# 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







Male (face seal)

Swivel

35,3(1.39")

Female (face seal) Swivel

# BWO for micro-welding head

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35,3(1.39")



Compression tube fittings



CAS AND LIQUID CONTROL

Pressure & Vacuur

Tube & Fittings

Custom Services



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	$\leq$ 1 x 10 <sup>-9</sup> mbar.l/s	
		Nominal seat	4 mm (0.16")			
Pneumatic actuator	5 to 7 bar (73 to 102 psig)*	diameter		Certified max. Helium across the seat leak	$\leq$ 1 x 10 <sup>-9</sup> mbar.l/s	
.,		Wetted volume	< 1.2 cm <sup>3</sup>	rate (at max. pressure)		
Temperature range	See table below			Certified max. Helium	< 1 x 10 <sup>-9</sup> mhar l/s	
		Burst pressure	> 700 bar (10152 psig)	inboard leak rate (at max. pressure)		

 $^{*4}$  - 7 bar available for BPNC and BPNO pneumatic actuator

### **CONSTRUCTION MATERIAL**

	Parts	Material				
	Body	SS 316L,VAR				
Wetted parts	Seat	PCTFE, PVDF, VESPEL®				
	Diaphragm	Phynox <sup>®</sup>				
	Backup diaphragm	Phynox <sup>®</sup>				
Norman	Handwheel	Aluminium				
Non-wetted parts	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 <sup>12</sup>	20 bar
M4SI (HM) Multiturn handwheel <sup>12</sup>	240 bar
M4SI (LQ) Quarter turn handwheel <sup>1</sup>	20 bar
M4SI (HQ) Quarter turn handwheel <sup>1</sup>	240 bar
M4SI (BP*) Pneumatically actuated	10 bar
M4SI (LP*) Pneumatically actuated	20 bar
M4SI (HP*) Pneumatically actuated	240 bar

#### MANUAL ACTUATION

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

<b>PNEUMATIC ACTUAT</b>	ION
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Parts							
Actuator Body	Aluminium / Stainless Steel						
Piston	Brass / Aluminium / Stainless Steel						
0-ring	NBR						
All others	Stainless Steel						

All specifications subject to change without notice

Special configuration on demand

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<sup>1</sup>FT (Panel Mounting) option available <sup>2</sup>MSF LOTO option available

### **PRODUCT CONFIGURATOR**

	Surface Finish		Actuation		Porting Configuration	Body Material		Seat Material		End Connection		Options	
M4SI	S		LM		2V1			К		A/B: B¼		FT	
	Ra 0.4 μm (15 μin)	S	Multi-Turn Handwheel (20bar)	LM	See page 26	SS 316L	-	PCTFE (Kel-F <sup>®</sup> )	K	Metal face seal ¼" - Female	V ¼ F	Panel Mounting <sup>1</sup>	FT
	Ra 0.25 μm EP (10 μin)	V	Multi-Turn Handwheel (240bar)	HM		VAR*	A	PI (Vespel®)	۷	Metal face seal ¼" - Male	V¼M	Electric limit switch*	CI
			Pneumatically actuated (10bar)	BP*	-	Monel*	Μ	PVDF	P	BWO 1⁄4″	<b>B</b> ¼	LOTO <sup>2</sup>	MSF
			Pneumatically actuated (20bar)	LP*		Hastelloy®*	H			BW0 6 mm	<b>B6</b>	Constant bleed	FPT
			Pneumatically actuated (240bar)	HP*		*On demand		-		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



# VALVES

