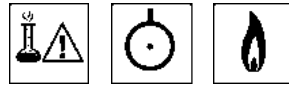


General description and benefits

A range of compact 3/2 pilot solenoid operated poppet valves in stainless steel for use on gases.

- High flow.
- Hazardous area solenoids.
- Coil with 316 housing.
- CENELEC - UL approvals.
- Lightweight.



Operating fluids

Gases

Filtered lubricated or non-lubricated air, inert gas, sweet (natural) gases.
Sour gas option available (details on application)

Liquids

Low pressure hydraulic, mineral oil or water (*details on application*).

Technical data

Ports

1/4" - 1 1/2" NPT (BSP option available)
1/4" NPT pilot ports

Cv (Kv)

1/4" - 1.33 (19)	3/8" - 1.75 (25)
1/2" - 4.00 (56)	3/4" - 9.2 (131)
1" - 14.5 (206)	1 1/4" - 19.9 (283)
1 1/2" - 29.5 (420)	

Working pressure (gases & liquids)
3 to 12 bar (45 to 174 psi)

Working temperature

Valve only
-20°C to +180°C (-4°F to +356°F)
Solenoid - Ambient temperature
-20°C to +65°C (-4°F to +149°F)

Minimum pilot pressure

at 6.3 bar (90 psi) body pressure

1/4" - 3/8" Spring return
4.0 bar (58 psi)
1/2" - 1 1/2" Spring return
3.0 bar (43.5 psi)

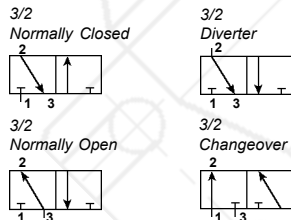
Technical data (cont)

Maximum flow

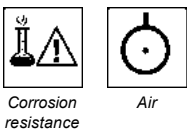
at 6 bar (87 psi), 1 bar (14.5 psi) differential

1/4" - 2010 L/min (71 SCFM)
3/8" - 2634 L/min (93 SCFM)
1/2" - 6060 L/min (214 SCFM)
3/4" - 14018 L/min (495 SCFM)
1" - 21976 L/min (776 SCFM)
1 1/4" - 30246 L/min (1068 SCFM)
1 1/2" - 44944 L/min (1587 SCFM)

Functional symbols



Symbols used in this catalogue



Model code

* 3 2 * M 2 * - S M 2 B * *

① ② ③ ④ ⑤

- | | | | | |
|---|---|--|---|---|
| ① Size
2 = 1/4"
3 = 3/8"
4 = 1/2"
6 = 3/4"
8 = 1"
5 = 1 1/4"
7 = 1 1/2" | ② Function
3 = N/C
5 = Universal | ③ Operator
1 = Air
4 = Solenoid | ④ Solenoid type
See solenoid model codes on page 1700.3 | ⑤ Solenoid voltage code
C = 12v DC
D = 24v DC
M = 110v 50/60Hz AC
N = 120v 60Hz AC
Q = 240v 60Hz AC
S = 220/230v 50/60Hz AC
Y = 28v DC (solenoid type T only)
<i>other voltages to special order</i> |
|---|---|--|---|---|

NOTE: All flow factors to ISO 6358 (BS7294)



1/4" - 1 1/2" NPT 3/2 POPPET VALVES

Pilot solenoid operated



Solenoid model codes

Model code	Safety rating	Protection and housing material	Approved for area	Ingress protection	Mass kg (lbs)
B BL	NEMA 7 & 9	Flameproof. Chromate Steel.	Class I, Groups C & D Class II, Groups E, F & G	NEMA 4	0.29 (0.65)
C CL	NEMA 7 & 9	Flameproof. Stainless Steel.	Class I, Groups C & D Class II, Groups E, F & G	NEMA 4	0.29 (0.65)
K	EExd IIC T6	Flameproof. 316 Stainless steel or Aluminium.	Zones 1 and 2	IP67	1.62 (3.57)
P	EEx me II T4/T5	Increased encapsulation. Glass reinforced polyamid.	Zones 1 and 2	IP66	0.63 (1.39)
T	EEx ia IIC T6	Intrinsically safe. Glass reinforced polyamid.	Zone 0	IP66	0.53 (1.17)

The model code shown appears in the 13th position of the Model Number.

Preferred models

3/2 pilot solenoid operated

Model No	Description	Mass kg (lbs)	Symbol
2323M23-SM2B * +	1/4"NPT 3/2 Pilot solenoid operated, spring return, N/C	1.06 (2.33) + Sol	
2325M24-SM2B * +	1/4"NPT 3/2 Pilot solenoid operated, spring return, UNIV	1.21 (2.66) + Sol	
3323M23-SM2B * +	3/8"NPT 3/2 Pilot solenoid operated, spring return, N/C	1.86 (4.09) + Sol	
3325M24-SM2B * +	3/8"NPT 3/2 Pilot solenoid operated, spring return, UNIV	2.01 (4.42) + Sol	
4325M24-SM2B * +	1/2"NPT 3/2 Pilot solenoid operated, spring return, UNIV	2.33 (5.13) + Sol	
6325M24-SM2B * +	3/4"NPT 3/2 Pilot solenoid operated, spring return, UNIV	5.32 (11.7) + Sol	
8325M24-SM2B * +	1"NPT 3/2 Pilot solenoid operated, spring return, UNIV	5.82 (12.8) + Sol	
5325M24-SM2B * +	1 1/4"NPT 3/2 Pilot solenoid operated, spring return, UNIV	10.0 (22.0) + Sol	
7325M24-SM2B * +	1 1/2"NPT 3/2 Pilot solenoid operated, spring return, UNIV	11.7 (25.7) + Sol	

- * Specify solenoid type
- + Specify solenoid voltage

Without solenoid fitted specify 'Z' in position 4 (for Zones 0, 1 & 2), 'A' in position 4 (for NEMA 7 & 9),

1/4" and 3/8" Normally Closed versions have internal air supply to the solenoid
- Specify code 3 in position 4 and code 3 in position 7 of model number code.

1/4" and 3/8" Normally Open and Universal versions require a separate air supply to the pilot solenoid
- Specify code 5 in position 4 and code 4 in position 7 of model number code.

1/2" to 1 1/2" Normally Open, Normally Closed and Universal versions always require a separate mains air supply to be taken to the pilot solenoid
- Specify code 5 in position 4 and code 4 in position 7 of model number code

It is recommended that consideration be given to positioning a non-return valve in the separate supply line to the solenoid. This will help to prevent back-flow from the solenoid servo should a temporary/severe pressure drop occur across the main valve when it opens.





1/4" - 1 1/2" NPT 3/2 POPPET VALVES

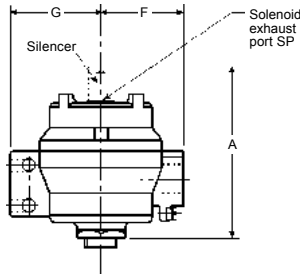
316

STAINLESS STEEL

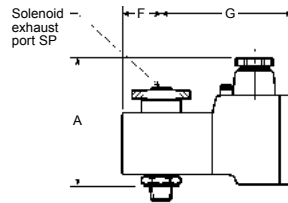
Pilot solenoid operated

Solenoid assemblies

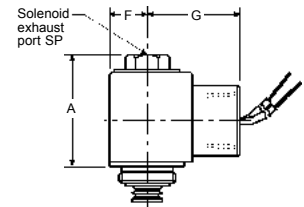
Solenoid code K



Solenoid code P Solenoid code T



Solenoid code B & BL Solenoid code C & CL



Installation dimensions mm (inches)

Model code	A	F	G	SP
B & BL	42 (1.65)	18.5 (0.73)	39.5 (1.58)	1/8"NPT
C & CL	42 (1.65)	18.5 (0.73)	39.5 (1.58)	1/8"NPT
K	110 (4.33)	52 (2.05)	58 (2.28)	M8
P & T	71.5 (2.81)	25 (0.98)	81 (3.19)	1/8"NPT

Solenoid specifications

Model code	K	P	T	B	BL	C	CL
Type of protection	EExd IIC T6	EEx me II T4/T5	EEx ia IIc T6	NEMA 7 & 9			
Approved area	Zones 1 and 2	Zones 1 and 2	Zone 0	Class I, Groups C & D Class II, Groups E, F & G			
Degree of protection	IP67	IP66	IP66	NEMA 4 (IP55)			
Housing	316 Stainless Steel alt Aluminium, Epoxy coated	Glass reinforced Polyamid (St St conduit hub)	Glass reinforced Polyamid	Chromate Steel	Stainless Steel Coil potted		
Cable entry (Alt cable entry available)	M20 x 1.5	M20 x 1.5	M20 x 1.5	1/2" NPT 24" leads			
Power consumption	DC 5W AC 5W	6W	0.3W	7.3W 5.6W	1.8W 1.8W	7.3W 5.6W	1.8W 1.8W
Maximum admissible surface temp	85°C (185°F)	T4 135°C (275°F) T5 100°C (212°F)	85°C (185°F)	160°C			
Maximum ambient temperature	40°C (104°F)	T4 75°C (167°F) T5 40°C (104°F)	65°C (149°F)	40°C			
Maximum fluid temp	80°C (176°F)	75°C (167°F)	75°C (167°F)	105°C			
Approved standard	EN50014 (CENELEC) EN50018	EN50014 (CENELEC) EN50019	EN50014 (CENELEC) EN50020	UL Listed CSA Certified			
Certificate number	95D 115701	LCIE 92.C6036X	PTB Ex-96.D.2162	026894X0000			

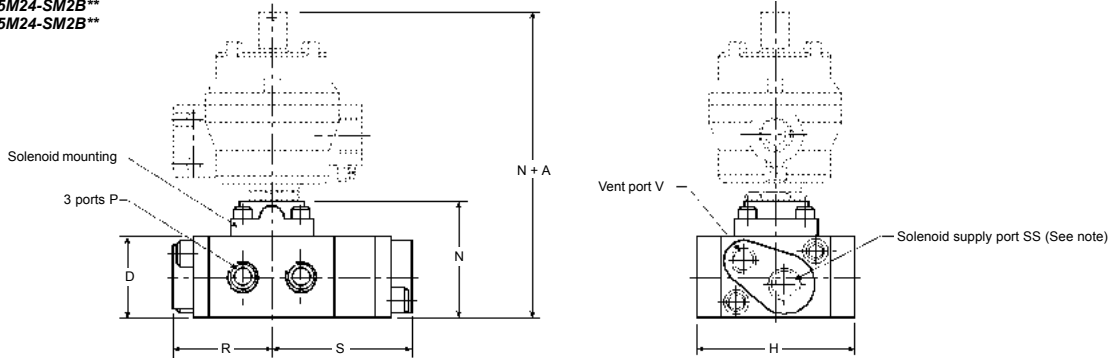
1/4" - 1 1/2" NPT 3/2 POPPET VALVES

Pilot solenoid operated

Installation dimensions mm (inches)

3/2 Pilot solenoid operated, spring return - 1/4", 3/8" valve bases.

2323M23-SM2B**, 2325M24-SM2B**
3323M23-SM2B**, 3325M24-SM2B**



For basic valve dimensions see page 1700.6 - For solenoid dimensions see page 1700.3

Model No	D	H	N	P	R	S	SS	V
2323M23-SM2B**	32 (1.26)	63.5 (2.50)	51.5 (2.03)	1/4"NPT 1/4"NPT	40 (1.57)	57 (2.24)	- -	- -
2325M24-SM2B**	32 (1.26)	63.5 (2.50)	51.5 (2.03)	1/4"NPT 1/4"NPT	40 (1.57)	57 (2.24)	1/4"NPT 1/4"NPT	1/8"NPT 1/8"NPT
3323M23-SM2B**	38 (1.50)	63.5 (2.50)	57.5 (2.26)	3/8"NPT 3/8"NPT	51 (2.01)	73.5 (2.89)	- -	- -
3325M24-SM2B**	38 (1.50)	63.5 (2.50)	57.5 (2.26)	3/8"NPT 3/8"NPT	51 (2.01)	73.5 (2.89)	1/4"NPT 1/4"NPT	1/8"NPT 1/8"NPT

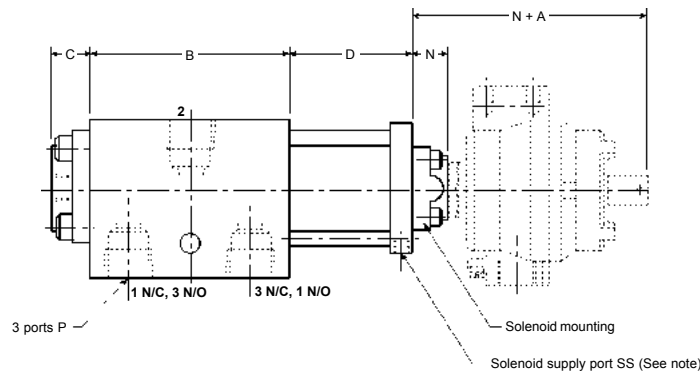
Note:

1/4" and 3/8" Normally Closed versions have internal air supply to the solenoid - Specify code 3 in position 4 and code 3 in position 7 of model number code.

1/4" and 3/8" Normally Open and Universal versions require a separate air supply to the pilot solenoid - Specify code 5 in position 4 and code 4 in position 7 of model number code.

3/2 Pilot solenoid operated, spring return - 1/2", 3/4", 1", 1 1/4", 1 1/2" valve bases.

4325M24-SM2B**, 6325M24-SM2B**
8325M24-SM2B**, 5325M24-SM2B**
7325M24-SM2B**



For basic valve dimensions see page 1700.6 - For solenoid dimensions see page 1700.3

Model No	B	C	D	N	P	SS
4325M24-SM2B**	100 (3.94)	29 (1.14)	38 (1.50)	19.5 (0.77)	1/2"NPT 1/2"NPT	1/4"NPT 1/4"NPT
6325M24-SM2B**	106 (4.17)	22 (0.87)	66 (2.60)	19.5 (0.77)	3/4"NPT 3/4"NPT	1/4"NPT 1/4"NPT
8325M24-SM2B**	126 (4.96)	22 (0.87)	66 (2.60)	19.5 (0.77)	1"NPT 1"NPT	1/4"NPT 1/4"NPT
5325M24-SM2B**	155 (6.10)	18 (0.71)	67 (2.64)	19.5 (0.77)	1 1/4"NPT 1 1/4"NPT	1/4"NPT 1/4"NPT
7325M24-SM2B**	180 (7.09)	18 (0.71)	67 (2.64)	19.5 (0.77)	1 1/2"NPT 1 1/2"NPT	1/4"NPT 1/4"NPT

Note:

1/2" to 1 1/2" Normally Open, Normally Closed and Universal versions always require a separate mains air supply to be taken to the pilot solenoid - Specify code 5 in position 4 and code 4 in position 7 of model number code

1/4" - 1½" NPT 3/2 POPPET VALVES

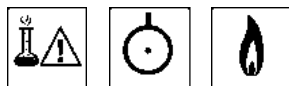
Pilot air operated

316
STAINLESS STEEL

General description and benefits

A range of compact 3/2 pilot operated high flow poppet valves in stainless steel for use on gases.

- Compact.
- High flow.
- 3/2 N/O, N/C and Universal.
- Non lube.
- Meet NACE standard.



Operating fluids

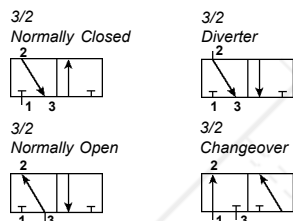
Gases

Filtered lubricated or non-lubricated air, inert gas, sweet (natural) gases.
Sour gas option available (details on application)

Liquids

Low pressure hydraulic, mineral oil or water (*details on application*).

Functional symbols



Technical data

Ports

1/4" - 1½"NPT (BSP option available)
1/4"NPT pilot ports

Cv (Kv)

1/4" - 1.33 (19)	3/8" - 1.75 (25)
1/2" - 4.00 (56)	3/4" - 9.2 (131)
1" - 14.5 (206)	1¼" - 19.9 (283)
1½" - 29.5 (420)	

Working pressure (gases & liquids)

2 to 12 bar (30 to 174 psi)

Working temperature

-20°C to +180°C (-4°F to +356°F)

Minimum pilot pressure

at 6.3 bar (90 psi) body pressure

1/4" - 3/8" Spring return
4.0 bar (58 psi)
1/2" - 1½" Spring return
3.0 bar (43.5 psi)

Technical data (cont)

Maximum flow

at 6 bar (87 psi), 1 bar (14.5 psi) differential

1/4" - 2010 L/min (71 SCFM)
3/8" - 2634 L/min (93 SCFM)
1/2" - 6060 L/min (214 SCFM)
3/4" - 14018 L/min (495 SCFM)
1" - 21976 L/min (776 SCFM)
1¼" - 30246 L/min (1068 SCFM)
1½" - 44944 L/min (1587 SCFM)

Materials of construction

Body

Stainless steel AISI 316L
to NACE MR-01-75

Poppet

Stainless steel AISI 316L
to NACE MR-01-75

Spring

316 Stainless steel

Seals

Fluoroelastomer

Preferred models

Model No	Description	Mass kg (lbs)	Symbol
2325M21-SM2B	1/4"NPT 3/2 Pilot air operated, spring return, UNIV	1.00 (2.20)	
3325M21-SM2B	3/8"NPT 3/2 Pilot air operated, spring return, UNIV	1.80 (3.96)	
4325M21-SM2B	1/2"NPT 3/2 Pilot air operated, spring return, UNIV	2.15 (4.73)	
6325M21-SM2B	3/4"NPT 3/2 Pilot air operated, spring return, UNIV	5.00 (11.0)	
8325M21-SM2B	1"NPT 3/2 Pilot air operated, spring return, UNIV	5.50 (12.1)	
5325M21-SM2B	1¼"NPT 3/2 Pilot air operated, spring return, UNIV	9.50 (20.9)	
7325M21-SM2B	1½"NPT 3/2 Pilot air operated, spring return, UNIV	11.2 (24.6)	

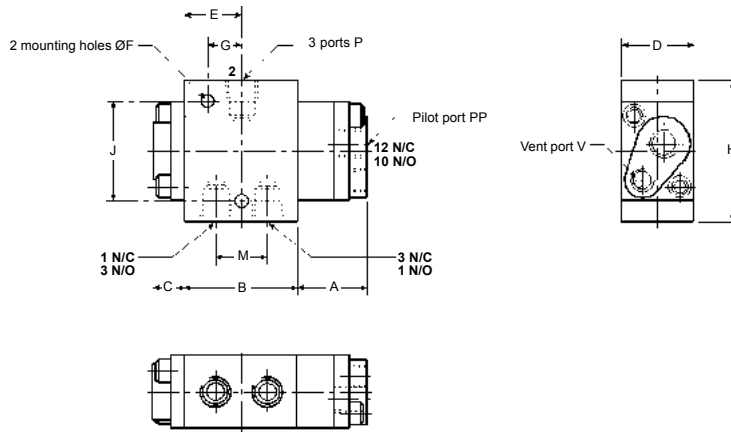
**1/4" - 1 1/2" NPT
3/2 POPPET VALVES**

Pilot air operated

Installation dimensions mm (inches)

3/2 Pilot air operated, spring return - 1/4", 3/8".

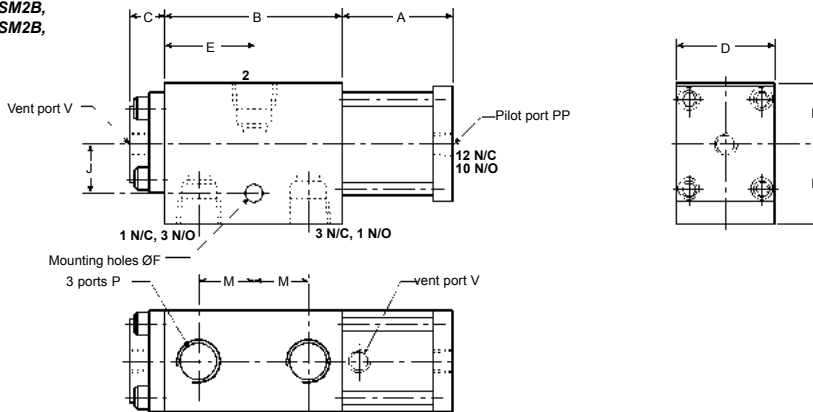
2325M21-SM2B, 3325M21-SM2B



Model No	A	B	C	D	E	F	G	H	J	M	P	PP	V
2325M21-SM2B	32 (1.26)	50 (1.97)	15 (0.59)	32 (1.26)	25 (0.98)	5.5 (0.22)	15 (0.59)	63.5 (2.50)	45 (1.77)	23 (0.91)	1/4"NPT 1/4"NPT	1/4"NPT 1/4"NPT	1/8"NPT 1/8"NPT
3325M21-SM2B	38.5 (1.52)	70 (2.76)	16 (0.63)	38 (1.50)	35 (1.38)	6.35 (0.25)	19 (0.75)	63.5 (2.50)	45 (1.77)	38 (1.49)	3/8"NPT 3/8"NPT	1/4"NPT 1/4"NPT	1/8"NPT 1/8"NPT

3/2 Pilot air operated, spring return - 1/2", 3/4", 1", 1 1/4", 1 1/2".

4325M21-SM2B, 6325M21-SM2B,
8325M21-SM2B, 5325M21-SM2B,
7325M21-SM2B



Model No	A	B	C	D	E	F	H	J	K	M	P	PP	V
4325M21-SM2B	38 (1.50)	100 (3.94)	29 (1.14)	38 (1.50)	50 (1.97)	6.35 (0.25)	31.75 (1.25)	22.5 (0.89)	31.75 (1.25)	28 (1.10)	1/2"NPT 1/2"NPT	1/4"NPT 1/4"NPT	1/4"NPT 1/4"NPT
6325M21-SM2B	66 (2.60)	106 (4.17)	22 (0.87)	60 (2.36)	53 (2.09)	11 (0.43)	49 (1.93)	30 (1.18)	36 (1.42)	33 (1.30)	3/4"NPT 3/4"NPT	1/4"NPT 1/4"NPT	1/4"NPT 1/4"NPT
8325M21-SM2B	66 (2.60)	126 (4.96)	22 (0.87)	60 (2.36)	63 (2.48)	11 (0.43)	48 (1.89)	30 (1.18)	38 (1.50)	39 (1.54)	1"NPT 1"NPT	1/4"NPT 1/4"NPT	1/4"NPT 1/4"NPT
5325M21-SM2B	67 (2.64)	155 (6.10)	18 (0.71)	60 (2.36)	77.5 (3.05)	11 (0.43)	55 (2.17)	40 (1.57)	45 (1.77)	49 (1.93)	1 1/4"NPT 1 1/4"NPT	1/4"NPT 1/4"NPT	1/4"NPT 1/4"NPT
7325M21-SM2B	67 (2.64)	180 (7.09)	18 (0.71)	60 (2.36)	90 (3.54)	11 (0.43)	62 (2.44)	45 (1.77)	48 (1.89)	55 (2.17)	1 1/2"NPT 1 1/2"NPT	1/4"NPT 1/4"NPT	1/4"NPT 1/4"NPT

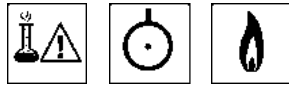
1" A.N.S.I. FLANGE TWO WAY POPPET VALVES

Pilot air or pilot solenoid operated

316
STAINLESS STEEL

General description and benefits

Two way 1" A.N.S.I. 150lb flanged poppet valves pilot air or pilot solenoid operated in stainless steel for use on gases.



Technical data

Ports

1" A.N.S.I. 150lb flanged
1/4"NPT pilot ports

Cv (Kv)

14.4 (206)

Working pressure (gases & liquids)

Solenoid operated valves
3 to 10 bar (45 to 145 psi)

Air operated valves
2 to 10 bar (30 to 145 psi)

Working temperature

Valve only
-20°C to +180°C (-4°F to +356°F)
Solenoid - Ambient temperature
-20°C to +65°C (-4°F to +149°F)

Minimum pilot pressure

at 10 bar (145 psi) body pressure
4.0 bar (58 psi)

at 6 bar (87 psi) body pressure
3.0 bar (45 psi)

Maximum flow

at 6 bar (87 psi), 1 bar (14.5 psi) differential
21976 L/min (776 SCFM)

Materials of construction

Body and poppet

Stainless steel AISI 316L
to NACE MR-01-75

Spring

316 Stainless steel

Seals

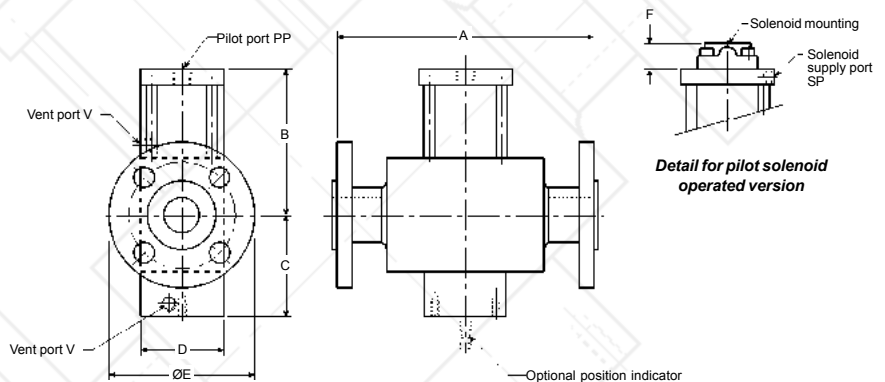
Fluoroelastomer

Preferred models

Model No	Description	Mass kg (lbs)	Symbol
8223M21-SM4B	1" Pilot air operated, diff spring return	6.30 (13.9)	
8223M24-SM4B**	1" Pilot sol operated, diff spring return	6.60 (14.5)	

* Specify solenoid type, + Specify solenoid voltage

Installation dimensions mm (inches)

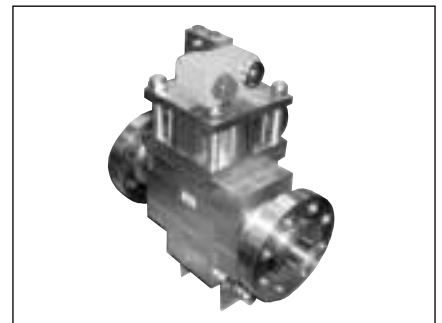
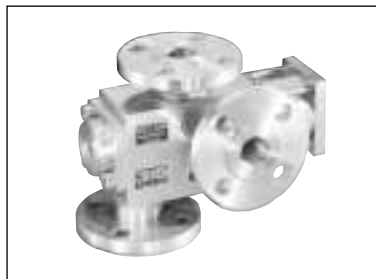


Model No	A	B	C	D	E	F	PP	SP	V
8223M21-SM4B	190 (7.48)	110 (4.33)	73 (2.87)	60 (2.36)	108 (4.25)	-	1/4"NPT	-	1/8"NPT
8223M24-SM4B**	190 (7.48)	110 (4.33)	73 (2.87)	60 (2.36)	108 (4.25)	19.5 (0.77)	-	1/4"NPT	1/8"NPT

Special Poppet Valves

Midland Pneumatic have a wealth of experience in the design of totally customised Stainless Steel Valves for various media in the Oil, Gas and Petroleum, Food, Beverage and Dairy Processing, Chemical and Pharmaceutical Industries to meet a variety of application needs.

Pressure range 1 - 50 bar (14.5 - 725 psi)



We welcome details of your application requirements to enable **Midland** to provide you with a cost effective solution.

1/8" NPT 3/2 POPPET VALVES

Plunger operated, Lever roller operated

General description and benefits

Compact 3/2 mechanically operated poppet valves in stainless steel for use on gases.
For N/O, N/C and universal operation.

Technical data

Ports

1/8"NPT (BSP option available)

Cv (Kv)

0.26 (3.7)

Working pressure (gases & liquids)

10 bar (145 psi)

Working temperature

-20°C to +180°C (-4°F to +356°F)

Operating force

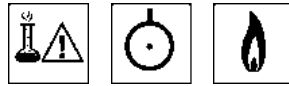
at 10 bar (145 psi) body pressure

	N/C	N/O
Plunger	44N (17lbf)	80N (20lbf)
Lever roller	20N (17lbf)	36N (20lbf)

Maximum flow

at 6 bar (87 psi), 1 bar (14.5 psi) differential

402 L/min (14.2 SCFM)



Materials of construction

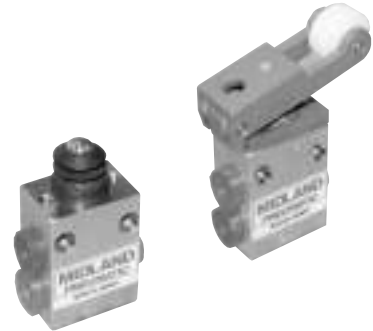
Body, operator and poppet
Stainless steel AISI 316L
to NACE MR-01-75

Spring

316 Stainless steel

Seals

Fluoroelastomer

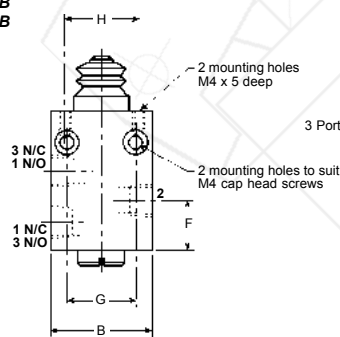


Preferred models

Model No	Description	Mass kg (lbs)	Symbol
1323M62-SM2B	1/8" Plunger operated, spring return, N/C	0.21 (0.46)	
1324M62-SM2B	1/8" Plunger operated, spring return, N/O	0.22 (0.48)	
1323M82-SM2B	1/8" Lever operated, spring return, N/C	0.28 (0.62)	
1324M82-SM2B	1/8" Lever operated, spring return, N/O	0.29 (0.64)	

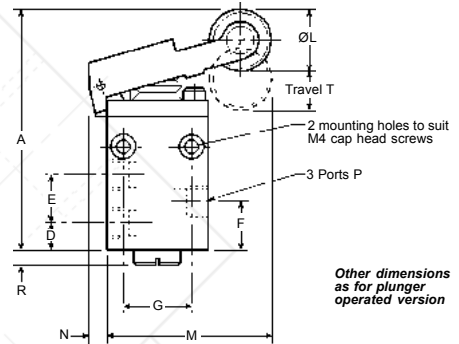
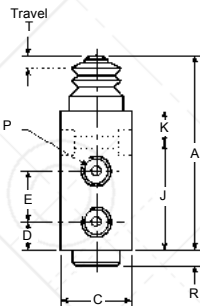
Installation dimensions mm (inches)

Plunger operated
1323M62-SM2B
1324M62-SM2B



Travel T = 2.5 (0.10) to operate, 5.0 (0.20) maximum

Lever operated
1323M82-SM2B
1324M82-SM2B



Travel T = 6.0 (0.24) to operate, 12.0 (0.47) maximum

Model No	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	T
132*M62-SM2B	62 (2.44)	32 (1.26)	22 (0.87)	9 (0.35)	16 (0.63)	16 (0.63)	22 (0.87)	24 (0.95)	34 (1.34)	10 (0.39)	-	-	-	1/8"NPT	5 (0.20)	5 (0.20)
132*M82-SM2B	78 (3.07)	32 (1.26)	22 (0.87)	9 (0.35)	16 (0.63)	16 (0.63)	22 (0.87)	-	34 (1.34)	-	20 (0.79)	52.5 (2.07)	6 (0.24)	1/8"NPT	5 (0.20)	12 (0.47)

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