/close indicator



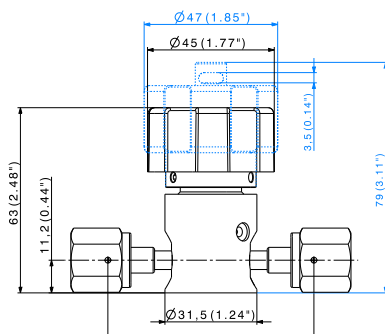
HANDWHEEL COLORS:

Standard: Blue
On demand: Red, black, yellow, green

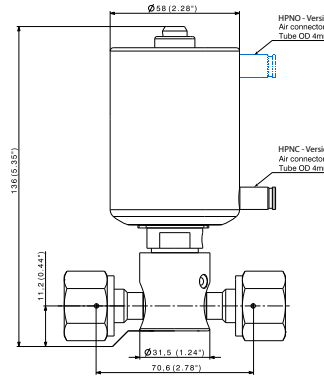


DIMENSIONS

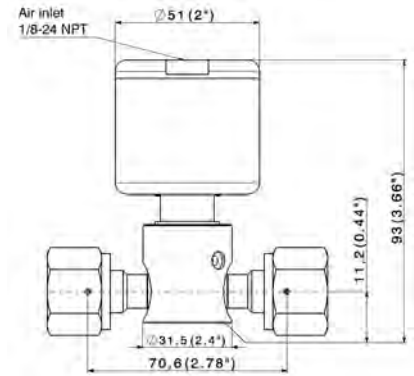
M8SI - MULTI-TURN VALVE (HM, LM, MSF)



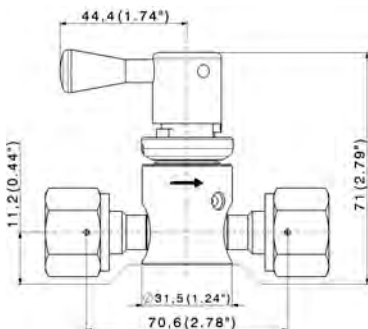
M8SI - PNEUMATIC VALVE HIGH PRESSURE (HPNC, HPNO)



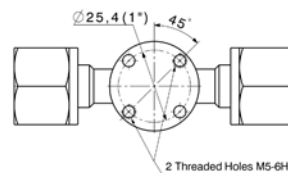
M8SI - PNEUMATIC VALVE (BPNC, BPNO)



M8SI - QUARTER TURN VALVE (LQ, HQ)



M8SI - BOTTOM VIEW



Dimensions are for reference only and are subject to change without notice

SPECIFICATIONS

Max. working pressure	See table below	Flow capacity (Cv)	0.5	Certified max. Helium outboard leak rate	≤ 1 x 10 ⁻⁹ mbar.l/s
Pneumatic actuator opening pressure	5 to 7 bar (73 to 102 psig)	Nominal seat diameter	8 mm (0.31")	Certified max. Helium across the seat leak rate (at max. pressure)	≤ 1 x 10 ⁻⁹ mbar.l/s
Temperature range	See table below	Wetted volume	< 1.6 cm ³	Certified max. Helium inboard leak rate (at max. pressure)	≤ 1 x 10 ⁻⁹ mbar.l/s
		Burst pressure	> 700 bar (10152 psig)		

CONSTRUCTION MATERIAL

	Parts	Material
Wetted parts	Body	SS 316L, VAR
	Seat	PCTFE, PVDF, VESPEL®
	Diaphragm	Phynox®
Non-wetted parts	Backup diaphragm	Phynox®
	Handwheel	Aluminium
	Actuator Body	SS 316L or Aluminium
	Others	Stainless Steel and Alloys

SURFACE FINISH

S	V
Ra 0.4 µm (15 µin)	Ra 0.25 µm EP (10 µin)

TEMPERATURE RANGE

Seat (Actuation type)	Temperature Range
PCTFE / PVDF (manual & pneumatic*)	-40°C to +65°C (-40°F to +149°F)
VespeL® (manual & pneumatic*)	-40°C to +150°C (-40°F to +302°F)

*-20°C pneumatic versions

VALVE VERSION / MAX. WORKING PRESSURE

Valve	Max. working pressure
M8SI (LM) Multiturn handwheel ^{1,2}	20 bar
M8SI (HM) Multiturn handwheel ^{1,2}	240 bar
M8SI (LQ) Quarter turn handwheel ¹	20 bar
M8SI (HQ) Quarter turn handwheel ¹	240 bar
M8SI (BP*) Pneumatically actuated	10 bar
M8SI (HP*) Pneumatically actuated	240 bar

¹ FT (Panel Mounting) option available

² MSF LOTO option available

MANUAL ACTUATION

Parts for all valve grades	
Upper spindle	Brass
Handle	Aluminium
All others	Stainless Steel

PNEUMATIC ACTUATION

Parts	
Actuator Body	Aluminium / Stainless Steel
Piston	Brass / Aluminium / Stainless Steel
O-ring	NBR
All others	Stainless Steel

All specifications subject to change without notice

PRODUCT CONFIGURATOR

M8SI	Surface Finish		Actuation		Porting Configuration	Body Material		Seat Material		End Connection		Options	
	S	V	BP*	LM	2V1	I	K	A	P	A/B: B ^{3/8}	V ^{3/8} F	M	FT
	Ra 0.4 µm (15 µin)	S	Multi-Turn Handwheel (20bar)	LM	See page 26	SS 316L	I	PCTFE (Kel-F®)	K	Metal face seal 3/8" - Female	V ^{3/8} F	Panel Mounting ¹	FT
	Ra 0.25 µm EP (10 µin)	V	Multi-Turn Handwheel (240bar)	HM		Hastelloy®*	H	PI (VespeL®)	V	Metal face seal 3/8" - Male non-Swiel	V ^{3/8} M	Electric limit switch*	CI
			Pneumatically actuated (10bar)	BP*		VAR*	A	PVDF	P	BWO 1/2"	B ^{1/2}	LOTO ²	MSF
			Quarter-Turn Handwheel (20bar)	LQ		*On demand				BWO 3/8" mm	B ^{3/8}	Constant bleed	FPT
			Quarter-Turn Handwheel (240bar)	HQ						BWO 10 mm	B ¹⁰	*On HP and LP actuators only	
			Pneumatically actuated (240bar)	HP*						BWO 12 mm	B ¹²		
			*Add NO for normally open or NC for normally closed							Compression tube fittings	RDB ^{3/8}		
										Compression tube fittings	RDB ^{1/2}		
										Compression tube fittings	RDB ¹⁰		
										Compression tube fittings	RDB ¹²		



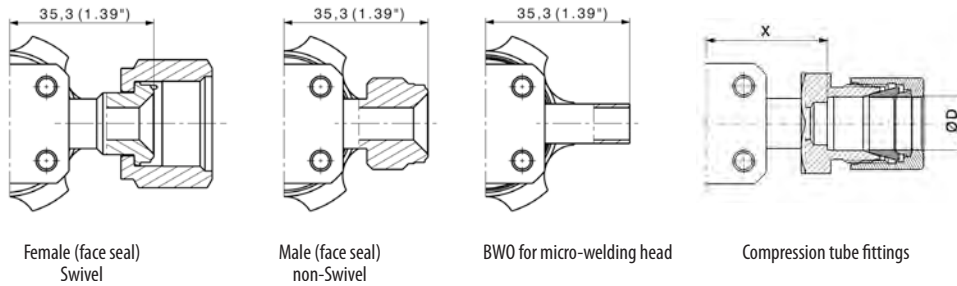
Special configuration on demand

M8.1 | DIAPHRAGM VALVE

KEY FEATURES & BENEFITS

- 100% Helium Leak Test performed
- Metal seat option available
- Assembling, testing & Packaging in cleanroom: Class ISO 4
- Replaceable seat
- Individual serial number for full traceability
- Electropolished surface roughness per SEMI F19 UHP Grade

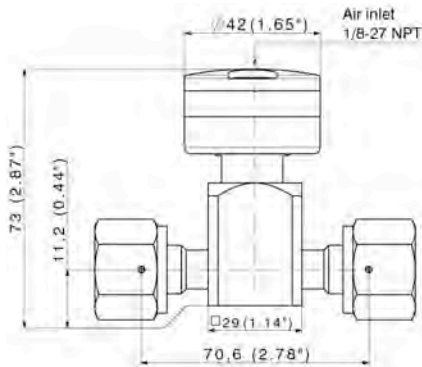
- 316L VAR® stainless steel double melt per SEMI F20 option available
- Fluid specific seat material as standard options
- 270° multiturn handwheel with open/close indicator



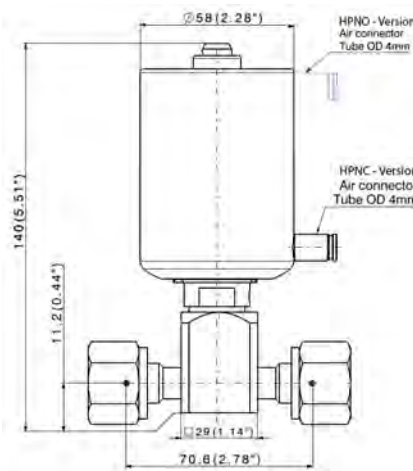
Ø D	X
10mm	32
12mm	29
3/8"	32
1/2"	29

DIMENSIONS

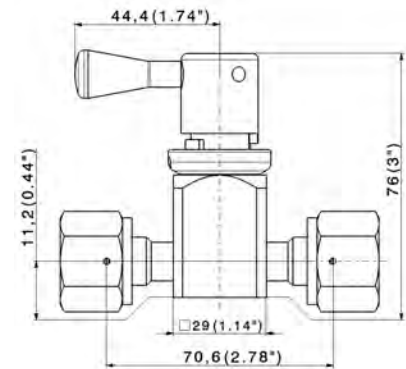
M8.1- PNEUMATIC VALVE LOW PRESSURE (LPNC, LPNO)



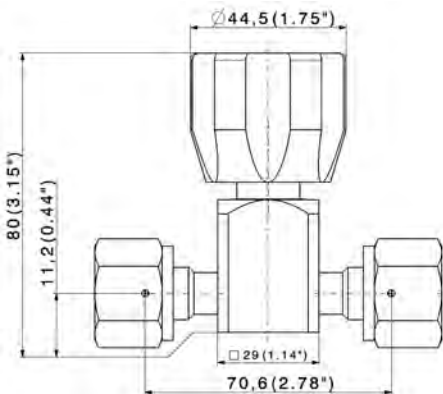
M8.1 - PNEUMATIC VALVE HIGH PRESSURE (HPNC, HPNO)



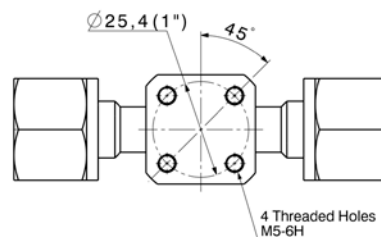
M8.1 QUARTER -TURN VALVE (QT)



M8.1 MULTI-TURN VALVE (MT) WITH OPEN/CLOSE WINDOW



M8.1 - BOTTOM VIEW



Dimensions are for reference only and are subject to change without notice

SPECIFICATIONS

Max. working pressure	See table below	Flow capacity (Cv)	0.35	Certified max. Helium outboard leak rate	≤ 1 x 10 ⁻⁹ mbar.l/s
Pneumatic actuator opening pressure	5 to 7 bar (73 to 102 psig)	Nominal seat diameter	8 mm (0,32")	Certified max. Helium across the seat leak rate (at max. pressure)	≤ 1 x 10 ⁻⁹ mbar.l/s
Temperature range	See table below	Wetted volume	< 1.2 cm ³	Certified max. Helium inboard leak rate (at max. pressure)	≤ 1 x 10 ⁻⁹ mbar.l/s
		Burst pressure	> 700 bar (10152 psig)		

CONSTRUCTION MATERIAL

	Parts	Material
Wetted parts	Body	SS 316L
	Seat	PCTFE, PVDF, VESPEL®
	Diaphragm	Hastelloy®
Non-wetted parts	Backup diaphragm	Phynox®
	Handwheel	Aluminium
	Actuator Body	SS 316L or Aluminium
	Others	Stainless Steel and Alloys

SURFACE FINISH

S	V	U
Ra 0.4 µm (15 µin)	Ra 0.25 µm EP (10 µin)	Ra 0.13 µm EP (5 µin)

TEMPERATURE RANGE

Seat (Actuation type)	Temperature Range
PCTFE / PVDF (manual & pneumatic*)	-40°C to +65°C (-40°F to +149°F)
VespeL® (manual & pneumatic*)	-40°C to +150°C (-40°F to +302°F)

*-20°C pneumatic versions

VALVE VERSION / MAX. WORKING PRESSURE

Valve	Max. working pressure
M8.1 (MT) Multiturn handwheel ¹	240 bar
M8.1 (QT) Quarter turn handwheel ¹	240 bar
M8.1 (LP*) Pneumatically actuated	17 bar
M8.1 (HP*) Pneumatically actuated	240 bar
M8.1 (HP*) Pneumatically actuated (seat material : metal)	50 bar

¹FT (Panel Mounting) option available

MANUAL ACTUATION

Parts for all valve grades	
Upper spindle	Brass
Handle	Aluminum
All others	Stainless Steel or Alloys

PNEUMATIC ACTUATION

Parts	
Actuator Body	Stainless Steel / Aluminium
Piston	Brass / Aluminium / Stainless Steel
O-ring	NBR
All others	Stainless Steel or Alloys

All specifications subject to change without notice

PRODUCT CONFIGURATOR

M8.1	Surface Finish		Actuation		Porting Configuration	Body Material		Seat Material		End Connection		Options	
	S	V	MT	QT	2V1	I	H	K	V	A/B: B ^{3/8}	V ^{3/8} F	FT	CI
	Ra 0.4µm (15 µin)	S	Quarter-Turn Handwheel (240 bar)	QT	See page 26	SS 316L	I	PCTFE (Kel-F®)	K	Metal face seal 3/8" - Female	V ^{3/8} F	Panel mounting ¹	FT
	Ra 0.25µm EP (10 µin)	V	Multi-Turn Handwheel (240 bar)	MT		Hastelloy®*	H	PI (VespeL®)	V	Metal face seal 3/8" - Male	V ^{3/8} M	Electric limit switch*	CI
	Ra 0.13 µm EP (5 µin)*	U	Pneumatically actuated (17 bar)	LP*		*On demand		PVDF	P	BWO 3/8" - Standard	B ^{3/8}	*On HP and LP actuators only	
			Pneumatically actuated (240 bar)	HP*				Metal*	M	BWO 1/2"	B ^{1/2}		
			*Add NO for normally open or NC for normally closed					*On demand		BWO 12 mm	B 12		
										Compression tube fittings	RDB ^{3/8}		
										Compression tube fittings	RDB ^{1/2}		
										Compression tube fittings	RDB 10		
										Compression tube fittings	RDB 12		

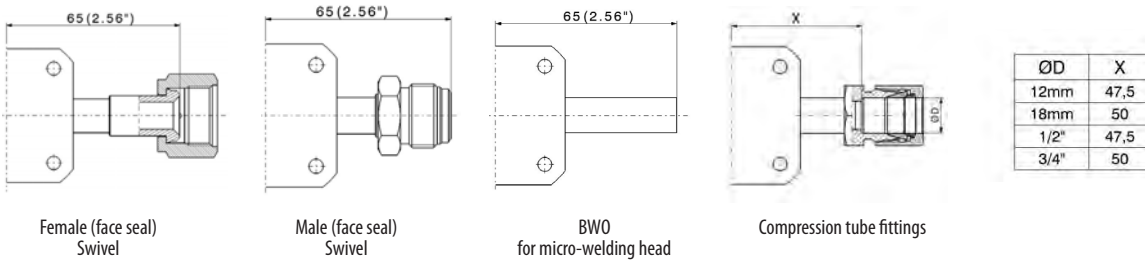


Special configuration on demand

M12 | DIAPHRAGM VALVE

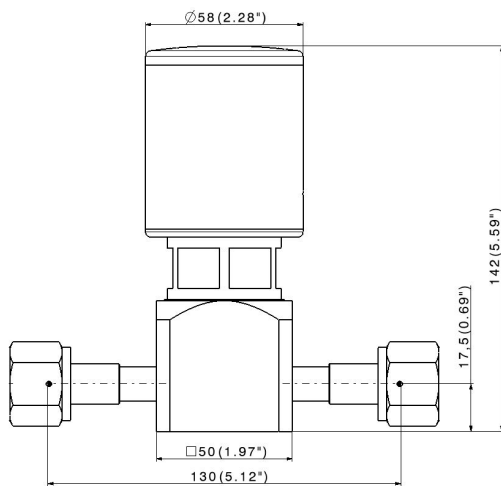
KEY FEATURES & BENEFITS

- 100% Helium Leak Test performed
- Available in sizes 1/2" to 3/4" to support a wide range of connections
- Assembling, testing & Packaging in cleanroom: Class ISO 4
- Individual serial number for full traceability
- Electropolished surface roughness per SEMI F19 UHP Grade
- 316L VAR® stainless steel double melt per SEMI F20 option available
- Excellent purgeability due to optional purge ports
- Fluid specific seat material as standard options
- Replaceable seat

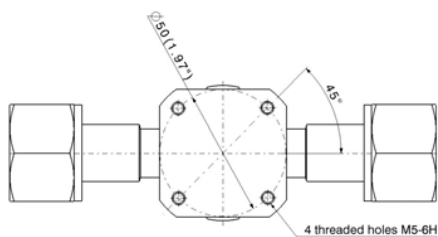


DIMENSIONS

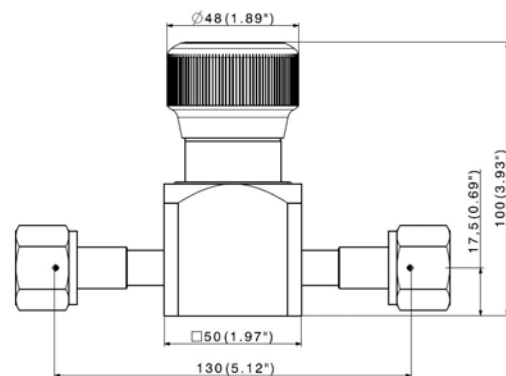
M12 - PNEUMATIC VALVE (PP2NC, PP2NO)



M12-BOTTOM VIEW



M12 - MULTI-TURN VALVE (MT)



Dimensions are for reference only and are subject to change without notice

SPECIFICATIONS

Max. working pressure	See table below	Flow capacity (Cv)	1.75	Certified max. Helium outboard leak rate	≤ 1 x 10 ⁻⁹ mbar.l/s
Pneumatic actuator opening pressure	5 to 7 bar (73 to 102 psig)	Nominal seat diameter	12 mm (0,47")	Certified max. Helium across the seat leak rate (at max. pressure)	≤ 1 x 10 ⁻⁹ mbar.l/s
Temperature range	See tabel below	Wetted volume	< 7 cm ³	Certified max. Helium inboard leak rate (at max. pressure)	≤ 1 x 10 ⁻⁹ mbar.l/s
		Burst pressure	> 700 bar (10152 psig)		

CONSTRUCTION MATERIAL

	Parts	Material
Wetted parts	Body	SS 316L, VAR
	Seat	PCTFE, PVDF, VESPEL®
	Diaphragm	Phynox®
Non-wetted parts	Backup diaphragm	Phynox®
	Handwheel	Aluminium
	Actuator Body	Aluminium
	Others	Stainless Steel and Alloys

SURFACE FINISH

S	V	U
Ra 0.4 µm (15 µin)	Ra 0.25 µm EP (10 µin)	Ra 0.13 µm EP (5 µin)

TEMPERATURE RANGE

Seat (Actuation type)	Temperature Range
PCTFE / PVDF (manual & pneumatic*)	-40°C to +65°C (-40°F to +149°F)
VespeL® (manual & pneumatic*)	-40°C to +150°C (-40°F to +302°F)

*-20C° pneumatic versions

VALVE VERSION / MAX. WORKING PRESSURE

Valve	Max. working pressure
M12 (MT) Multiturn handwheel	15 bar
M12 (PP2*) Pneumatically actuated	15 bar

MANUAL ACTUATION

Parts for all valve grades	
Upper spindle	Brass
Handle	Aluminium
All others	Stainless Steel or Alloys

PNEUMATIC ACTUATION

Parts	
Actuator Body	Aluminium
Piston	Brass / Aluminium / Stainless Steel
O-ring	NBR
All others	Stainless Steel or Alloys

All specifications subject to change without notice

PRODUCT CONFIGURATOR

	Surface Finish	Actuation	Porting Configuration	Body Material	Seat Material	End Connection	Options
M12	S	MT	2V1	I	K	A/B: B½	CI
	Ra 0.4 µm (15 µin Ra)	Multi-Turn Handwheel (15 bar)	2 ports in line	SS 316 L	PCTFE (Kel-F®)	Metal face seal ½" - Female	Electric Limit Switch*
	Ra 0.25 µm EP (10 µin)	Pneumatically actuated (15 bar)	2 Ports in line, upstream purge port - left side	Hastelloy® *	PI (VespeL®)	Metal face seal ½" - Male	*Only for pneumatic actuators
	Ra 0.13 µm EP (5 µin)*	*Add NO for normally open or NC for normally closed	2 Ports in line, downstream purge port - left side	*On demand	PVDF	Metal face seal ¾" - Female	
			2 Ports in line, 2 purge ports upstream/Downstream - left side			Metal face seal ¾" - Male	
			2 ports in line, full passage, downstream branch			BWO ½"	
			2 ports in line, full passage, downstream branch, downstream purge port			BWO ¼"	
						Compression tube fittings	RDB12
						Compression tube fittings	RDB¾
						Compression tube fittings	RDB18

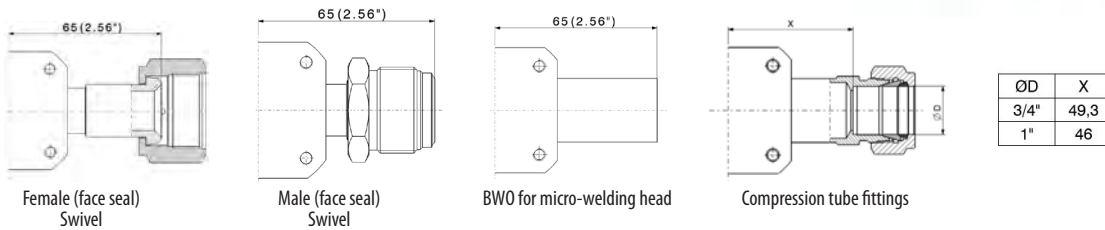


Special configuration on demand

M20 | DIAPHRAGM VALVE

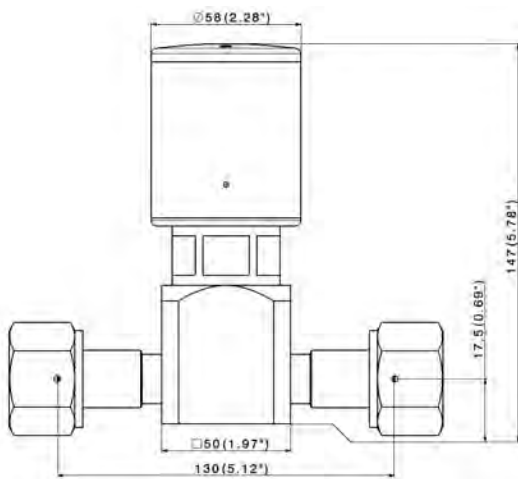
KEY FEATURES

- 100% Helium Leak Test performed
- Available in sizes 3/4" to 1" to support a wide range of connections
- Assembling, testing & Packaging in cleanroom: Class ISO 4
- Individual serial number for full traceability
- Electropolished surface roughness per SEMI F19 UHP Grade
- 316L VAR® stainless steel double melt per SEMI F20 option available
- Excellent purgeability due to optional purge ports
- Fluid specific seat material as standard options
- Replaceable seat

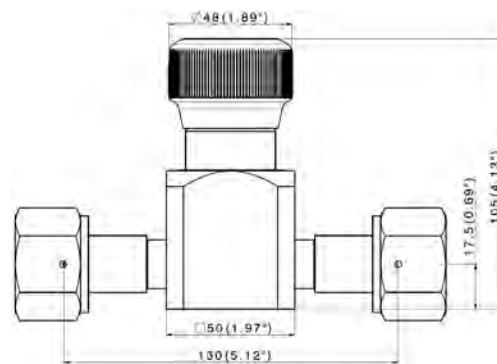


DIMENSIONS

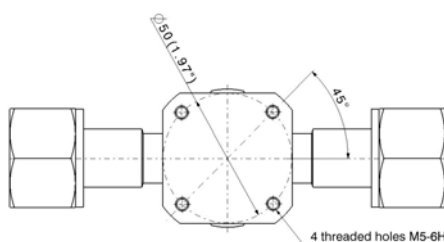
M20 - PNEUMATIC VALVE (PP2NC, PP2NO)



M20 - MULTI-TURN VALVE (MT)



M20-BOTTOM VIEW



Dimensions are for reference only and are subject to change without notice

SPECIFICATIONS

Max. working pressure	See table below	Flow capacity (Cv)	3.5	Certified max. Helium outboard leak rate	≤ 1 x 10 ⁻⁹ mbar.l/s
Pneumatic actuator opening pressure	5 to 7 bar (73 to 102 psig)	Nominal seat diameter	20 mm (0.79")	Certified max. Helium across the seat leak rate (at max. pressure)	≤ 1 x 10 ⁻⁹ mbar.l/s
Temperature range	See table below	Wetted volume	> 700 bar (10152 psig)	Certified max. Helium inboard leak rate (at max. pressure)	≤ 1 x 10 ⁻⁹ mbar.l/s
		Burst pressure	≤ 1 x 10 ⁻⁹ mbar.l/s		

CONSTRUCTION MATERIAL

	Parts	Material
Wetted parts	Body	SS 316L, VAR
	Seat	PCTFE, PVDF, VESPEL®
	Diaphragm	Phynox®
Non-wetted parts	Backup diaphragm	Phynox®
	Handwheel	Aluminium
	Actuator Body	Aluminium
	Others	Stainless Steel and Alloys

SURFACE FINISH

S	V	U
Ra 0.4 µm (15 µin)	Ra 0.25 µm EP (10 µin)	Ra 0.13 µm EP (5 µin)

TEMPERATURE RANGE

Seat (Actuation type)	Temperature Range
PCTFE / PVDF (manual & pneumatic)	-20°C to +65°C (-4°F to +149°F)
VespeL® (manual & pneumatic)	-20°C to +150°C (-4°F to +302°F)

VALVE VERSION / MAX. WORKING PRESSURE

Valve	Max. working pressure
M20 (MT) Multiturn handwheel	15 bar
M20 (PP2*) Pneumatically actuated	15 bar

MANUAL ACTUATION

Parts for all valve grades	
Upper spindle	Brass
Handle	Aluminum
All others	Stainless Steel or Alloys

PNEUMATIC ACTUATION

Parts	
Actuator Body	Stainless Steel / Aluminium
Piston	Brass / Aluminium / Stainless Steel
O-ring	NBR
All others	Stainless Steel or Alloys

All specifications subject to change without notice

PRODUCT CONFIGURATOR

M20	Surface Finish		Actuation		Porting Configuration		Body Material		Seat Material		End Connection		Options	
	S	V	MT	PP2*	2V1	2V1	I	H	K	V	A/B: B¾	V¾F	V¾M	FP
	Ra 0.4 µm (15 µin Ra)		Multi-Turn Handwheel (15 bar)		2 ports in line		SS 316L		PCTFE (Kel-F®)		Metal face seal ¾" - Female			Back Mounting
	Ra 0.25 µm EP (10 µin)		Pneumatically actuated (15 bar)		2 Ports in line, upstream purge port - left side	2VPEG	Hastelloy®*		PI (VespeL®)		Metal face seal ¾" - Male			Electric Limit Switch*
	Ra 0.13 µm EP (5 µin)*		*Add NO for normally open or NC for normally closed		2 Ports in line, downstream purge port - left side	2VPSG	*On demand		PVDF		BWO ¾" (Butt Orbital Weld)			*Only for pneumatic actuators
					2 Ports in line, 2 purge ports up-/downstream-left side	2V1P2					BWO 1" (Butt Orbital Weld)			
											Metal face seal 1" - Male			
											Metal face seal 1" - Female			
											Compression tube fittings			
											Compression tube fittings			

*Add NO for normally open or NC for normally closed



Special configuration on demand

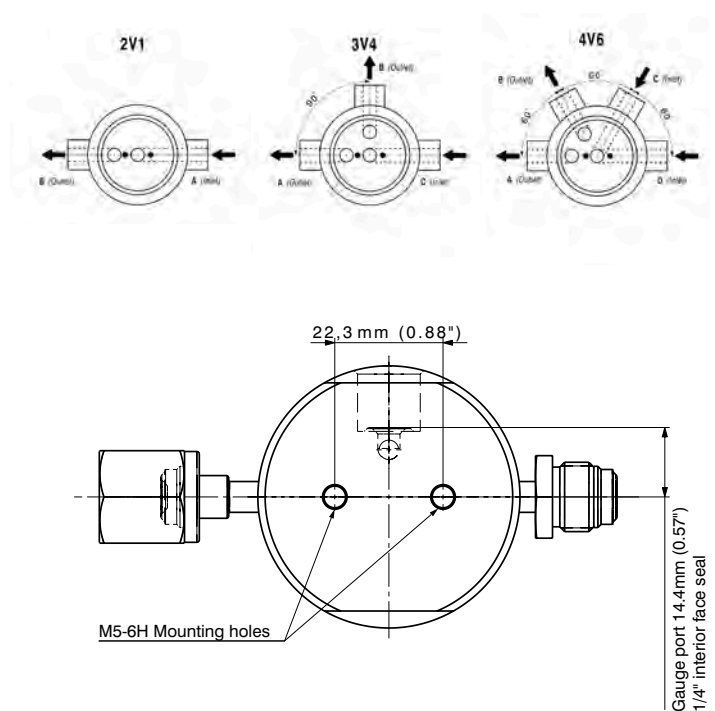
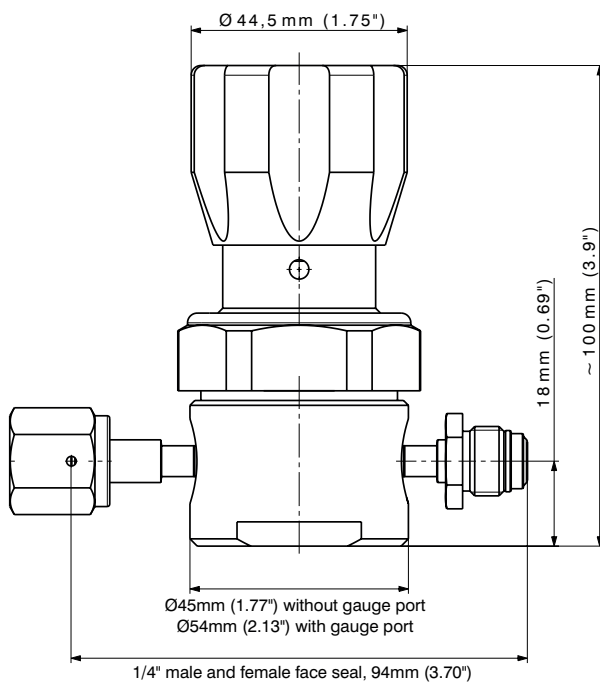
RX1000 | DIAPHRAGM PRESSURE REGULATOR

KEY FEATURES

- 100% Functional & Helium Leak Test performed
- High-Flow (HF) version (Cv:0.2) available
- Hastelloy® diaphragm
- Assembling, testing & packaging in cleanroom: Class ISO 4
- Individual serial number for full traceability
- Electropolished surface roughness per SEMI F19 UHP Grade
- Low internal volume
- 316L VAR® stainless steel double melt per SEMI F20 option available
- Excellent performance at low source pressure
- Fluid specific seat material as standard options
- Additional multi-port options



DIMENSIONS



Dimensions are for reference only and are subject to change without notice

SPECIFICATIONS

Max. inlet pressure	Standard: 200 bar (2900 psig) HF: 50 bar (725 psig) (PVDF: 10 bar / 145 psig)	Burst pressure*	300% of operating pressure	Certified max. Helium outboard leak rate	≤ 1 x 10 ⁻⁹ mbar.l/s
Outlet pressure	2/4/7/10 bar (29/58/102/145 psig)	Proof pressure*	150% of operating pressure	Certified max. Helium across the seat leak rate (at max. pressure)	≤ 1 x 10 ⁻⁷ mbar.l/s
Temperature range	-20°C to +65°C (-4°F to +149°F)	Supply pressure effect I*	Standard: 0.7 bar / 100 bar HF: 1.35 bar / 100 bar	Certified max. Helium inboard leak rate (at max. pressure)	≤ 1 x 10 ⁻⁹ mbar.l/s
Flow capacity (Cv)	Standard: 0.09 High Flow: 0.2				

* According to CGA-E4

CONSTRUCTION MATERIAL

	Parts	Material
Wetted parts	Body	SS 316L, VAR
	Seat	PCTFE (PVDF, VESPEL® optional)
	Diaphragm	Hastelloy®
	Poppet	SS 316L
	Spring	SS 316L
	Spring Holder	SS 316L
Non-wetted parts	Bonnet	Brass
	Handwheel	Aluminium
	Others	Stainless Steel and Alloys

SURFACE FINISH

S	V	U
Ra 0.4 µm (15 µin)	Ra 0.25 µm EP (10 µin)	Ra 0.13 µm EP (5 µin)

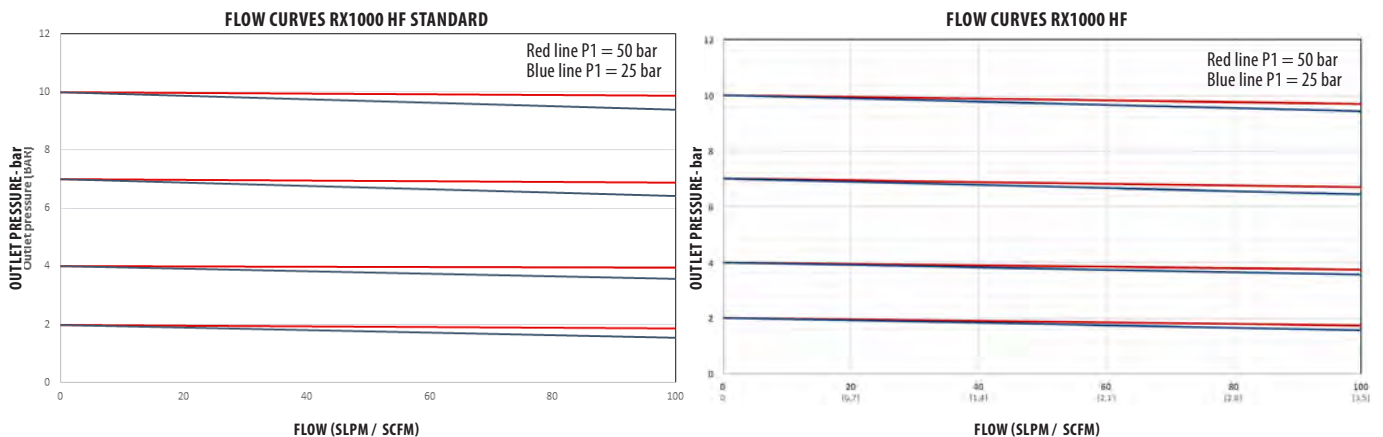
RATED FLOW CAPACITY (Q_R*) / OUTLET PRESSURE (P2)

P2 (bar)	Q _R *(SLPM)	Q _R *(SLPM) HF
2	40	80
4	90	200
7	160	350
10	220	500

* According to CGA-E4

All specifications subject to change without notice

FLOW CURVES



PRODUCT CONFIGURATOR

RX	10	Outlet Regulated Pressure	Body Material	Surface Finish	Porting Configuration	Inlet / Outlet Connections	Options	Version
		02	SS 316L	V	2V1	4M4M	V	HF
		2 bar (29 psig)	-	Ra 0.4 µm (15 µin)	2 ports	2V1 Metal face seal 1/4" - Female	Vespel Seat	Standard (Cv 0.09)
		04	VAR*	V	3 ports	3V4 Metal face seal 1/4" - Male	PVDF Seat	High Flow (Cv 0.2)
		4 bar (58 psig)		Ra 0.25 µm EP (10 µin)		4V6 Metal face seal 1/4" - Internal*	Hastelloy Poppet	Absolute Sub-atm*
		07	*On demand	U	4 ports		Gauge(s)*	VAC
		07		Ra 0.13 µm EP (5 µin)*				
		10		*On demand		*Gauge port(s) only		*Absolute sub-atmospheric option
		10						
		10 bar (145 psig)						

*Gauge(s) requires 4FI connection(s)



Special configuration on demand

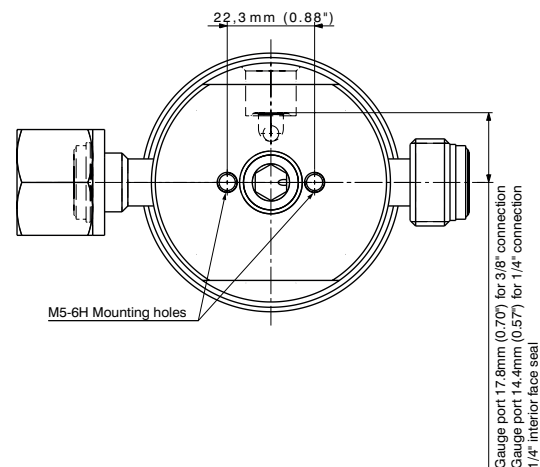
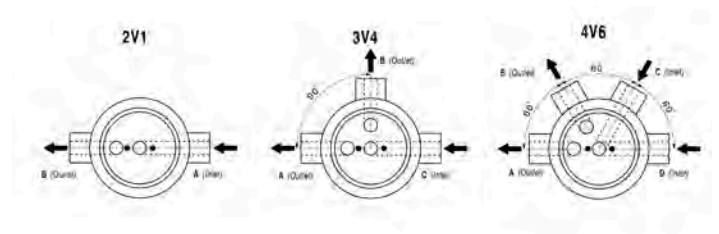
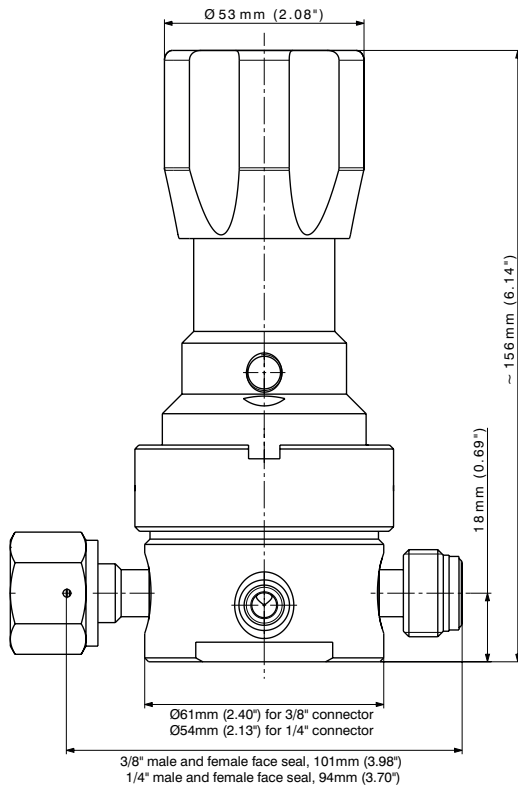
RX2200 | DIAPHRAGM PRESSURE REGULATOR / MEDIUM FLOW & HIGH P...

KEY FEATURES

- 100% Functional & Helium Leak Test performed
- Hastelloy® diaphragm
- Internally spring- and threadless for highest UHP requirements
- Assembling, testing & Packaging in cleanroom: Class ISO 4
- Individual serial number for full traceability
- Corrosion resistant internal option available: Hastelloy® poppet
- Electropolished surface roughness per SEMI F19 UHP Grade
- Coating option of wetted areas is available
- 316L VAR® stainless steel double melt per SEMI F20 option available
- Fluid specific seat material as standard options
- Additional multi-port options



DIMENSIONS



Dimensions are for reference only and are subject to change without notice

SPECIFICATIONS

Max. inlet pressure	240 bar (3481 psig)	Flow capacity (Cv)	0.2	Certified max. Helium outboard leak rate	≤ 1 x 10 ⁻⁹ mbar.l/s
Outlet pressure	3/8/10/15/25/50 bar (44/116/145/218/363/725 psig)	Burst pressure*	300% of operating pressure	Certified max. Helium across the seat leak rate (at max. pressure)	≤ 1 x 10 ⁻⁷ mbar.l/s
Temperature range	-20°C to +65°C (-4°F to +149°F)	Proof pressure*	150% of operating pressure	Certified max. Helium inboard leak rate (at max. pressure)	≤ 1 x 10 ⁻⁹ mbar.l/s
		Supply pressure effect I*	1.35 bar / 100 bar		

* According to CGA-E4

CONSTRUCTION MATERIAL

	Parts	Material
Wetted parts	Body	SS 316L, VAR
	Seat	PCTFE
	Diaphragm	Hastelloy®
	Poppet	SS 316L, Hastelloy®
Non-wetted parts	Joint	Nickel, SS316L
	Bonnet	Brass
	Handwheel	Aluminium
	Others	Stainless Steel and Alloys

SURFACE FINISH

S	V	U
Ra 0.4 µm (15 µin)	Ra 0.25 µm EP (10 µin)	Ra 0.13 µm EP (5 µin)

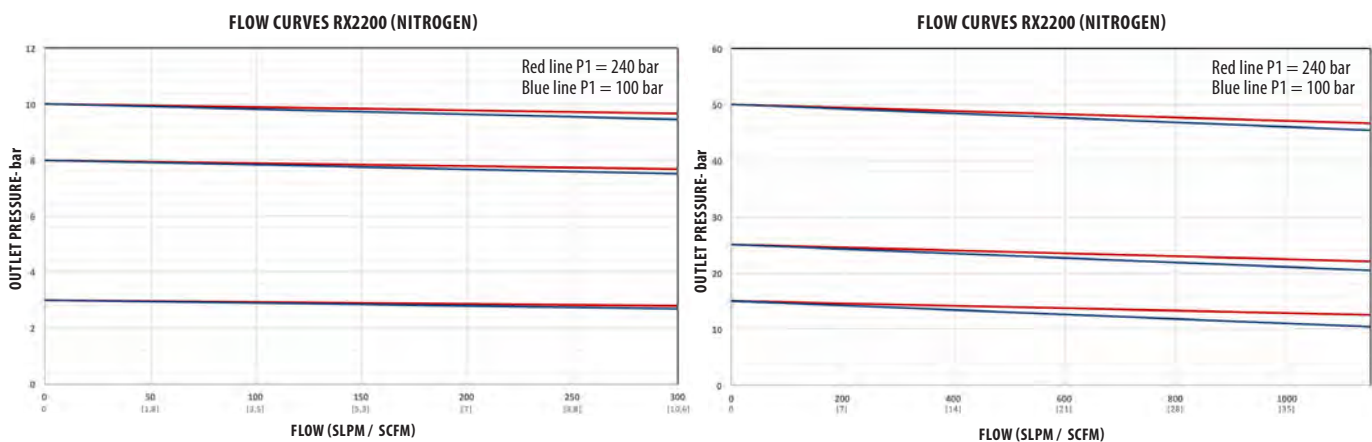
RATED FLOW CAPACITY (Q_R*) / OUTLET PRESSURE (P₂)

P ₂ (bar)	Q _R * (SLPM)
3	280
8	580
10	680
15	970
25	1,550
50	3,000

* According to CGA-E4

All specifications subject to change without notice

FLOW CURVES



PRODUCT CONFIGURATOR

RX	22	Outlet Regulated Pressure	Body Material	Surface Finish	Porting Configuration	Inlet / Outlet Connections	Options
		03	V	-	3V4	4F4FI4F	PG
		3 bar (44 psig)	03 SS 316L	-	2 ports	2V1 Metal face seal 1/4" - Male	Hastelloy Poppet HP
		8 bar (116 psig)	08 VAR	V	3 ports	3V4 Metal face seal 1/4" - Female	Gauge(s)* PG
		10 bar (145 psig)			4 ports	4V6 Metal face seal 3/8" - Female	*Gauge(s) requires 4FI connection(s)
		15 bar (218 psig)				Metal face seal 3/8" - Male	6M
		25 bar (363 psig)				Metal face seal 1/4" - Internal*	4FI
		50 bar (725 psig)				*Gauge port(s) only	



Special configuration on demand

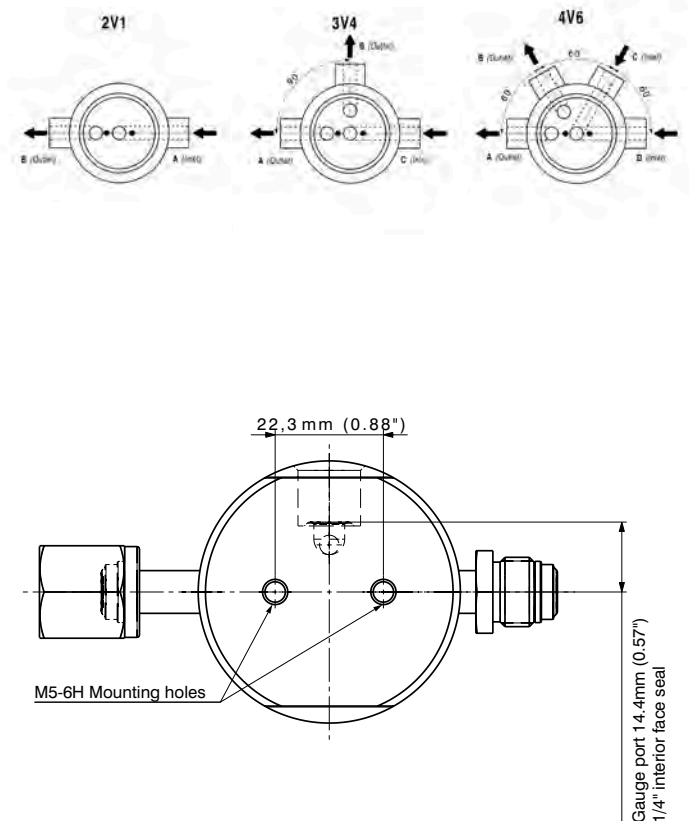
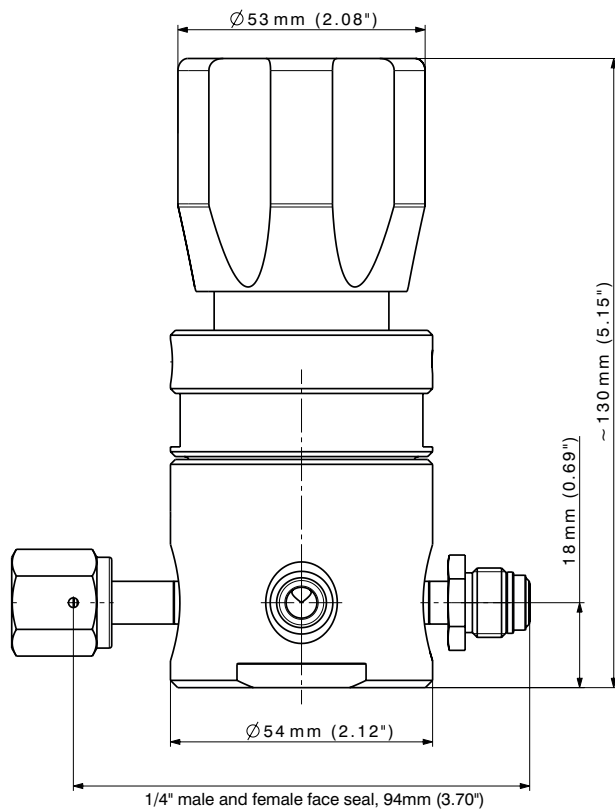
RX2400 | DIAPHRAGM PRESSURE REGULATOR / MEDIUM FLOW

KEY FEATURES

- 100% Functional & Helium Leak Test performed
- Hastelloy® diaphragm
- Internally springless
- High-Flow (HF) version (Cv:0.2) available
- Assembling, testing & Packaging in cleanroom: Class ISO 4
- Individual serial number for full traceability
- Corrosion resistant internal option available: Hastelloy® poppet
- Electropolished surface roughness per SEMI F19 UHP Grade
- Low internal volume
- Coating option of wetted areas is available
- 316L VAR® stainless steel double melt per SEMI F20 option available
- Fluid specific seat material as standard options
- Additional multi-port options



DIMENSIONS



Dimensions are for reference only and are subject to change without notice

SPECIFICATIONS

Max. inlet pressure	240 bar (3481 psig) (PVDF: 10 bar / 145 psig)	Burst pressure*	300% of operating pressure	Certified max. Helium outboard leak rate (at max. pressure)	≤ 1 x 10 ⁻⁹ mbar.l/s
Outlet pressure	2/4/7/10 bar (29/58/102/145 psig)	Proof pressure*	150% of operating pressure	Certified max. Helium across the seat leak rate (at max. pressure)	≤ 1 x 10 ⁻⁷ mbar.l/s
Temperature range	-20°C to +65°C (-4°F to +149°F)	Supply pressure effect I*	Standard: 0.3 bar / 100 bar HF: 0.7 bar / 100 bar	Certified max. Helium inboard leak rate (at max. pressure)	≤ 1 x 10 ⁻⁹ mbar.l/s
Flow capacity (Cv)	Standard: 0.09 High Flow: 0.2				

* According to CGA-E4

CONSTRUCTION MATERIAL

	Parts	Material
Wetted parts	Body	SS 316L, VAR
	Seat	PCTFE (PVDF, VESPEL® optional)
	Diaphragm	Hastelloy®
	Poppet	SS 316L, Hastelloy®
Non-wetted parts	Bonnet	Brass
	Handwheel	Aluminium
	Others	Stainless Steel and Others

SURFACE FINISH

S	V	U
Ra 0.4 µm (15 µin)	Ra 0.25 µm EP (10 µin)	Ra 0.13 µm EP (5 µin)

RATED FLOW CAPACITY (Q_R*) / OUTLET PRESSURE (P₂)

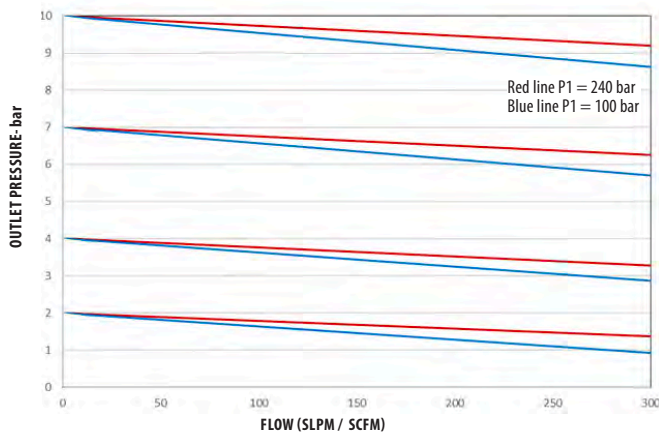
P ₂ (bar)	Q _R *(SLPM)	Q _R *(SLPM) HF
2	60	80
4	100	110
7	170	190
10	250	-

* According to CGA-E4

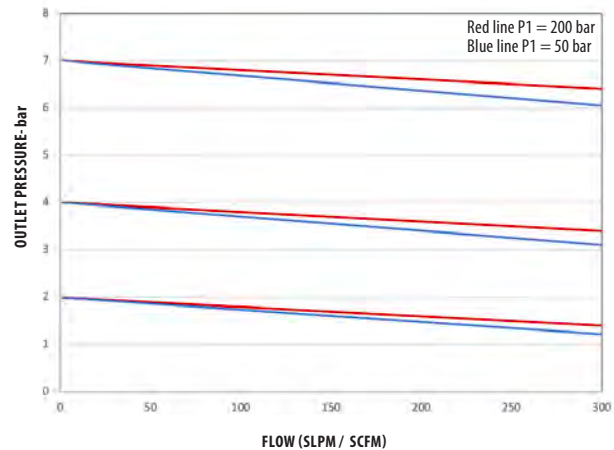
FLOW CURVES

All specifications subject to change without notice

FLOW CURVES RX2400 STANDARD (NITROGEN)



FLOW CURVES RX2400 HF (NITROGEN)



PRODUCT CONFIGURATOR

RX	24	Outlet Regulated Pressure	Body Material	Surface Finish	Porting Configuration	Inlet / Outlet Connections	Options	Version
		02	-	V	2V1	4M4M	V	HF
		2 bar (29 psig)	02 SS 316L	- Ra 0.4 µm (15 µin)	S 2 ports	2V1 Metal face seal ¼" - Male	4M Vespel Seat	V Standard (Cv 0.09)
		4 bar (58 psig)	04 VAR	V Ra 0.25 µm EP (10 µin)	V 3 ports	3V4 Metal face seal ¼" - Female	4F PVDF Seat	P High Flow (Cv 0.2)
		7 bar (102 psig)	07	U Ra 0.13 µm EP (5 µin)*	U 4 ports	4V6 Metal face seal ¼" - Internal*	4FI Hastelloy Poppet	HP
		10 bar (145 psig)	10	*On demand		*Gauge port(s) only	Gauge(s)*	PG
							Coating**	SC

*Gauge(s) requires 4FI connection(s)
**Contact Rotarex



Special configuration on demand

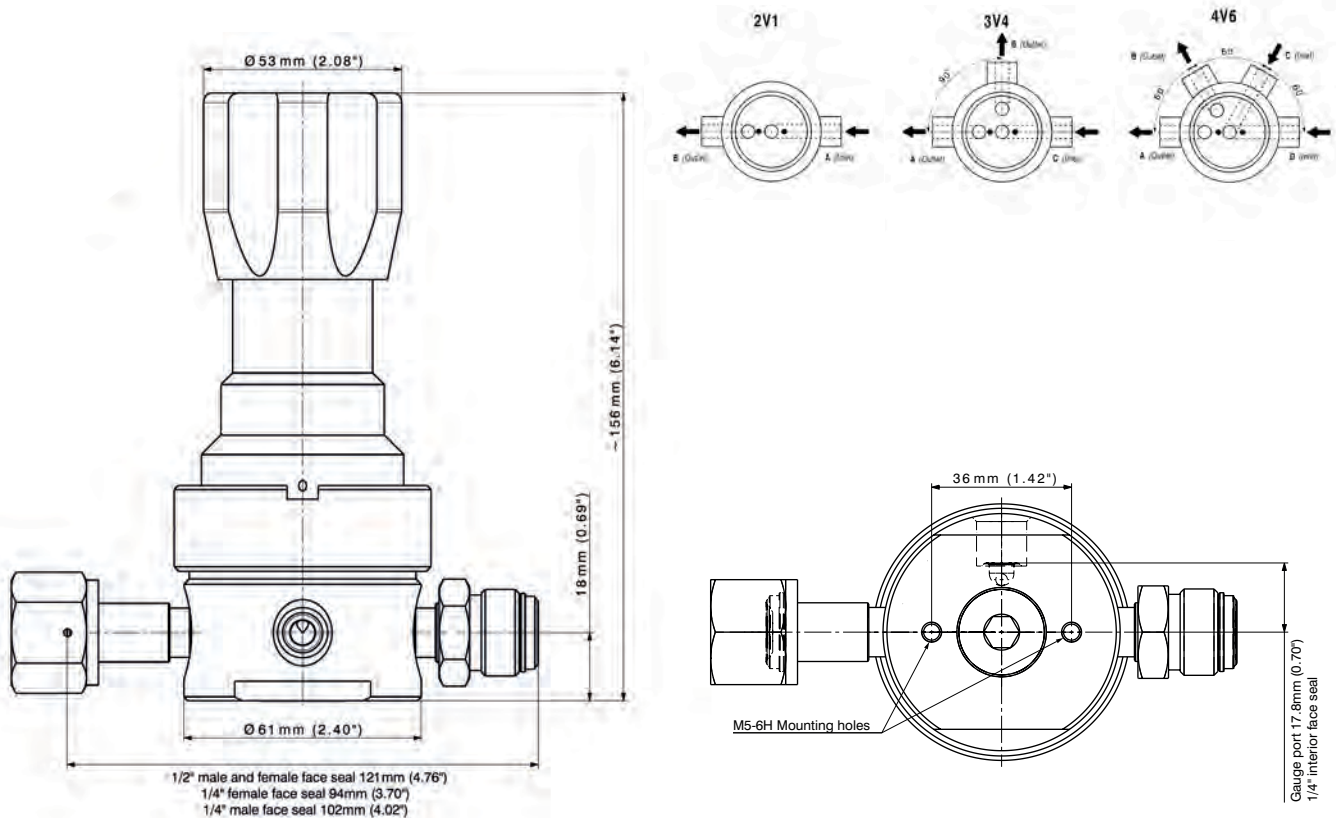
RX2500 | DIAPHRAGM PRESSURE REGULATOR / HIGH FLOW

KEY FEATURES

- 100% Functional & Helium Leak Test performed
- Hastelloy® diaphragm
- Internally springless
- Assembling, testing & Packaging in cleanroom: Class ISO 4
- Individual serial number for full traceability
- Corrosion resistant internal option available: Hastelloy® poppet
- Electropolished surface roughness per SEMI F19 UHP Grade
- 316L VAR® stainless steel double melt per SEMI F20 option available
- High-Flow (HF) version (Cv:1.2) up to 1150 SLPM available
- Fluid specific seat material as standard options
- Additional multi-port options



DIMENSIONS



Dimensions are for reference only and are subject to change without notice

SPECIFICATIONS

Max. inlet pressure	Standard: 200 bar (2900 psig) HF: 50 bar (363 psig)	Burst pressure**	300% of operating pressure	Certified max. Helium outboard leak rate (at max. pressure)	≤ 1 x 10 ⁻⁹ mbar.l/s
Outlet pressure	5/8/10 bar* (73/116/145 psig)	Proof pressure**	150% of operating pressure	Certified max. Helium across the seat leak rate (at max. pressure)	≤ 1 x 10 ⁻⁷ mbar.l/s
Temperature range	-20°C to +60°C (-4°F to +140°F)	Supply pressure effect I**	Standard: 1.5 bar / 100 bar HF: 6 bar / 100 bar	Certified max. Helium inboard leak rate (at max. pressure)	≤ 1 x 10 ⁻⁹ mbar.l/s
Flow capacity (Cv)	Standard: 0.45 High Flow: 1.2				

* full outlet pressure not achievable at all inlet pressures
** According to CGA-E4

CONSTRUCTION MATERIAL

	Parts	Material
Wetted parts	Body	SS 316L, VAR
	Seat	PCTFE (PVDF, VESPEL®, PTFE Ni optional)
	Diaphragm	Hastelloy®
	Poppet	SS 316L, Hastelloy®
Non-wetted parts	Bonnet	Chrome Plated Brass
	Handwheel	Aluminium
	Others	Stainless Steel and Others

SURFACE FINISH

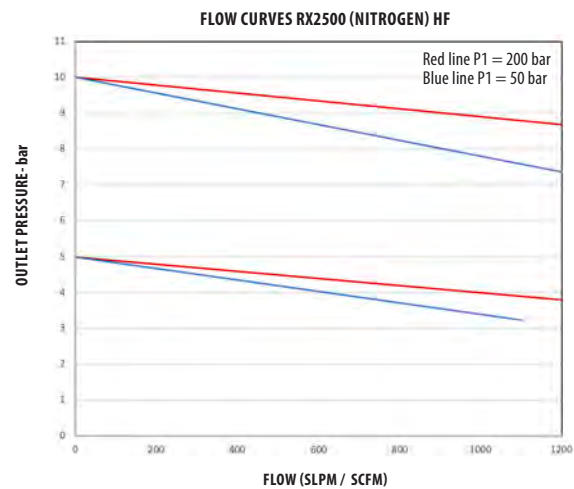
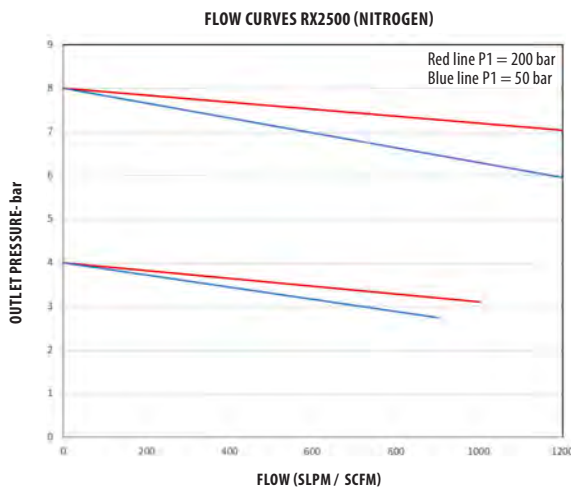
S	V	U
Ra 0.4 µm (15 µin)	Ra 0.25 µm EP (10 µin)	Ra 0.13 µm EP (5 µin)

RATED FLOW CAPACITY (Q_R*) / OUTLET PRESSURE (P2)

P2 (bar)	Q _R *(SLPM)	Q _R *(SLPM) HF
5	650	950
8	1,100	-
10	-	1,900

* According to CGA-E4
All specifications subject to change without notice

FLOW CURVES



PRODUCT CONFIGURATOR

RX	25	Outlet Regulated Pressure	Body Material	Surface Finish	Porting Configuration	Inlet / Outlet Connections	Options	Version
		05	-	V	2V1	4M4M	V	HF
		5 bar (73 psig)	05 SS 316L	- Ra 0.4 µm (15 µin)	S 2 ports	2V1 Metal face seal 1/2" - Male	8M Vespel Seat	V Standard (Cv 0.45)
		8 bar (116 psig)	08 VAR	V Ra 0.25 µm EP (10 µin)	V 3 ports	3V4 Metal face seal 1/2" - Female	8F PDVF Seat	P High Flow (Cv 1.2)
		10 bar (145 psig)	10	U Ra 0.13 µm EP (5 µin)*	U 4 ports	4V6 Metal face seal 1/4" - Male	4M Hastelloy Poppet	HP
				On demand		Metal face seal 1/4" - Female	4F Gauge(s)	PG
						Metal face seal 1/4" - Internal*	4FI PTFE Nickel loaded**	TE

*Gauge port(s) only

*Gauge(s) requires 4FI connection(s)
**Contact Rotarex

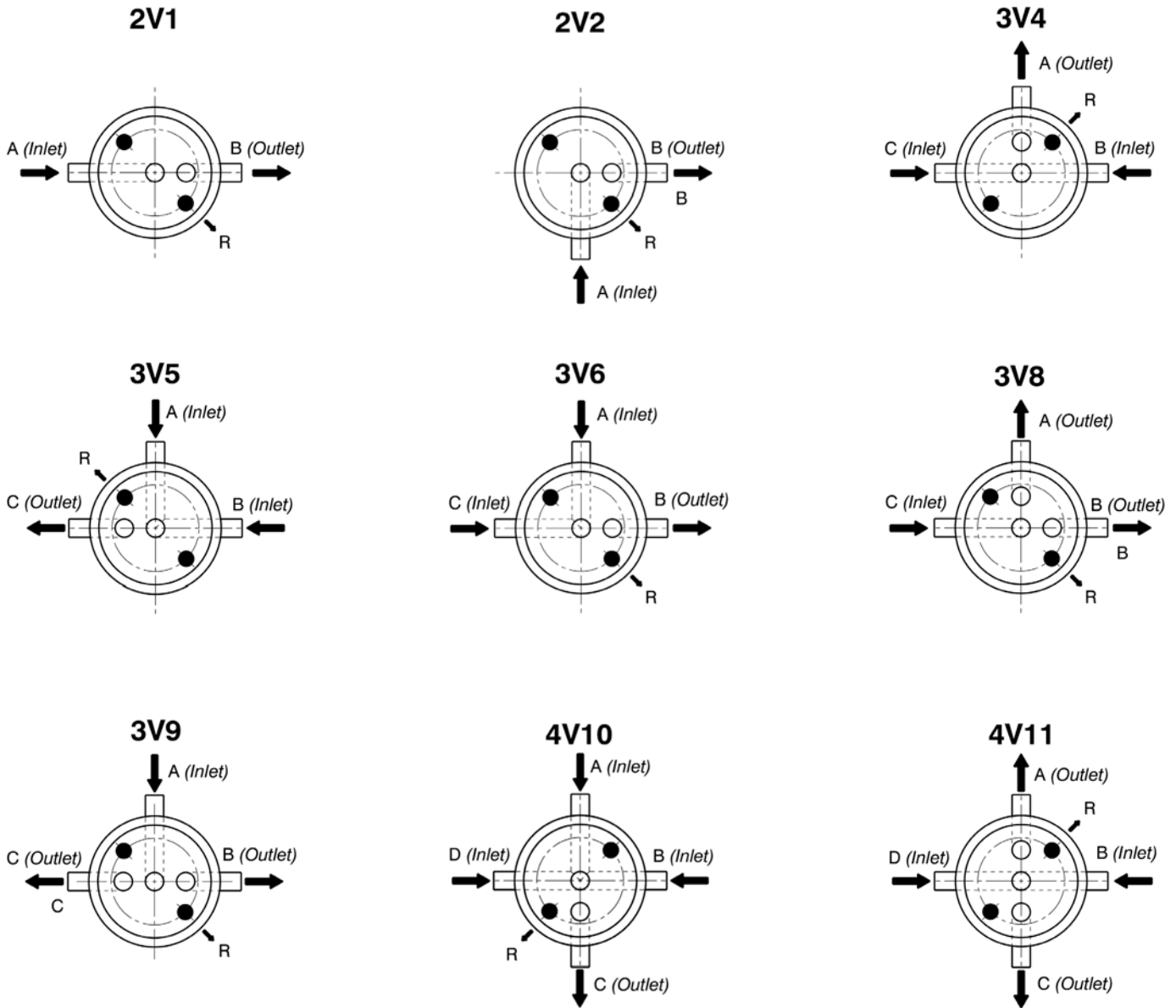


Special configuration on demand

VALVES

TOP VIEW

Standard configurations:



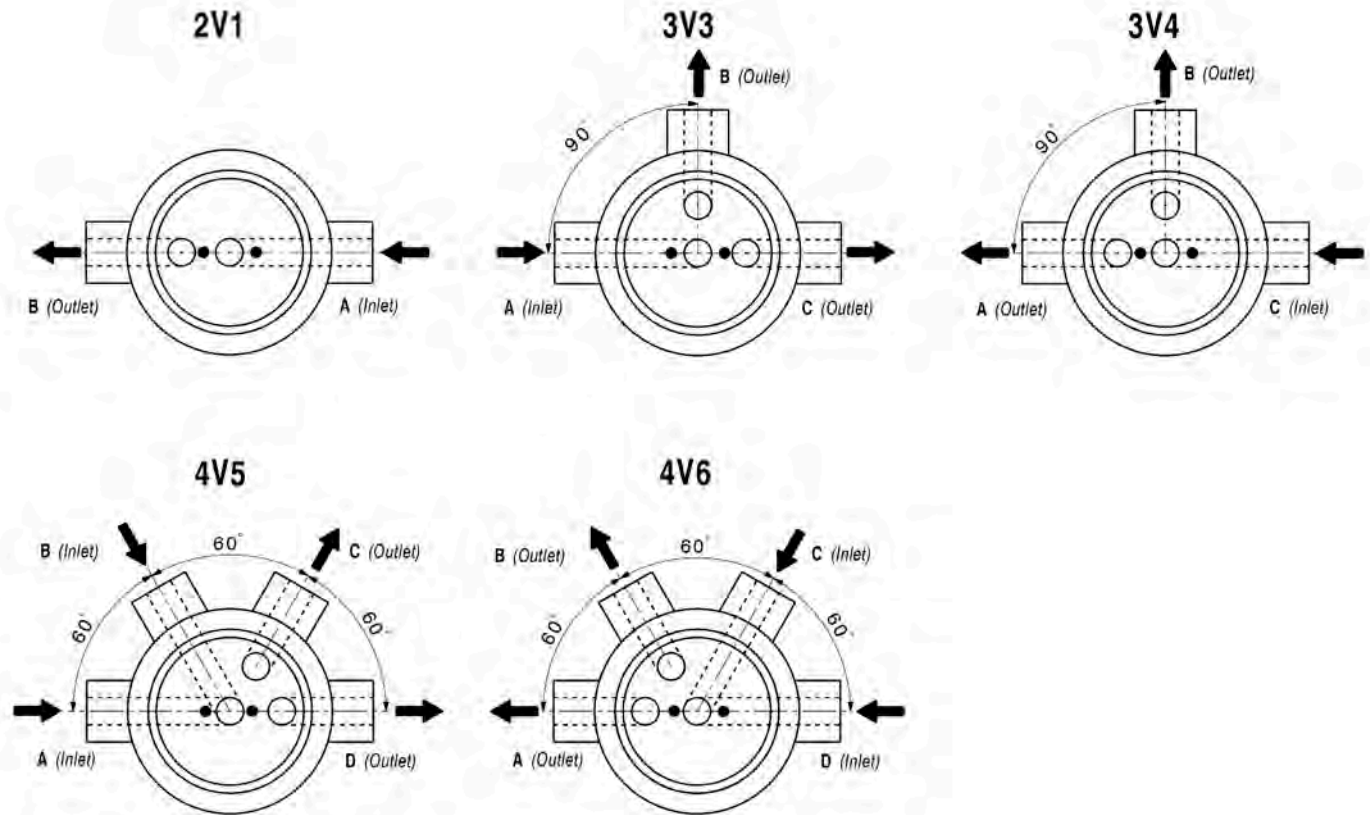
- ➔ Bottom Threaded holes, M5x0.8-6H
- R ➔ Sniffing hole position

Other configurations: on demand

REGULATORS

TOP VIEW

Standard configurations:



● → Bottom Threaded holes, M5x0.8-6H

Other configurations: on demand

PRESSURE GAUGES (BAR / PSI)



TO COMPLETE THE RANGE

In addition to valves and regulators for ultra-high purity gases, Rotarex can propose for your activity a full range of products.

From source to process you can find a full range of precise equipment for your gas supply system and manipulation.

For more information concerning one or more of those products please contact us directly.

UHP FITTINGS

