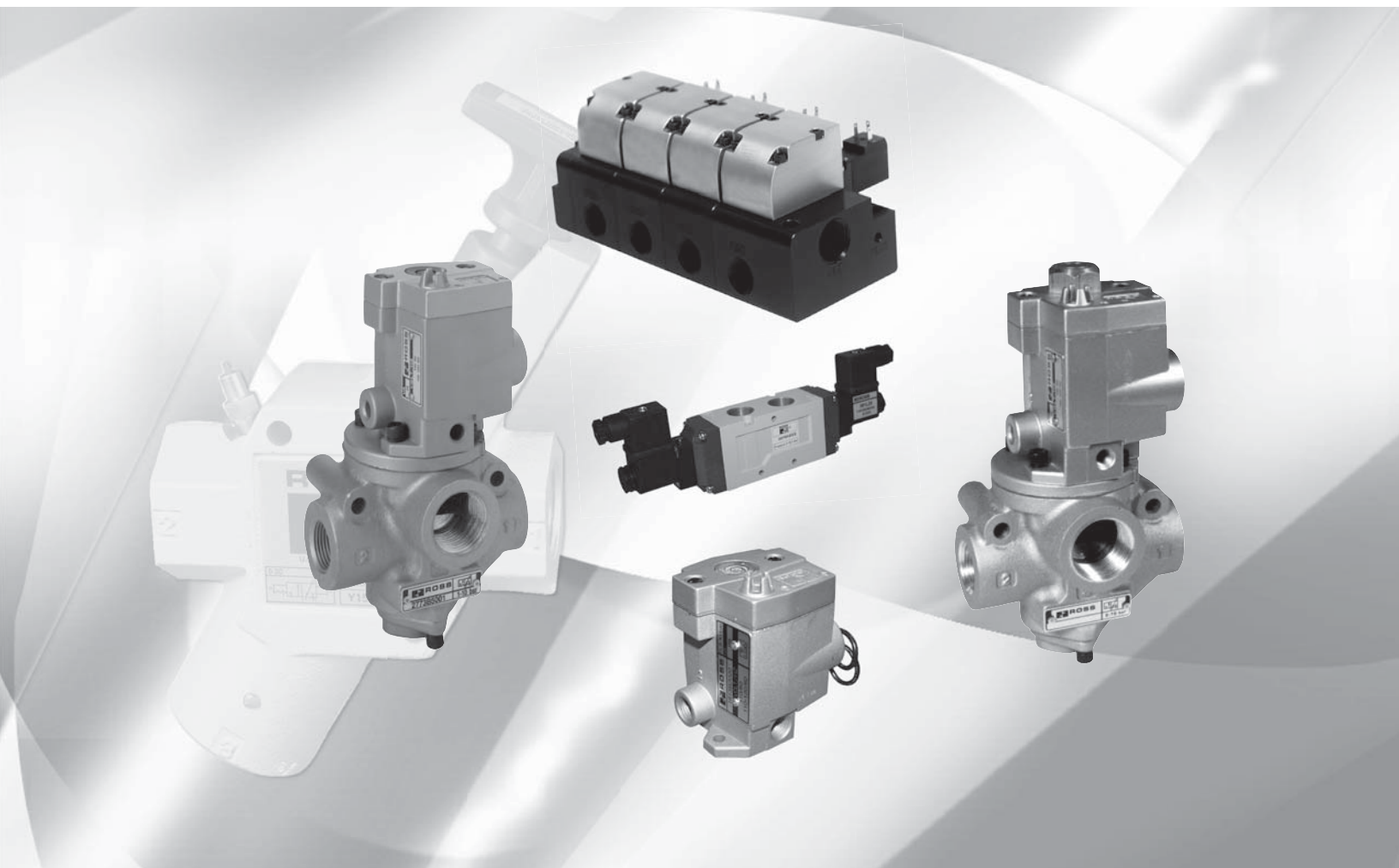
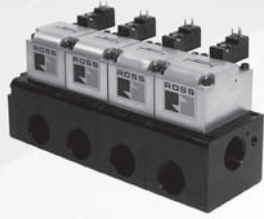




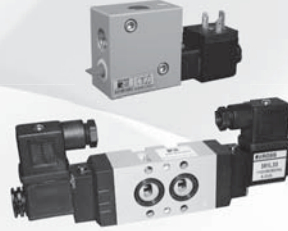
ROSS CONTROLS®

INLINE MOUNTED VALVES AND MANIFOLDS





DALE Series

Poppet Valves
27 SeriesPoppet Valves
21 SeriesDirectional Control
95 Series

NAMUR Interface 95 & 34 Series

Compact Valves
16 Series

VALVE TYPE/SERIES	DESCRIPTION		AVAILABLE INLET PORT SIZES													FUNCTIONS										Page
	Spool & Sleeve	Poppet	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	2	2½	2/2	3/2	3/4	4/2	5/2	5/3	Max Flow (Cv)	Solenoid Control	Direct Solenoid Control	Pressure Control	Manifold			
DALE SERIES																										
CP																		100						B1.3 - B1.8		
LF																		64.7						B1.11 - B1.12		
CX																		100						B1.13 - B1.24		
LX																		64.7						B1.25 - B1.27		
LT																		2.2						B1.28 - B1.29		
27 SERIES																										
27																		72						B2.3 - B2.9		
27																		34						B2.10 - B2.11		
27																		72						B2.3 - B2.5		
Options & Accessories																									B2.12 - B2.22	
21 SERIES																										
21																		40						B3.3 - B3.5		
21																		40						B3.6 - B3.8		
21 Vacuum																		71						B3.9 - B3.10 B3.12 - B3.13		
21 Full Vacuum																		71						B3.11		
Options & Accessories																									B3.14	
INLINE DIRECTIONAL CONTROL 95 SERIES																										
95																		2.6						B4.3, B4.7		
95																		4.5						B4.4 - B4.5 B4.8 - B4.9		
95																		3.4						B4.6, B4.10		
Manifold Base, Options & Accessories																									B4.11 - B4.12	
NAMUR INTERFACE 95 & 34 Series																										
95																								B5.3		
34																								B5.4		
COMPACT 16 SERIES																										
16																								B6.3 - B6.4		

Dale Series Valves and Manifolds

- Solenoid pilot controlled CP Series
- Solenoid pilot controlled LF Series
- CX Series for Leak Tight Applications
Solenoid pilot and pressure controlled
- LX Series for Leak Tight Applications
Solenoid pilot and pressure controlled
- LT Series for Leak Tight Applications
Solenoid pilot and pressure controlled

B1.1 – B1.25

B

Poppet Valves 27 Series

- Solenoid pilot control
- Direct solenoid pilot control
- Pressure control

B2.1 – B2.23

Poppet Valves 21 Series

- Solenoid pilot control
- Pressure control
- Low Temperature
- High Temperature
- Vacuum
- Full Vacuum

B3.1 – B3.14

Directional Spool Valves 95 Series

- Solenoid Control
- Pressure Control
- Manifolds

B4.1 – B4.12

NAMUR Interface 95 & 34 Series

- Solenoid pilot controlled

B5.1 – B5.4

Compact Valves 16 Series

- Solenoid pilot controlled

B6.1 – B6.4

Cautions and Warranty

- Compatible Lubricants
- Cautions and Warnings

Inside Cover

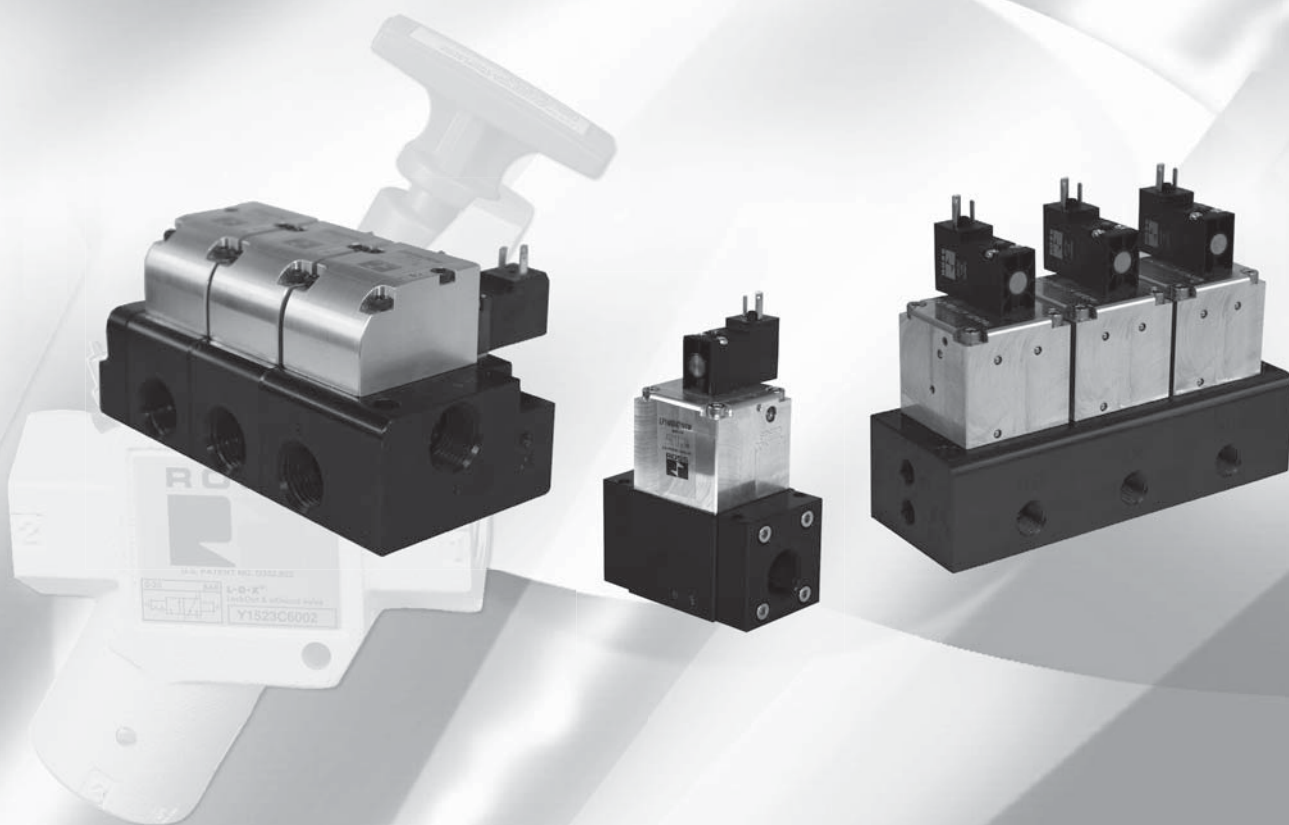
B



ROSS CONTROLS®

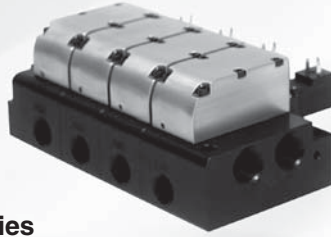
DALE SERIES VALVES

INLINE POPPET VALVES & MANIFOLDS
LEAK TIGHT VALVES & MANIFOLDS





CP Series



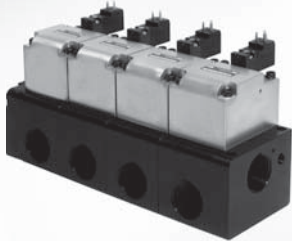
LF Series



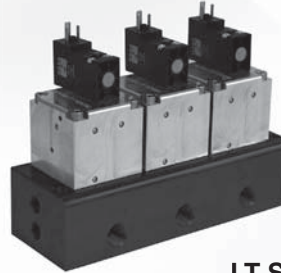
Internally or externally piloted series for use in standard pressure applications with 30 psi (2 bar) minimum operating pressure.



CX Series



LX Series



LT Series



Externally piloted only series for use in leak tight, low pressure, vacuum, and process applications.

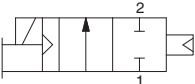
For use in leak test applications.

VALVE TYPE/FUNCTION	SOLENOID	PRESSURE	AVAILABLE INLET PORT SIZES									MAXIMUM FLOW Cv	MOUNTING		Page
													INLINE	MANIFOLD	
			1/4	3/8	1/2	3/4	1	1¼	1½	2	2½				
CP SERIES Valves & Manifolds															
2/2											108			B1.3 - B1.8	
3/2											12.3			B1.5 - B1.10	
LF SERIES															
2/2											62.7			B1.11 - B1.12	
CX SERIES for Leak Test Applications															
2/2											108			B1.13 - B1.14	
3/2											12.3			B1.15 - B1.16	
2/2											108			B1.17 - B1.18	
3/2											12.3			B1.19 - B1.20	
CX SERIES MANIFOLDS for Leak Test Applications															
2/2											108			B1.21 - B1.22	
3/2											12.3			B1.23 - B1.24	
2/2											108			B1.25 - B1.26	
3/2											12.3			B1.23 - B1.24	
LX SERIES for Leak Test Applications															
2/2											62.7			B1.25 - B1.26	
2/2											62.7			B1.27	
LT SERIES															
3/4											2.2			B1.28 - B1.29	
Valve Manifold Configurator														B1.30	

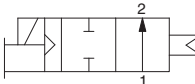
2-Way 2-Position Valves, Spring Assisted Air Return							
Port Size		Model Number*		Pilot Port Thread		Avg. C _v	Weight lb (kg)
		Internal Pilot Supply					
1	2	Normally Closed	Normally Open	NPT	BSPP		
1/2	3/8	CP14NB37101**	CP24NB37101**	10-32 UNF	M5	3.5	1.4 (0.6)
1/2	1/2	CP14NB47101**	CP24NB47101**	10-32 UNF	M5	3.5	1.4 (0.6)
1	3/4	CP16NB57101**	CP26NB57101**	1/8-27 NPT	G1/8	12.3	3.5 (1.6)
1	1	CP16NB67101**	CP26NB67101**	1/8-27 NPT	G1/8	12.3	3.5 (1.6)
1½	1¼	CP18NB77101**	CP28NB77101**	1/8-27 NPT	G1/8	44.9	10.0 (4.6)
1½	1½	CP18NB87101**	CP28NB87101**	1/8-27 NPT	G1/8	44.9	10.0 (4.6)
2½	2	CP10NB97101**	CP20NB97101**	1/8-27 NPT	G1/8	108	19.5 (8.9)
2½	2½	CP10NB07101**	CP20NB07101**	1/8-27 NPT	G1/8	108	19.5 (8.9)

* NPT threads. For BSPP threads, replace “N” in the model number with a “D”, e.g., CP14DB37101W.

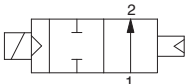
** Insert voltage code: “W” = 24 volts DC; “Z” = 110 volts AC, 120 volts AC; e.g., CP14NB37101W.



1/2 thru 2½
Normally Closed



1/2 & 1
Normally Open



1½ & 2½
Normally Open



B1

B

EXTERNAL PILOT SUPPLY CONVERSION:

The CP Series valves can be easily field converted to external pilot supply by simply removing existing pipe plug from port X-1, and installing air supply to the X-1 port.

ACCESSORIES

Electrical Connectors						
Valve Type	Port Size	Electrical Connector Form	Electrical Connectors Model Number			
			Lighted Connector Only		Lighted Connector Pre-wired*	
			24 Volts DC	120 Volts AC	24 Volts DC	120 Volts AC
2/2	1/4 - 1	EN 175301-803 Form C	2453K77-W	2453K77-Z	2476K77-W	2476K77-Z
	1½-2½	EN 175301-803 Form A	936K87-W	936K87-Z	720K77-W	720K77-Z

*Pre-wired connectors include a 2 meter (6½ ft.) cord.



STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.

Mounting Type: Inline.

Solenoid Pilot: Rated for continuous duty.

Standard Voltages/Power Consumption (each solenoid):

Port Size 1/2 & 1: 24 volts DC: 1.2 watts on DC.

110 volts AC, 50 Hz: 5.4 VA.

120 volts AC, 60 Hz: 5.0 VA.

Port Size 1½ & 2½:

24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz.

5.8 watts nominal on AC and DC, 6.5 watts maximum on AC and DC.

Enclosure Rating: IP65, IEC 60529.

Electrical Connections: EN 175301-803 Form A or Form C connector.

Ambient Temperature: 40° to 120°F (4° to 50°C).

Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air. For liquid applications, consult ROSS.

Inlet Pressure: 30 to 145 psig (2 to 10 bar).

Pilot Pressure: 30 to 145 psig (2 to 10 bar). Must be equal to or greater than inlet pressure.

Manual Override:

Normally Closed Valves - All Sizes: Non-locking.

Normally Open Valves:

Port Size 1/2 & 1: Non-locking.

Port Size 1½ & 2½: Locking, turn-to-lock.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



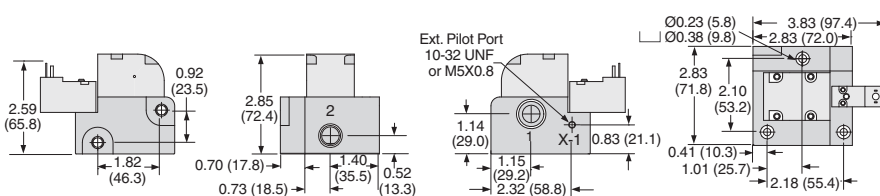
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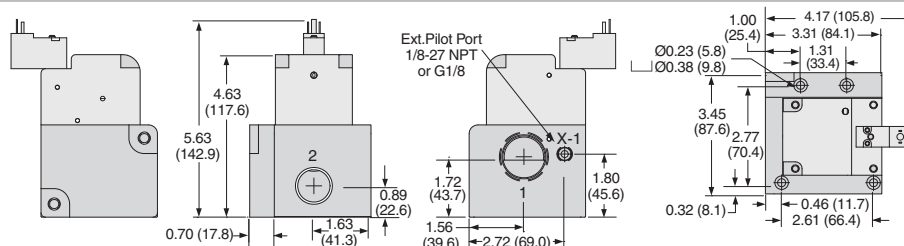
B1.3

Dale CP Series

Port Size 3/8 & 1/2

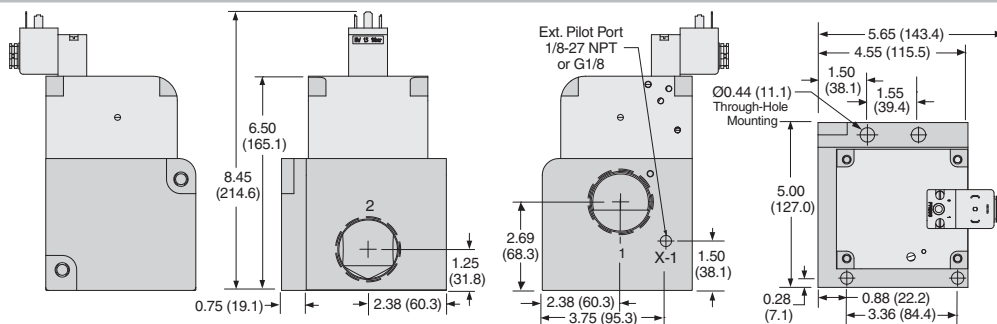


Port Size 3/4 & 1

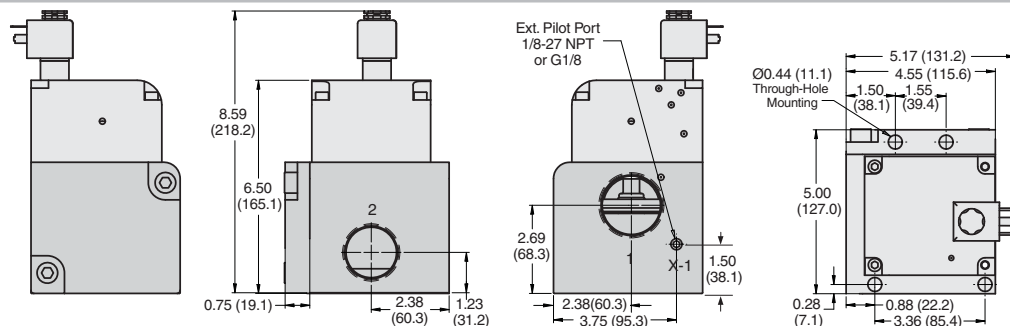


Port Size 1¼ & 1½

Normally Closed

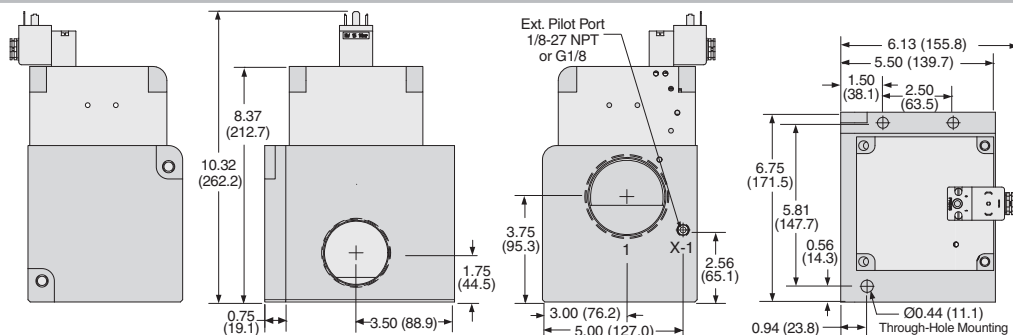


Normally Open

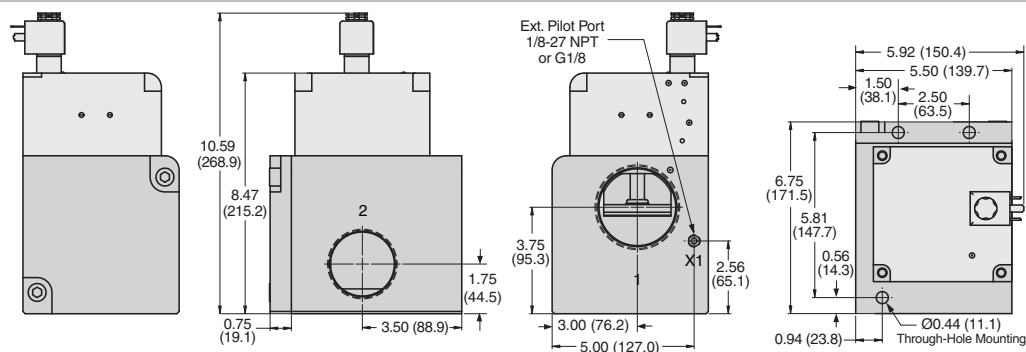


Port Size 2 & 2½

Normally Closed



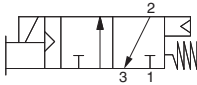
Normally Open



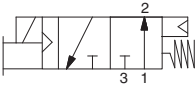
3-Way 2-Position Valves, Spring Assisted Air Return							
Port Size		Model Number*		Pilot Port Thread		Avg. C _v	Weight lb (kg)
		Internal Pilot Supply					
1, 3	2	Normally Closed	Normally Open	NPT	BSPP		
1/2	3/8	CP34NB37101**	CP44NB37101**	10-32 UNF	M5	3.5	1.8 (0.8)
1/2	1/2	CP34NB47101**	CP44NB47101**	10-32 UNF	M5	3.5	1.8 (0.8)
1	3/4	CP36NB57101**	CP46NB57101**	1/8-27 NPT	G1/8	12.3	5.3 (2.4)
1	1	CP36NB67101**	CP46NB67101**	1/8-27 NPT	G1/8	12.3	5.3 (2.4)

* NPT threads. For BSPP threads, replace “N” in the model number with a “D”, e.g., CP34DB37101W.

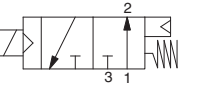
** Insert voltage code: “W” = 24 volts DC; “Z” = 110 volts AC, 120 volts AC; e.g., CP34NB37101W.



1/2 & 1
Normally Closed



1/2
Normally Open



1
Normally Open



B1

B

EXTERNAL PILOT SUPPLY CONVERSION:

The CP Series valves can be easily field converted to external pilot supply by simply removing existing pipe plug from port X-1, and installing air supply to the X-1 port.

ACCESSORIES


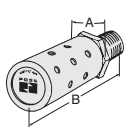
Electrical Connectors

Valve Type	Port Size	Electrical Connector Form	Electrical Connectors Model Number			
			Lighted Connector Only		Lighted Connector Pre-wired*	
			24 Volts DC	120 Volts AC	24 Volts DC	120 Volts AC
3/2	1/2	EN 175301-803 Form C	2453K77-W	2453K77-Z	2476K77-W	2476K77-Z
	1	EN 175301-803 Form A	936K87-W	936K87-Z	720K77-W	720K77-Z

*Pre-wired connectors include a 2 meter (6½ ft.) cord.



Silencers

Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)		
		NPT Threads	BSPT Threads		A	B			
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)		
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)		

Pressure Range: 0 to 300 psig (0 to 20.7 bar) maximum. **Flow Media:** Filtered air.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.

Mounting Type: Inline.

Solenoid Pilot: Rated for continuous duty.

Standard Voltages/Power Consumption (each solenoid):

Port Size 1/2:

24 volts DC: 1.2 watts on DC.

110 volts AC, 50 Hz: 5.4 VA.

120 volts AC, 60 Hz: 5.0 VA.

Port Size 1:

24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz.

5.8 watts nominal on AC and DC, 6.5 watts maximum on AC and DC.

Enclosure Rating: IP65, IEC 60529.

Electrical Connections: EN 175301-803 Form A or Form C connector.

Ambient Temperature: 40° to 120°F (4° to 50°C).

Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air. For liquid applications, consult ROSS.

Inlet Pressure: 30 to 145 psig (2 to 10 bar).

Pilot Pressure: 30 to 145 psig (2 to 10 bar). Must be equal to or greater than inlet pressure.

Manual Override:

Manual Override:

Normally Closed Valves: All Sizes: Non-locking.

Normally Open Valves:

Port Size 1/2: Non-locking.

Port Size 1: Locking, turn-to-lock.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



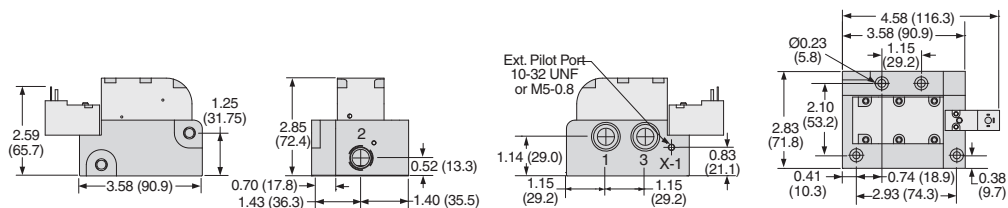
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B1.5

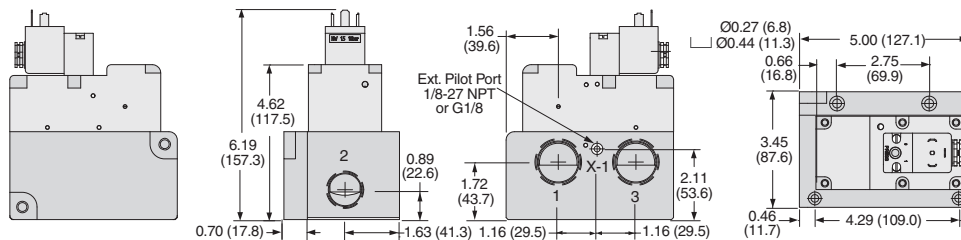
Valve Dimensions – inches (mm)

Port Size 3/8 & 1/2

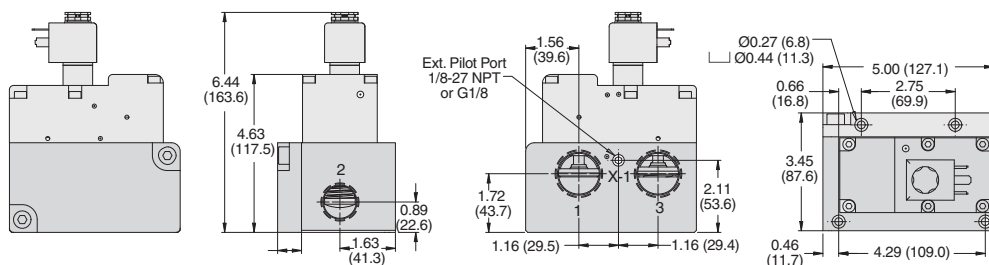


Port Size 3/4 & 1

Normally Closed



Normally Open



ROSS/FLEX® Looking for a different solution?

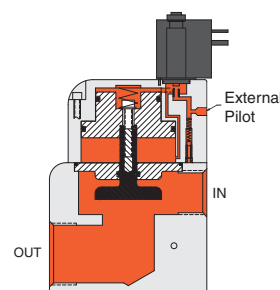
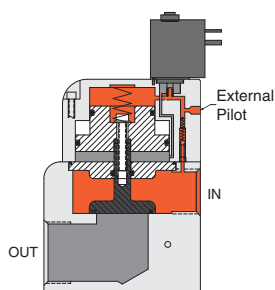
ROSS/FLEX® Customer defined application specific solutions that reduce cost, improve productivity and provide a perfect fit.

Valve Operation Overview

1 - Valve Not Actuated

2 - Valve Actuated

2/2 Normally Closed

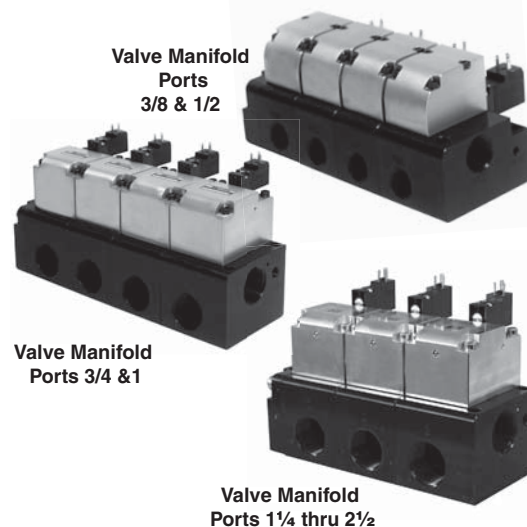


Manifolds can be ordered from two to ten stations. Complete valves-on-manifold assemblies can be ordered to fit your precise requirements. For preassembled manifold valves with the same model number, select the model number from the table below. For ordering the Dale CP Series manifold valves with different valve functions, please see page B1.24 for manifold configurator.

2-Way 2-Position Valves, Spring Assisted Air Return

Port Size		Model Number*		Pilot Port Thread		Avg. C _v
		Internal Pilot Supply		NPT	BSPP	
1	2	Normally Closed	Normally Open			
1/2	3/8	CP14NB3711X**	CP24NB3711X**	10-32 UNF	M5	3.7
1/2	1/2	CP14NB4711X**	CP24NB4711X**	10-32 UNF	M5	3.7
1	3/4	CP16NB5711X**	CP26NB5711X**	1/8-27 NPT	G1/8	13.7
1	1	CP16NB6711X**	CP26NB6711X**	1/8-27 NPT	G1/8	13.7
1½	1¼	CP18NB7711X**	CP28NB7711X**	1/8-27 NPT	G1/8	44.9
1½	1½	CP18NB8711X**	CP28NB8711X**	1/8-27 NPT	G1/8	44.9
2½	2	CP10NB9711X**	CP20NB9711X**	1/8-27 NPT	G1/8	108
2½	2½	CP10NB0711X**	CP20NB0711X**	1/8-27 NPT	G1/8	108

1/2 thru 2½ Normally Closed	1/2 & 1 Normally Open	1½ & 2½ Normally Open



* NPT threads. For BSPP threads, replace "N" in the model number with a "D", e.g., CP14DB3711XW.

** Insert voltage code: "W" = 24 volts DC; "Z" = 110 volts AC, 120 volts AC; e.g., CP14NB3711XW.

X To indicate the number of stations desired, for 2 to 9 stations, replace X in the model number with the specific number of stations, for 10 stations replace X with 0, e.g., CP14NB37114W (4 = 4 Stations), CP14NB37110W, (0 = 10 Stations).

Contact ROSS for 1 station valve manifolds or refer to single CX Valve product page.

EXTERNAL PILOT SUPPLY CONVERSION:

The CP Series valves can be easily field converted to external pilot supply by simply removing existing pipe plug from port X-1, and installing air supply to the X-1 port.

ACCESSORIES

Electrical Connectors

Valve Type	Port Size	Electrical Connector Form	Electrical Connectors Model Number			
			Lighted Connector Only		Lighted Connector Pre-wired*	
			24 Volts DC	120 Volts AC	24 Volts DC	120 Volts AC
2/2	1/4 - 1	EN 175301-803 Form C	2453K77-W	2453K77-Z	2476K77-W	2476K77-Z
	1½-2½	EN 175301-803 Form A	936K87-W	936K87-Z	720K77-W	720K77-Z

*Pre-wired connectors include a 2 meter (6½ ft.) cord.



STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.

Mounting Type: Inline.

Solenoid Pilot: Rated for continuous duty.

Standard Voltages/Power Consumption (each solenoid):

Port Size 1/2 & 1:

24 volts DC: 1.2 watts on DC.

110 volts AC, 50 Hz: 5.4 VA.

120 volts AC, 60 Hz: 5.0 VA.

Port Size 1½ & 2½:

24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz.

5.8 watts nominal on AC and DC, 6.5 watts maximum on AC and DC

Enclosure Rating: IP65, IEC 60529.

Electrical Connections: EN 175301-803 Form A or Form C connector.

Ambient Temperature: 40° to 120°F (4° to 50°C).

Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air. For liquid applications, consult ROSS.

Inlet Pressure: 30 to 145 psig (2 to 10 bar).

Pilot Pressure: 30 to 145 psig (2 to 10 bar). Must be equal to or greater than inlet pressure.

Manual Override:

Normally Closed Valves - All Sizes: Non-locking.

Normally Open Valves:

Port Size 1/2 & 1: Non-locking.

Port Size 1½ & 2½: Locking, turn-to-lock.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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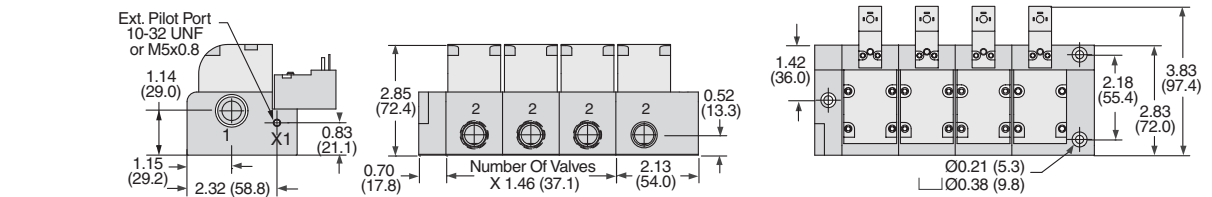
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Solenoid Pilot Controlled Valve Manifolds

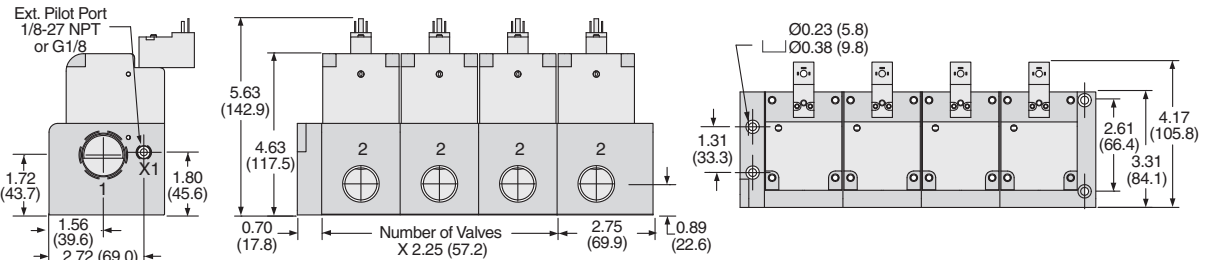
Dale CP Series

Dimensions – inches (mm)

Port Size 3/8 & 1/2

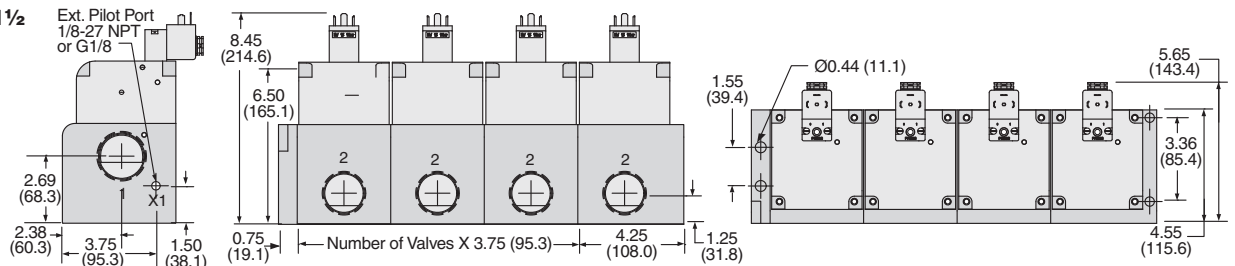


Port Size 3/4 & 1

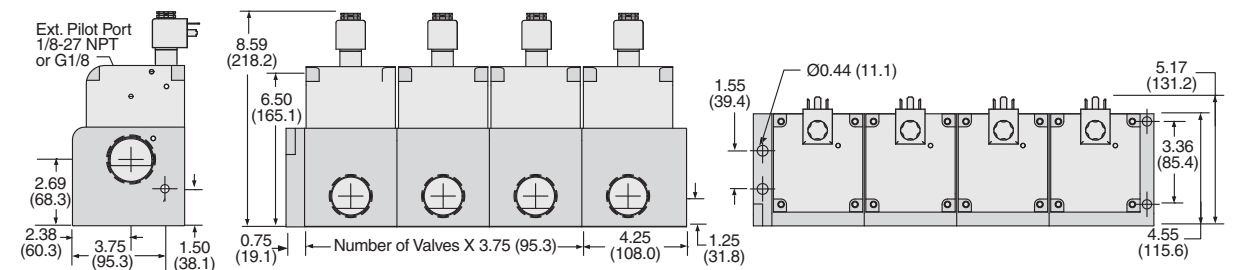


Port Size 1 1/4 & 1 1/2

Normally Closed

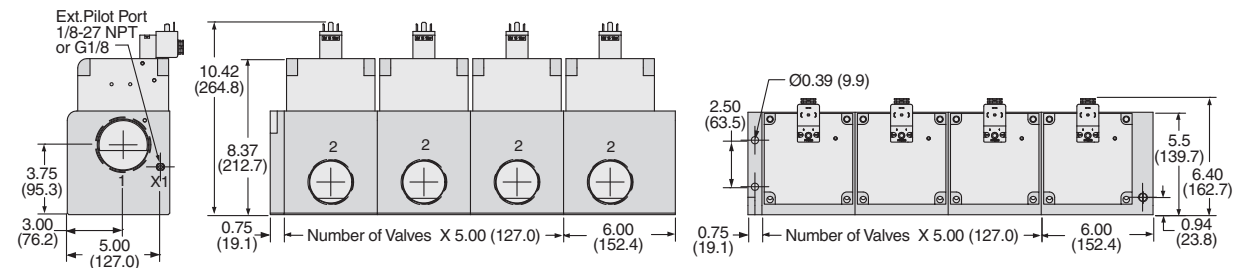


Normally Open

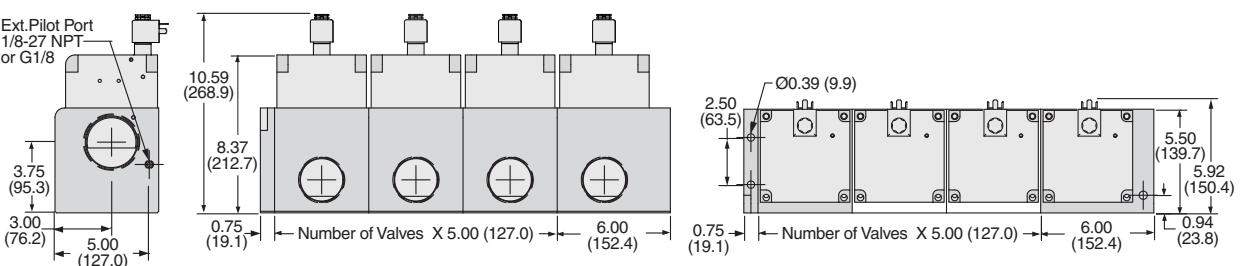


Port Size 2 & 2 1/2

Normally Closed



Normally Open



Solenoid Pilot Controlled Valve Manifolds

Dale CP Series

B1

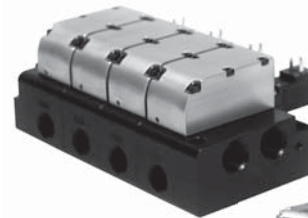
B

Manifolds can be ordered from two to ten stations. Complete valves-on-manifold assemblies can be ordered to fit your precise requirements. For preassembled manifold valves with the same model number, select the model number from the table below. For ordering the Dale CP Series manifold valves with different valve functions, please see page B1.24 for manifold configurator.

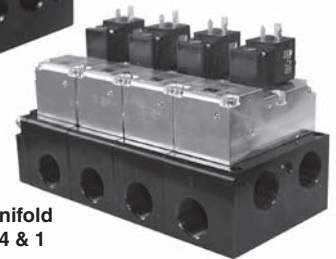
3-Way 2-Position Valves, Spring Assisted Air Return

Port Size		Model Number*		Pilot Port Thread		Avg. C _v
		Internal Pilot Supply		NPT	BSPP	
1, 3	2	Normally Closed	Normally Open			
1/2	3/8	CP34NB3711X**	CP44NB3711X**	10-32 UNF	M5	3.6
1/2	1/2	CP34NB4711X**	CP44NB4711X**	10-32 UNF	M5	3.6
1	3/4	CP36NB5711X**	CP46NB5711X**	1/8-27 NPT	G1/8	12.3
1	1	CP36NB6711X**	CP46NB6711X**	1/8-27 NPT	G1/8	12.3

1/2 & 1 Normally Closed	1/2 Normally Open	1 Normally Open



Valve Manifold
Ports 3/8 & 1/2



Valve Manifold
Ports 3/4 & 1

* NPT threads. For BSPP threads, replace "N" in the model number with a "D", e.g., CP14DB3711XW.

** Insert voltage code: "W" = 24 volts DC; "Z" = 110 volts AC, 120 volts AC; e.g., CP14NB3711XW.

X To indicate the number of stations desired, for 2 to 9 stations, replace X in the model number with the specific number of stations, for 10 stations replace X with 0, e.g., CP14NB37114W (4 = 4 Stations), CP14NB37110W, (0 = 10 Stations). Contact ROSS for 1 station valve manifolds or refer to single CX Valve product page.

EXTERNAL PILOT SUPPLY CONVERSION:

The CP Series valves can be easily field converted to external pilot supply by simply removing existing pipe plug from port X-1, and installing air supply to the X-1 port.

ACCESSORIES

Electrical Connectors

Valve Type	Port Size	Electrical Connector Form	Electrical Connectors Model Number			
			Lighted Connector Only		Lighted Connector Pre-wired*	
			24 Volts DC	120 Volts AC	24 Volts DC	120 Volts AC
3/2	1/2	EN 175301-803 Form C	2453K77-W	2453K77-Z	2476K77-W	2476K77-Z
	1	EN 175301-803 Form A	936K87-W	936K87-Z	720K77-W	720K77-Z

*Pre-wired connectors include a 2 meter (6½ ft.) cord.



Silencers

Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)	
		NPT Threads	BSPT Threads		A	B		
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)	
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)	



Pressure Range: 0 to 300 psig (0 to 20.7 bar) maximum. **Flow Media:** Filtered air.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.

Mounting Type: Inline.

Solenoid Pilot: Rated for continuous duty.

Standard Voltages/Power Consumption (each solenoid):

Port Size 1/2:

24 volts DC: 1.2 watts on DC.

110 volts AC, 50 Hz: 5.4 VA.

120 volts AC, 60 Hz: 5.0 VA.

Port Size 1:

24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz.

5.8 watts nominal on AC and DC, 6.5 watts maximum on AC and DC

Enclosure Rating: IP65, IEC 60529.

Electrical Connections: EN 175301-803 Form A or Form C connector.

Ambient Temperature: 40° to 120°F (4° to 50°C).

Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air. For liquid applications, consult ROSS.

Inlet Pressure: 30 to 145 psig (2 to 10 bar).

Pilot Pressure: 30 to 145 psig (2 to 10 bar). Must be equal to or greater than inlet pressure.

Manual Override:

Normally Closed Valves - All Sizes: Non-locking.

Normally Open Valves:

Port Size 1/2: Non-locking.

Port Size 1: Locking, turn-to-lock.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



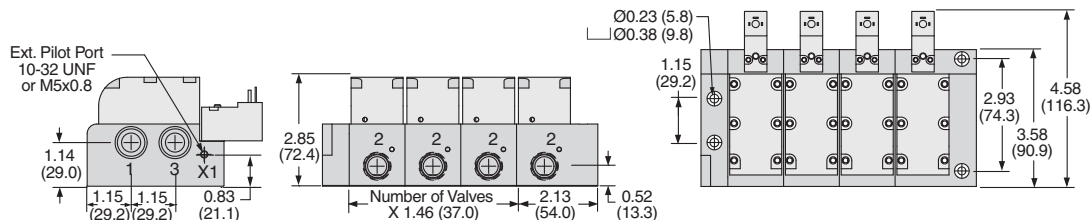
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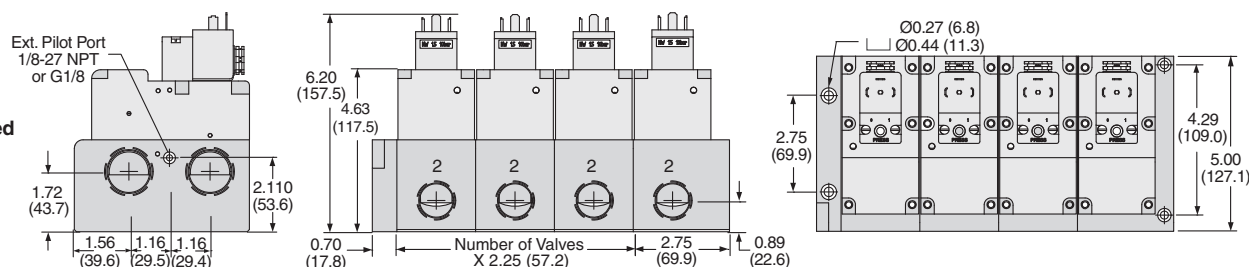
Dimensions – inches (mm)

Port Size 3/8 & 1/2

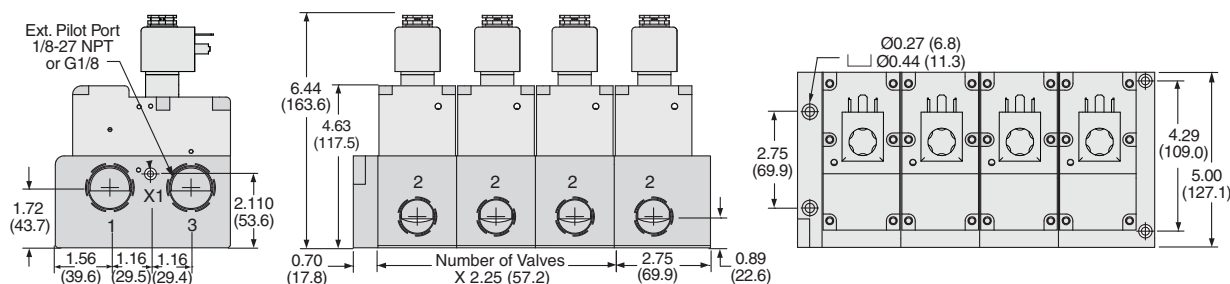


Port Size 3/4 & 1

Normally Closed



Normally Open

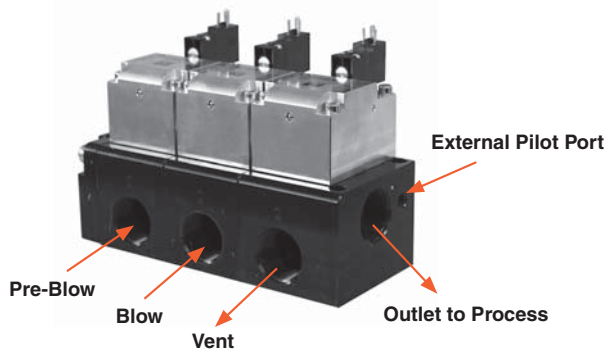


ROSS/FLEX® Looking for a different solution?

ROSS/FLEX® Customer defined application specific solutions that reduce cost, improve productivity and provide a perfect fit.

Blow Molding Application Example

The CP & CX compact flexible manifold design eliminates piping, reduces system volume, provides fast consistent actuation and delivers an amazing flow rate up to 100 Cv.



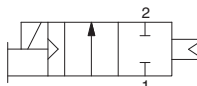
Solenoid Pilot Controlled Valves

Dale LF Series

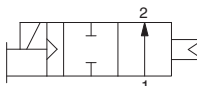
2-Way 2-Position Valves, Spring Assisted Air Return							
Port Size		Model Number*		Pilot Port Thread		Avg. C _v	Weight lb (kg)
		Internal Pilot Supply					
1	2	Normally Closed	Normally Open	NPT	BSPP		
3/8	3/8	LF13NB37101**	LF23NB37101**	1/8-27 NPT	G1/8	3.6	1.5 (0.7)
1/2	1/2	LF14NB47101**	LF24NB47101**	1/8-27 NPT	G1/8	3.6	1.5 (0.7)
3/4	3/4	LF15NB57101**	LF25NB57101**	1/8-27 NPT	G1/8	12.2	3.5 (1.6)
1	1	LF16NB67101**	LF26NB67101**	1/8-27 NPT	G1/8	12.2	3.5 (1.6)
1¼	1¼	LF17NB77101**	LF27NB77101**	1/8-27 NPT	G1/8	36.1	9.3 (4.2)
1½	1½	LF18NB87101**	LF28NB87101**	1/8-27 NPT	G1/8	36.1	9.3 (4.2)
2	2	LF19NB97101**	LF29NB97101**	1/8-27 NPT	G1/8	62.7	19.3 (8.8)
2½	2½	LF10NB07101**	LF20NB07101**	1/8-27 NPT	G1/8	62.7	19.3 (8.8)

* NPT threads. For BSPP threads, replace “N” in the model number with a “D”, e.g., LF13DB37101W.

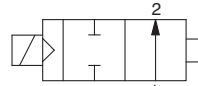
** Insert voltage code: “W” = 24 volts DC; “Z” = 110 volts AC, 120 volts AC; e.g., LF13NB37101W.



Normally Closed

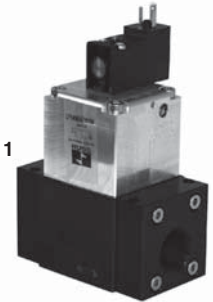


3/8 thru 1
Normally Open



1¼ thru 2½
Normally Open

Ports 3/8 thru 1



B1

B

Ports 1¼ thru 2½



The LF Series provides superior performance over a diaphragm valve with a rugged poppet design, bi-directional flow and high cycle life.

The LF & LX Series provides superior performance over a ball valve with solenoid actuation, shifting speed, cycle life, and most important, a cost effective alternative.

Diaphragm
Valve

Improved
Performance



Cost
Effective

Ball
Valve

EXTERNAL PILOT SUPPLY CONVERSION:

The LF Series valves can be easily field converted to external pilot supply by simply removing existing pipe plug from port X-1, and installing air supply to the X-1 port.

ACCESSORIES – Electrical Connectors

Valve Type	Port Size	Electrical Connector Form	Electrical Connectors Model Number			
			Lighted Connector Only		Lighted Connector Pre-wired*	
			24 Volts DC	120 Volts AC	24 Volts DC	120 Volts AC
2/2	3/8 - 1	EN 175301-803 Form C	2453K77-W	2453K77-Z	2476K77-W	2476K77-Z
	1¼-2½	EN 175301-803 Form A	936K87-W	936K87-Z	720K77-W	720K77-Z

*Pre-wired connectors include a 2 meter (6½ ft.) cord.



STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.

Mounting Type: Inline.

Solenoid Pilot: Rated for continuous duty.

Standard Voltages/Power Consumption (each solenoid):

Port Size 3/8 thru 1: 24 volts DC: 1.2 watts on DC.

110 volts AC, 50 Hz: 5.4 VA.

120 volts AC, 60 Hz: 5.0 VA.

Port Size 1¼ thru 2½:

24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz.

5.8 watts nominal on AC and DC, 6.5 watts maximum on AC and DC.

Enclosure Rating: IP65, IEC 60529.

Electrical Connections: EN 175301-803 Form A or Form C connector.

Ambient Temperature: 40° to 120°F (4° to 50°C).

Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air. For liquid applications, consult ROSS.

Inlet Pressure: 30 to 145 psig (2 to 10 bar).

Pilot Pressure: 30 to 145 psig (2 to 10 bar). Must be equal to or greater than inlet pressure.

Manual Override:

Normally Closed Valves - All Sizes: Non-locking.

Normally Open Valves:

Port Size 1/2 & 1: Non-locking.

Port Size 1½ & 2½: Locking, turn-to-lock.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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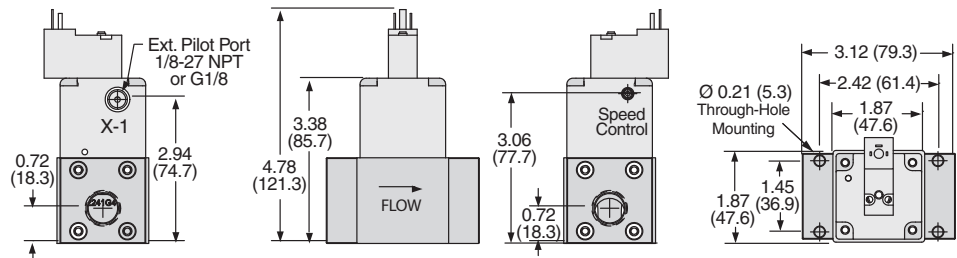
Solenoid Pilot Controlled Valves

Dale LF Series

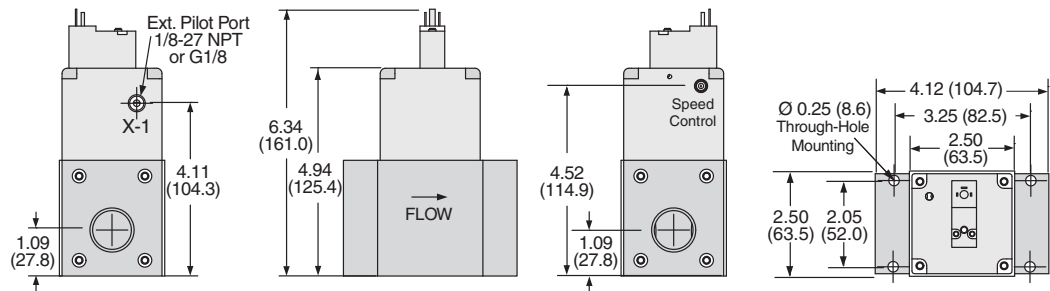
Valve Dimensions – inches (mm)

B1

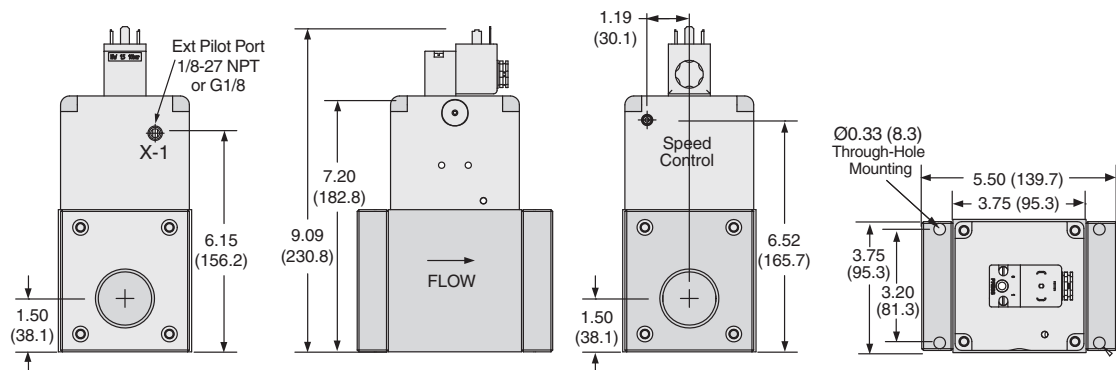
Port Size 3/8 & 1/2



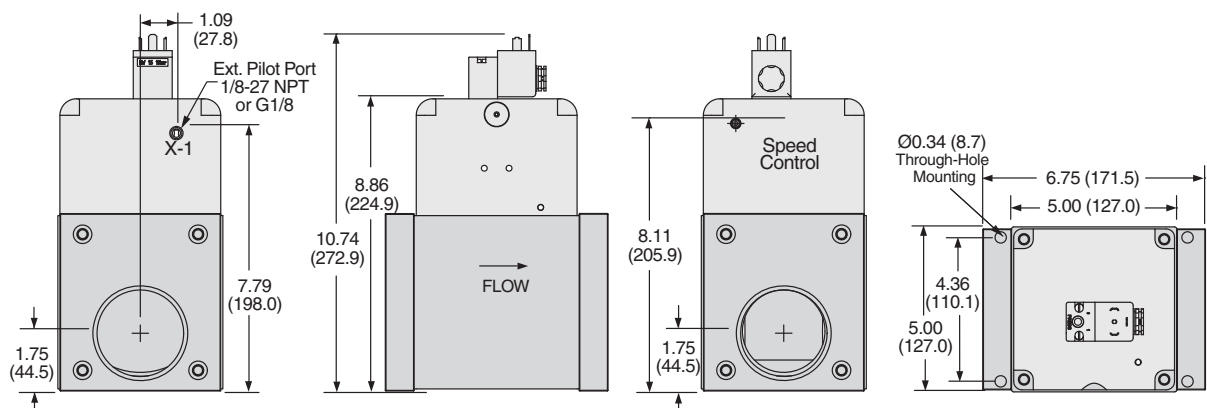
Port Size 3/4 & 1



Port Size 1 1/4 & 1 1/2



Port Size 2 & 2 1/2



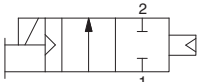
Solenoid Pilot Controlled Valves

Leak Tight
Dale CX Series

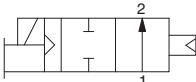
2-Way 2-Position Valves, Air Return							
Port Size		Model Number*		Pilot Port Thread		Avg. C _v	Weight lb (kg)
		External Pilot Supply					
1	2	Normally Closed	Normally Open	NPT	BSPP		
1/4	1/4	CX12NB27501**	CX22NB27501**	10-32 UNF	M5	0.9	1.3 (0.6)
1/2	3/8	CX14NB37501**	CX24NB37501**	10-32 UNF	M5	3.5	1.4 (0.6)
1/2	1/2	CX14NB47501**	CX24NB47501**	10-32 UNF	M5	3.5	1.4 (0.6)
1	3/4	CX16NB57501**	CX26NB57501**	1/8-27 NPT	G1/8	12.3	3.5 (1.6)
1	1	CX16NB67501**	CX26NB67501**	1/8-27 NPT	G1/8	12.3	3.5 (1.6)
1½	1¼	CX18NB77501**	CX28NB77501**	1/8-27 NPT	G1/8	44.9	10.0 (4.6)
1½	1½	CX18NB87501**	CX28NB87501**	1/8-27 NPT	G1/8	44.9	10.0 (4.6)
2½	2	CX10NB97501**	CX20NB97501**	1/8-27 NPT	G1/8	108	19.5 (8.9)
2½	2½	CX10NB07501**	CX20NB07501**	1/8-27 NPT	G1/8	108	19.5 (8.9)

* NPT threads. For BSPP threads, replace “N” in the model number with a “D”, e.g., CX12DB27501W.

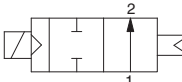
** Insert voltage code: “W” = 24 volts DC; “Z” = 110 volts AC, 120 volts AC; e.g., CX12NB27501W.



1/4 thru 2½
Normally Closed



1/4 thru 1
Normally Open



1½ & 2½
Normally Open



Port Sizes
3/8 & 1/2



Port Sizes
1/4, 3/4 thru 2½

Note: The CX Series valves on this page require an external pilot supply.

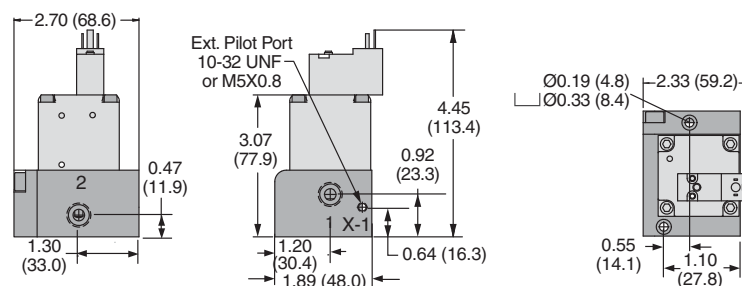
ACCESSORIES – Electrical Connectors						
Valve Type	Port Size	Electrical Connector Form	Electrical Connectors Model Number			
			Lighted Connector Only		Lighted Connector Pre-wired*	
			24 Volts DC	120 Volts AC	24 Volts DC	120 Volts AC
2/2	1/4 - 1	EN 175301-803 Form C	2453K77-W	2453K77-Z	2476K77-W	2476K77-Z
	1½-2½	EN 175301-803 Form A	936K87-W	936K87-Z	720K77-W	720K77-Z

*Pre-wired connectors include a 2 meter (6½ ft.) cord.



Valve Dimensions – inches (mm)

Port Size 1/4



See page B1.14 for all size valves dimensions on this page.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.

Mounting Type: Inline.

Solenoid Pilot: Rated for continuous duty.

Standard Voltages/Power Consumption (each solenoid):

Port Size 1/4 thru 1:

24 volts DC: 1.2 watts on DC.

110 volts AC, 50 Hz: 5.4 VA.

120 volts AC, 60 Hz: 5.0 VA.

Port Size 1¼ thru 2½:

24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz.

5.8 watts nominal on AC and DC, 6.5 watts maximum on AC and DC.

Enclosure Rating: IP65, IEC 60529.

Electrical Connections: EN 175301-803 Form A or Form C connector.

Ambient Temperature: 40° to 120°F (4° to 50°C).

Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air. For liquid applications, consult ROSS.

Inlet Pressure:

Port Size 1/4: Vacuum to 250 psig (vacuum to 17.2 bar).

Port Size 1/2 thru 2½: Vacuum to 145 psig (vacuum to 10 bar).

Pilot Pressure:

Port Size 1/4: 70 to 145 psig (5 to 10 bar).

Port Size 1/2 thru 2½: 30 to 145 psig (2 to 10 bar). Must be equal to or greater than inlet pressure.

Manual Override:

Normally Closed Valves - All Sizes: Non-locking.

Normally Open Valves:

Port Size 1/2 & 1: Non-locking.

Port Size 1½ & 2½: Locking, turn-to-lock.



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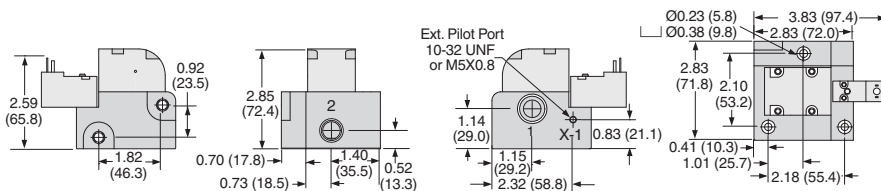
B1.13

Solenoid Pilot Controlled Valves

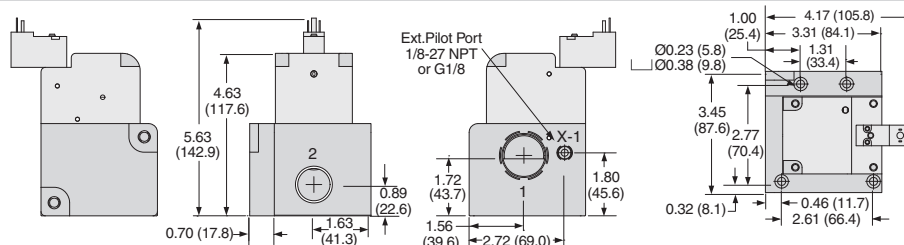
**Leak Tight
Dale CX Series**

Valve Dimensions – inches (mm)

Port Size 3/8 & 1/2

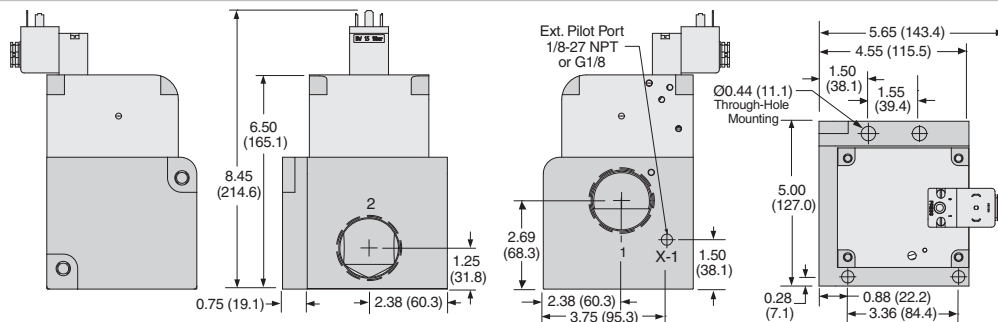


Port Size 3/4 & 1

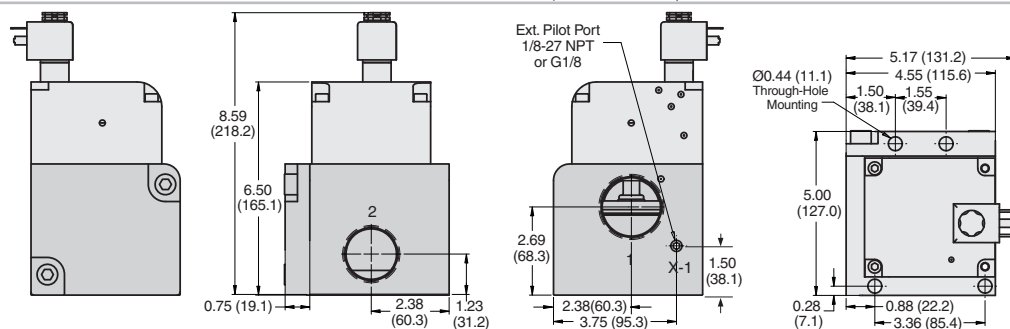


Port Size 1 1/4 & 1 1/2

Normally Closed

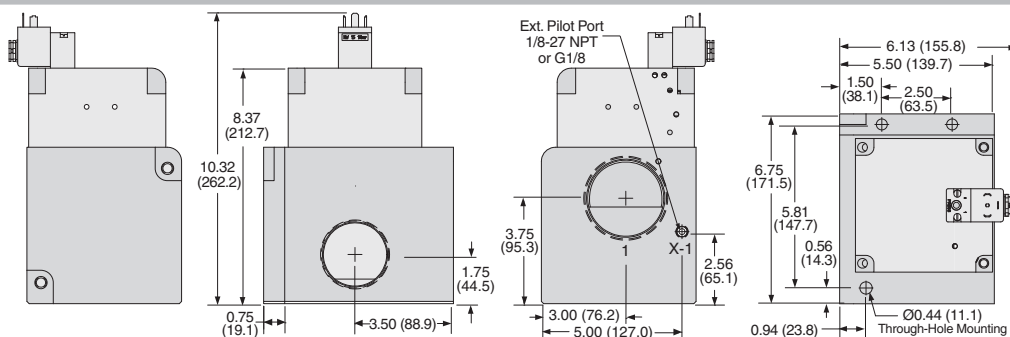


Normally Open

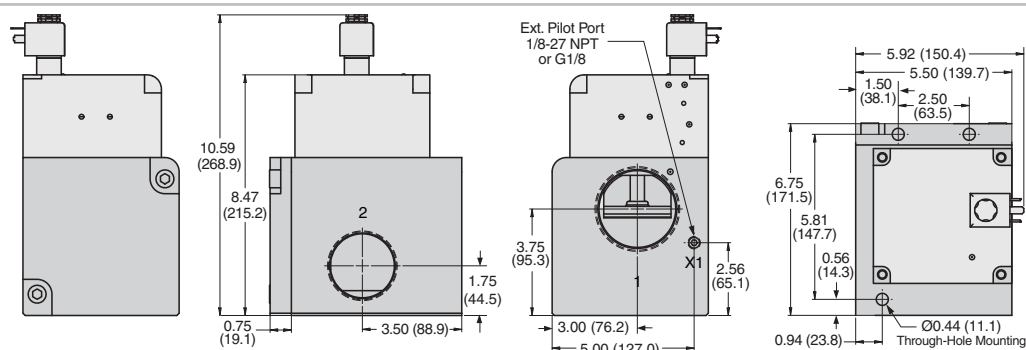


Port Size 2 & 2 1/2

Normally Closed



Normally Open



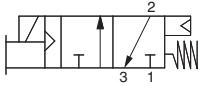
Solenoid Pilot Controlled Valves

Leak Tight
Dale CX Series

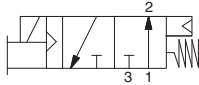
3-Way 2-Position Valves, Spring Assisted Air Return							
Port Size		Model Number*		Pilot Port Thread		Avg. C _v	Weight lb (kg)
		External Pilot Supply					
1, 3	2	Normally Closed	Normally Open	NPT	BSPP		
1/2	3/8	CX34NB37501**	CX44NB37501**	10-32 UNF	M5	3.5	1.8 (0.8)
1/2	1/2	CX34NB47501**	CX44NB47501**	10-32 UNF	M5	3.5	1.8 (0.8)
1	3/4	CX36NB57501**	CX46NB57501**	1/8-27 NPT	G1/8	12.3	5.3 (2.4)
1	1	CX36NB67501**	CX46NB67501**	1/8-27 NPT	G1/8	12.3	5.3 (2.4)

* NPT threads. For BSPP threads, replace “N” in the model number with a “D”, e.g., CX34DB37501W.

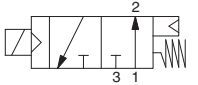
** Insert voltage code: “W” = 24 volts DC; “Z” = 110 volts AC, 120 volts AC; e.g., CX34NB37501W.



1/2 & 1
Normally Closed



1/2
Normally Open



1
Normally Open

Port Sizes
3/8 & 1/2



B1

Port Sizes
3/4 & 1



B

Note: The CX Series valves on this page require an external pilot supply.

ACCESSORIES



Electrical Connectors

Valve Type	Port Size	Electrical Connector Form	Electrical Connectors Model Number			
			Lighted Connector Only		Lighted Connector Pre-wired*	
			24 Volts DC	120 Volts AC	24 Volts DC	120 Volts AC
3/2	1/2	EN 175301-803 Form C	2453K77-W	2453K77-Z	2476K77-W	2476K77-Z
	1	EN 175301-803 Form A	936K87-W	936K87-Z	720K77-W	720K77-Z

*Pre-wired connectors include a 2 meter (6½ ft.) cord.



Silencers

Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)	
		NPT Threads	BSPT Threads		A	B		
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)	 
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)	

Pressure Range: 0 to 300 psig (0 to 20.7 bar) maximum. **Flow Media:** Filtered air.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.

Mounting Type: Inline.

Solenoid Pilot: Rated for continuous duty.

Standard Voltages/Power Consumption (each solenoid):

Port Size 1/2:

24 volts DC: 1.2 watts on DC.

110 volts AC, 50 Hz: 5.4 VA.

120 volts AC, 60 Hz: 5.0 VA.

Port Size 1:

24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz.

5.8 watts nominal on AC and DC, 6.5 watts maximum on AC and DC.

Enclosure Rating: IP65, IEC 60529.

Electrical Connections: EN 175301-803 Form A or Form C connector.

Ambient Temperature: 40° to 120°F (4° to 50°C).

Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air. For liquid applications, consult ROSS.

Inlet Pressure: Vacuum to 145 psig (vacuum to 10 bar).

Pilot Pressure: 50 to 145 psig (3.4 to 10 bar). Must be equal to or greater than inlet pressure.

Manual Override:

Normally Closed Valves - All Sizes: Non-locking.

Normally Open Valves:

Port Size 1/2: Non-locking.

Port Size 1: Locking, turn-to-lock.



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B1.15

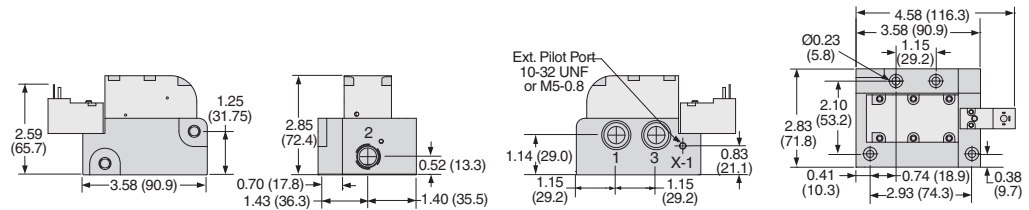
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Solenoid Pilot Controlled Valves

**Leak Tight
Dale CX Series**

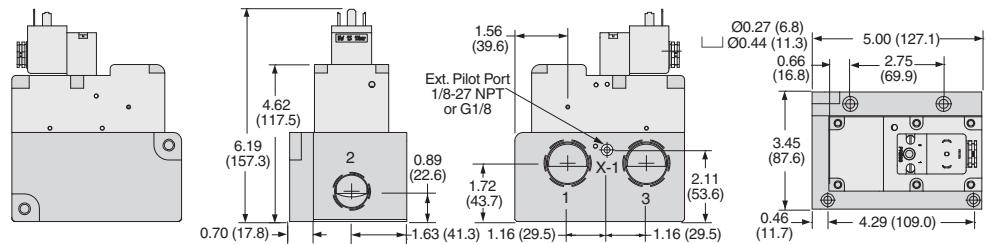
Valve Dimensions – inches (mm)

Port Size 3/8 & 1/2

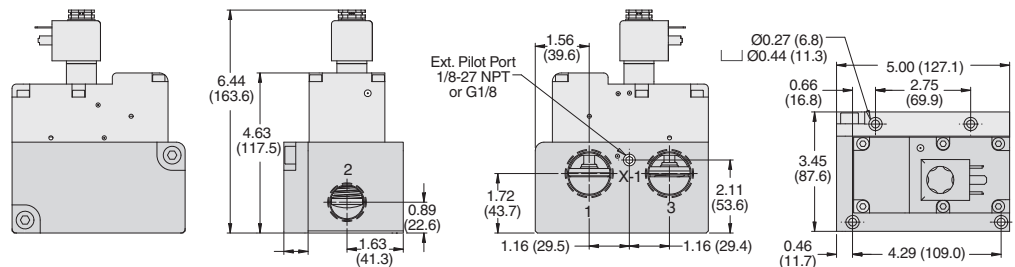


Port Size 3/4 & 1

Normally Closed



Normally Open

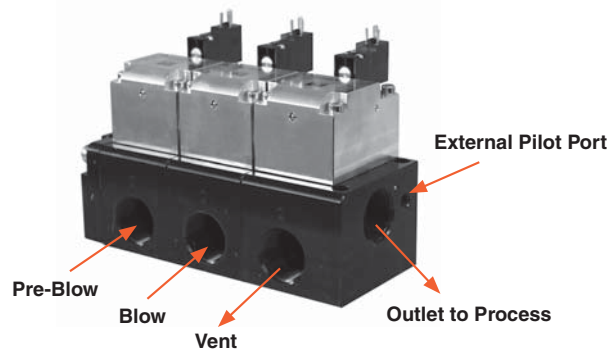


ROSS/FLEX® Looking for a different solution?

ROSS/FLEX® Customer defined application specific solutions that reduce cost, improve productivity and provide a perfect fit.

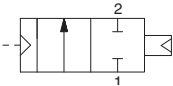
Blow Molding Application Example

The CP & CX compact flexible manifold design eliminates piping, reduces system volume, provides fast consistent actuation and delivers an amazing flow rate up to 100 Cv.



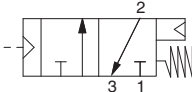
2-Way 2-Position Valves, Air Return						
Port Size		Model Number*	Pilot Port Thread		Avg. C _v	Weight lb (kg)
1	2		NPT	BSPP		
1/2	3/8	CX14NB35501	10-32 UNF	M5	3.5	1.4 (0.6)
1/2	1/2	CX14NB45501	10-32 UNF	M5	3.5	1.4 (0.6)
1	3/4	CX16NB55501	1/8-27 NPT	G1/8	12.3	3.5 (1.6)
1	1	CX16NB65501	1/8-27 NPT	G1/8	12.3	3.5 (1.6)
1½	1¼	CX18NB75501	1/8-27 NPT	G1/8	44.9	10.0 (4.6)
1½	1½	CX18NB85501	1/8-27 NPT	G1/8	44.9	10.0 (4.6)
2½	2	CX10NB95501	1/8-27 NPT	G1/8	108	19.5 (8.9)
2½	2½	CX10NB05501	1/8-27 NPT	G1/8	108	19.5 (8.9)

* NPT threads. For BSPP threads, replace "N" in the model number with a "D", e.g., CX34DB35501.

Normally Closed 

3-Way 2-Position Valves, Spring Assisted Air Return						
Port Size		Model Number*	Pilot Port Thread		Avg. C _v	Weight lb (kg)
1, 3	2		NPT	BSPP		
1/2	3/8	CX34NB35501	10-32 UNF	M5	3.5	1.4 (0.6)
1/2	1/2	CX34NB45501	10-32 UNF	M5	3.5	1.4 (0.6)
1	3/4	CX36NB55501	1/8-27 NPT	G1/8	12.3	3.5 (1.6)
1	1	CX36NB65501	1/8-27 NPT	G1/8	12.3	3.5 (1.6)

* NPT threads. For BSPP threads, replace "N" in the model number with a "D", e.g., CX34DB35501.

Normally Closed 



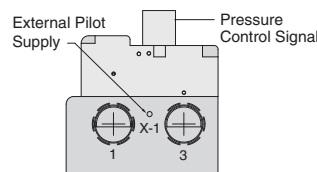
Port Sizes
3/8 & 1/2



Port Sizes
3/4 thru 2½



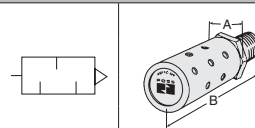
Note: The Dale Series pressure controlled valves require both an external pilot supply and a control signal to operate the valve. When a pressure control signal is applied the valve shifts to the open position.



ACCESSORIES FOR 3/2 VALVES

Silencers							
Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	BSPT Threads		A	B	
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)

Pressure Range: 0 to 300 psig (0 to 20.7 bar) maximum. **Flow Media:** Filtered air.



STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.

Mounting Type: Inline.

Ambient Temperature: 40° to 120°F (4° to 50°C).

Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air. For liquid applications, consult ROSS.

Inlet Pressure: Vacuum to 250 psig (17.2 bar).

Pilot Pressure:

2/2 valves: 30 to 250 psig (2 to 17.2 bar). Must be equal to or greater than inlet pressure.

3/2 valves: 50 to 250 psig (3.4 to 17.2 bar). Must be equal to or greater than inlet pressure.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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Leak Tight Dale CX Series

2/2 Valves

[illegible]

Technical drawings of the X-1 pressure washer showing front, side, and top views with dimensions in inches and millimeters.

Front View Dimensions:

- Overall Height: 7.65 (194.3)
- Top Section Height: 6.50 (165.1)
- Bottom Section Height: 1.25 (31.8)
- Bottom Section Width: 2.38 (60.3)
- Bottom Section Depth: 0.75 (19.1)

Side View Dimensions:

- Overall Height: 7.65 (194.3)
- Top Section Height: 6.50 (165.1)
- Bottom Section Height: 1.25 (31.8)
- Bottom Section Width: 2.38 (60.3)
- Bottom Section Depth: 0.75 (19.1)

Top View Dimensions:

- Overall Width: 4.55 (115.5)
- Overall Depth: 5.00 (127.0)
- Top Section Width: 1.50 (38.1)
- Top Section Depth: 1.55 (39.4)
- Bottom Section Width: 0.88 (22.2)
- Bottom Section Depth: 3.36 (85.4)
- Bottom Section Width (Inner): 0.28 (7.1)
- Bottom Section Depth (Inner): 3.75 (59.3)
- Bottom Section Width (Outer): 2.38 (60.3)
- Bottom Section Depth (Outer): 1.50 (38.1)

Other Features and Dimensions:

- Ext. Pilot Port 1/8-27 NPT or G1/8
- Pilot Port 1/8-27 NPT or G1/8
- Ø 0.44 (11.1) Thru Hole Mounting
- X-1

Technical drawings of the 100 Series Pressure Washer, showing front, side, and top views with dimensions in inches and millimeters.

Front View Dimensions:

- Overall Height: 9.62 (244.4)
- Height to Top of Trigger Gun: 8.47 (215.2)
- Height to Center of Trigger Gun: 1.75 (44.5)
- Width to Center of Trigger Gun: 3.50 (88.9)
- Width to Side of Trigger Gun: 0.75 (19.1)

Side View Dimensions:

- Height to Top of Trigger Gun: 3.75 (95.3)
- Height to Center of Trigger Gun: 2.56 (65.1)
- Width to Center of Trigger Gun: 3.00 (76.2)
- Width to Side of Trigger Gun: 5.00 (127.0)

Top View Dimensions:

- Overall Width: 5.50 (139.7)
- Width to Center of Trigger Gun: 2.50 (63.5)
- Width to Side of Trigger Gun: 0.94 (23.8)
- Width to Side of Trigger Gun: 0.56 (14.3)
- Width to Side of Trigger Gun: 5.81 (147.7)
- Width to Side of Trigger Gun: 6.75 (171.5)
- Width to Side of Trigger Gun: 1.50 (38.1)
- Width to Side of Trigger Gun: 2.50 (63.5)
- Width to Side of Trigger Gun: 0.44 (11.1)

Labels:

- Pilot Port 1/8-27 NPT or G1/8
- Ext. Pilot Port 1/8-27 NPT or G1/8
- X-1
- 2
- 1
- Ø 0.44 (11.1)

Port Size 3/8 & 1/2

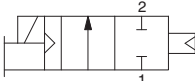
Technical drawings of the 100 Series 10-32 UNF or M5-0.8 Pilot Port. The drawings include three views: a side view, a front view, and a top view. The side view shows a height of 1.90 (48.3) and a width of 3.58 (90.9). The front view shows a height of 2.83 (71.9) and a width of 1.43 (36.3). The top view shows a width of 3.94 (100.0) and a height of 2.10 (53.2). Dimensions are given in inches and millimeters.

Solenoid Pilot Controlled Valve Manifolds

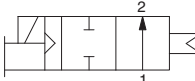
Leak Tight
Dale CX Series

Manifolds can be ordered from two (2) to ten (10) stations. Complete valves-on-manifold assemblies can be ordered to fit your precise requirements.
For preassembled manifold valves with the same model number, select the model number from the table below.
For ordering the Dale CX Series manifold valves with different valve functions, please see page B1.24 for manifold configurator.

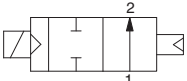
2-Way 2-Position Valves, Air Return						
Port Size		Model Number*		Pilot Port Thread		Avg. C _v
		External Pilot Supply				
1	2	Normally Closed	Normally Open	NPT	BSPP	
1/4	1/4	CX12NB2751X**	CX22NB2751X**	10-32 UNF	M5	0.9
1/2	3/8	CX14NB3751X**	CX24NB3751X**	10-32 UNF	M5	3.5
1/2	1/2	CX14NB4751X**	CX24NB4751X**	10-32 UNF	M5	3.5
1	3/4	CX16NB5751X**	CX26NB5751X**	1/8-27 NPT	G1/8	12.3
1	1	CX16NB6751X**	CX26NB6751X**	1/8-27 NPT	G1/8	12.3
1½	1¼	CX18NB7751X**	CX28NB7751X**	1/8-27 NPT	G1/8	44.9
1½	1½	CX18NB8751X**	CX28NB8751X**	1/8-27 NPT	G1/8	44.9
2½	2	CX10NB9751X**	CX20NB9751X**	1/8-27 NPT	G1/8	108
2½	2½	CX10NB0751X**	CX20NB0751X**	1/8-27 NPT	G1/8	108



1/4 thru 2½
Normally Closed



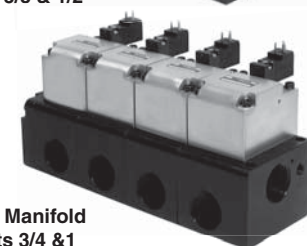
1/4 thru 1
Normally Open



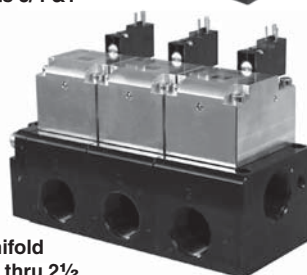
1½ & 2½
Normally Open



Valve Manifold
Ports 3/8 & 1/2



Valve Manifold
Ports 3/4 & 1



Valve Manifold
Ports 1/4, 1¼ thru 2½

* NPT threads. For BSPP threads, replace "N" in the model number with a "D", e.g., CX12DB2751XW.

** Insert voltage code: "W" = 24 volts DC; "Z" = 110 volts AC, 120 volts AC; e.g., CX12NB2751XW.

X To indicate the number of stations desired, for 2 to 9 stations, replace X in the model number with the specific number of stations, for 10 stations replace X with 0, e.g., CX12NB27514W (4 = 4 Stations), CX12NB27510W, (0 = 10 Stations).

The CX Series valves on this page require an external pilot supply.

ACCESSORIES – Electrical Connectors						
Valve Type	Port Size	Electrical Connector Form	Electrical Connectors Model Number			
			Lighted Connector Only		Lighted Connector Pre-wired*	
			24 Volts DC	120 Volts AC	24 Volts DC	120 Volts AC
2/2	1/4 - 1	EN 175301-803 Form C	2453K77-W	2453K77-Z	2476K77-W	2476K77-Z
	1½-2½	EN 175301-803 Form A	936K87-W	936K87-Z	720K77-W	720K77-Z

*Pre-wired connectors include a 2 meter (6½ ft.) cord.



STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.

Mounting Type: Inline.

Solenoid Pilot: Rated for continuous duty.

Standard Voltages/Power Consumption (each solenoid):

Port Size 1/4 thru 1: 24 volts DC: 1.2 watts on DC.

110 volts AC, 50 Hz: 5.4 VA.

120 volts AC, 60 Hz: 5.0 VA.

Port Size 1¼ thru 2½:

24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz.

5.8 watts nominal on AC and DC, 6.5 watts maximum on AC and DC.

Ambient Temperature: 40° to 120°F (4° to 50°C).

Media Temperature: 40° to 175°F (4° to 80°C).

Enclosure Rating: IP65, IEC 60529.

Electrical Connections: EN 175301-803 Form A or Form C connector.

Flow Media: Filtered air. For liquid applications, consult ROSS.

Inlet Pressure:

Port Size 1/4: Vacuum to 250 psig (vacuum to 17.2 bar).

Port Size 1/2 thru 2½: Vacuum to 145 psig (vacuum to 10 bar).

Pilot Pressure:

Port Size 1/4: 70 to 145 psig (5 to 10 bar).

Port Size 1/2 thru 2½: 30 to 145 psig (2 to 10 bar). Must be equal to or greater than inlet pressure.

Manual Override:

Normally Closed Valves - All Sizes: Non-locking.

Normally Open Valves:

Port Size 1/2 & 1: Non-locking.

Port Size 1½ & 2½: Locking, turn-to-lock.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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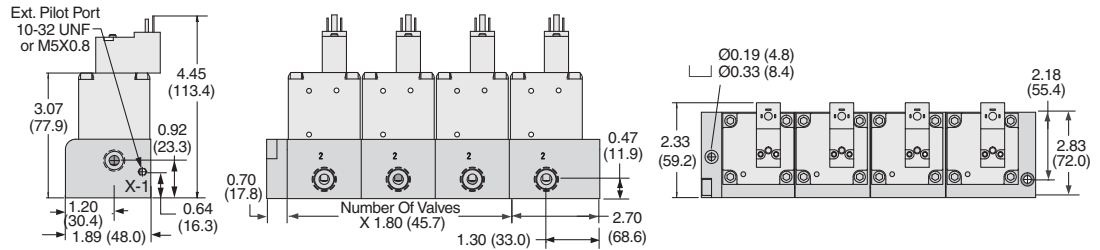
B1.19

Solenoid Pilot Controlled Valve Manifolds

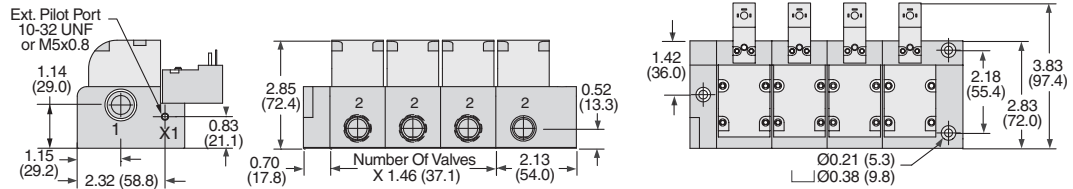
**Leak Tight
Dale CX Series**

Dimensions – inches (mm)

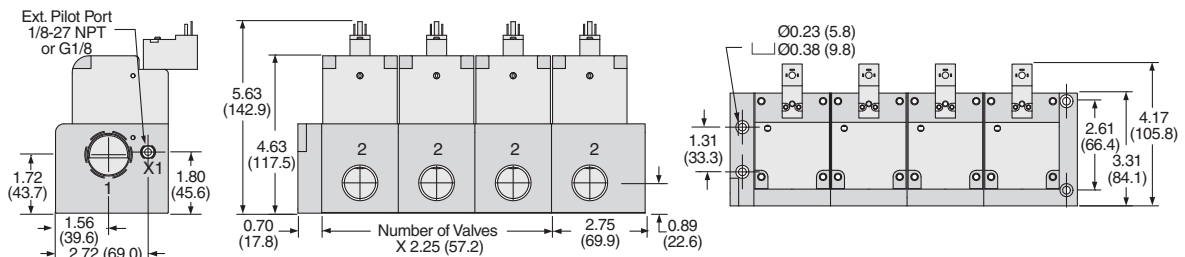
Port Size 1/4



Port Size 3/8 & 1/2

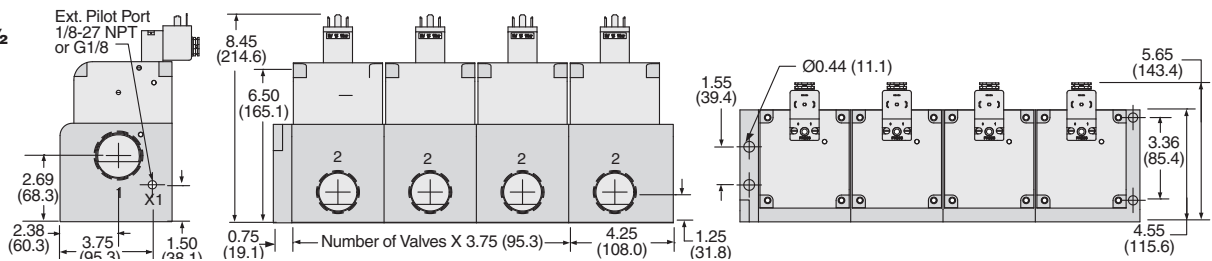


Port Size 3/4 & 1

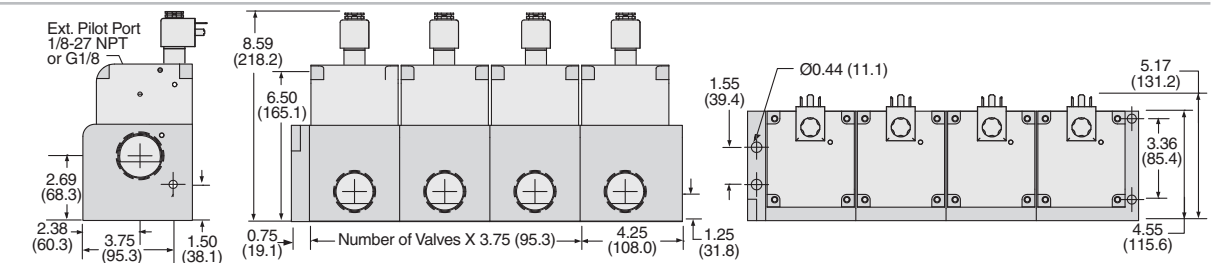


Port Size 1 1/4 & 1 1/2

Normally Closed

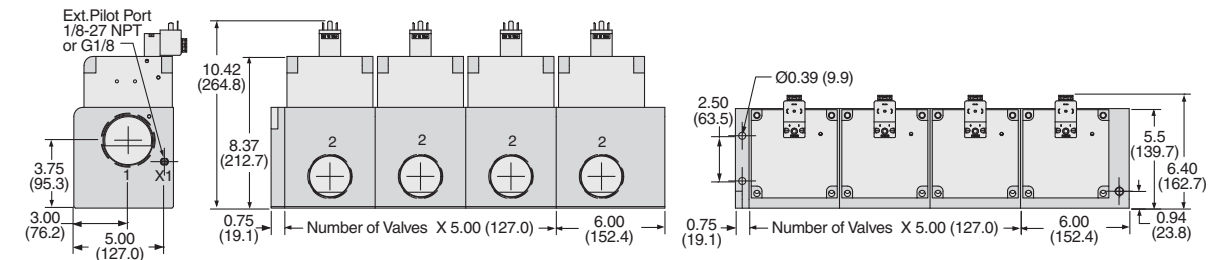


Normally Open

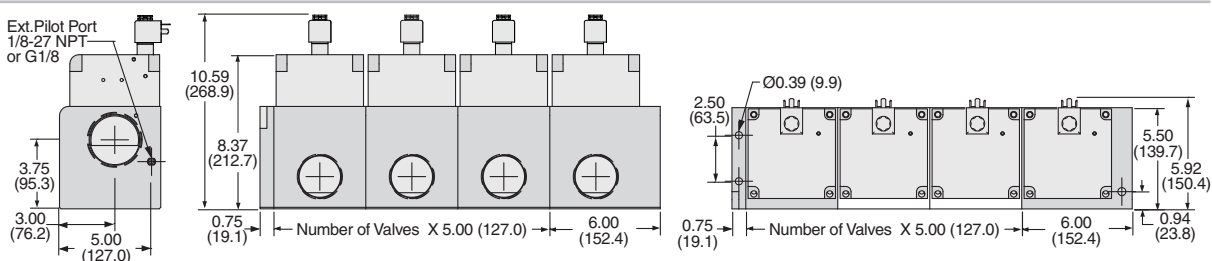


Port Size 2 & 2 1/2

Normally Closed



Normally Open



Solenoid Pilot Controlled Valve Manifolds

Leak Tight
Dale CX Series

Manifolds can be ordered from two (2) to ten (10) stations. Complete valves-on-manifold assemblies can be ordered to fit your precise requirements.

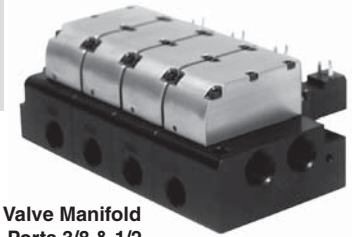
For preassembled manifold valves with the same model number, select the model number from the table below. For ordering the Dale CX Series manifold valves with different valve functions, please see page B1.24 for manifold configurator.

3-Way 2-Position Valves, Spring Assisted Air Return						
Port Size		Model Number*		Pilot Port Thread		Avg. C _v
		External Pilot Supply				
1, 3	2	Normally Closed	Normally Open	NPT	BSPP	
1/2	3/8	CX34NB3751X**	CX44NB3751X**	10-32 UNF	M5	3.6
1/2	1/2	CX34NB4751X**	CX44NB4751X**	10-32 UNF	M5	3.6
1	3/4	CX36NB5751X**	CX46NB5751X**	1/8-27 NPT	G1/8	12.3
1	1	CX36NB6751X**	CX46NB6751X**	1/8-27 NPT	G1/8	12.3

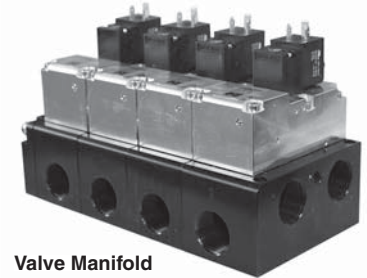
1/2 & 1
Normally Closed

1/2
Normally Open

1
Normally Open



Valve Manifold
Ports 3/8 & 1/2



Valve Manifold
Ports 3/4 & 1

* NPT threads. For BSPP threads, replace "N" in the model number with a "D", e.g., CX34DB3751**.

** Insert voltage code: "W" = 24 volts DC; "Z" = 110 volts AC, 120 volts AC; e.g., CX34NB3751XW.

X To indicate the number of stations desired, for 2 to 9 stations, replace X in the model number with the specific number of stations, for 10 stations replace X with 0, e.g., CX34NB37514W (4 = 4 Stations), CX34NB37510W, (0 = 10 Stations).

Note: The CX Series valves on this page require an external pilot supply.

ACCESSORIES

Electrical Connectors

Valve Type	Port Size	Electrical Connector Form	Electrical Connectors Model Number			
			Lighted Connector Only		Lighted Connector Pre-wired*	
			24 Volts DC	120 Volts AC	24 Volts DC	120 Volts AC
3/2	1/2	EN 175301-803 Form C	2453K77-W	2453K77-Z	2476K77-W	2476K77-Z
	1	EN 175301-803 Form A	936K87-W	936K87-Z	720K77-W	720K77-Z

*Pre-wired connectors include a 2 meter (6½ ft.) cord.



Silencers

Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)	
		NPT Threads	BSPT Threads		A	B		
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)	
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)	

Pressure Range: 0 to 300 psig (0 to 20.7 bar) maximum. **Flow Media:** Filtered air.



STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.

Mounting Type: Inline.

Solenoid Pilot: Rated for continuous duty.

Standard Voltages/Power Consumption (each solenoid):

Port Size 1/2:

24 volts DC: 1.2 watts on DC.

110 volts AC, 50 Hz: 5.4 VA.

120 volts AC, 60 Hz: 5.0 VA.

Port Size 1:

24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz.

5.8 watts nominal on AC and DC, 6.5 watts maximum on AC and DC.

Enclosure Rating: IP65, IEC 60529.

Electrical Connections: EN 175301-803 Form A or Form C connector.

Ambient Temperature: 40° to 120°F (4° to 50°C).

Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air. For liquid applications, consult ROSS.

Inlet Pressure: Vacuum to 145 psig (vacuum to 10 bar).

Pilot Pressure: 50 to 145 psig (3.4 to 10 bar). Must be equal to or greater than inlet pressure.

Manual Override:

Normally Closed Valves - All Sizes: Non-locking.

Normally Open Valves:

Port Size 1/2 & 1: Non-locking.

Port Size 1½ & 2½: Locking, turn-to-lock.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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B1.21

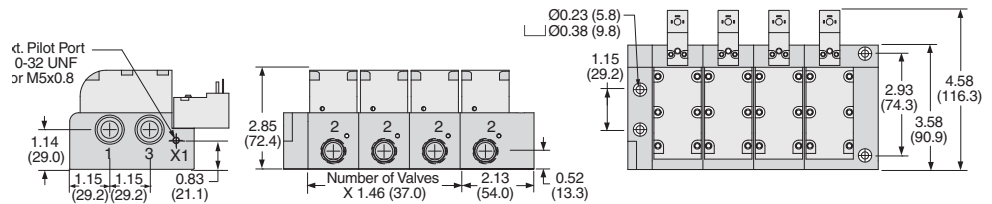
Solenoid Pilot Controlled Valve Manifolds

**Leak Tight
Dale CX Series**

Dimensions – inches (mm)

B1

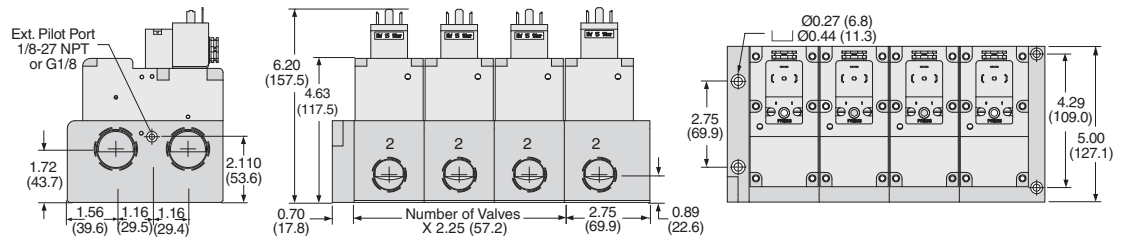
Port Size 3/8 & 1/2



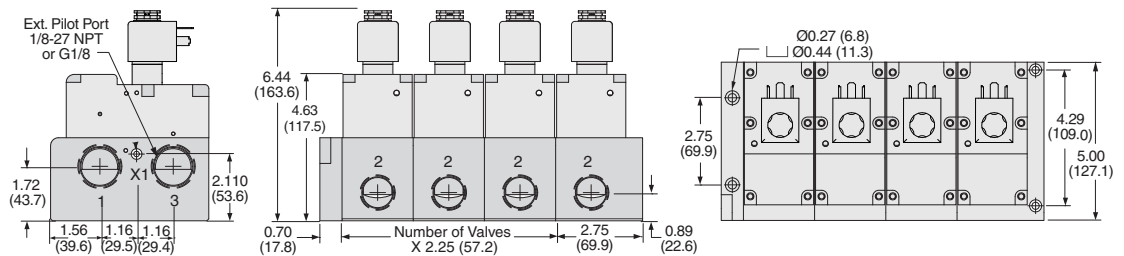
B

Port Size 3/4 & 1

Normally Closed



Normally Open

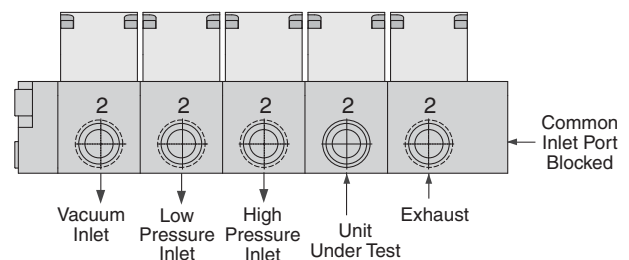


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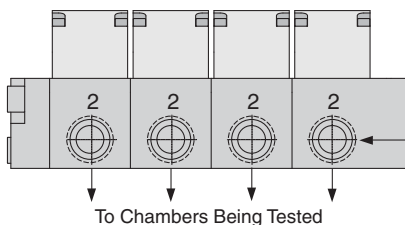
ROSS/FLEX® Customer defined application specific solutions that reduce cost, improve productivity and provide a perfect fit.

Leak Test Systems using Dale CX & LT Series Valves

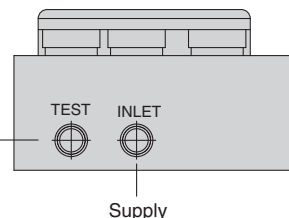
Shown below are typical manifold layouts.
Many flexible, compact, manifold designs and configurations can be achieved using the Dale Series valves.



CX Series Manifold shown below:
2/2 Valve, 4-Station, Normally Closed
Port 1/2", 24 Volts DC
CX14NB47514W



LT Series Manifold shown below:
3/4, Leak Test Manifold,
24 Volts DC
LT32NB27500W



Pressure Controlled Valve Manifolds

Leak Tight
Dale CX Series

B1

B

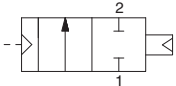
Manifolds can be ordered from two (2) to ten (10) stations.

Complete valves-on-manifold assemblies can be ordered to fit your precise requirements.

For preassembled manifold valves with the same model number, select the model number from the table below.

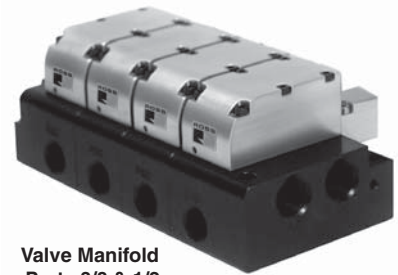
For ordering the Dale CX Series manifold valves with different valve functions, please see page B1.24 for manifold configurator.

2-Way 2-Position Valves, Air Return

Port Size		Model Number*	Pilot Port Thread		Avg. C _v	 <p>Normally Closed</p>
1	2		NPT	BSPP		
1/2	3/8	CX14NB3551X	10-32 UNF	M5	3.7	
1/2	1/2	CX14NB4551X	10-32 UNF	M5	3.7	
1	3/4	CX16NB5551X	1/8-27 NPT	G1/8	13.7	
1	1	CX16NB6551X	1/8-27 NPT	G1/8	13.7	
1½	1¼	CX18NB7551X	1/8-27 NPT	G1/8	44.9	
1½	1½	CX18NB8551X	1/8-27 NPT	G1/8	44.9	
2½	2	CX10NB9551X	1/8-27 NPT	G1/8	108	
2½	2½	CX10NB0551X	1/8-27 NPT	G1/8	108	

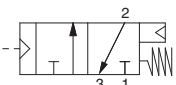


Valve Manifold
Ports 3/8 & 1/2



Valve Manifold
Ports 3/8 & 1/2

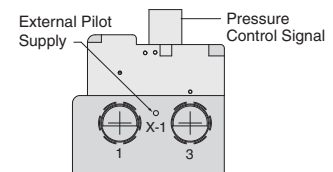
3-Way 2-Position Valves, Spring Assisted Air Return

Port Size		Model Number*	Pilot Port Thread		Avg. C _v	 <p>Normally Closed</p>
1, 3	2		NPT	BSPP		
1/2	3/8	CX34NB3551X	10-32 UNF	M5	3.6	
1/2	1/2	CX34NB4551X	10-32 UNF	M5	3.6	
1	3/4	CX36NB5551X	1/8-27 NPT	G1/8	12.3	
1	1	CX36NB6551X	1/8-27 NPT	G1/8	12.3	

* NPT threads. For BSPP threads, replace "N" in the model number with a "D", e.g., CX14DB3551X.



X To indicate the number of stations desired, for 2 to 9 stations, replace X in the model number with the specific number of stations, for 10 stations replace X with 0, e.g., CX14NB35516 (4 = 4 Stations), CX14NB35510, (0 = 10 Stations).

Note: The Dale Series pressure controlled valves require both an external pilot supply and a control signal to operate the valve. When a pressure control signal is applied the valve shifts to the open position.



ACCESSORIES FOR 3/2 VALVES

Silencers

Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)	 
		NPT Threads	BSPT Threads		A	B		
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)	
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)	

Pressure Range: 0 to 300 psig (0 to 20.7 bar) maximum. **Flow Media:** Filtered air.

Note: For manifolds requiring different valves types, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.

Mounting Type: Inline.

Ambient Temperature: 40° to 120°F (4° to 50°C).

Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air. For liquid applications, consult ROSS.

Inlet Pressure: Vacuum to 250 psig (vacuum to 17.2 bar).

Pilot Pressure:

2/2 valves: 30 to 250 psig (2 to 17.2 bar).

Must be equal to or greater than inlet pressure.

3/2 valves: 50 to 250 psig (3.4 to 17.2 bar). Must be equal to or greater than inlet pressure.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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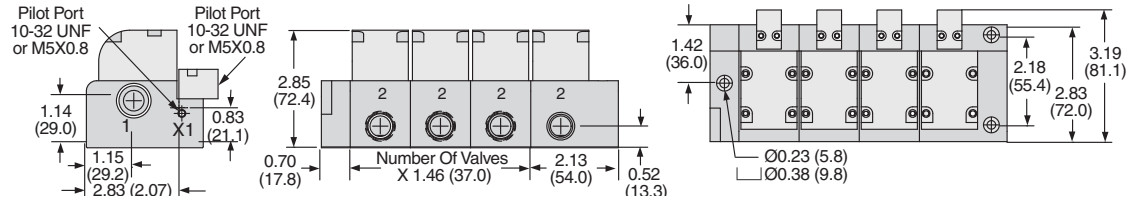
Pressure Controlled Valve Manifolds

**Leak Tight
Dale CX Series**

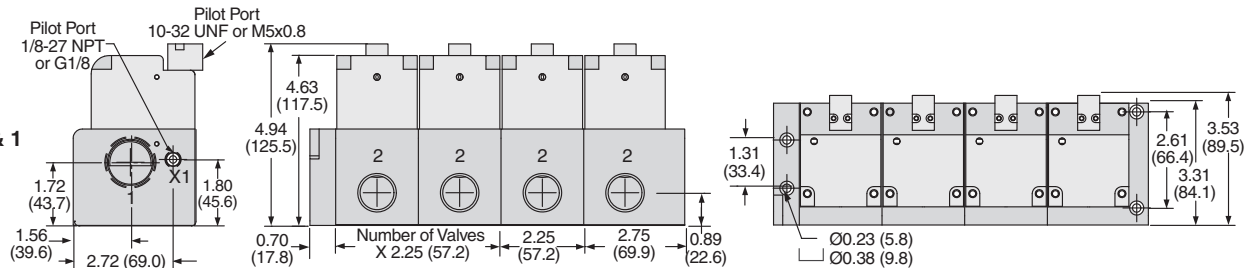
Dimensions – inches (mm)

2/2 Valves

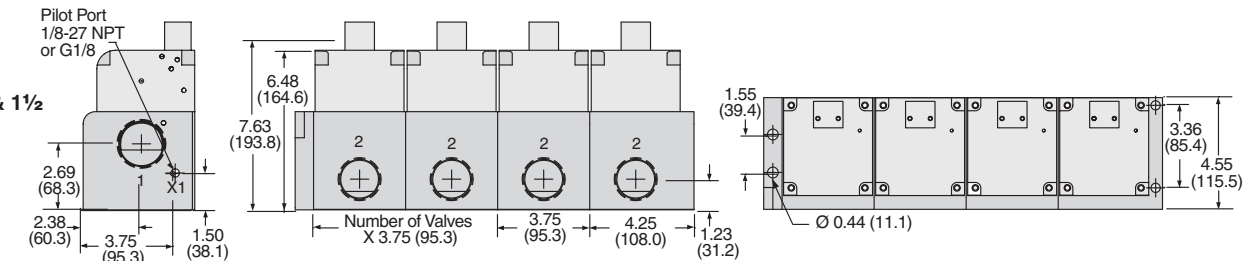
Port Size 3/8 & 1/2



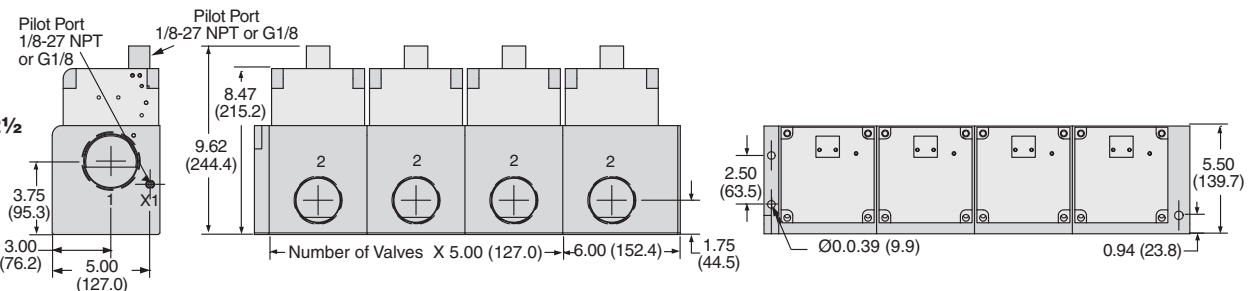
Port Size 3/4 & 1



Port Size 1 1/4 & 1 1/2

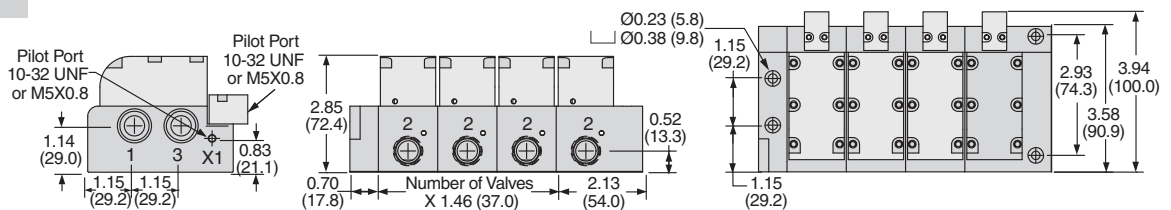


Port Size 2 & 2 1/2

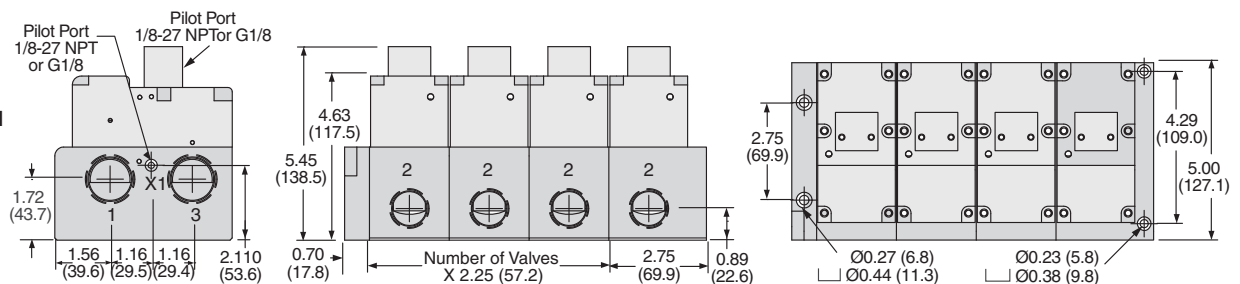


3/2 Valves

Port Size 3/8 & 1/2



Port Size 3/4 & 1



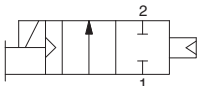
Solenoid Pilot Controlled Valves

Leak Tight
Dale LX Series

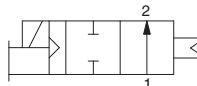
2-Way 2-Position Valves, Air Return							
Port Size		Model Number*		Pilot Port Thread		Avg. C _v	Weight lb (kg)
		External Pilot Supply					
1	2	Normally Closed	Normally Open	NPT	BSPP		
3/8	3/8	LX13NB37501**	LX23NB37501**	10-32 UNF	M5	3.6	1.5 (0.7)
1/2	1/2	LX14NB47501**	LX24NB47501**	10-32 UNF	M5	3.6	1.5 (0.7)
3/4	3/4	LX15NB57501**	LX25NB57501**	1/8-27 NPT	G1/8	12.2	3.5 (1.6)
1	1	LX16NB67501**	LX26NB67501**	1/8-27 NPT	G1/8	12.2	3.5 (1.6)
1¼	1¼	LX17NB77501**	LX27NB77501**	1/8-27 NPT	G1/8	36.1	9.3 (4.2)
1½	1½	LX18NB87501**	LX28NB87501**	1/8-27 NPT	G1/8	36.1	9.3 (4.2)
2	2	LX19NB97501**	LX29NB97501**	1/8-27 NPT	G1/8	62.7	19.3 (8.8)
2½	2½	LX10NB07501**	LX20NB07501**	1/8-27 NPT	G1/8	62.7	19.3 (8.8)

* NPT threads. For BSPP threads, replace “N” in the model number with a “D”, e.g., LX13DB37501W.

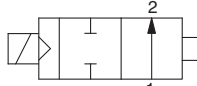
** Insert voltage code: “W” = 24 volts DC; “Z” = 110 volts AC, 120 volts AC; e.g., LX13NB37501W.



Normally Closed



3/8 thru 1
Normally Open



1¼ & 2½
Normally Open

Ports 3/8 thru 1



B1

B

Ports 1¼ thru 2½



The LF & LX Series provides superior performance over a diaphragm valve with a rugged poppet design, bi-directional flow and high cycle life.



The LF & LX Series provides superior performance over a ball valve with solenoid actuation, shifting speed, cycle life, and most important, a cost effective alternative.

Diaphragm
Valve

Improved
Performance

Cost
Effective

Ball
Valve

Note: The LX Series valves on this page require an external pilot supply.

ACCESSORIES – Electrical Connectors						
Valve Type	Port Size	Electrical Connector Form	Electrical Connectors Model Number			
			Lighted Connector Only		Lighted Connector Pre-wired*	
			24 Volts DC	120 Volts AC	24 Volts DC	120 Volts AC
2/2	3/8 - 1	EN 175301-803 Form C	2453K77-W	2453K77-Z	2476K77-W	2476K77-Z
	1¼-2½	EN 175301-803 Form A	936K87-W	936K87-Z	720K77-W	720K77-Z

*Pre-wired connectors include a 2 meter (6½ ft.) cord.



STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.

Mounting Type: Inline.

Solenoid Pilot: Rated for continuous duty.

Standard Voltages/Power Consumption (each solenoid):

Port Size 3/8 thru 1:

24 volts DC: 1.2 watts on DC.

110 volts AC, 50 Hz: 5.4 VA.

120 volts AC, 60 Hz: 5.0 VA.

Port Size 1¼ thru 2½:

24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz.

5.8 watts nominal on AC and DC, 6.5 watts maximum on AC and DC.

Enclosure Rating: IP65, IEC 60529.

Electrical Connections: EN 175301-803 Form A or Form C connector.

Ambient Temperature: 40° to 120°F (4° to 50°C).

Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air. For liquid applications, consult ROSS.

Inlet Pressure: Vacuum to 145 psig (vacuum to 10 bar).

Pilot Pressure: 30 to 145 psig (2 to 10 bar). Must be equal to or greater than inlet pressure.

Manual Override:

Normally Closed Valves - All Sizes: Non-locking.

Normally Open Valves:

Port Size 1/2 & 1: Non-locking.

Port Size 1½ & 2½: Locking, turn-to-lock.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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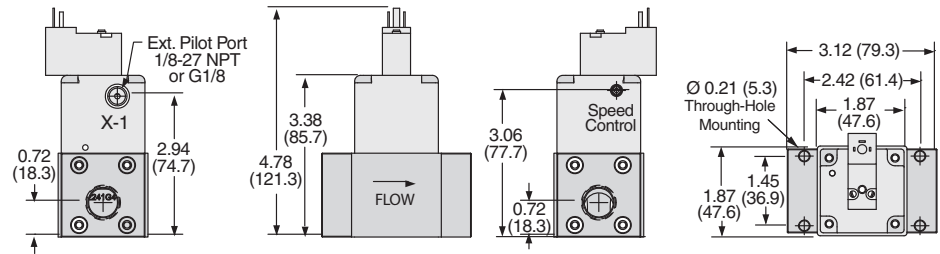
Solenoid Pilot Controlled Valves

**Leak Tight
Dale LX Series**

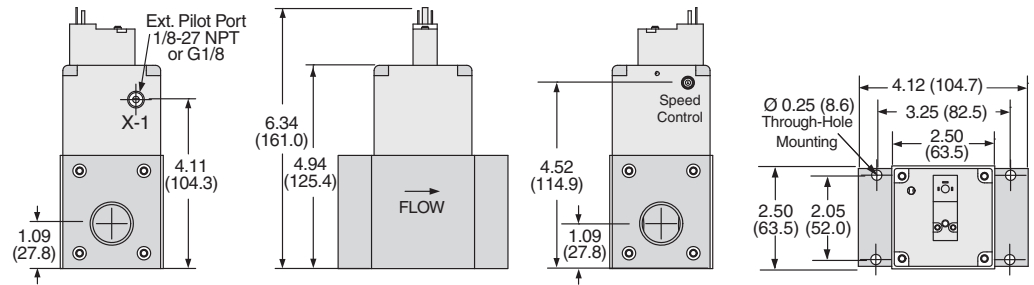
Valve Dimensions – inches (mm)

B1

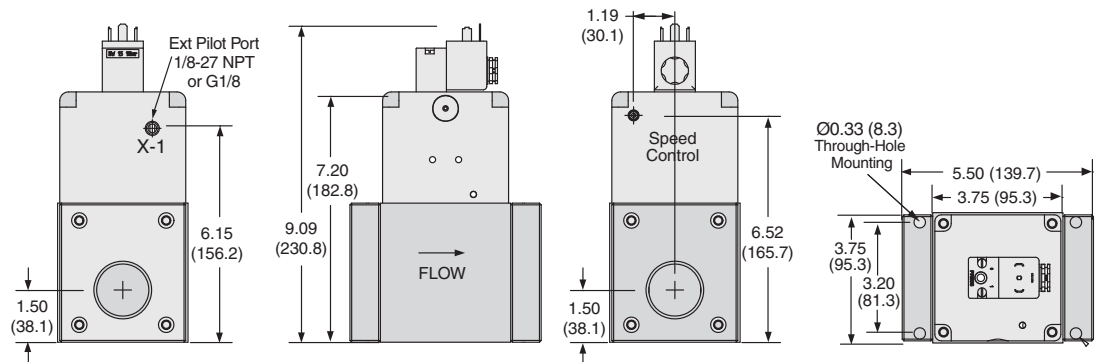
Port Size 3/8 & 1/2



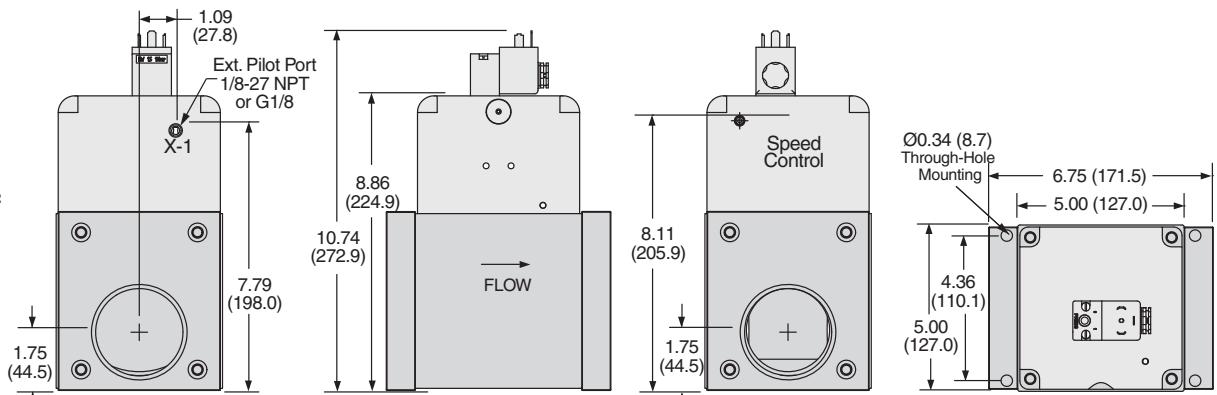
Port Size 3/4 & 1



Port Size 1 1/4 & 1 1/2



Port Size 2 & 2 1/2

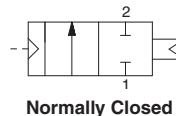


Pressure Controlled Valves

Leak Tight
Dale LX Series

2-Way 2-Position Valves, Air Return						
Port Size		Model Number*	Pilot Port Thread		Avg. C _v	Weight lb (kg)
1	2		NPT	BSPP		
3/8	3/8	LX13NB35501	10-32 UNF	M5	3.6	1.5 (0.7)
1/2	1/2	LX14NB45501	10-32 UNF	M5	3.6	1.5 (0.7)
3/4	3/4	LX15NB55501	1/8-27 NPT	G1/8	12.2	3.5 (1.6)
1	1	LX16NB65501	1/8-27 NPT	G1/8	12.2	3.5 (1.6)
1¼	1¼	LX17NB75501	1/8-27 NPT	G1/8	36.1	9.3 (4.2)
1½	1½	LX18NB85501	1/8-27 NPT	G1/8	36.1	9.3 (4.2)
2	2	LX19NB95501	1/8-27 NPT	G1/8	62.7	19.3 (8.8)
2½	2½	LX10NB05501	1/8-27 NPT	G1/8	62.7	19.3 (8.8)

* NPT threads. For BSPP threads, replace "N" in the model number with a "D", e.g., LX13DB35501.

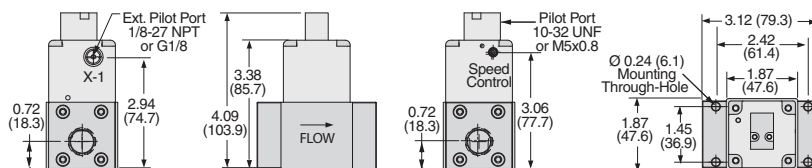


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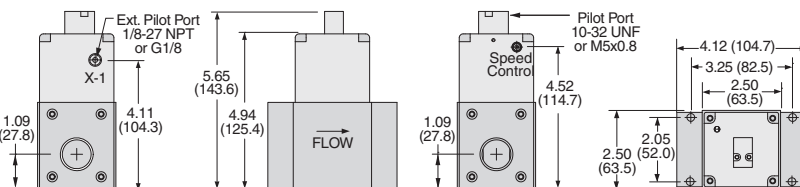
B

Valve Dimensions – inches (mm)

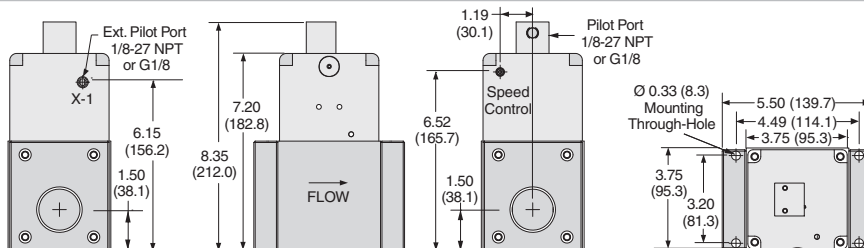
Port Size 3/8 & 1/2



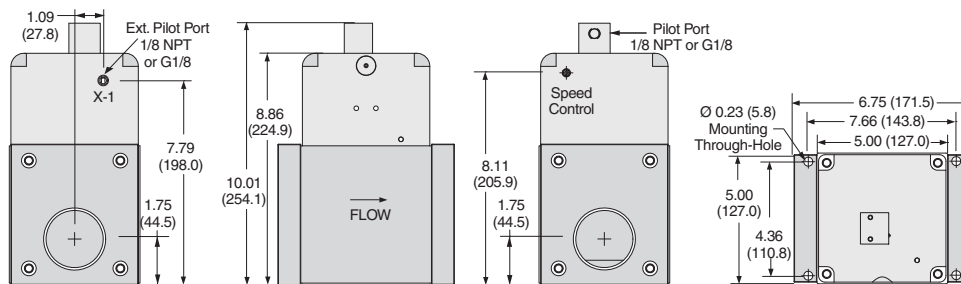
Port Size 3/4 & 1



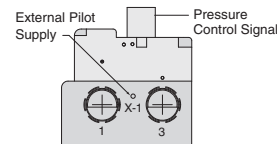
Port Size 1¼ & 1½



Port Size 2 & 2½



Note: The Dale Series pressure controlled valves require both an external pilot supply and a control signal to operate the valve. When a pressure control signal is applied the valve shifts to the open position.



STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.

Mounting Type: Inline.

Ambient Temperature: 40° to 120°F (4° to 50°C).

Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air. For liquid applications, consult ROSS.

Inlet Pressure: Vacuum to 250 psig (vacuum to 17.2 bar).

Pilot Pressure: 30 to 250 psig (2 to 17.2 bar). Must be equal to or greater than inlet pressure.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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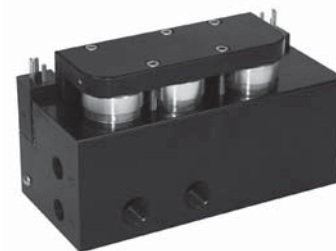
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B1.27

Solenoid Pilot Controlled Valve Manifold

**Leak Test
Dale LT Series**

The LT Series valves can be field configured for flow, pressure decay, or differential pressure testing by selecting different combinations of the three sensor ports.



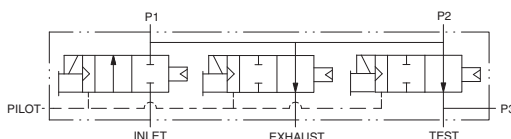
3-Way 4-Position Valve, Multi Solenoid Actuated

Port Size			Model Number*	Pilot Port Thread		Avg. C _v	Weight lb (kg)
In	Exh.	Test		NPT	BSPP		
1/4	1/4	1/4	LT32NB27500**	1/8-27 NPT	G1/8	2.2	2.9 (1.3)

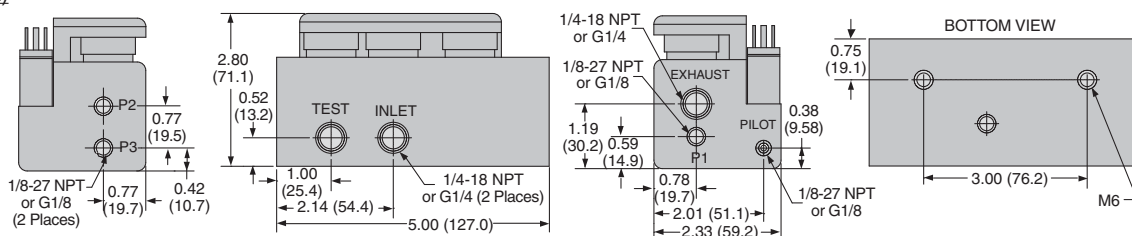
* NPT threads. For BSPP threads, replace "N" in the model number with a "D", e.g., LT32DB27500W.

** Insert voltage code: "W" = 24 volts DC; "Z" = 110 volts AC, 120 volts AC; e.g., LT32NB27500W.

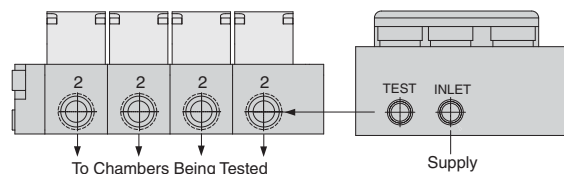
Normally Closed



Dimensions – inches (mm)



The CX and LT Series can be combined to simplify the most complex test circuits. The LT manifold with integrated sensor ports is the primary valve used for the fill, isolate and test functions. In this example the test port of the LT is connected to the CX manifold allowing four chambers to be tested one at a time. The flexibility of combining the LT and CX manifolds creates a compact package, reduces leak paths, and provides an all in one test solution.



ACCESSORIES

Electrical Connectors

Valve Type	Port Size	Electrical Connector Form	Electrical Connectors Model Number			
			Lighted Connector Only		Lighted Connector Pre-wired*	
			24 Volts DC	120 Volts AC	24 Volts DC	120 Volts AC
1/4	3/8 - 1	EN 175301-803 Form C	2453K77-W	2453K77-Z	2476K77-W	2476K77-Z

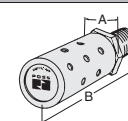
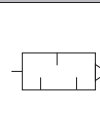
*Pre-wired connectors include a 2 meter (6½ ft.) cord.



Silencers

Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	BSPT Threads		A	B	
1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)

Pressure Range: 0 to 300 psig (0 to 20.7 bar) maximum. **Flow Media:** Filtered air.



STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.

Mounting Type: Inline.

Pilot Solenoid: DC power. Rated for continuous duty.

Standard Voltages/Power Consumption (each solenoid):

24 volts DC: 1.2 watts on DC; 110 volts AC, 50 Hz: 5.4 VA.

120 volts AC, 60 Hz: 5.0 VA.

Ambient/Media Temperature: 40° to 120°F (4° to 50°C).

Flow Media: Filtered air. For liquid applications, consult ROSS.

Pilot Port: 1/8 NPT, or G1/8 ports.

Inlet Pressure: 2 to 145 psi (0.13 to 10 bar).

Pilot Pressure: 50 to 145 psi (3.4 to 10 bar). Must be equal to or greater than inlet pressure.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Solenoid Pilot Controlled Valve Manifold

Leak Tight
Dale LT Series

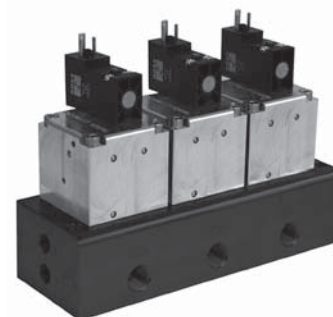
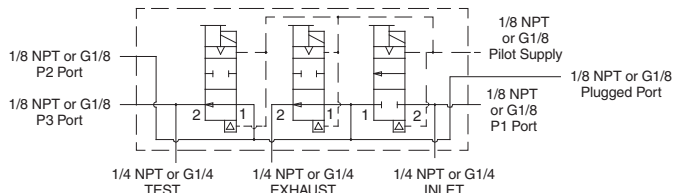
The LT Series valves can be field configured for flow, pressure, or differential pressure testing by selecting different combinations of the three sensor ports.

3-Way 4-Position Valve, Multi Solenoid Actuated

Threads	Port Size			Model Number	Sensor Ports			Pilot Port Thread	Avg. C _v	Weight lb (kg)
	In	Exh.	Test		P1	P2	P3			
NPT	1/4	1/4	1/4	LT32NB27500**01	1/8	1/8	1/8	1/8 NPT	0.9	3.6 (1.7)
BSPP	1/4	1/4	1/4	LT32DB27500**01	1/8	1/8	1/8	G 1/8	0.9	3.6 (1.7)

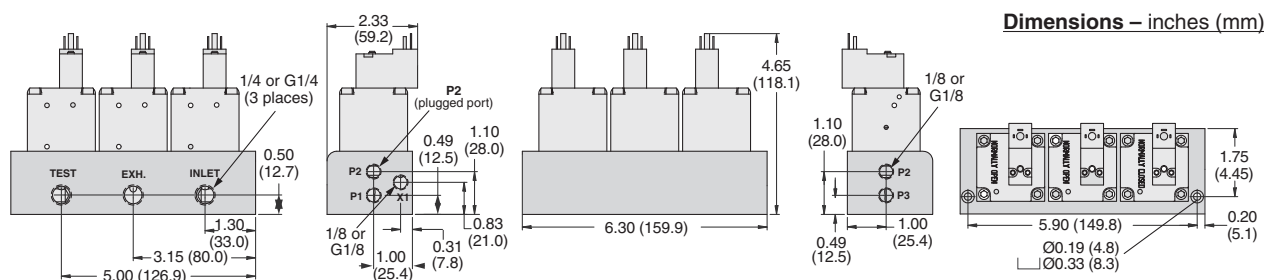
** Insert voltage code: "W" = 24 volts DC; "Z" = 110 volts AC, 120 volts AC; e.g., LT32NB27500W01.

Normally Closed

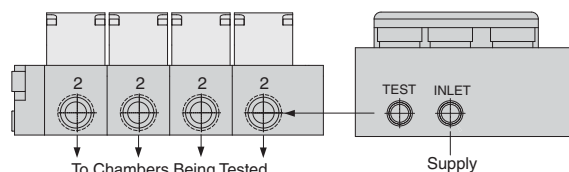


B1

B



The CX and LT Series can be combined to simplify the most complex test circuits. The LT manifold with integrated sensor ports is the primary valve used for the fill, isolate and test functions. In this example the test port of the LT is connected to the CX manifold allowing four chambers to be tested one at a time. The flexibility of combining the LT and CX manifolds creates a compact package, reduces leak paths, and provides an all in one test solution.



ACCESSORIES

Electrical Connectors

Valve Type	Port Size	Electrical Connector Form	Electrical Connectors Model Number			
			Lighted Connector Only		Lighted Connector Pre-wired*	
			24 Volts DC	120 Volts AC	24 Volts DC	120 Volts AC
1/4	3/8 - 1	EN 175301-803 Form C	2453K77-W	2453K77-Z	2476K77-W	2476K77-Z

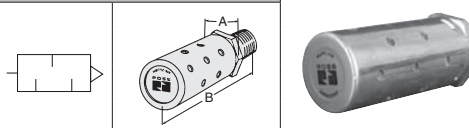
*Pre-wired connectors include a 2 meter (6½ ft.) cord.



Silencers

Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	BSPT Threads		A	B	
1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)

Pressure Range: 0 to 300 psig (0 to 20.7 bar) maximum. Flow Media: Filtered air.



STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.

Mounting Type: Inline.

Pilot Solenoid: DC power. Rated for continuous duty.

Standard Voltages/Power Consumption (each solenoid):

24 volts DC: 1.2 watts on DC; 110 volts AC, 50 Hz: 5.4 VA.

120 volts AC, 60 Hz: 5.0 VA.

Enclosure Rating: IP65, IEC 60529.

Electrical Connections: EN 175301-803 Form C connector.

Ambient/Media Temperature: 40° to 120°F (4° to 50°C).

Flow Media: Filtered air. For liquid applications, consult ROSS.

Pilot Port: 1/8 NPT, or G1/8 ports.

Inlet Pressure: Vacuum to 250 psi (vacuum to 17.2 bar).

Pilot Pressure: 70 to 145 psi (4.8 to 17.2 bar).

Manual Override: Non-locking.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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B1.29

CP & CX Series Assembled Valve Manifold Configurator

B1

This form can be used when your application requires either a CP or CX Series valve manifold with different valve functions to provide you with complete valve manifold assemblies to fit your precise requirements.

Manifolds can be ordered from two to ten stations. For other combinations, contact ROSS for more information.

B

of Stations 2 3 4 5 6 7 8 9 10
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Port Thread: NPT ☐ BSPP ☐

Valve Series: CP ☐ CX ☐

Valve Type: 2/2 ☐ 3/2 ☐

Compatible Combinations

- Air Pilot & Solenoid Pilot Valves
- 24 volts DC & 110 or 120 volts AC Solenoid Pilot Valves
- Different port 2 sizes with same port 1 size
 (i.e., valve 1 = 1/2" port 1 & 3/8" port 2;
 valve 2 = 1/2" port 1 & 1/2" port 2.

Example:

Valve Position Number	Valve Model Number*
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

*Refer to CP or CX Valve product pages for Valve Model Numbers.
 Enter "Blank" to indicate base with blocking plate.

Valve Position Number	Valve Model Number**
1	CX14NB37511W
2	CX14NB37511W
3	CX24NB37511W
4	CX24NB37511W
5	Blank
6	CX14NB47511W
7	CX24NB47511W
8	CX14NB35511
9	
10	

**Example given for an eight station manifold.

Name: _____ Date: _____

Company Name: _____

Address: _____

City, State, Zip Code: _____

Tel: _____ e-mail: _____

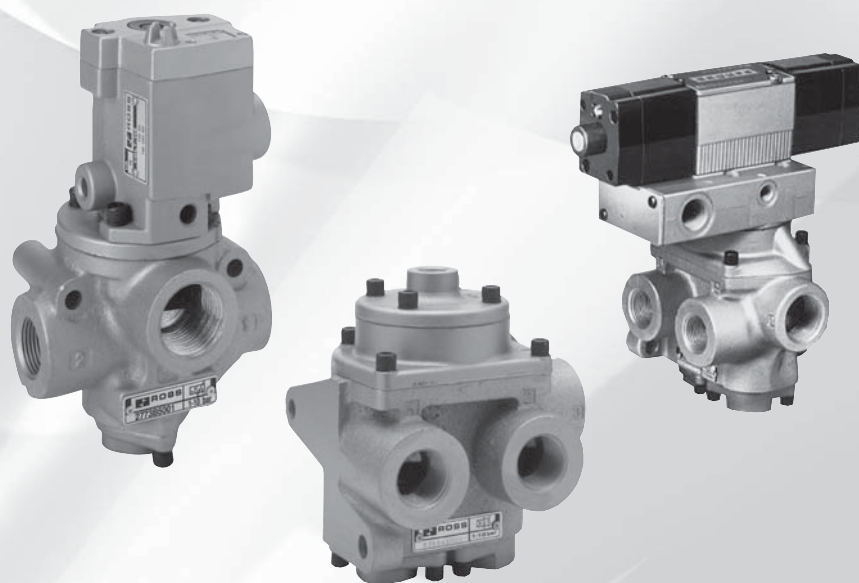
Fax completed form to 1-706-356-3600 or e-mail to custsvc@rosscontrols.com
 to obtain pre-assemble model number, price, and delivery.

B

ROSS CONTROLS®



POPPET VALVES 27 SERIES



POPPET 27 SERIES VALVES – KEY FEATURES

- Low weight; compact size
- Valves available with special control functions:
 - Timed sequence actuation and/or deactuation
 - Momentary control of actuation/deactuation from one pressure source
 - Actuating force multiplier, for use with low signal pressures
- Available with choices of internal components for three different temperature ranges
- Can be mounted close to actuator, reducing length of pipe to be pressurized/exhausted on each cycle
- Easily field-convertible for use with an external pilot supply
- Long life expectancy
- Consistent response times over the life of the valve

Valve models for external pilot supply available, consult ROSS.

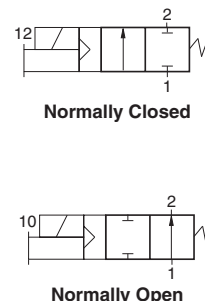
Explosion-Proof solenoid pilot valves available, see explosion proof valves.

VALVE TYPE/SERIES	DESCRIPTION		AVAILABLE INLET PORT SIZES												FUNCTIONS									Page			
	Spool & Sleeve	Poppet	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	2	2½	2/2	3/2	3/4	4/2	5/2 Single	5/2 Double	5/3 Closed Center	5/3 Open Center	5/3 Pressure Center	Max Flow (Cv)	Solenoid Control		Direct Solenoid Control	Pressure Control	
27																						72				B2.3 - B2.5	
27																						34				B2.10 - B2.11	
27																						72				B2.12 - B2.14	
27 Series with Pressure Booster Adaptor																											
																						32				B2.6	
																						34				B2.15	
27 Series with Air Index Adaptor																											
																						27				B2.7	
																						32				B2.16	
27 Series with Timed Sequence Adaptor																											
																						34				B2.8, B2.17	
27 Series with Timed Sequence & Timed Sequence Extension Adaptors																											
																						34				B2.9	
																						32				B2.18	
27 Series with Timed In/Out Sequence Adaptor																											
																						32				B2.19	
27 Series with Timed-In/Out Sequence & Timed Sequence Extension Adaptors																											
																						34				B2.20	
27 Series Pressure Controlled with Inlet Port Controlled Timed-In Sequence Adaptor																											
																						34				B2.21	
27 Series Pressure Controlled with Inlet Port Controlled Timed-In Sequence & Timed Sequence Extension Adaptors																											
																						32				B2.22	
Options & Accessories																											B2.23

2-Way 2-Position Valves, Spring Return									
Port Size	Body Size	Valve Model Number*		C _v		Average Response Constants#			Weight lb (kg)
		Normally Closed	Normally Open	NC	NO	M	F		
							NC	NO	
1, 2									
1/4	3/8	2771B2001**	2772B2001**	2.3	2.3	10	0.91	0.91	2.5 (1.2)
3/8	3/8	2771B3001**	2772B3001**	3.8	3.3	10	0.70	0.76	2.5 (1.2)
1/2	3/8	2771B4011**	2772B4011**	4.0	3.5	10	0.64	0.72	2.5 (1.2)
1/2	3/4	2771B4001**	2772B4001**	7.7	6.5	14	0.37	0.43	3.3 (1.5)
3/4	3/4	2771B5001**	2772B5001**	9.0	7.3	14	0.34	0.39	3.3 (1.5)
1	3/4	2771B6011**	2772B6011**	9.0	7.9	14	0.34	0.37	3.3 (1.5)
1	1¼	2771B6001**	2772B6001**	24	21	26	0.17	0.17	7.0 (3.2)
1¼	1¼	2771B7001**	2772B7001**	29	20	26	0.15	0.19	7.0 (3.2)
1½	1¼	2771B8011**	2772B8011**	29	21	26	0.15	0.18	7.0 (3.2)
1½	2	2771B8001**	2772B8001**	49	49	41	0.09	0.09	15.5 (6.9)
2	2	2771B9001**	2772B9001**	57	57	41	0.07	0.07	15.5 (6.9)
2½	2	2771B9011**	2772B9011**	64	72	41	0.07	0.06	15.5 (6.9)

Normally Closed

Normally Open



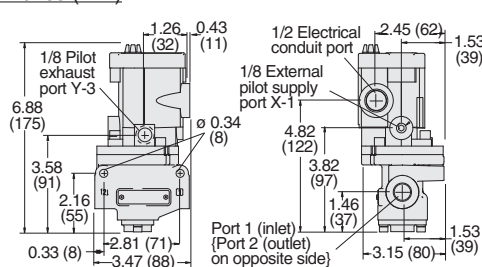
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2771B2001W.

** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 2771B2001W. For other voltages, consult ROSS.

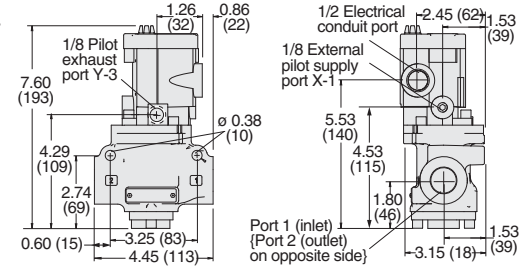
Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

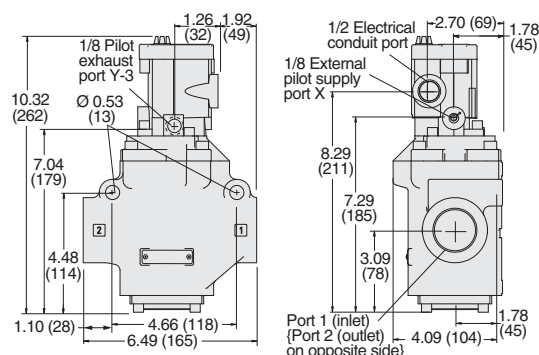
Body Size 3/8



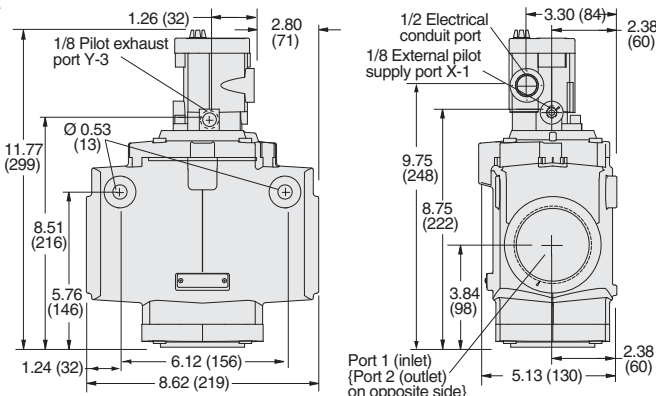
Body Size 3/4



Body Size 1 1/4



Body Size 2



Options: Indicator Light Kits, Manual Override Kits; refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.

Mounting Type: Inline.

Solenoid Pilot: Rated for continuous duty.

Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.

Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.

Ambient Temperature: 40° to 120°F (4° to 50°C).

Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air.

Inlet Pressure: Port Size 1/4 to 1 1/2: 15 to 150 psig (1 to 10 bar).

Inlet Pressure: Port Size 1 1/2 to 2 1/2: 30 to 150 psig (2 to 10 bar).

Pilot Pressure: When external supply is used, pressure must be equal to or greater than inlet pressure.

Manual Override: Flush; rubber, non-locking.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1.

Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



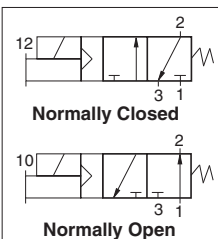
Online Version
Rev. 10/02/17

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B2.3

3-Way 2-Position Valves, Spring Return

Port Size		Body Size	Valve Model Number*		C _v				Average Response Constants#						Weight lb (kg)
									M	F					
1, 2	3		Normally Closed	Normally Open	NC		NO			NC		NO			
		1-2			2-3	1-2	2-3	1-2	2-3	1-2	2-3				
1/4	1/2	3/8	2773B2001**	2774B2001**	2.5	3.1	2.3	2.7	10	0.90	0.80	0.99	0.88	2.5 (1.2)	
3/8	1/2	3/8	2773B3001**	2774B3001**	3.6	5.3	2.8	3.2	10	0.70	0.50	0.90	0.77	2.5 (1.2)	
1/2	1/2	3/8	2773B4011**	2774B4011**	3.3	5.3	2.8	3.2	10	0.75	0.50	0.90	0.76	2.5 (1.2)	
1/2	1	3/4	2773B4001**	2774B4001**	6.3	9.2	6.3	8.0	11	0.43	0.27	0.46	0.60	3.3 (1.5)	
3/4	1	3/4	2773B5001**	2774B5001**	7.7	11	6.9	7.4	11	0.36	0.26	0.45	0.60	3.3 (1.5)	
1	1	3/4	2773B6011**	2774B6011**	8	12	6.8	7.5	11	0.34	0.25	0.40	0.59	3.3 (1.5)	
1	1½	1¼	2773B6001**	2774B6001**	23	34	17	24	28	0.17	0.14	0.20	0.17	7.0 (3.2)	
1¼	1½	1¼	2773B7001**	2774B7001**	30	32	19	24	28	0.15	0.15	0.19	0.17	7.0 (3.2)	
1½	1½	1¼	2773B8011**	2774B8011**	30	31	19	23	28	0.15	0.15	0.19	0.16	7.0 (3.2)	
1½	2½	2	2773B8001**	2774B8001**	68	70	57	59	76	0.05	0.04	0.07	0.04	16.5 (7.4)	
2	2½	2	2773B9001**	2774B9001**	70	70	58	61	76	0.05	0.04	0.05	0.04	16.5 (7.4)	
2½	2½	2	2773B9011**	2774B9011**	70	71	54	55	76	0.05	0.04	0.50	0.04	16.5 (7.4)	



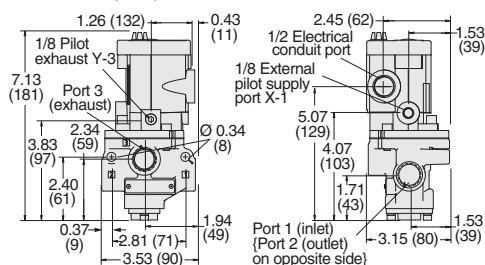
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2773B2001W.

** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 2773B2001W. For other voltages, consult ROSS.

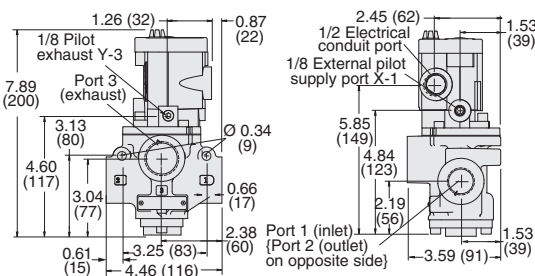
Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

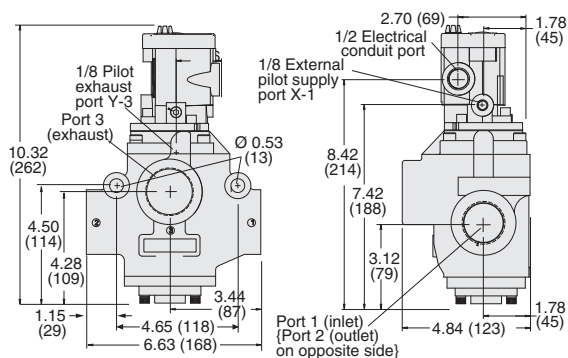
Body Size 3/8



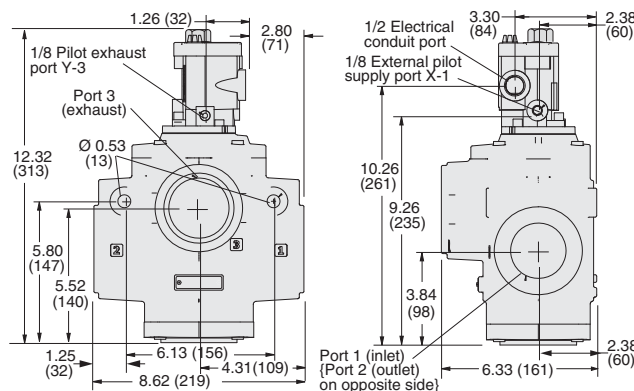
Body Size 3/4



Body Size 1 1/4



Body Size 2



Options: Indicator Light Kits, Manual Override Kits; refer to page B2.23. Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.

Mounting Type: Inline.

Solenoid Pilot: Rated for continuous duty.

Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.

Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.

Ambient Temperature: 40° to 120°F (4° to 50°C).

Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air.

Inlet Pressure: Port Size 1/4 to 1 1/2: 15 to 150 psig (1 to 10 bar).

Inlet Pressure: Port Size 1 1/2 to 2 1/2: 30 to 150 psig (2 to 10 bar).

Pilot Pressure: When external supply is used, pressure must be equal to or greater than inlet pressure.

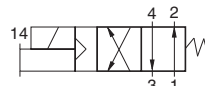
Manual Override: Flush; rubber, non-locking.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1.

Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

4-Way 2-Position Valves, Spring Return									
Port Size		Body Size	Valve Model Number*	C _v		Average Response Constants#			Weight lb (kg)
1, 2, 4	3			1-2, 1-4	4-3, 2-3	M	F		
							1-2, 1-4	4-3, 2-3	
1/4	1/2	3/8	2776B2001**	2.1	2.9	10	0.92	0.92	3.0 (1.4)
3/8	1/2	3/8	2776B3001**	2.9	4.2	10	0.90	0.90	3.0 (1.4)
1/2	1/2	3/8	2776B4011**	3.1	7.3	10	0.89	0.73	3.0 (1.4)
1/2	1	3/4	2776B4001**	5.6	8.1	26	0.50	0.66	5.3 (2.4)
3/4	1	3/4	2776B5001**	7.0	9.3	26	0.36	0.55	5.3 (2.4)
1	1	3/4	2776B6011**	7.8	10	26	0.35	0.50	5.3 (2.4)
1	1½	1¼	2776B6001**	19	26	79	0.17	0.22	11.3 (5.1)
1¼	1½	1¼	2776B7001**	21	27	79	0.16	0.18	11.3 (5.1)
1½	1½	1¼	2776B8011**	22	27	79	0.15	0.15	11.3 (5.1)



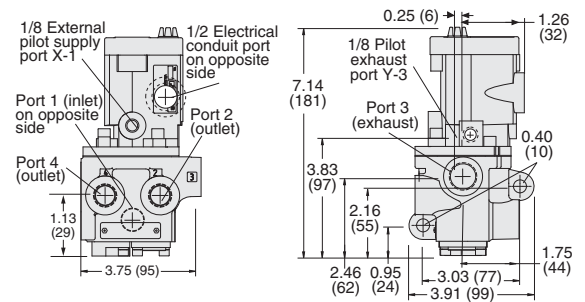
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2776B2001W.

** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 2776B2001W. For other voltages, consult ROSS.

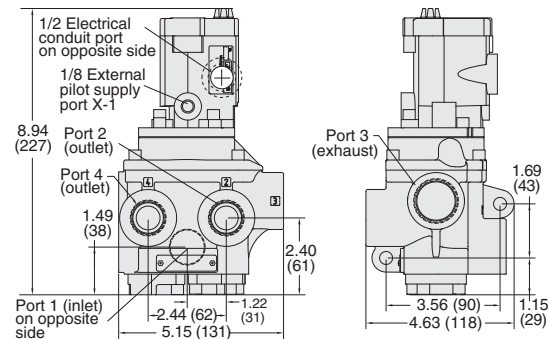
Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

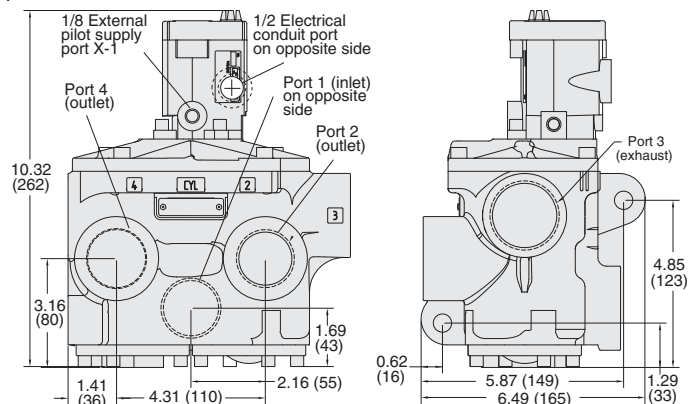
Body Size 3/8



Body Size 3/4



Body Size 1¼



Options: Indicator Light Kits, Manual Override Kits; refer to page B2.23. Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.

Mounting Type: Inline.

Solenoid Pilot: Rated for continuous duty.

Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.

Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.

Ambient Temperature: 40° to 120°F (4° to 50°C).

Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air.

Inlet Pressure: Port Size 1/4 to 1½: 15 to 150 psig (1 to 10 bar);

Inlet Pressure: Port Size 1½ to 2½: 30 to 150 psig (2 to 10 bar).

Pilot Pressure: When external supply is used, pressure must be equal to or greater than inlet pressure.

Manual Override: Flush; rubber, non-locking.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1.

Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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B2.5

Solenoid Pilot Controlled Valves

with Pressure Booster Adaptor

27 Series

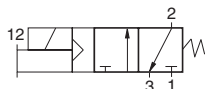
Pressure Booster Adaptor: Increases the actuating force on the valve piston. It should be used when the inlet and pilot pressures are below the minimums specified for the valve. It should also be used when an external pilot supply with a lower pressure than the inlet pressure is used. The valve's pilot pressure is applied to a piston in the pilot booster adaptor that has a larger area than the piston in the valve. The force on the piston in the adaptor is thereby larger than that which could be produced by the piston in the valve. This larger force is applied to the valve's piston directly so that there is then sufficient force to shift the valve properly.



3-Way 2-Position Valves, Spring Return

Port Size		Body Size	Valve Model Number*	C _v		Dimension A inches (mm)	Weight lb (kg)
1, 2	3			1-2	2-3		
1/4	1/2	3/8	2773B2009**	2.5	3.1	0.75 (19)	2.5 (1.2)
3/8	1/2	3/8	2773B3009**	3.6	5.3	0.75 (19)	2.5 (1.2)
1/2	1/2	3/8	2773B4019**	3.3	5.3	0.75 (19)	2.5 (1.2)
1/2	1	3/4	2773B4009**	6.3	9.2	0.75 (19)	3.3 (1.5)
3/4	1	3/4	2773B5009**	7.7	11	0.75 (19)	3.3 (1.5)
1	1	3/4	2773B6019**	8	12	0.75 (19)	3.3 (1.5)
1	1½	1¼	2773B6009**	23	34	1.25 (32)	7.0 (3.2)
1¼	1½	1¼	2773B7009**	30	32	1.25 (32)	7.0 (3.2)
1½	1½	1¼	2773B8019**	30	31	1.25 (32)	7.0 (3.2)

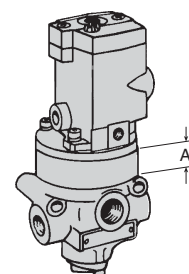
Normally Closed



* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2773B2009W.

** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 2773B2009W. For other voltages, consult ROSS.

Detailed dimensions, see corresponding valves models pages.



Options: Indicator Light Kits, Manual Override Kits; refer to page B2.23. Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.

Mounting Type: Inline.

Solenoid Pilot: Rated for continuous duty.

Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.

Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.

Ambient Temperature: 40° to 120°F (4° to 50°C).

Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air.

Inlet Pressure: 15 to 150 psig (1 to 10 bar).

Pilot Pressure: When external supply is used, pressure must be equal to or greater than inlet pressure.

Manual Override: Flush; rubber, non-locking.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1.

Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Solenoid Pilot Controlled Valves

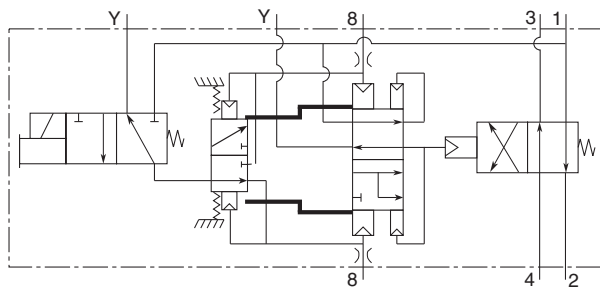
with Air Index Adaptor

27 Series

Air Index Adaptor: Allows a valve controlled by a single solenoid pilot to function as an impulse controlled, mechanically detented valve. A momentary electrical signal to the solenoid actuates the valve and holds it in the actuated position. A second momentary signal from the same source returns the valve to its deactuated position.



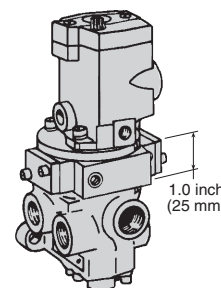
4-Way 2-Position Valves, Spring Return						
Port Size		Body Size	Valve Model Number*	C _v		Weight lb (kg)
1, 2, 4	3			1-2, 1-4	4-3, 2-3	
1/4	1/2	3/8	2776B2008**	2.1	2.9	3.0 (1.4)
3/8	1/2	3/8	2776B3008**	2.9	4.2	3.0 (1.4)
1/2	1/2	3/8	2776B4018**	3.1	7.3	3.0 (1.4)
1/2	1	3/4	2776B4008**	5.6	8.1	5.3 (2.4)
3/4	1	3/4	2776B5008**	7.0	9.3	5.3 (2.4)
1	1	3/4	2776B6018**	7.8	10	5.3 (2.4)
1	1½	1¼	2776B6008**	19	26	11.3 (5.1)
1¼	1½	1¼	2776B7008**	21	27	11.3 (5.1)
1½	1½	1¼	2776B8018**	22	27	11.3 (5.1)



* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2776B2008W.

** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 2776B2008W. For other voltages, consult ROSS.

Detailed dimensions, see corresponding valves models pages.



Options: Indicator Light Kits, Manual Override Kits; refer to page B2.23. Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.

Mounting Type: Inline.

Solenoid Pilot: Rated for continuous duty.

Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.

Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.

Ambient Temperature: 40° to 120°F (4° to 50°C).

Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air.

Inlet Pressure: 15 to 150 psig (1 to 10 bar).

Pilot Pressure: When external supply is used, pressure must be equal to or greater than inlet pressure.

Manual Override: Flush; rubber, non-locking.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1.

Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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Rev. 10/02/17

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B2.7

Solenoid Pilot Controlled Valves

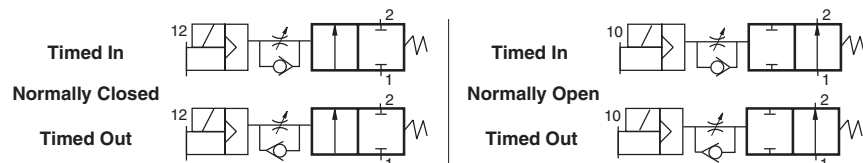
with Timed Sequence Adaptor

27 Series



2-Way 2-Position Valves, Spring Return

Port Size	Body Size	Valve Model Number*				C _v		Weight lb (kg)
		Normally Closed		Normally Open		NC	NO	
		Timed In	Timed Out	Timed In	Timed Out			
1/4	3/8	2771B2004**	2771B2005**	2772B2004**	2772B2005**	2.3	2.3	3.5 (1.6)
3/8	3/8	2771B3004**	2771B3005**	2772B3004**	2772B3005**	3.8	3.3	3.5 (1.6)
1/2	3/8	2771B4014**	2771B4015**	2772B4014**	2772B4015**	4.0	3.5	3.5 (1.6)
1/2	3/4	2771B4004**	2771B4005**	2772B4004**	2772B4005**	7.7	6.5	4.3 (2.0)
3/4	3/4	2771B5004**	2771B5005**	2772B5004**	2772B5005**	9.0	7.3	4.3 (2.0)
1	3/4	2771B6014**	2771B6015**	2772B6014**	2772B6015**	9.0	7.9	4.3 (2.0)
1	1¼	2771B6004**	2771B6005**	2772B6004**	2772B6005**	24	21	9.0 (4.1)
1¼	1¼	2771B7004**	2771B7005**	2772B7004**	2772B7005**	29	20	9.0 (4.1)
1½	1¼	2771B8014**	2771B8015**	2772B8014**	2772B8015**	29	21	9.0 (4.1)



Timed Sequence Adaptor: Allows the actuation and/or de-actuation of a valve to be delayed up to 30 seconds for 2/2 valves, and up to 3 seconds for 3/2 and 4/2 valves. The time delay function is controlled by a continuously adjustable tapered needle. Longer time delays can be obtained by using this adaptor in conjunction with the timed sequence extension adaptor, see next page.

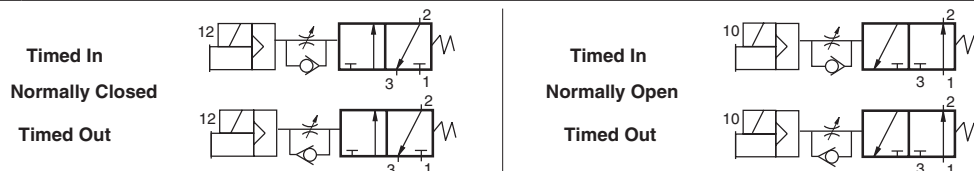
OPERATION

Timed In Adaptor: Solenoid energized; after preset delay valve is actuated. Solenoid de-energized; valve immediately deactuated.

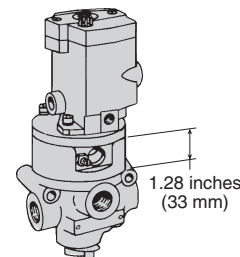
Timed Out Adaptor: Solenoid energized; valve immediately actuated. Solenoid de-energized; after preset delay valve is deactuated.

3-Way 2-Position Valves, Spring Return

Port Size		Body Size	Valve Model Number*				C _v				Weight lb (kg)
			Normally Closed		Normally Open		NC		NO		
1, 2	3		Timed In	Timed Out	Timed In	Timed Out	1-2	2-3	1-2	2-3	
1/4	1/2	3/8	2773B2004**	2773B2005**	2774B2004**	2774B2005**	2.5	3.1	2.3	2.7	3.5 (1.6)
3/8	1/2	3/8	2773B3004**	2773B3005**	2774B3004**	2774B3005**	3.6	5.3	2.8	3.2	3.5 (1.6)
1/2	1/2	3/8	2773B4014**	2773B4015**	2774B4014**	2774B4015**	3.3	5.3	2.8	3.2	3.5 (1.6)
1/2	1	3/4	2773B4004**	2773B4005**	2774B4004**	2774B4005**	6.3	9.2	6.3	8.0	4.3 (2.0)
3/4	1	3/4	2773B5004**	2773B5005**	2774B5004**	2774B5005**	7.7	11	6.9	7.4	4.3 (2.0)
1	1	3/4	2773B6014**	2773B6015**	2774B6014**	2774B6015**	8	12	6.8	7.5	4.3 (2.0)
1	1½	1¼	2773B6004**	2773B6005**	2774B6004**	2774B6005**	23	34	17	24	9.0 (4.1)
1¼	1½	1¼	2773B7004**	2773B7005**	2774B7004**	2774B7005**	30	32	19	24	9.0 (4.1)
1½	1½	1¼	2773B8014**	2773B8015**	2774B8014**	2774B8015**	30	31	19	23	9.0 (4.1)



Detailed dimensions, see corresponding valves models pages.



* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2771B2004W.

** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 2771B2004W. For other voltages, consult ROSS.

Options: Indicator Light Kits, Manual Override Kits; refer to page B2.23. Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.

Mounting Type: Inline.

Solenoid Pilot: Rated for continuous duty.

Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.

Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.

Ambient Temperature: 40° to 120°F (4° to 50°C).

Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air.

Inlet Pressure: 15 to 150 psig (1 to 10 bar).

Pilot Pressure: When external supply is used, pressure must be equal to or greater than inlet pressure.

Manual Override: Flush; rubber, non-locking.

Time Delay Interval: 2/2 Valves: Up to 30 seconds.

3/2 Valves: Up to 3 seconds.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1.

Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Solenoid Pilot Controlled Valves

with Timed Sequence & Timed Sequence Extension Adaptors

27 Series

Timed Sequence & Timed Sequence Extension Adaptors: Used in conjunction can increase the time delay interval up to 60 seconds. It also helps to obtain "snap" action of the valve. By keeping pilot air off the main valve piston until the pressure has built high enough to ensure prompt valve response, the timed sequence extension adaptor prevents the piston from creeping.

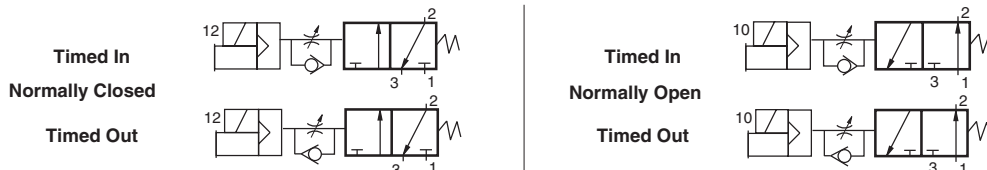


B

B2

3-Way 2-Position Valves, Spring Return

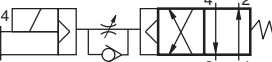
Port Size		Body Size	Valve Model Number*				C _v				Weight lb (kg)
			Normally Closed		Normally Open		NC		NO		
1, 2	3		Timed In	Timed Out	Timed In	Timed Out	1-2	2-3	1-2	2-3	
1/4	1/2	3/8	2773B2006**	2773B2007**	2774B2006**	2774B2007**	2.5	3.1	2.3	2.7	3.5 (1.6)
3/8	1/2	3/8	2773B3006**	2773B3007**	2774B3006**	2774B3007**	3.6	5.3	2.8	3.2	3.5 (1.6)
1/2	1/2	3/8	2773B4016**	2773B4017**	2774B4016**	2774B4017**	3.3	5.3	2.8	3.2	3.5 (1.6)
1/2	1	3/4	2773B4006**	2773B4007**	2774B4006**	2774B4007**	6.3	9.2	6.3	8.0	4.3 (2.0)
3/4	1	3/4	2773B5006**	2773B5007**	2774B5006**	2774B5007**	7.7	11	6.9	7.4	4.3 (2.0)
1	1	3/4	2773B6016**	2773B6017**	2774B6016**	2774B6017**	8	12	6.8	7.5	4.3 (2.0)
1	1½	1¼	2773B6006**	2773B6007**	2774B6006**	2774B6007**	23	34	17	24	9.0 (4.1)
1¼	1½	1¼	2773B7006**	2773B7007**	2774B7006**	2774B7007**	30	32	19	24	9.0 (4.1)
1½	1½	1¼	2773B8016**	2773B8017**	2774B8016**	2774B8017**	30	31	19	23	9.0 (4.1)



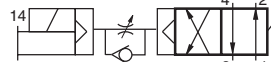
4-Way 2-Position Valves, Spring Return

Port Size		Body Size	Valve Model Number*		C _v		Weight lb (kg)
1, 2, 4	3		Timed In	Timed Out	1-2, 1-4	4-3, 2-3	
1/4	1/2	3/8	2776B2006**	2776B2007**	2.1	2.9	3.0 (1.4)
3/8	1/2	3/8	2776B3006**	2776B3007**	2.9	4.2	3.0 (1.4)
1/2	1/2	3/8	2776B4016**	2776B4017**	3.1	7.3	3.0 (1.4)
1/2	1	3/4	2776B4006**	2776B4007**	5.6	8.1	5.3 (2.4)
3/4	1	3/4	2776B5006**	2776B5007**	7.0	9.3	5.3 (2.4)
1	1	3/4	2776B6016**	2776B6017**	7.8	10	5.3 (2.4)
1	1½	1¼	2776B6006**	2776B6007**	19	26	11.3 (5.1)
1¼	1½	1¼	2776B7006**	2776B7007**	21	27	11.3 (5.1)
1½	1½	1¼	2776B8016**	2776B8017**	22	27	11.3 (5.1)

Timed In

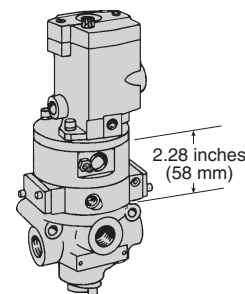


Timed Out





Detailed dimensions, see corresponding valves models pages.



* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2773B2006W.

** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 2773B2006W. For other voltages, consult ROSS.

Options: Indicator Light Kits, Manual Override Kits; refer to page B2.23. Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.

Mounting Type: Inline.

Solenoid Pilot: Rated for continuous duty.

Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.

Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.

Ambient Temperature: 40° to 120°F (4° to 50°C).

Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air.

Inlet Pressure: 15 to 150 psig (1 to 10 bar).

Pilot Pressure: When external supply is used, pressure must be equal to or greater than inlet pressure.

Manual Override: Flush; rubber, non-locking.

Adjustable Time Delay: Up to 30 seconds.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1.

Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



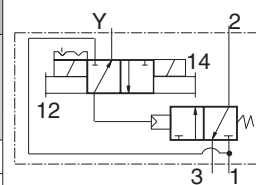
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Rev. 10/02/17

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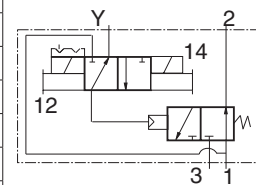
B2.9

3-Way 2-Position Valves, Detented

Port Size		Body Size	Valve Model Number*		C _v				Average Response Constants#				Weight lb (kg)	
					NC		NO		M	F				
1, 2	3		Normally Closed	Normally Open	1-2	2-3	1-2	2-3		1-2	NC	2-3		1-2
1/4	1/2	3/8	2773B2003**	2774B2003**	2.5	3.1	2.3	2.7	30	0.90	0.80	0.99	0.88	3.5 (1.6)
3/8	1/2	3/8	2773B3003**	2774B3003**	3.6	5.3	2.8	3.2	30	0.70	0.50	0.90	0.77	3.5 (1.6)
1/2	1/2	3/8	2773B4013**	2774B4013**	3.3	5.3	2.8	3.2	30	0.75	0.50	0.90	0.76	3.5 (1.6)
1/2	1	3/4	2773B4003**	2774B4003**	6.3	9.2	6.3	8.0	32	0.43	0.17	0.46	0.60	4.3 (1.9)
3/4	1	3/4	2773B5003**	2774B5003**	7.7	11	6.9	7.4	32	0.36	0.26	0.45	0.60	4.3 (1.9)
1	1	3/4	2773B6013**	2774B6013**	8	12	6.8	7.5	32	0.34	0.25	0.40	0.59	4.3 (1.9)
1	1½	1¼	2773B6003**	2774B6003**	23	34	17	24	52	0.17	0.14	0.20	0.17	8.0 (3.6)
1¼	1½	1¼	2773B7003**	2774B7003**	30	32	19	24	52	0.15	0.15	0.19	0.17	8.0 (3.6)
1½	1½	1¼	2773B8013**	2774B8013**	30	31	19	23	52	0.15	0.15	0.19	0.16	8.0 (3.6)



Normally Closed



Normally Open

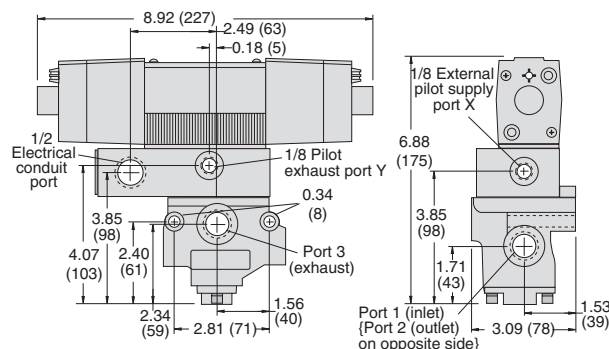
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2773B2003W.

** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 2773B2003W. For other voltages, consult ROSS.

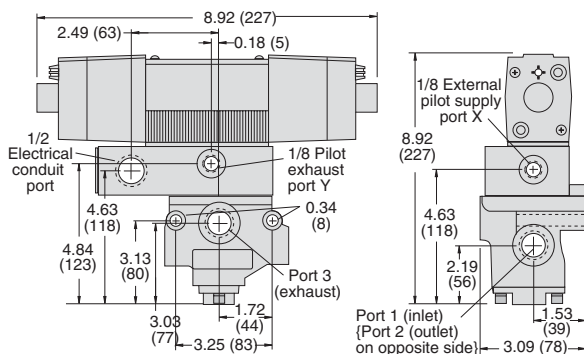
Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

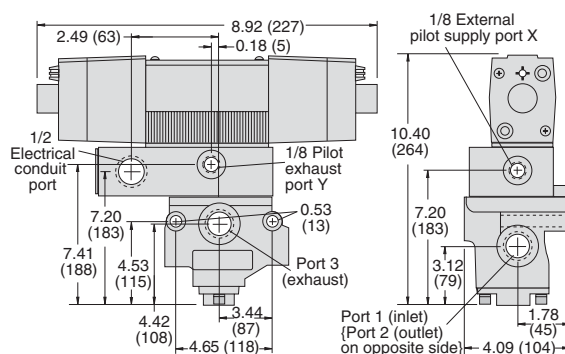
Body Size 3/8



Body Size 3/4



Body Size 1 1/4



Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.

Mounting Type: Inline.

Solenoid Pilot: Rated for continuous duty.

Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.

Power Consumption (each solenoid): 190 VA inrush, 40 VA holding on 50 or 60 Hz; 20 watts on DC.

Indicator Lights: In each solenoid housing.

Ambient Temperature: 40° to 120°F (4° to 50°C).

Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air.

Inlet Pressure: 15 to 150 psig (1 to 10 bar).

Pilot Pressure: If external supply is used, pressure must be equal to or greater than inlet pressure.

Manual Override: Flush; metal, non-locking.

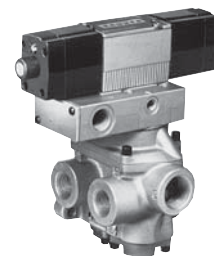
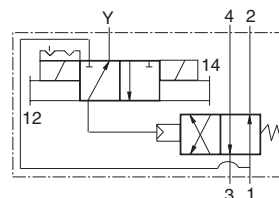
Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1.

Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

4-Way 2-Position Valves, Detented

Port Size		Body Size	Valve Model Number*	C _v		M	Average Response Constants#		Weight lb (kg)
				1-2, 1-4	4-3, 2-3		1-2, 1-4	4-3, 2-3	
1/4	1/2	3/8	2776B2003**	2.1	2.9	30	0.92	0.92	4.0 (1.8)
3/8	1/2	3/8	2776B3003**	2.9	4.2	30	0.90	0.90	4.0 (1.8)
1/2	1/2	3/8	2776B4013**	3.1	4.3	30	0.89	0.73	4.0 (1.8)
1/2	1	3/4	2776B4003**	5.6	8.1	46	0.50	0.66	6.3 (2.8)
3/4	1	3/4	2776B5003**	7.0	9.3	46	0.36	0.55	6.3 (2.8)
1	1	3/4	2776B6013**	7.8	10	46	0.35	0.50	6.3 (2.8)
1	1½	1¼	2776B6003**	19	26	99	0.17	0.22	12.3 (5.5)
1¼	1½	1¼	2776B7003**	21	27	99	0.16	0.18	12.3 (5.5)
1½	1½	1¼	2776B8013**	22	27	99	0.15	0.15	12.3 (5.5)



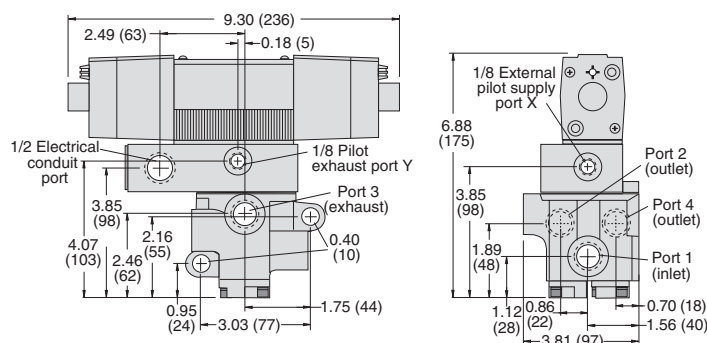
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2776B2003W.

** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 2776B2003W. For other voltages, consult ROSS.

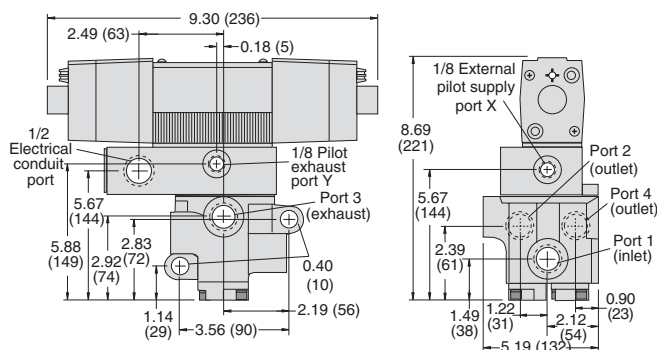
Valve Response Time – Response Time (msec) = $M + (F \cdot V)$. This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

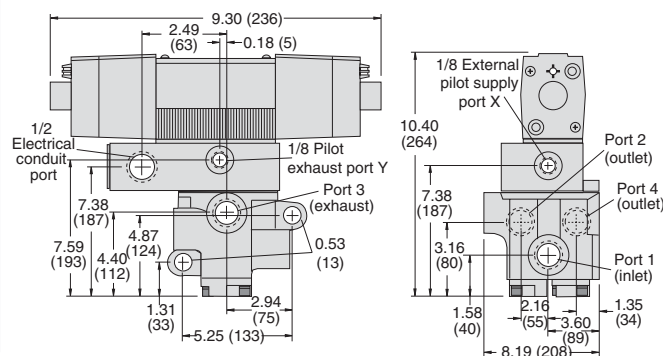
Body Size 3/8



Body Size 3/4



Body Size 1¼



Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.

Mounting Type: Inline.

Solenoid Pilot: Rated for continuous duty.

Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.

Power Consumption (each solenoid): 190 VA inrush, 40 VA holding on 50 or 60 Hz; 20 watts on DC.

Indicator Lights: In each solenoid housing.

Ambient Temperature: 40° to 120°F (4° to 50°C).

Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air.

Inlet Pressure: 15 to 150 psig (1 to 10 bar).

Pilot Pressure: If external supply is used, pressure must be equal to or greater than inlet pressure.

Manual Override: Flush; metal, non-locking.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1.

Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.




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Rev. 10/02/17

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B2.11

2-Way 2-Position Valves, Spring Return

Port Size	Body Size	Valve Model Number*		C _v		Average Response Constants#			Weight lb (kg)	 Normally Closed
		Normally Closed	Normally Open	NC	NO	M	F			
							NC	NO		
1/4	3/8	2751A2001	2752A2001	2.3	2.3	10	0.91	0.91	1.3 (0.6)	
3/8	3/8	2751A3001	2752A3001	3.8	3.3	10	0.70	0.76	1.3 (0.6)	
1/2	3/8	2751A4011	2752A4011	4.0	3.5	10	0.64	0.72	1.3 (0.6)	
1/2	3/4	2751A4001	2752A4001	7.7	6.5	14	0.37	0.43	2.0 (0.9)	
3/4	3/4	2751A5001	2752A5001	9.0	7.3	14	0.34	0.39	2.0 (0.9)	
1	3/4	2751A6011	2752A6011	9.0	7.9	14	0.34	0.37	2.0 (0.9)	
1	1¼	2751A6001	2752A6001	24	21	26	0.17	0.17	8.0 (3.6)	
1¼	1¼	2751A7001	2752A7001	29	20	26	0.15	0.19	8.0 (3.6)	
1½	1¼	2751A8011	2752A8011	29	21	26	0.15	0.18	8.0 (3.6)	
1½	2	2751A8001	2752A8001	49	49	41	0.09	0.09	14.3 (6.4)	
2	2	2751A9001	2752A9001	57	57	41	0.07	0.07	14.3 (6.4)	
2½	2	2751A9011	2752A9011	64	72	41	0.07	0.06	14.3 (6.4)	

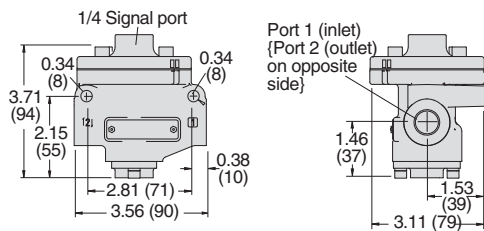
12	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
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* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2751A2001.

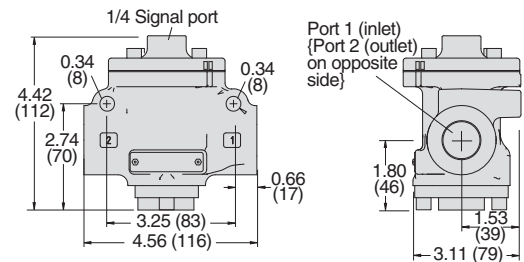
Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

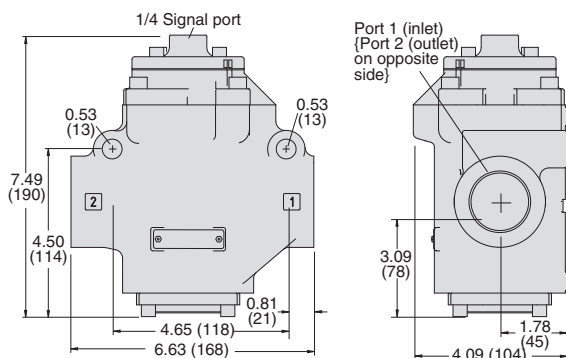
Body Size 3/8



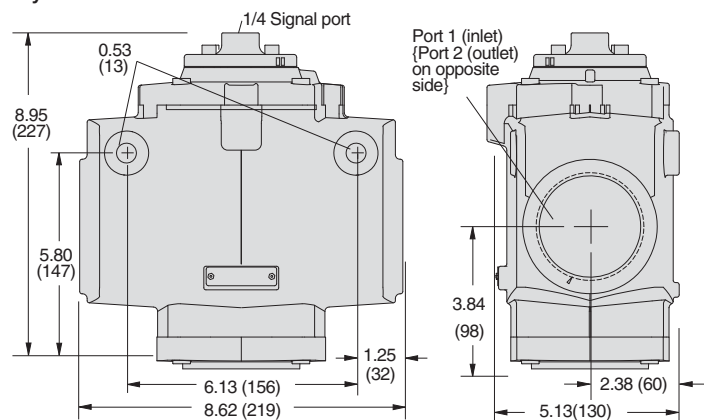
Body Size 3/4



Body Size 1 1/4



Body Size 2



Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.

Mounting Type: Inline.

Ambient/Media Temperature: 40° to 175°F (4° to 80°C).

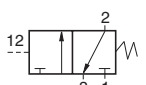
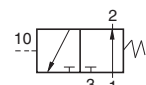
Flow Media: Filtered air.

Inlet Pressure: Port Size 1/4 to 1 1/2: 15 to 150 psig (1 to 10 bar).
Port Size 1 1/2 to 2 1/2: 30 to 150 psig (2 to 10 bar).

Pilot Pressure: Must be equal to or greater than inlet pressure.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

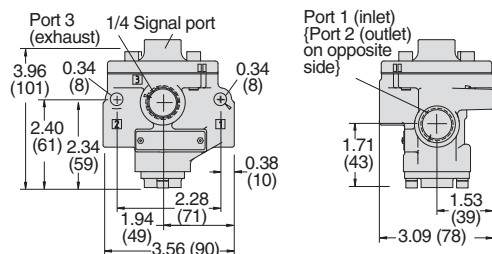
3-Way 2-Position Valves, Spring Return															
Port Size			Body Size	Valve Model Number*		C _v				Average Response Constants#				Weight lb (kg)	
						NC		NO		M	F				
				Normally Closed	Normally Open	1-2	2-3	1-2	2-3		1-2	2-3	1-2		
1, 2	3														
1/4	1/2	3/8	2753A2001	2754A2001	2.5	3.1	2.3	2.7	10	0.90	0.80	0.99	0.88	1.3 (0.6)	 Normally Closed
3/8	1/2	3/8	2753A3001	2754A3001	3.6	5.3	2.8	3.2	10	0.70	0.50	0.90	0.77	1.3 (0.6)	
1/2	1/2	3/8	2753A4011	2754A4011	3.3	5.3	2.8	3.2	10	0.75	0.50	0.90	0.76	1.3 (0.6)	 Normally Open
1/2	1	3/4	2753A4001	2754A4001	6.3	9.2	6.3	8.0	12	0.43	0.17	0.46	0.60	2.0 (0.9)	
3/4	1	3/4	2753A5001	2754A5001	7.7	11	6.9	7.4	12	0.36	0.26	0.45	0.60	2.0 (0.9)	
1	1	3/4	2753A6011	2754A6011	8	12	6.8	7.5	12	0.34	0.25	0.40	0.59	2.0 (0.9)	
1	1½	1¼	2753A6001	2754A6001	23	34	17	24	32	0.17	0.14	0.20	0.17	6.0 (2.7)	
1¼	1½	1¼	2753A7001	2754A7001	30	32	19	24	32	0.15	0.15	0.19	0.17	6.0 (2.7)	
1½	1½	1¼	2753A8011	2754A8011	30	31	19	23	32	0.15	0.15	0.19	0.16	6.0 (2.7)	
1½	2½	2	2753A8001	2754A8001	68	70	57	59	76	0.05	0.04	0.07	0.04	15.3 (6.9)	
2	2½	2	2753A9001	2754A9001	70	70	58	61	76	0.05	0.04	0.05	0.04	15.3 (6.9)	
2½	2½	2	2753A9011	2754A9011	70	71	54	55	76	0.05	0.04	0.05	0.04	15.3 (6.9)	

* NPT port threads. For BSPP threads add a “D” prefix to the model number e.g., D2753A2001.

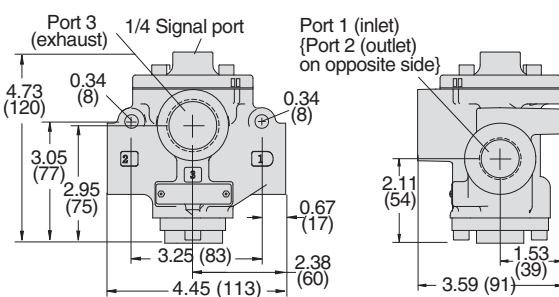
Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

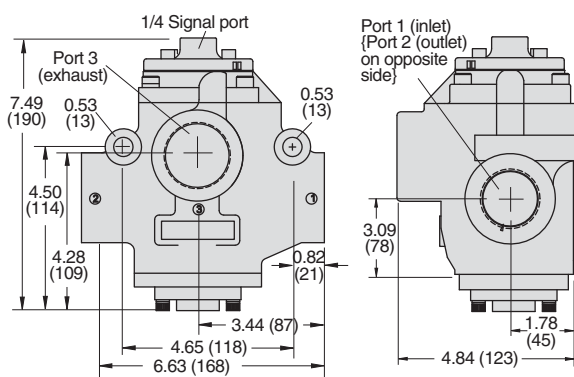
Body Size 3/8



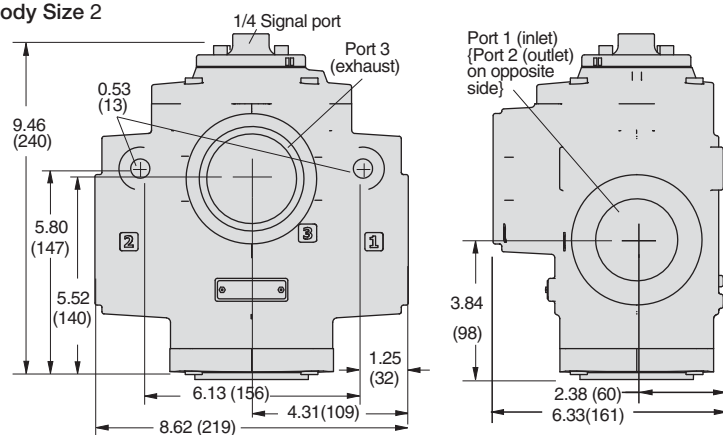
Body Size 3/4



Body Size 1¼



Body Size 2



Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.

Mounting Type: Inline.

Ambient/Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air.

Inlet Pressure: Port Size 1/4 to 1½: 15 to 150 psig (1 to 10 bar).

Port Size 1½ to 2½: 30 to 150 psig (2 to 10 bar).

Pilot Pressure: Must be equal to or greater than inlet pressure.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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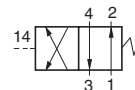
B2.13

4-Way 2-Position Valves, Spring Return

Port Size		Body Size	Valve Model Number*	C _v		Average Response Constants#			Weight lb (kg)
1, 2, 4	3			1-2, 1-4	4-3, 2-3	M	1-2, 1-4	4-3, 2-3	
1/4	1/2	3/8	2756A2001	2.1	2.9	10	0.92	0.92	1.8 (0.8)
3/8	1/2	3/8	2756A3001	2.9	4.2	10	0.90	0.90	1.8 (0.8)
1/2	1/2	3/8	2756A4011	3.1	4.3	10	0.89	0.73	1.8 (0.8)
1/2	1	3/4	2756A4001	5.6	8.1	26	0.50	0.66	4.3 (1.9)
3/4	1	3/4	2756A5001	7.0	9.3	26	0.36	0.55	4.3 (1.9)
1	1	3/4	2756A6011	7.8	10	26	0.35	0.50	4.3 (1.9)
1	1½	1¼	2756A6001	19	26	79	0.22	0.22	10.3 (4.6)
1¼	1½	1¼	2756A7001	21	27	79	0.18	0.18	10.3 (4.6)
1½	1½	1¼	2756A8011	22	27	79	0.15	0.15	10.3 (4.6)

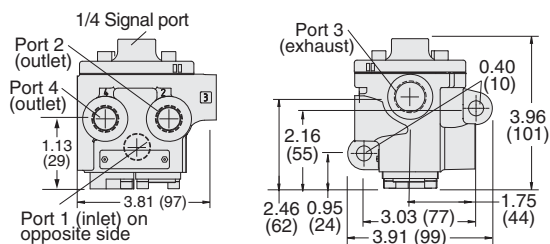
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2756A2001.

Valve Response Time — Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

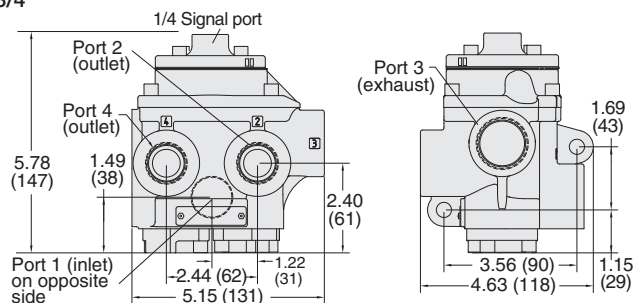


Valve Dimensions — inches (mm)

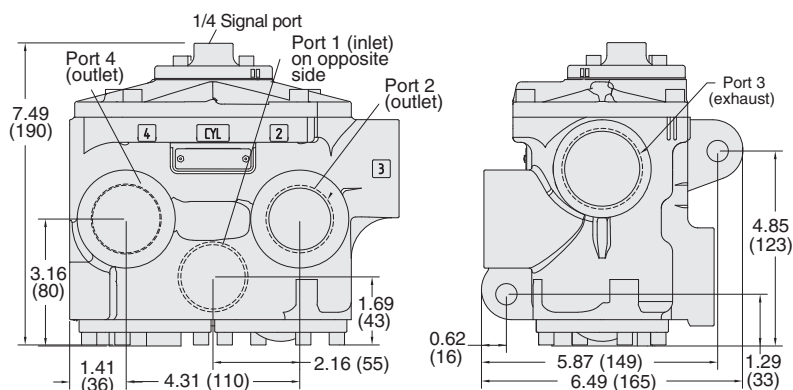
Body Size 3/8



Body Size 3/4



Body Size 1¼



Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.

Mounting Type: Inline.

Ambient/Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air.

Inlet Pressure: Port Size 1/4 to 1½: 15 to 150 psig (1 to 10 bar).
Port Size 1½ to 2½: 30 to 150 psig (2 to 10 bar).

Pilot Pressure: Must be equal to or greater than inlet pressure.

Safety Integrity Level (SIL) — Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1.

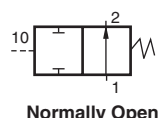
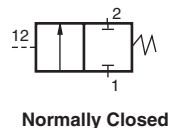
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Pressure Booster Adaptor: Increases the actuating force on the valve piston. It should be used when the inlet pressure exceeds the available signal pressure, or when the signal pressure is less than 15 psig (1 bar).

The valve's signal pressure is applied to a piston in the pressure booster adaptor that has a larger area than the piston in the valve. The force on the piston in the adaptor is thereby larger than that which could be produced by the piston in the valve. This larger force is applied to the valve's piston directly so that there is then sufficient force to shift the valve properly.

2-Way 2-Position Valves, Spring Return							
Port Size 1, 2	Body Size	Valve Model Number*		C _v		Dimension A inches (mm)	Weight lb (kg)
		Normally Closed	Normally Open	NC	NO		
1/4	3/8	2751A2007	2752A2007	2.3	2.3	0.75 (19)	2.3 (1.1)
3/8	3/8	2751A3007	2752A3007	3.8	3.3	0.75 (19)	2.3 (1.1)
1/2	3/8	2751A4017	2752A4017	4.0	3.5	0.75 (19)	2.3 (1.1)
1/2	3/4	2751A4007	2752A4007	7.7	6.5	0.75 (19)	3.0 (1.4)
3/4	3/4	2751A5007	2752A5007	9.0	7.3	0.75 (19)	3.0 (1.4)
1	3/4	2751A6017	2752A6017	9.0	7.9	0.75 (19)	3.0 (1.4)
1	1 1/4	2751A6007	2752A6007	24	21	1.25 (32)	9.0 (4.1)
1 1/4	1 1/4	2751A7007	2752A7007	29	20	1.25 (32)	9.0 (4.1)
1 1/2	1 1/4	2751A8017	2752A8017	29	21	1.25 (32)	9.0 (4.1)

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2751A2007.



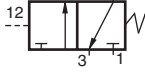
3-way PB Adaptor



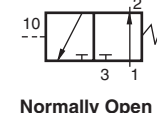
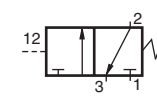
4-way PB Adaptor

B

B2

3-Way 2-Position Valves, Spring Return											
Port Size		Body Size	Valve Model Number*		C _v				Dimension A inches (mm)	Weight lb (kg)	
					NC		NO				
1, 2	3		Normally Closed	Normally Open	1-2	2-3	1-2	2-3			
1/4	1/2	3/8	2753A2007	2754A2007	2.5	3.1	2.3	2.7	0.75 (19)	2.3 (1.1)	
3/8	1/2	3/8	2753A3007	2754A3007	3.6	5.3	28	3.2	0.75 (19)	2.3 (1.1)	
1/2	1/2	3/8	2753A4017	2754A4017	3.3	5.3	28	3.2	0.75 (19)	2.3 (1.1)	
1/2	1	3/4	2753A4007	2754A4007	6.3	9.2	6.3	8.0	0.75 (19)	3.0 (1.4)	
3/4	1	3/4	2753A5007	2754A5007	7.7	11	6.9	7.4	0.75 (19)	3.0 (1.4)	
1	1	3/4	2753A6017	2754A6017	8	12	6.8	7.5	0.75 (19)	3.0 (1.4)	
1	1½	1¼	2753A6007	2754A6007	23	34	17	24	1.25 (32)	9.0 (4.1)	
1¼	1½	1¼	2753A7007	2754A7007	30	32	19	24	1.25 (32)	9.0 (4.1)	
1½	1½	1¼	2753A8017	2754A8017	30	31	19	23	1.25 (32)	9.0 (4.1)	
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2753A2007.											

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2753A2007.



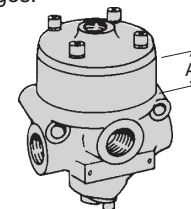
4-Way 2-Position Valves, Spring Return							
Port Size		Body Size	Valve Model Number*	C _v		Dimension A inches (mm)	Weight lb (kg)
1, 2, 4	3			1-2, 1-4	4-3, 2-3		
1/4	1/2	3/8	2756A2007	2.1	2.9	0.75 (19)	2.8 (1.3)
3/8	1/2	3/8	2756A3007	2.9	4.2	0.75 (19)	2.8 (1.3)
1/2	1/2	3/8	2756A4017	3.1	4.3	0.75 (19)	2.8 (1.3)
1/2	1	3/4	2756A4007	5.6	8.1	0.75 (19)	5.3 (2.4)
3/4	1	3/4	2756A5007	7.0	9.3	0.75 (19)	5.3 (2.4)
1	1	3/4	2756A6017	7.8	10	0.75 (19)	5.3 (2.4)
1	1½	1¼	2756A6007	19	26	1.25 (32)	11.3 (5.2)
1¼	1½	1¼	2756A7007	21	27	1.25 (32)	11.3 (5.2)
1½	1½	1¼	2756A8017	22	27	1.25 (32)	11.3 (5.2)

* NPT port threads. For BSPP threads add a “D” prefix to the model number e.g., **D2756A2007**.

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2756A2007.



Detailed dimensions,
see corresponding valves models
pages.



Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.

Mounting Type: Inline.

Ambient/Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air.

Inlet Pressure: 15 to 150 psig (1 to 10 bar).

Pilot Pressure: Must be equal to or greater than inlet pressure.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1.

Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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B2.15

Pressure Controlled Valves with Air Index Adaptor

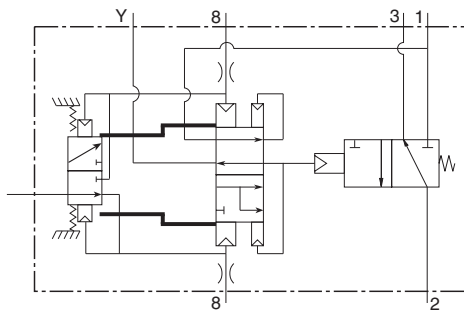
27 Series

Air Index Adaptor: Allows a valve with a single signal source to function as an impulse controlled, mechanically detented valve.
A momentary pressure signal shifts and holds the valve. A second momentary pressure signal from the same source returns the valve to its original position.



3-Way 2-Position Valves, Spring Return

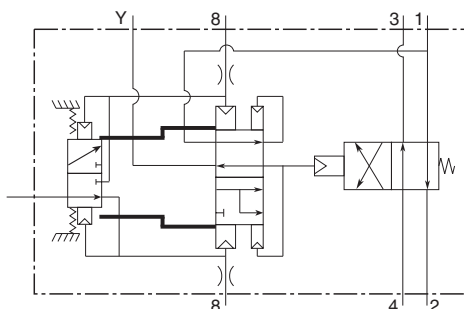
Port Size		Body Size	Valve Model Number*	C _v		Weight lb (kg)
1, 2	3			1-2	2-3	
1/4	1/2	3/8	2783A2001	2.5	3.1	2.3 (1.1)
3/8	1/2	3/8	2783A3001	3.6	5.3	2.3 (1.1)
1/2	1/2	3/8	2783A4011	3.3	5.3	2.3 (1.1)
1/2	1	3/4	2783A4001	6.3	9.2	3.0 (1.4)
3/4	1	3/4	2783A5001	7.7	11	3.0 (1.4)
1	1	3/4	2783A6011	8	12	3.0 (1.4)
1	1½	1¼	2783A6001	23	34	9.0 (4.1)
1¼	1½	1¼	2783A7001	30	32	9.0 (4.1)
1½	1½	1¼	2783A8011	30	31	9.0 (4.1)



* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2783A2001.

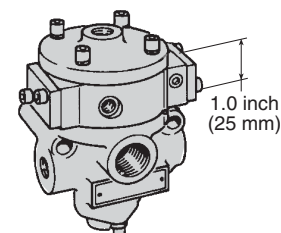
4-Way 2-Position Valves, Spring Return

Port Size		Body Size	Valve Model Number*	C _v		Weight lb (kg)
1, 2, 4	3			1-2, 1-4	4-3, 2-3	
1/4	1/2	3/8	2786A2001	2.1	2.9	2.8 (1.3)
3/8	1/2	3/8	2786A3001	2.9	4.2	2.8 (1.3)
1/2	1/2	3/8	2786A4011	3.1	4.3	2.8 (1.3)
1/2	1	3/4	2786A4001	5.6	8.1	5.3 (2.4)
3/4	1	3/4	2786A5001	7.0	9.3	5.3 (2.4)
1	1	3/4	2786A6011	7.8	10	5.3 (2.4)
1	1½	1¼	2786A6001	19	26	11.3 (5.2)
1¼	1½	1¼	2786A7001	21	27	11.3 (5.2)
1½	1½	1¼	2786A8011	22	27	11.3 (5.2)



* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2783A2001.

Detailed dimensions, see corresponding valves models pages.



Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.

Mounting Type: Inline.

Ambient/Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air.

Inlet Pressure: 15 to 150 psig (1 to 10 bar).

Pilot Pressure: Must be equal to or greater than inlet pressure.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1.

Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Pressure Controlled Valves with Timed Sequence Adaptors

27 Series

Timed Sequence Adaptor: Allows the actuation and/or de-actuation of a valve to be delayed up to 30 seconds for 2/2 valves, and up to 3 seconds for 3/2 and 4/2 valves. The time delay function is controlled by a continuously adjustable tapered needle.



Timed-Out Adaptor



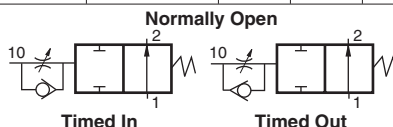
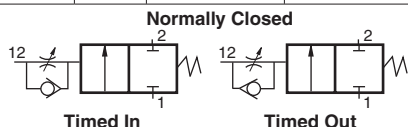
Dual Timed Adaptor

B

B2

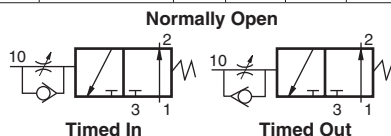
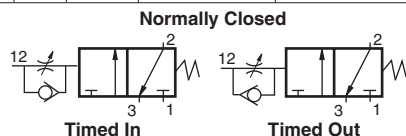
2-Way 2-Position Valves, Spring Return

Port Size	Body Size	Valve Model Number*				C _v		Weight lb (kg)
		Normally Closed		Normally Open				
		Timed In	Timed Out	Timed In	Timed Out	NC	NO	
1, 2								
1/4	3/8	2751A2002	2751A2003	2752A2002	2752A2003	2.3	2.3	2.3 (1.1)
3/8	3/8	2751A3002	2751A3003	2752A3002	2752A3003	3.8	3.3	2.3 (1.1)
1/2	3/8	2751A4012	2751A4013	2752A4012	2752A4013	4.0	3.5	2.3 (1.1)
1/2	3/4	2751A4002	2751A4003	2752A4002	2752A4003	7.7	6.5	3.0 (1.4)
3/4	3/4	2751A5002	2751A5003	2752A5002	2752A5003	9.0	7.3	3.0 (1.4)
1	3/4	2751A6012	2751A6013	2752A6012	2752A6013	9.0	7.9	3.0 (1.4)
1	1¼	2751A6002	2751A6003	2752A6002	2752A6003	24	21	9.0 (4.1)
1¼	1¼	2751A7002	2751A7003	2752A7002	2752A7003	29	20	9.0 (4.1)
1½	1¼	2751A8012	2751A8013	2752A8012	2752A8013	29	21	9.0 (4.1)

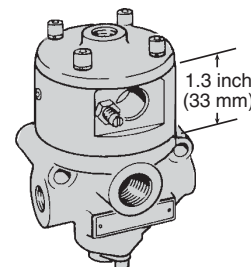


3-Way 2-Position Valves, Spring Return

Port Size		Body Size	Valve Model Number*				C _v				Weight lb (kg)
			Normally Closed		Normally Open		NC		NO		
			Timed In	Timed Out	Timed In	Timed Out	1-2	2-3	1-2	2-3	
1, 2	3										
1/4	1/2	3/8	2753A2002	2753A2003	2754A2002	2754A2003	2.5	3.1	2.3	2.7	2.3 (1.1)
3/8	1/2	3/8	2753A3002	2753A3003	2754A3002	2754A3003	3.6	5.3	28	3.2	2.3 (1.1)
1/2	1/2	3/8	2753A4012	2753A4013	2754A4012	2754A4013	3.3	5.3	28	3.2	2.3 (1.1)
1/2	1	3/4	2753A4002	2753A4003	2754A4002	2754A4003	6.3	9.2	6.3	8.0	3.0 (1.4)
3/4	1	3/4	2753A5002	2753A5003	2754A5002	2754A5003	7.7	11	6.9	7.4	3.0 (1.4)
1	1	3/4	2753A6012	2753A6013	2754A6012	2754A6013	8	12	6.8	7.5	3.0 (1.4)
1	1½	1¼	2753A6002	2753A6003	2754A6002	2754A6003	23	34	17	24	9.0 (4.1)
1¼	1½	1¼	2753A7002	2753A7003	2754A7002	2754A7003	30	32	19	24	9.0 (4.1)
1½	1½	1¼	2753A8012	2753A8013	2754A8012	2754A8013	30	31	19	23	9.0 (4.1)



Detailed dimensions, see corresponding valves models pages.



* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2751A2002.

OPERATION : **Timed In Adaptor:** Air signal applied; after preset time delay valve is actuated. Air signal removed; valve immediately deactuated.
Timed Out Adaptor: Air signal applied; valve immediately actuated. Air signal removed; after preset delay valve is deactuated.

Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.

Mounting Type: Inline.

Ambient/Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air.

Inlet Pressure: 15 to 150 psig (1 to 10 bar).

Pilot Pressure: Must be equal to or greater than inlet pressure.

Adjustable Time Delay: Up to 30 seconds.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1.

Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

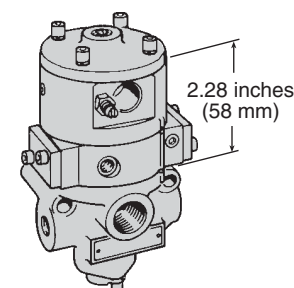


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B2.17

27 Series



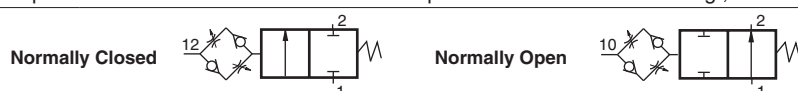
Timed Sequence Adaptor: Allows the actuation and/or de-actuation of a valve to be delayed up to 30 seconds for 2/2 valves, and up to 3 seconds for 3/2 and 4/2 valves. The time delay function is controlled by a continuously adjustable tapered needle.



2-Way 2-Position Valves, Spring Return

Port Size 1, 2	Body Size	Valve Model Number*		C _v		Weight lb (kg)
		Normally Closed	Normally Open	NC	NO	
1/4	3/8	2751B2008	2752B2008	2.3	2.3	2.3 (1.1)
3/8	3/8	2751B3008	2752B3008	3.8	3.3	2.3 (1.1)
1/2	3/8	2751B4018	2752B4018	4.0	3.5	2.3 (1.1)
1/2	3/4	2751B4008	2752B4008	7.7	6.5	3.0 (1.4)
3/4	3/4	2751B5008	2752B5008	9.0	7.3	3.0 (1.4)
1	3/4	2751B6018	2752B6018	9.0	7.9	3.0 (1.4)
1	1 1/4	2751B6008	2752B6008	24	21	9.0 (4.1)
1 1/4	1 1/4	2751B7008	2752B7008	29	20	9.0 (4.1)
1 1/2	1 1/4	2751B8018	2752B8018	29	21	9.0 (4.1)

NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2751B2008.



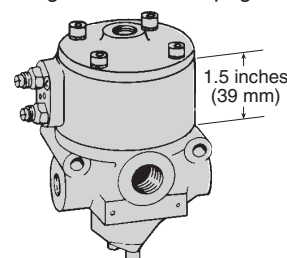
3-Way 2-Position Valves, Spring Return

Port Size		Body Size	Valve Model Number*		C _v				Weight lb (kg)
					NC		NO		
1, 2	3		Normally Closed	Normally Open	1-2	2-3	1-2	2-3	
1/4	1/2	3/8	2753B2008	2754B2008	2.5	3.1	2.3	2.7	2.3 (1.1)
3/8	1/2	3/8	2753B3008	2754B3008	3.6	5.3	28	3.2	2.3 (1.1)
1/2	1/2	3/8	2753B4018	2754B4018	3.3	5.3	28	3.2	2.3 (1.1)
1/2	1	3/4	2753B4008	2754B4008	6.3	9.2	6.3	8.0	3.0 (1.4)
3/4	1	3/4	2753B5008	2754B5008	7.7	11	6.9	7.4	3.0 (1.4)
1	1	3/4	2753B6018	2754A6018	8	12	6.8	7.5	3.0 (1.4)
1	1½	1¼	2753B6008	2754B6008	23	34	17	24	9.0 (4.1)
1¼	1½	1¼	2753B7008	2754B7008	30	32	19	24	9.0 (4.1)
1½	1½	1¼	2753B8018	2754B8018	30	31	19	23	9.0 (4.1)

NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2753B2008



Detailed dimensions, see corresponding valves models pages.



OPERATION :

Timed In Adaptor: Air signal applied; after preset time delay valve is actuated. Air signal removed; valve immediately deactuated.

Timed Out Adaptor: Air signal applied; valve immediately actuated. Air signal removed; after preset delay valve is deactuated.

Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.

Mounting Type: Inline.

Ambient/Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air.

Inlet Pressure: 15 to 150 psig (1 to 10 bar).

Pilot Pressure: Must be equal to or greater than inlet pressure.

Adjustable Time Delay: Up to 30 seconds.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1.

Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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Pressure Controlled Valves

with Timed-In/Out Sequence & Timed Sequence Extension Adaptors

27 Series


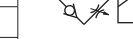
Timed-In/Out Sequence & Timed Sequence Extension Adaptors: Used in conjunction can increase the time delay interval up to 60 seconds. It also helps to obtain “snap” action of the valve. By keeping pilot air off the main valve piston until the pressure has built high enough to ensure prompt valve response, the timed sequence extension adaptor prevents the piston from creeping.



2-Way 2-Position Valves, Spring Return

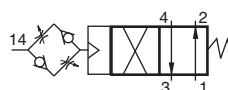
Port Size 1, 2	Body Size	Valve Model Number*		C _v		Weight lb (kg)	
		Normally Closed	Normally Open	NC	NO		
1/4	3/8	2781B2005	2782B2005	2.3	2.3	2.3 (1.1)	 Normally Closed
3/8	3/8	2781B3005	2782B3005	3.8	3.3	2.3 (1.1)	
1/2	3/8	2781B4015	2782B4015	4.0	3.5	2.3 (1.1)	 Normally Open
1/2	3/4	2781B4005	2782B4005	7.7	6.5	3.0 (1.4)	
3/4	3/4	2781B5005	2782B5005	9.0	7.3	3.0 (1.4)	
1	3/4	2781B6015	2782B6015	9.0	7.9	3.0 (1.4)	
1	1 1/4	2781B6005	2782B6005	24	21	9.0 (4.1)	
1 1/4	1 1/4	2781B7005	2782B7005	29	20	9.0 (4.1)	
1 1/2	1 1/4	2781B8015	2782B8015	29	21	9.0 (4.1)	

3-Way 2-Position Valves, Spring Return

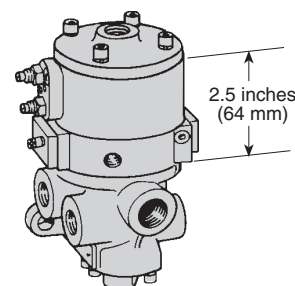
Port Size		Body Size	Valve Model Number*		C _v				Weight lb (kg)	 Normally Closed	
					NC		NO				
1, 2	3		Normally Closed	Normally Open	1-2	2-3	1-2	2-3			 Normally Open
1/4	1/2	3/8	2783B2005	2784B2005	2.5	3.1	2.3	2.7	2.3 (1.1)		
3/8	1/2	3/8	2783B3005	2784B3005	3.6	5.3	28	3.2	2.3 (1.1)		
1/2	1/2	3/8	2783B4015	2784B4015	3.3	5.3	28	3.2	2.3 (1.1)		
1/2	1	3/4	2783B4005	2784B4005	6.3	9.2	6.3	8.0	3.0 (1.4)		
3/4	1	3/4	2783B5005	2784B5005	7.7	11	6.9	7.4	3.0 (1.4)		
1	1	3/4	2783B6015	2784B6015	8	12	6.8	7.5	3.0 (1.4)		
1	1½	1¼	2783B6005	2784B6005	23	34	17	24	9.0 (4.1)		
1¼	1½	1¼	2783B7005	2784B7005	30	32	19	24	9.0 (4.1)		
1½	1½	1¼	2783B8015	2784B8015	30	31	19	23	9.0 (4.1)		

4-Way 2-Position Valves, Spring Return

Port Size 1, 2, 4, 3				Body Size	Valve Model Number*	C _v		Weight lb (kg)
						1-2, 1-4	4-3, 2-3	
1/4	1/2	3/8	2786B2005			2.1	2.9	2.8 (1.3)
3/8	1/2	3/8	2786B3005			2.9	4.2	2.8 (1.3)
1/2	1/2	3/8	2786B4015			3.1	4.3	2.8 (1.3)
1/2	1	3/4	2786B4005			5.6	8.1	5.3 (2.4)
3/4	1	3/4	2786B5005			7.0	9.3	5.3 (2.4)
1	1	3/4	2786B6015			7.8	10	5.3 (2.4)
1	1 1/2	1 1/4	2786B6005			19	26	11.3 (5.2)
1 1/4	1 1/2	1 1/4	2786B7005			21	27	11.3 (5.2)
1 1/2	1 1/2	1 1/4	2786B8015			22	27	11.3 (5.2)



Detailed dimensions, see corresponding valves models pages.



* NPT port threads. For BSPP threads add a “D” prefix to the model number e.g., D2781B2005.

Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.

Mounting Type: Inline.

Ambient/Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air.

Inlet Pressure: 15 to 150 psig (1 to 10 bar).

Pilot Pressure: Must be equal to or greater than inlet pressure.

Adjustable Time Delay: Up to 60 seconds.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1.

Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Pressure Controlled Valves

with Inlet Port Controlled Timed-In Sequence Adaptor

27 Series

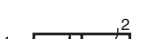
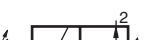
Inlet Port Controlled Timed-In Sequence Adaptor: Permits valve actuation and deactuation to be controlled by the pressure at the inlet port. When pressure is applied an internal passage conducts the pressure to the sequence adaptor. After the preset time delay, the valve is actuated. When pressure is removed from the inlet port the valve is deactivated.



2-Way 2-Position Valves, Spring Return

Port Size	Body Size	Valve Model Number*		C _v		Weight lb (kg)	
		Normally Closed	Normally Open	NC	NO		
1/4	3/8	2751A2004	2752A2004	2.3	2.3	2.3 (1.1)	<p>Normally Closed</p>
3/8	3/8	2751A3004	2752A3004	3.8	3.3	2.3 (1.1)	
1/2	3/8	2751A4014	2752A4014	4.0	3.5	2.3 (1.1)	<p>Normally Open</p>
1/2	3/4	2751A4004	2752A4004	7.7	6.5	3.0 (1.4)	
3/4	3/4	2751A5004	2752A5004	9.0	7.3	3.0 (1.4)	
1	3/4	2751A6014	2752A6014	9.0	7.9	3.0 (1.4)	
1	1 1/4	2751A6004	2752A6004	24	21	9.0 (4.1)	
1 1/4	1 1/4	2751A7004	2752A7004	29	20	9.0 (4.1)	
1 1/2	1 1/4	2751A8014	2752A8014	29	21	9.0 (4.1)	

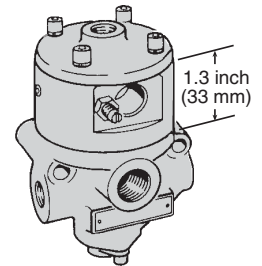
3-Way 2-Position Valves, Spring Return

Port Size		Body Size	Valve Model Number*		C _v				Weight lb (kg)	
					NC		NO			
1, 2	3		Normally Closed	Normally Open	1-2	2-3	1-2	2-3		
1/4	1/2	3/8	2753A2004	2754A2004	2.5	3.1	2.3	2.7	2.3 (1.1)	 Normally Closed
3/8	1/2	3/8	2753A3004	2754A3004	3.6	5.3	28	3.2	2.3 (1.1)	
1/2	1/2	3/8	2753A4014	2754A4014	3.3	5.3	28	3.2	2.3 (1.1)	 Normally Open
1/2	1	3/4	2753A4004	2754A4004	6.3	9.2	6.3	8.0	3.0 (1.4)	
3/4	1	3/4	2753A5004	2754A5004	7.7	11	6.9	7.4	3.0 (1.4)	
1	1	3/4	2753A6014	2754A6014	8	12	6.8	7.5	3.0 (1.4)	
1	1½	1¼	2753A6004	2754A6004	23	34	17	24	9.0 (4.1)	
1¼	1½	1¼	2753A7004	2754A7004	30	32	19	24	9.0 (4.1)	
1½	1½	1¼	2753A8014	2754A8014	30	31	19	23	9.0 (4.1)	

4-Way 2-Position Valves, Spring Return

Port Size		Body Size	Valve Model Number*	C _v		Weight lb (kg)	
				1-2, 1-4	4-3, 2-3		
1/4	1/2	3/8	2756A2004	2.1	2.9	2.8 (1.3)	
3/8	1/2	3/8	2756A3004	2.9	4.2	2.8 (1.3)	
1/2	1/2	3/8	2756A4014	3.1	4.3	2.8 (1.3)	
1/2	1	3/4	2756A4004	5.6	8.1	5.3 (2.4)	
3/4	1	3/4	2756A5004	7.0	9.3	5.3 (2.4)	
1	1	3/4	2756A6014	7.8	10	5.3 (2.4)	
1	1 1/2	1 1/4	2756A6004	19	26	11.3 (5.2)	
1 1/4	1 1/2	1 1/4	2756A7004	21	27	11.3 (5.2)	
1 1/2	1 1/2	1 1/4	2756A8014	22	27	11.3 (5.2)	

Detailed dimensions, see corresponding valves models pages.



* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2751A2004.

Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.

Mounting Type: Inline.

Ambient/Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air.

Inlet Pressure: 15 to 150 psig (1 to 10 bar).

Pilot Pressure: Must be equal to or greater than inlet pressure.

Adjustable Time Delay: 2/2 Valves: Up to 30 seconds.

3/2, 4/2 Valves: Up to 3 seconds.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1.

Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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Pressure Controlled Valves

with Inlet Port Controlled Timed-In Sequence & Timed Sequence Extension Adaptors

27 Series

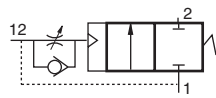
Inlet Port Controlled Timed-In Sequence Adaptor: Permits valve actuation and deactuation to be controlled by the pressure at the inlet port. When pressure is applied an internal passage conducts the pressure to the sequence adaptor. After the preset time delay, the valve is actuated. When pressure is removed from the inlet port the valve is deactuated.

Timed Sequence Extension Adaptor: Increases the maximum time delay interval to 60 seconds. It also helps to obtain “snap” action of the valve. By keeping pressure off the main valve piston until it is high enough to ensure prompt valve response, the timed sequence extension adaptor prevents the piston from creeping.

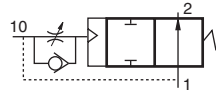


2-Way 2-Position Valves, Spring Return

Port Size 1, 2	Body Size	Valve Model Number*		C _v		Weight lb (kg)
		Normally Closed	Normally Open	NC	NO	
1/4	3/8	2781A2004	2782A2004	2.3	2.3	2.3 (1.1)
3/8	3/8	2781A3004	2782A3004	3.8	3.3	2.3 (1.1)
1/2	3/8	2781A4014	2782A4014	4.0	3.5	2.3 (1.1)
1/2	3/4	2781A4004	2782A4004	7.7	6.5	3.0 (1.4)
3/4	3/4	2781A5004	2782A5004	9.0	7.3	3.0 (1.4)
1	3/4	2781A6014	2782A6014	9.0	7.9	3.0 (1.4)
1	1 1/4	2781A6004	2782A6004	24	21	9.0 (4.1)
1 1/4	1 1/4	2781A7004	2782A7004	29	20	9.0 (4.1)
1 1/2	1 1/4	2781A8014	2782A8014	29	21	9.0 (4.1)



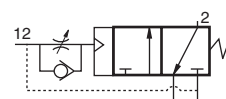
Normally Closed



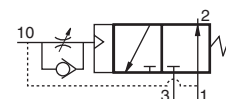
Normally Open

3-Way 2-Position Valves, Spring Return

Port Size		Body Size	Valve Model Number*		C _v				Weight lb (kg)
					NC		NO		
1, 2	3		Normally Closed	Normally Open	1-2	2-3	1-2	2-3	
1/4	1/2	3/8	2783A2004	2784A2004	2.5	3.1	2.3	2.7	2.3 (1.1)
3/8	1/2	3/8	2783A3004	2784A3004	3.6	5.3	28	3.2	2.3 (1.1)
1/2	1/2	3/8	2783A4014	2784A4014	3.3	5.3	28	3.2	2.3 (1.1)
1/2	1	3/4	2783A4004	2784A4004	6.3	9.2	6.3	8.0	3.0 (1.4)
3/4	1	3/4	2783A5004	2784A5004	7.7	11	6.9	7.4	3.0 (1.4)
1	1	3/4	2783A6014	2784A6014	8	12	6.8	7.5	3.0 (1.4)
1	1½	1¼	2783A6004	2784A6004	23	34	17	24	9.0 (4.1)
1¼	1½	1¼	2783A7004	2784A7004	30	32	19	24	9.0 (4.1)
1½	1½	1¼	2783A8014	2784A8014	30	31	19	23	9.0 (4.1)



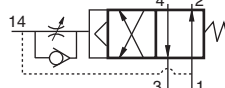
Normally Closed



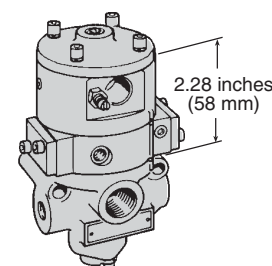
Normally Open

4-Way 2-Position Valves, Spring Return

Port Size 1, 2, 4, 3				Body Size	Valve Model Number*	C _v		Weight lb (kg)
						1-2, 1-4	4-3, 2-3	
1/4	1/2	3/8	2786A2004			2.1	2.9	2.8 (1.3)
3/8	1/2	3/8	2786A3004			2.9	4.2	2.8 (1.3)
1/2	1/2	3/8	2786A4014			3.1	4.3	2.8 (1.3)
1/2	1	3/4	2786A4004			5.6	8.1	5.3 (2.4)
3/4	1	3/4	2786A5004			7.0	9.3	5.3 (2.4)
1	1	3/4	2786A6014			7.8	10	5.3 (2.4)
1	1 1/2	1 1/4	2786A6004			19	26	11.3 (5.2)
1 1/4	1 1/2	1 1/4	2786A7004			21	27	11.3 (5.2)
1 1/2	1 1/2	1 1/4	2786A8014			22	27	11.3 (5.2)



Detailed dimensions, see corresponding valves models pages.



* NPT port threads. For BSPP threads add a “D” prefix to the model number e.g., D2781A2004.

Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.

Mounting Type: Inline.

Ambient/Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air.

Inlet Pressure: 15 to 150 psig (1 to 10 bar).

Pilot Pressure: Must be equal to or greater than inlet pressure.

Adjustable Time Delay: Up to 60 seconds.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1.

Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

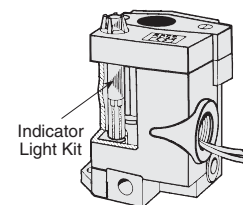
Indicator Light Kits

To visually verify valve operation indicator lights are available in kit form. The indicator light extends through the solenoid or pilot cover and is illuminated when the solenoid is energized. Such lights are standard on double solenoid valves.

Indicator light kits are available for single solenoid models.

Kit Number		
24 volts DC	110-120 volts AC 50-60 Hz	220 volts 50-60 Hz
862K87-W	862K87-Z	862K87-Y

Indicator
Light



B

B2

Manual Override Kits

Flush flexible manual overrides are standard on single solenoid models. Double solenoid models have flush metal-button overrides. Both types are non-locking.

Each of the buttons in the override kits below is made of metal and is spring-returned. The locking type button, however, can be kept in the actuated position by turning the slot in the top of the button with a screwdriver.

Flush Button	
Locking Type	Kit Number
Non-Locking	790K87
Locking	792K87



Extended Button	
Locking Type	Kit Number
Non-Locking	791K87



Extended Button with Palm	
Locking Type	Kit Number
Non-Locking	984H87



Electrical Connector

Valves available with installed prewired connectors, consult ROSS.

System 8 Solenoid Pilot

Models available with preinstalled System 8 solenoid pilot, consult ROSS.

Silencers

Port size 1/4 thru 2



Port size 2 1/2

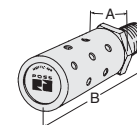


Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
		NPT Treads	BSPT Threads		A	B	
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)
1 1/2	Female	5500A8001	D5500A8001	29.9	2.5 (64)	5.7 (144)	1.0 (0.5)
2 1/2	Female	5500A9002	D5500A9002	103.7	4.0 (102)	5.7 (145)	2.9 (1.4)

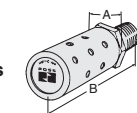
Pressure Range: 0 to 300 psig (0 to 20.7 bar) maximum.

Flow Media: Filtered air.

Male Pipe Threads



Female Pipe Threads



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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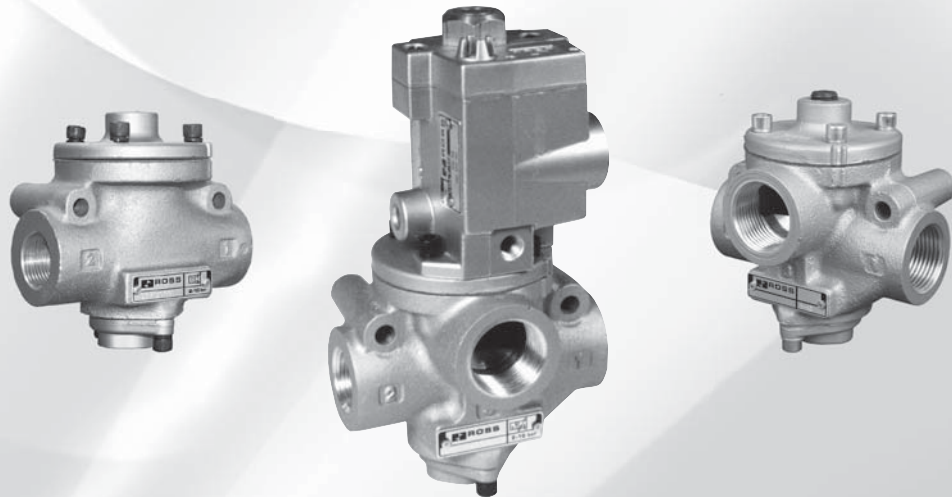
B2.23



ROSS CONTROLS®



POPPET VALVES 21 SERIES
HIGH TEMPERATURE AND LOW TEMPERATURE APPLICATIONS



POPPET 21 SERIES VALVES – KEY FEATURES

- Low weight; compact size
- Available with choices of internal components for three different temperature ranges
- Can be mounted close to actuator, reducing length of pipe to be pressurized/exhausted on each cycle
- Long life expectancy
- Consistent response times over the life of the valve
- Construction makes them readily adaptable to vacuum service
- Easily field-convertible for use with an external pilot supply
- Models with external pilot supply available, consult ROSS

High Temperature Service:

Fluorocarbon seals are used to ensure high temperature stability.

Ambient Temperature: Up to 250°F (122°C) for solenoid models;
up to 300°F (150°C) for pressure controlled models.

Media Temperature: 0° to 300°F (-17° to 150°C).

Low Temperature Service:

Buna-N seals are used to ensure good performance at low temperatures.

Ambient Temperature: Down to -40°F (-40°C).

Media Temperature: -40° to 175°F (-40° to 80°C).

Vacuum Service Valves

Vacuum service valves are ideal for lifting, holding, vacuum packaging and moving anything from large objects to tiny particles. They also provide an effective means for leak testing.

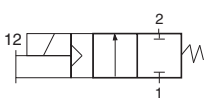
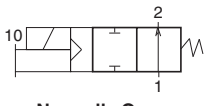
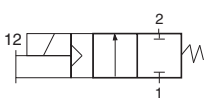
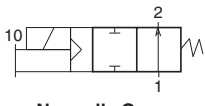
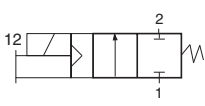
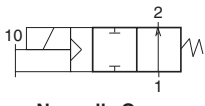
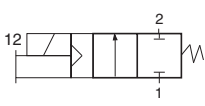
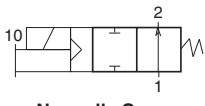
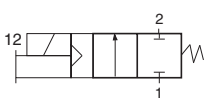
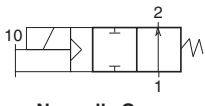
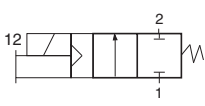
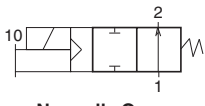
Explosion-Proof solenoid pilot valves available, see explosion proof valves.

VALVE TYPE/SERIES	DESCRIPTION		AVAILABLE INLET PORT SIZES										FUNCTIONS										Page				
	Spool & Sleeve	Poppet	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	2	2½	2/2	3/2	3/4	4/2	5/2 Single	5/2 Double	5/3 Closed Center	5/3 Open Center	5/3 Pressure Center	Max Flow (Cv)		Solenoid Control	Direct Solenoid Control	Pressure Control	
21																						40				B3.3 - B3.5	
21																						40				B3.6 - B3.8	
21 Vacuum																						71				B3.9 - B3.10 B3.12 - B3.13	
21 Full Vacuum																						71				B3.11	
Options & Accessories																											B3.14

Solenoid Pilot Controlled Valves

High and Low Temperature 21 Series

2-Way 2-Position Valves, Spring Return

Port Size 1,2	Body Size	Valve Model Number*				Avg. C _v		Average Response Constants#			Weight lb (kg)	 Normally Closed  Normally Open
		High Temperature		Low Temperature				M	F			
		Normally Closed	Normally Open	Normally Closed	Normally Open	NC	NO		NC	NO		
1/4	3/8	2171B2001**	2172B2001**	2171B2002**	2172B2002**	2.3	2.3	10	0.96	0.96	3.0 (1.4)	 Normally Closed  Normally Open
3/8	3/8	2171B3001**	2172B3001**	2171B3002**	2172B3002**	3.8	3.3	10	0.90	0.93	3.0 (1.4)	
1/2	3/8	2171B4011**	2172B4011**	2171B4012**	2172B4012**	4.0	3.5	10	0.82	0.88	3.0 (1.4)	 Normally Closed  Normally Open
1/2	3/4	2171B4001**	2172B4001**	2171B4002**	2172B4002**	7.7	6.5	14	0.39	0.50	3.3 (1.5)	
3/4	3/4	2171B5001**	2172B5001**	2171B5002**	2172B5002**	9.0	7.3	14	0.32	0.37	3.3 (1.5)	 Normally Closed  Normally Open
1	3/4	2171B6011**	2172B6011**	2171B6012**	2172B6012**	9.0	7.9	14	0.31	0.36	3.3 (1.5)	
1	1¼	2171B6001**	2172B6001**	2171B6002**	2172B6002**	24	21	26	0.19	0.20	7.5 (3.4)	 Normally Closed  Normally Open
1¼	1¼	2171B7001**	2172B7001**	2171B7002**	2172B7002**	29	20	26	0.14	.18	7.5 (3.4)	
1½	1¼	2171B8011**	2172B8011**	2171B8012**	2172B8012**	29	21	26	0.13	0.17	7.5 (3.4)	 Normally Closed  Normally Open

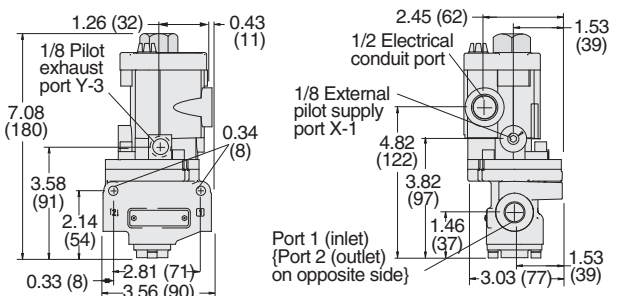
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2171B2001W.

** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 2171B2001W. For other voltages, consult ROSS.

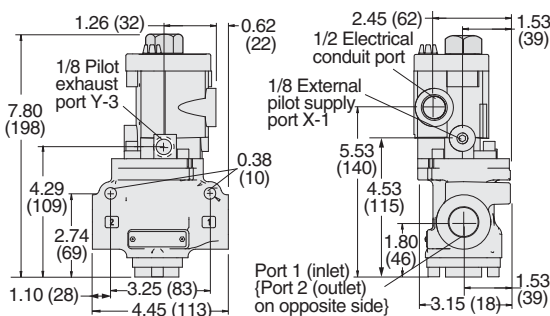
Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

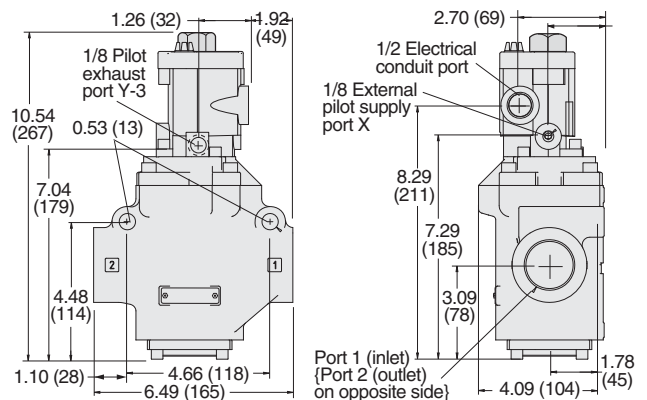
Body Size 3/8



Body Size 3/4



Body Size 1 1/4



Options: Indicator Light Kits, Manual Override Kits; refer to page B3.14.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Metal.

Mounting Type: Inline.

Solenoid Pilot: Rated for continuous duty.

Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.

Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.

Ambient Temperature: High Temp: 0° to 250°F (-17° to 122°C).
Low Temp: -40° to 120°F (-40° to 50°C).

Media Temperature: High Temp: 0° to 300°F (-17° to 150°C).
Low Temp: -40° to 175°F (-40° to 80°C).

For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.

Flow Media: Filtered air.

Inlet Pressure: 30 to 150 psig (2 to 10 bar).

Pilot Pressure: When external supply is used, pressure must be equal to or greater than inlet pressure.

Manual Override: Non-locking metal button, standard.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1.

Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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Rev. 10/02/17

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B3.3

3-Way 2-Position Valves, Spring Return

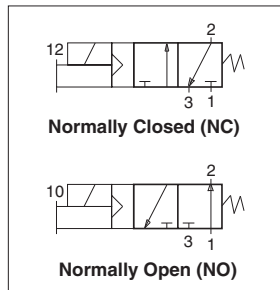
Port Size		Body Size	Valve Model Number*				C _v				Average Response Constants#				Weight lb (kg)	
			High Temperature		Low Temperature		NC		NO		M	F				
1, 2	3		Normally Closed	Normally Open	Normally Closed	Normally Open	1-2	2-3	1-2	2-3		NC		NO		
												1-2	2-3	1-2		2-3
1/4	1/2	3/8	2173B2001**	2174B2001**	2173B2002**	2174B2002**	2.4	3.4	2.0	2.1	10	1.76	2.08	1.60	2.30	3.0 (1.4)
3/8	1/2	3/8	2173B3001**	2174B3001**	2173B3002**	2174B3002**	3.0	5.8	2.3	2.4	10	0.95	1.07	1.03	1.60	3.0 (1.4)
1/2	1/2	3/8	2173B4011**	2174B4011**	2173B4012**	2174B4012**	3.0	5.2	2.9	2.8	10	0.94	0.98	11.00	2.00	3.0 (1.4)
1/2	1	3/4	2173B4001**	2174B4001**	2173B4002**	2174B4002**	6.6	12	6.5	7.0	11	0.58	0.64	0.50	0.70	3.3 (1.5)
3/4	1	3/4	2173B5001**	2174B5001**	2173B5002**	2174B5002**	7.8	13	7.5	7.5	11	0.38	0.41	0.43	0.67	3.3 (1.5)
1	1	3/4	2173B6011**	2174B6011**	2173B6012**	2174B6012**	7.5	12	7.7	7.6	11	0.24	0.36	0.42	0.60	3.3 (1.5)
1	1½	1¼	2173B6001**	2174B6001**	2173B6002**	2174B6002**	24	40	15	17	28	0.16	0.18	0.17	0.20	7.5 (3.4)
1¼	1½	1¼	2173B7001**	2174B7001**	2173B7002**	2174B7002**	29	39	21	23	28	0.12	0.17	0.15	0.19	7.5 (3.4)
1½	1½	1¼	2173B8011**	2174B8011**	2173B8012**	2174B8012**	30	38	22	23	28	0.12	0.16	0.13	0.18	7.5 (3.4)

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2173B2001W.

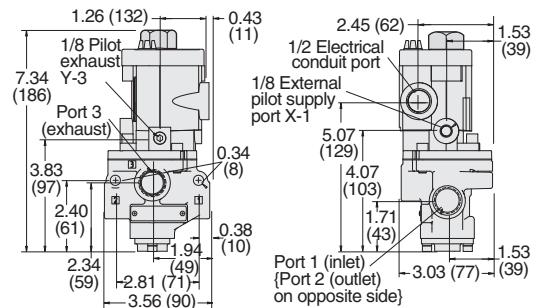
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 2173B2001W. For other voltages, consult ROSS.

Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

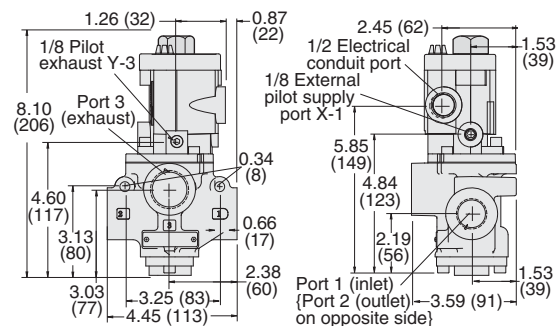
Valve Dimensions – inches (mm)



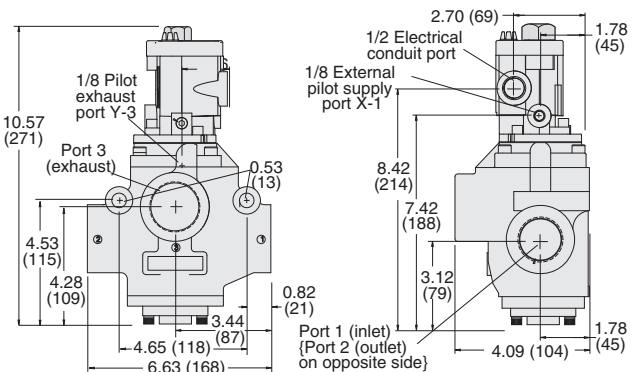
Body Size 3/8



Body Size 3/4



Body Size 1¼



Options: Indicator Light Kits, Manual Override Kits; refer to page B3.14. Silencers ordered separately, refer to page B3.14.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Metal.

Mounting Type: Inline.

Solenoid Pilot: Rated for continuous duty.

Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.

Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.

Ambient Temperature: High Temp: 0° to 250°F (-17° to 122°C). Low Temp: -40° to 120°F (-40° to 50°C).

Media Temperature: High Temp: 0° to 300°F (-17° to 150°C). Low Temp: -40° to 175°F (-40° to 80°C).

For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.

Flow Media: Filtered air.

Inlet Pressure: 30 to 150 psig (2 to 10 bar).

Pilot Pressure: When external supply is used, pressure must be equal to or greater than inlet pressure.

Manual Override: Non-locking metal button, standard.

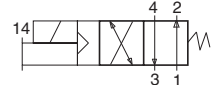
Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1.

Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

4-Way 2-Position Valves, Spring Return										
Port Size		Body Size	Valve Model Number*		C _v		Average Response Constants#			Weight lb (kg)
1, 2, 4	3		High Temperature	Low Temperature	1-2, 1-4	4-3, 2-3	M	F		
								1-2, 1-4	4-3, 2-3	
1/4	1/2	3/8	2176B2001**	2176B2002**	2.1	2.2	30	1.70	2.28	3.0 (1.4)
3/8	1/2	3/8	2176B3001**	2176B3002**	2.5	3.1	30	1.13	1.33	3.0 (1.4)
1/2	1/2	3/8	2176B4011**	2176B4012**	2.9	3.8	30	1.00	1.22	3.0 (1.4)
1/2	1	3/4	2176B4001**	2176B4002**	5.7	6.5	46	0.50	0.76	5.8 (2.6)
3/4	1	3/4	2176B5001**	2176B5002**	7.1	8.7	46	0.36	0.55	5.8 (2.6)
1	1	3/4	2176B6011**	2176B6012**	7.7	10	46	0.36	0.50	5.8 (2.6)
1	1½	1¼	2176B6001**	2176B6002**	18	23	99	0.19	0.22	12.0 (5.4)
1¼	1½	1¼	2176B7001**	2176B7002**	20	28	99	0.19	0.22	12.0 (5.4)
1½	1½	1¼	2176B8011**	2176B8012**	21	29	99	0.16	0.22	12.0 (5.4)

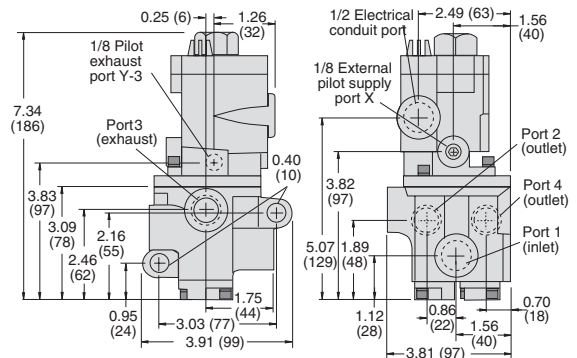
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2176B2001W.
 ** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 2176B2001W. For other voltages, consult ROSS.
 # Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.



B

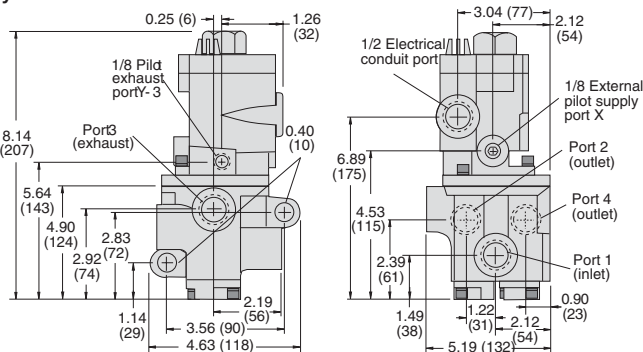
Valve Dimensions – inches (mm)

Body Size 3/8

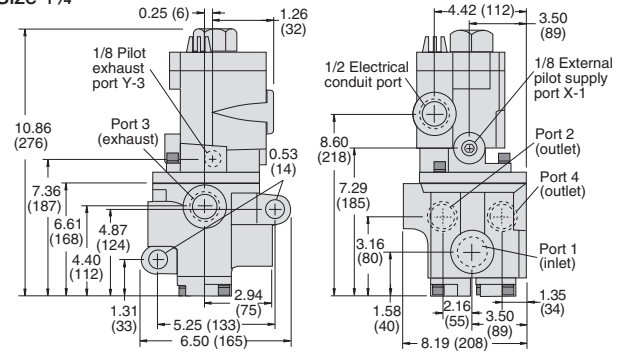


B3

Body Size 3/4



Body Size 1¼



Options: Indicator Light Kits, Manual Override Kits; refer to page B3.14. Silencers ordered separately, refer to page B3.14.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Metal.

Mounting Type: Inline.

Solenoid Pilot: Rated for continuous duty.

Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.

Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.

Ambient Temperature: High Temp: 0° to 250°F (-17° to 122°C).
Low Temp: -40° to 120°F (-40° to 50°C).

Media Temperature: High Temp: 0° to 300°F (-17° to 150°C).
Low Temp: -40° to 175°F (-40° to 80°C).

For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.

Flow Media: Filtered air.

Inlet Pressure: 30 to 150 psig (2 to 10 bar).

Pilot Pressure: When external supply is used, pressure must be equal to or greater than inlet pressure.

Manual Override: Non-locking metal button, standard.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1.

Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

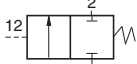
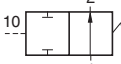


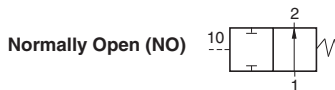
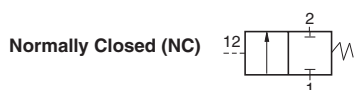
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Rev. 10/02/17

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B3.5

2-Way 2-Position Valves, Spring Return

Port Size	Body Size	Valve Model Number*				Avg. C _v		Average Response Constants#			Weight lb (kg)
		High Temperature		Low Temperature				M	F		
		Normally Closed	Normally Open	Normally Closed	Normally Open	NC	NO		NC	NO	
1/4	3/8	2151B2001	2152B2001	2151B2002	2152B2002	2.3	2.3	10	0.91	0.91	1.8 (0.8)
3/8	3/8	2151B3001	2152B3001	2151B3002	2152B3002	3.8	3.3	10	0.70	0.76	1.8 (0.8)
1/2	3/8	2151B4011	2152B4011	2151B4012	2152B4012	4.0	3.5	10	0.64	0.72	1.8 (0.8)
1/2	3/4	2151B4001	2152B4001	2151B4002	2152B4002	7.7	6.5	16	0.37	0.43	4.2 (2.0)
3/4	3/4	2151B5001	2152B5001	2151B5002	2152B5002	9.0	7.3	16	0.34	0.39	4.2 (2.0)
1	3/4	2151B6011	2152B6011	2151B6012	2152B6012	9.0	7.9	16	0.34	0.37	4.2 (2.0)
1	1¼	2151B6001	2152B6001	2151B6002	2152B6002	24	21	27	0.17	0.17	11.0 (5.0)
1¼	1¼	2151B7001	2152B7001	2151B7002	2152B7002	29	20	27	0.19	0.19	11.0 (5.0)
1½	1¼	2151B8011	2152B8011	2151B8012	2152B8012	29	21	27	0.18	0.18	11.0 (5.0)
<div><div><div>Normally Closed (NC)</div><div></div></div><div><div>Normally Open (NO)</div><div></div></div></div>											

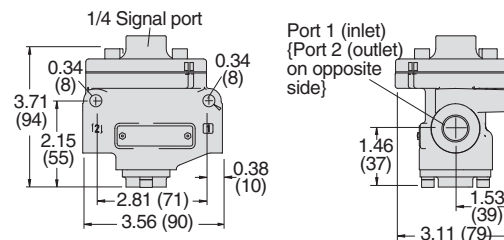


* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2151B2001.

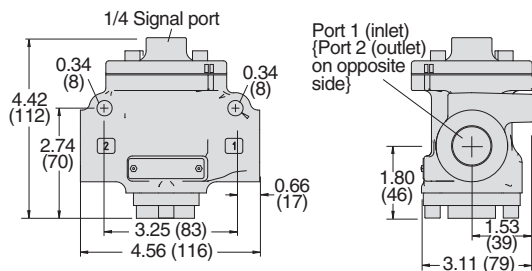
Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

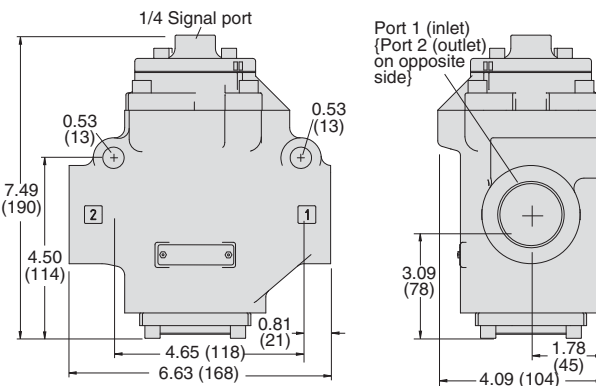
Body Size 3/8



Body Size 3/4



Body Size 1¼



Silencers ordered separately, refer to page B3.14.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Metal.

Mounting Type: Inline.

Ambient/Media Temperatures:

High Temperature: 0° to 300°F (-17° to 150°C).

Low Temperature: -40° to 175°F (-40° to 80°C).

For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.

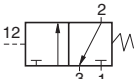
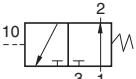
Flow Media: Filtered air.

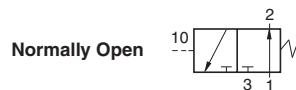
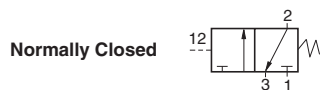
Inlet Pressure: 30 to 150 psig (2 to 10 bar).

Pilot Pressure: Must be equal to or greater than inlet pressure.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

3-Way 2-Position Valves, Spring Return																
Port Size		Body Size	Valve Model Number*				C _v				Average Response Constants#				Weight lb (kg)	
			High Temperature		Low Temperature		NC		NO		M	F				
			Normally Closed	Normally Open	Normally Closed	Normally Open	1-2	2-3	1-2	2-3		NC		NO		
1, 2	3							1-2	2-3	1-2	2-3		1-2	2-3	1-2	2-3
1/4	1/2	3/8	2153B2001	2154B2001	2153B2002	2154B2002	2.4	3.4	2.0	2.1	10	1.76	2.08	1.60	2.30	1.8 (0.8)
3/8	1/2	3/8	2153B3001	2154B3001	2153B3002	2154B3002	3.0	5.8	2.3	2.4	10	0.95	1.07	1.03	1.60	1.8 (0.8)
1/2	1/2	3/8	2153B4011	2154B4011	2153B4012	2154B4012	3.0	5.2	2.9	2.8	10	0.94	0.98	11.00	2.00	1.8 (0.8)
1/2	1	3/4	2153B4001	2154B4001	2153B4002	2154B4002	6.6	12	6.5	7.0	11	0.58	0.64	0.50	0.70	4.5 (2.1)
3/4	1	3/4	2153B5001	2154B5001	2153B5002	2154B5002	7.8	13	7.5	7.5	11	0.38	0.41	0.43	0.67	4.5(2.1)
1	1	3/4	2153B6011	2154B6011	2153B6012	2154B6012	7.5	12	7.7	7.6	11	0.24	0.36	0.42	0.60	4.5 (2.1)
1	1½	1¼	2153B6001	2154B6001	2153B6002	2154B6002	24	40	15	17	28	0.16	0.18	0.17	0.20	11.0 (5.0)
1¼	1½	1¼	2153B7001	2154B7001	2153B7002	2154B7002	29	39	21	23	28	0.12	0.17	0.15	0.19	11.0 (5.0)
1½	1½	1¼	2153B8011	2154B8011	2153B8012	2154B8012	30	38	22	23	28	0.12	0.16	0.13	0.18	11.0 (5.0)
<div><div><div>Normally Closed</div><div></div></div><div><div>Normally Open</div><div></div></div></div>																

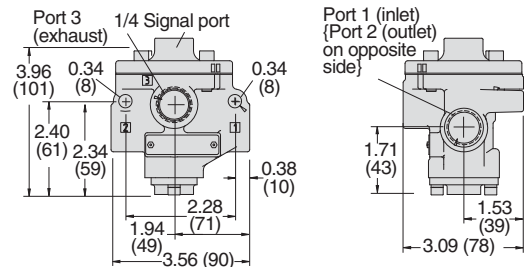


* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2153B2001.

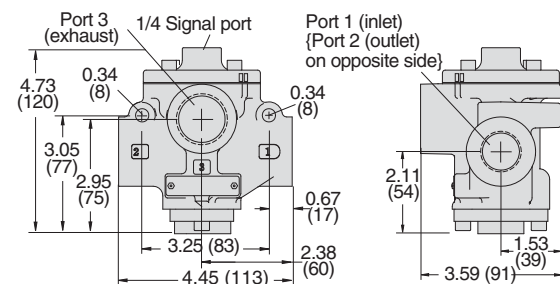
Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

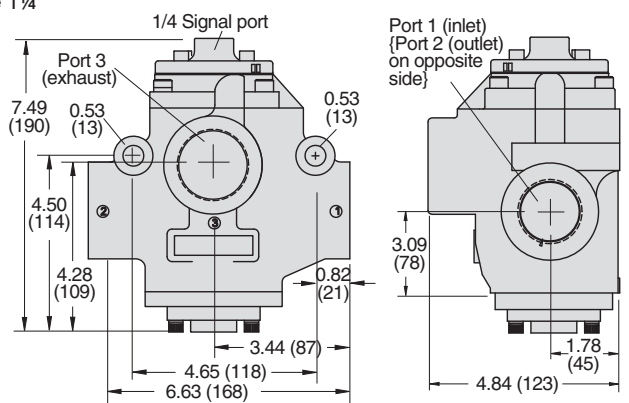
Body Size 3/8



Body Size 3/4



Body Size 1¼



Silencers ordered separately, refer to page B3.14.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Metal.

Mounting Type: Inline.

Ambient/Media Temperatures:

High Temperature: 0° to 300°F (-17° to 150°C).

Low Temperature: -40° to 175°F (-40° to 80°C).

For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.

Flow Media: Filtered air.

Inlet Pressure: 30 to 150 psig (2 to 10 bar).

Pilot Pressure: Must be equal to or greater than inlet pressure.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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Rev. 10/02/17

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B3.7

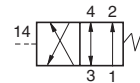
B

4-Way 2-Position Valves, Spring Return

Port Size		Body Size	Valve Model Number*		C _v		Average Response Constants#			Weight lb (kg)
1, 2, 4	3		High Temperature	Low Temperature	1-2, 1-4	4-3, 2-3	M	F		
								1-2, 1-4	4-3, 2-3	
1/4	1/2	3/8	2156B2001	2156B2002	2.1	2.9	30	1.70	2.28	3.0 (1.4)
3/8	1/2	3/8	2156B3001	2156B3002	2.9	4.2	30	1.13	1.33	3.0 (1.4)
1/2	1/2	3/8	2156B4011	2156B4012	3.1	4.3	30	1.00	1.22	3.0 (1.4)
1/2	1	3/4	2156B4001	2156B4002	5.6	8.1	46	0.50	0.76	5.8 (2.6)
3/4	1	3/4	2156B5001	2156B5002	7.0	9.3	46	0.36	0.55	5.8 (2.6)
1	1	3/4	2156B6011	2156B6012	7.8	10	46	0.36	0.50	5.8 (2.6)
1	1½	1¼	2156B6001	2156B6002	19	26	99	0.19	0.22	12.0 (5.4)
1¼	1½	1¼	2156B7001	2156B7002	21	27	99	0.19	0.18	12.0 (5.4)
1½	1½	1¼	2156B8011	2156B8012	22	27	99	0.16	0.15	12.0 (5.4)

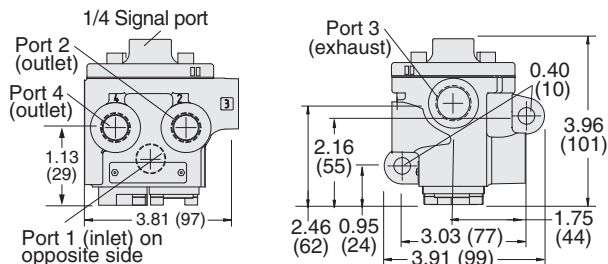
* NPT port threads. For BSP threads add a "D" prefix to the model number e.g., D2156B2001.

Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

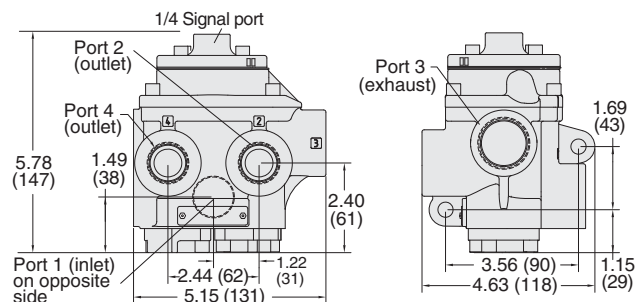


Valve Dimensions – inches (mm)

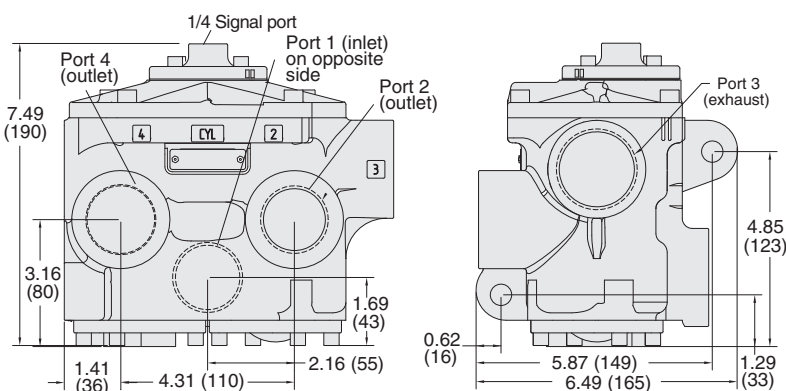
Body Size 3/8



Body Size 3/4



Body Size 1¼



Silencers ordered separately, refer to page B3.14.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Metal.

Mounting Type: Inline.

Ambient/Media Temperatures:

High Temperatures: 0° to 300°F (-17° to 150°C).

Low Temperatures: -40° to 175°F (-40° to 80°C).

For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.

Flow Media: Filtered air.

Inlet Pressure: 30 to 150 psig (2 to 10 bar).

Pilot Pressure: Must be equal to or greater than inlet pressure.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

2-Way 2-Position Valves, Spring Return							
Port Size	Body Size	Valve Model Number*	Function	C _v	Average Response Constants#		Weight lb (kg)
					M	F	
1/4	3/8	2171B2901**	NC	2.1	10	0.96	3.0 (1.4)
3/8	3/8	2171B3906**	NC	2.6	10	0.90	3.0 (1.4)
1/2	3/8	2171A4917**	NC	2.6	10	0.82	3.0 (1.4)
3/4	3/4	2171B5905**	NC	7.8	14	0.39	3.3 (1.5)
1	3/4	2171B6904**	NC	8.3	14	0.32	3.3 (1.5)
1	1 1/4	2171B6916**	NC	20	14	0.31	3.3 (1.5)
1 1/4	1 1/4	2171B7901**	NC	30	26	0.19	7.5 (3.4)
1 1/4	1 1/4	2171B8906**	NC	31	26	0.14	7.5 (3.4)
1 1/2	1 1/4	2172B8900**	NO	21	26	0.17	7.5 (3.4)
1 1/2	2	2171B8900**	NC	57	##	##	15.5 (6.9)
2 1/2	2	2171B9901**	NC	64	##	##	15.5 (6.9)

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2171B2901W.

** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 2171B2901W.

For other voltages, consult ROSS.

Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Consult ROSS.

Normally Closed (NC)

Normally Open (NO)

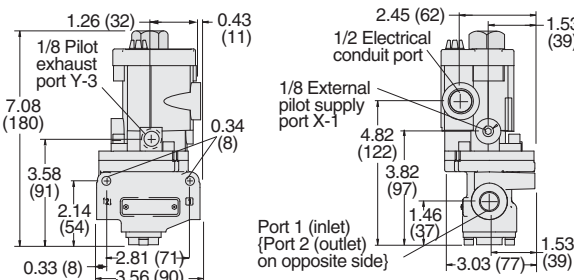
Piping 2/2 Normally Closed or Normally Open Valves

Pipe the unit into the system by connecting the vacuum source or pump to the normal air pressure inlet port (port 1). The normal outlet port is the work port (port 2).

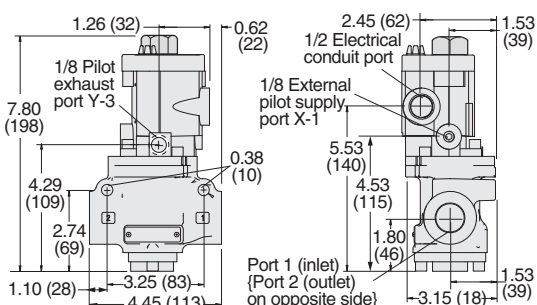
Note: 2/2 vacuum valves provide only on/off control and do not have an exhaust function.

Valve Dimensions – inches (mm)

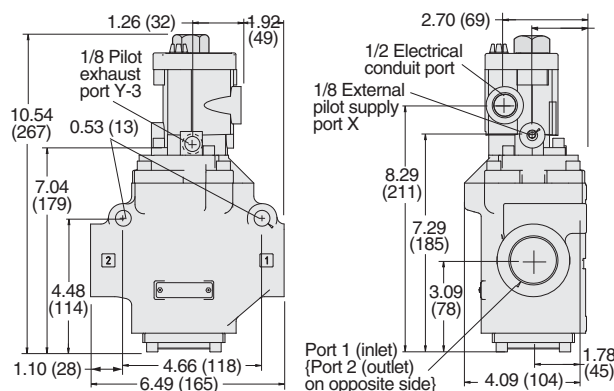
Body Size 3/8



Body Size 3/4



Body Size 1 1/4



Options: Indicator Light Kits, Manual Override Kits; refer to page B3.14.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Metal.

Mounting Type: Inline.

Solenoid Pilot: Rated for continuous duty.

Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.

Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 Watts on DC.

Ambient Temperature: -40° to 120° F (-40° to 50° C), for low temperature valves. High temperature valves also available.

Media Temperature: -40° to 175° F (-40° to 80° C).

Flow Media: Vacuum and/or filtered-compressed air.

Pressure: Vacuum to 150 psig (vacuum to 10 bar).

***External Pilot Pressure:** Equal or higher than inlet pressure, but not less than 30 psig.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1.

Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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Rev. 10/02/17

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B3.9

3-Way 2-Position Valves, Spring Return

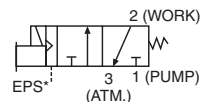
Port Size			Body Size	Valve Model Number*	Cv		Function	Average Response Constants#			Weight lb (kg)
1, 2	3				1-2	2-3		M	F	Out-Exh.	
1/4	1/2	3/8		2173B2900**	2.4	3.4	NC	10	1.76	2.08	3.0 (1.4)
3/8	1/2	3/8		2173B3900**	3.0	5.8	NC	10	0.95	1.07	3.0 (1.4)
3/8	1/2	3/8		2174B3900**	3.0	5.8	NC	10	0.95	1.07	3.0 (1.4)
3/8	1/2	3/8		2173B3908**	3.0	5.8	NO	10	0.95	1.07	3.0 (1.4)
1/2	1/2	3/8		2173B4901**	3.0	5.2	NC	10	0.94	0.98	3.0 (1.4)
1/2	1	3/4		2173B4902**	6.6	12	NC	11	0.58	0.64	3.3 (1.5)
1/2	1	3/4		2174A4912**	6.5	7.0	NC	11	0.58	0.64	3.3 (1.5)
3/4	1	3/4		2173B5900**	7.8	13	NC	11	0.38	0.41	3.3 (1.5)
3/4	1	3/4		2174B5903**	7.5	7.5	NC	11	0.38	0.41	3.3 (1.5)
1	1	3/4		2173B6901**	7.5	12	NC	11	0.24	0.36	3.3 (1.5)
1	1 1/2	1 1/4		2173B6902**	24	40	NC	28	0.16	0.18	7.5 (3.4)
1	1 1/2	1 1/4		2174A6914**	15	17	NO	28	0.16	0.18	7.5 (3.4)
1 1/4	1 1/2	1 1/4		2173B7901**	29	39	NC	28	0.12	0.17	7.5 (3.4)
1 1/4	1 1/2	1 1/4		2173B7917**	29	39	NO	28	0.12	0.17	7.5 (3.4)
1 1/2	1 1/2	1 1/4		2173B8900**	30	38	NC	28	0.12	0.16	7.5 (3.4)
1 1/2	2 1/2	2		2173A8915**	68	70	NC	##	##	##	16.5 (7.4)
2	2 1/2	2		2173A9905**	70	70	NC	##	##	##	16.5 (7.4)
2 1/2	2 1/2	2		2173A9906**	70	71	NC	##	##	##	16.5 (7.4)

* NPT port threads. For BSPP threads add a "D" prefix to the model number, e.g., D2173B2900W.

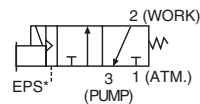
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 2173B2900W. For other voltages, consult ROSS.

Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Consult ROSS.



Normally Closed



Normally Open

Piping 3/2 Normally Closed (NC) Valves

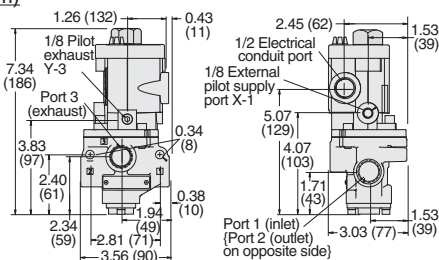
In this valve configuration, pipe the unit into the system by connecting the vacuum source or pump to the normal air pressure inlet port (port 1). The normal outlet port is the work port (port 2), and the normal air pressure exhaust port becomes the atmosphere port (port 3).

Piping 3/2 Normally Open (NO) Valves

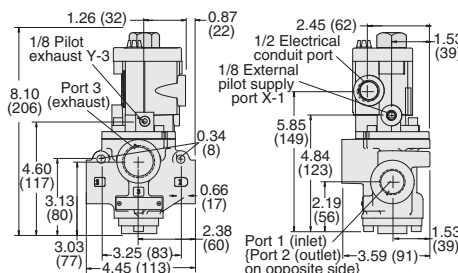
To obtain a 3/2 normally open ROSS vacuum valve, simply pipe the 3/2 normally closed body slightly differently. Connect the vacuum source or pump to port 3, the normal exhaust. Leave port 1 open to atmosphere, and the normal outlet remains as the work port (port 2).

Valve Dimensions – inches (mm)

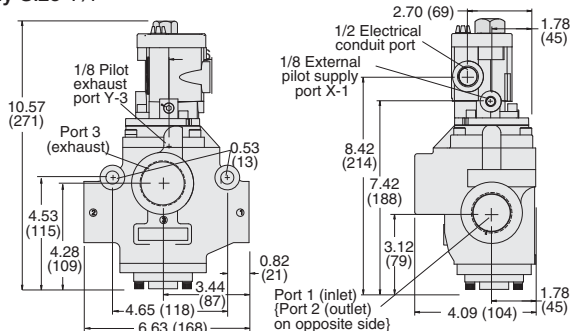
Body Size 3/8



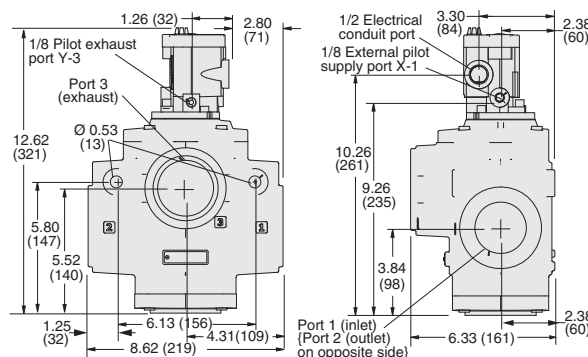
Body Size 3/4



Body Size 1 1/4



Body Size 2



Options: Indicator Light Kits, Manual Override Kits; refer to page B3.14. Silencers ordered separately, refer to page B3.14.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Metal.

Mounting Type: Inline.

Solenoid Pilot: Rated for continuous duty.

Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.

Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.

Ambient Temperature: -40° to 120° F (-40° to 50° C), for low temperature valves. High temperature valves also available.

Media Temperature: -40° to 175° F (-40° to 80° C).

Flow Media: Vacuum and/or filtered-compressed air.

Pressure: Vacuum to 150 psig (vacuum to 10 bar).

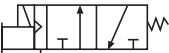

***External Pilot Pressure:** Equal or higher than inlet pressure, but not less than 30 psig.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1.

Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Solenoid Pilot Controlled Valves

3-Way 2-Position Valves, Spring Return										
Port Size		Body Size	Valve Model Number*	C _v		Function	Average Response Constants#			Weight lb (kg)
1, 2	3			1-2	2-3		M	F		
								In-Out	Out-Exh.	
1/2	1/2	3/8	2174B4900**	2.8	2.8	NC	11	0.58	0.64	3.0 (1.4)
1/2	1/2	3/8	2173B4914**	3.0	5.2	NO	11	0.50	0.70	3.0 (1.4)
1¼	1½	1¼	2174B7903**	23	23	NC	28	0.12	0.17	7.5 (3.4)
1¼	1½	1¼	2173B7904**	39	39	NO	28	0.15	0.19	7.5 (3.4)
<div><div><div>Normally Closed</div></div><div><div>Normally Open</div></div></div>										

Normally Closed



Normally Open



* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2173B4914W.

** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 2173B4914W. For other voltages, consult ROSS.

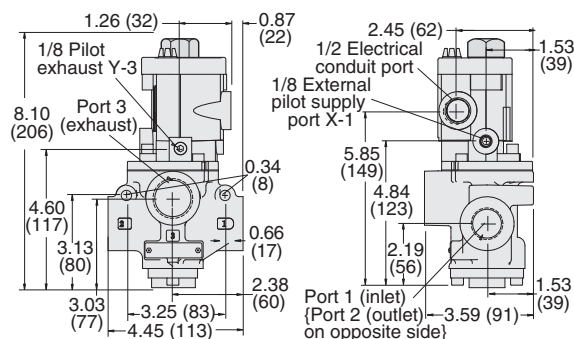
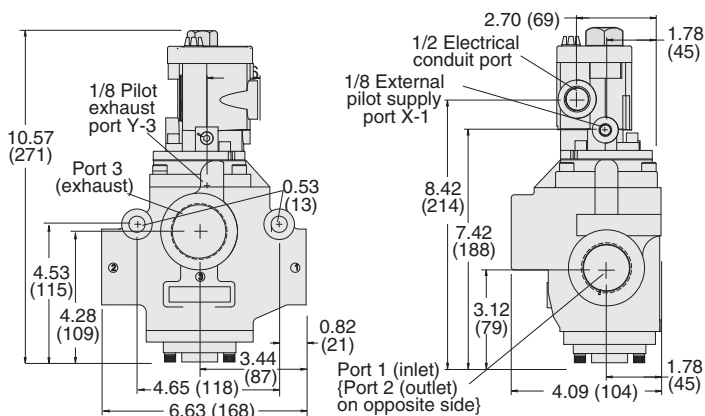
Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Full Vacuum – 3-Way Normally Closed (NC) Valves

This valve functions as a **normally open** valve. Pipe the unit into the system by connecting the vacuum source or pump to port 3, the normal exhaust. Leave port 1 open to atmosphere, and the normal outlet remains as the work port (port 2).

Full Vacuum – 3-Way Normally Open (NO) Valves

This valve functions as a normally closed valve. Pipe the unit into the system by connecting the vacuum source or pump to port 3, the normal exhaust. Leave port 1 open to atmosphere, and the normal outlet remains as the work port (port 2).

Valve Dimensions – inches (mm)**Body Size 3/8****Body Size 1¼**

Options: Indicator Light Kits, Manual Override Kits; refer to page B3.14. Silencers ordered separately, refer to page B3.14.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Metal.

Mounting Type: Inline.

Solenoids: Rated for continuous duty.

Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.

Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 Watts on DC.

Ambient Temperature: -40° to 120° F (-40° to 50° C), for low temperature valves. High temperature valves also available.

Media Temperature: -40° to 175° F (-40° to 80° C).

Flow Media: Vacuum and/or filtered-compressed air.

Pressure: Vacuum to 150 psig (vacuum to 10 bar).

***External Pilot Pressure:** Equal or higher than inlet pressure, but not less than 30 psig.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1.

Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



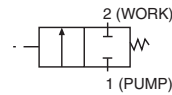
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Rev. 10/02/17

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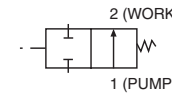
B3.11

2-Way 2-Position Valves, Spring Return

Port Size 1, 2	Body Size	Valve Model Number*	Function	C _v	Average Response Constants#		Weight lb (kg)
					M	F	
1/4	3/8	2151A2901	NC	2.1	10	0.96	1.8 (0.8)
1/2	3/8	2151A4910	NC	3.0	10	0.90	1.8 (0.8)
1/2	3/4	2151B4904	NC	6.9	10	0.82	4.5 (2.0)
3/4	3/4	2151A5913	NC	7.8	14	0.39	4.5 (2.0)
3/4	3/4	2152A5901	NO	7.0	14	0.37	4.5 (2.0)
1	3/4	2151B6900	NC	8.3	14	0.19	4.5 (2.0)
1 1/4	1 1/4	2151A7909	NC	30	26	0.14	11.0 (5.0)
1 1/2	1 1/4	2151B8900	NC	31	26	0.13	11.0 (5.0)
1 1/2	1 1/4	2152B7900	NO	23	26	0.17	11.0 (5.0)



Normally Closed (NC)



Normally Open (NO)

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2151A2901.

Valve Response Time – Response Time (msec) = $M + (F \cdot V)$. This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

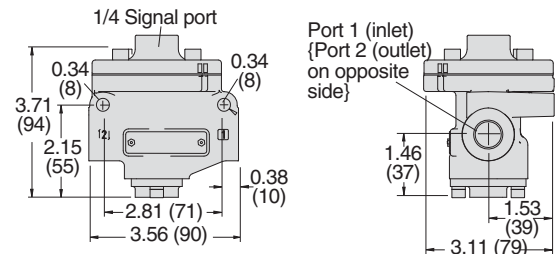
Piping 2/2 Normally Closed (NC) Valves

Pipe the unit into the system by connecting the vacuum source or pump to the normal air pressure inlet port (port 1). The normal outlet port is the work port (port 2).

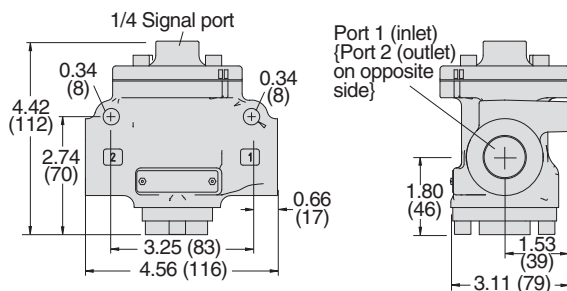
Note: 2/2 vacuum valves provide only on/off control and do not have an exhaust function.

Valve Dimensions – inches (mm)

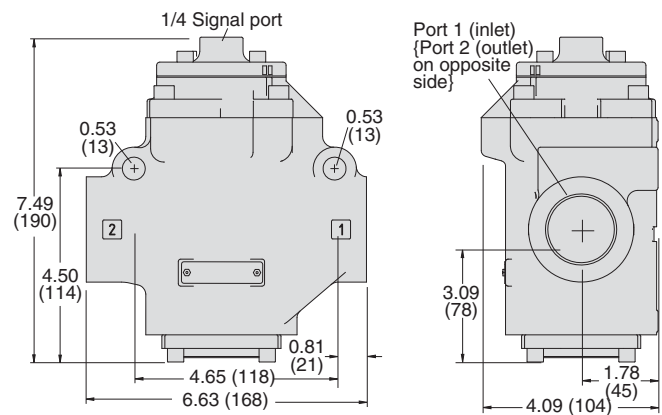
Body Size 3/8



Body Size 3/4



Body Size 1 1/4



STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Metal.

Mounting Type: Inline.

Media Temperature: -40° to 175° F (-40° to 80° C).

Flow Media: Vacuum and/or filtered-compressed air.

Pressure: Vacuum to 150 psig (vacuum to 10 bar).

Signal Pressure: Equal or higher than inlet pressure, but not less than 30 psig (2 bar).

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1.

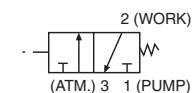
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

3-Way 2-Position Valves, Spring Return										
Port Size		Body Size	Valve Model Number*	Function	C _v		Average Response Constants#			Weight lb (kg)
1, 2	3				1-2	2-3	M	F		
								In-Out	Out-Exh.	
1/4	1/2	3/8	2153B2900	NO	2.4	3.4	10	1.60	2.30	1.8 (0.8)
3/8	1/2	3/8	2153A3913	NC	2.4	3.4	10	0.95	1.07	1.8 (0.8)
1/2	1/2	3/8	2153B4903	NC	3.0	5.2	10	0.94	0.98	1.8 (0.8)
3/4	1	3/4	2153B5903	NC	7.8	13	11	0.38	0.41	4.5 (2.0)
1	1	3/4	2153A6906	NC	7.4	12	11	0.24	0.36	4.5 (2.0)
1	1½	1½	2153C6905	NO	24	40	28	0.17	0.20	11.0 (5.0)
1¼	1½	1½	2153A7906	NO	29	39	28	0.15	0.19	11.0 (5.0)
1½	1½	1½	2153B8900	NC	30	38	28	0.12	0.16	11.0 (5.0)
2	2½	2	2153A9903	NC	70	71	##	##	##	15.3 (6.9)
2½	2½	2	2153A9902	NC	70	71	##	##	##	15.3 (6.9)

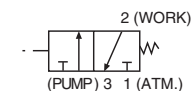
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2153B2900.

Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Consult ROSS.



Normally Closed (NC)



Normally Open (NO)

B

Piping 3/2 Normally Closed (NC) Valves

In this valve configuration, pipe the unit into the system by connecting the vacuum source or pump to the normal air pressure inlet port (port 1). The normal outlet port is the work port (port 2), and the normal air pressure exhaust port becomes the atmosphere port (port 3).

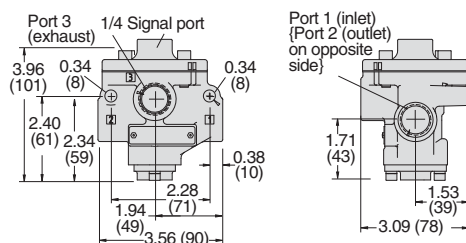
Piping 3/2 Normally Open (NO) Valves

To obtain a 3/2 normally open ROSS vacuum valve, simply pipe the 3/2 normally closed body slightly differently. Connect the vacuum source or pump to port 3, the normal exhaust. Leave port 1 open to atmosphere, and the normal outlet remains as the work port (port 2).

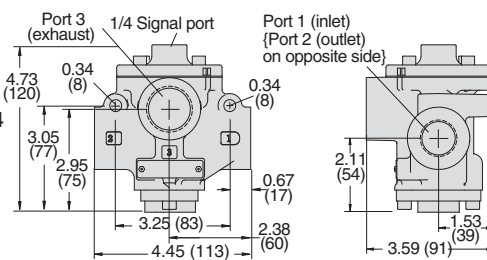
B3

Valve Dimensions – inches (mm)

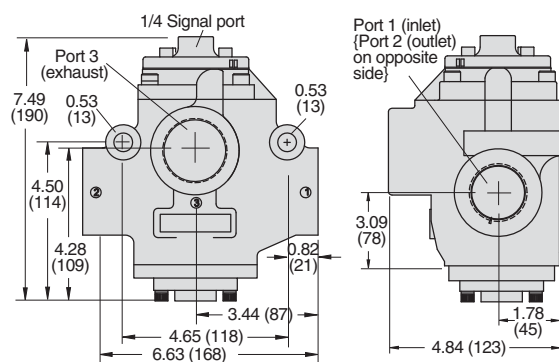
Body Size 3/8



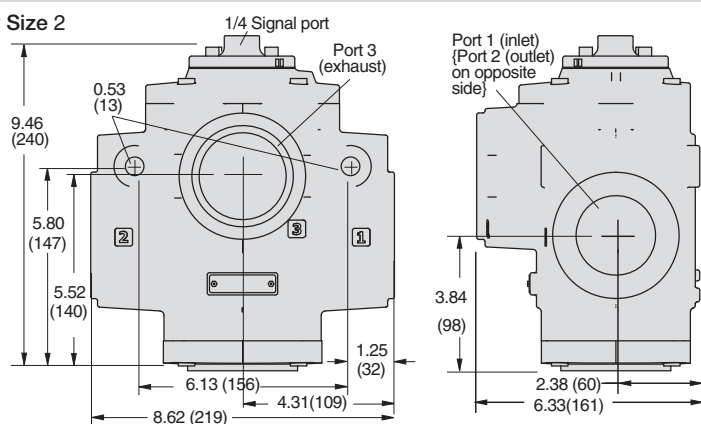
Body Size 3/4



Body Size 1¼



Body Size 2



Silencers ordered separately, refer to page B3.14.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Metal.

Mounting Type: Inline.

Media Temperature: -40° to 175° F (-40° to 80° C).

Flow Media: Vacuum and/or filtered-compressed air.

Pressure: Vacuum to 150 psig (vacuum to 10 bar).

Signal Pressure: Equal or higher than inlet pressure, but not less than 30 psig (2 bar).

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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Rev. 10/02/17

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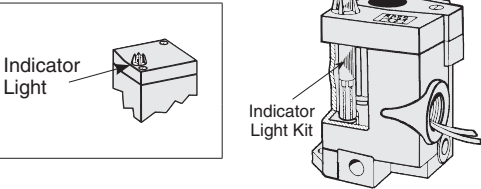
B3.13

Indicator Light Kits

To visually verify valve operation indicator lights are available in kit form. The indicator light extends through the solenoid or pilot cover and is illuminated when the solenoid is energized. Such lights are standard on double solenoid valves.

Indicator light kits are available for single solenoid models (low temperature valves only).

Kit Number		
24 volts DC	110-120 volts AC 50-60 Hz	220 volts 50-60 Hz
862K87-W	862K87-Z	862K87-Y



Manual Override Kits

Flush flexible manual overrides are standard on single solenoid models. Double solenoid models have flush metal-button overrides. Both types are non-locking.

Each of the buttons in the override kits below is made of metal and is spring-returned. The locking type button, however, can be kept in the actuated position by turning the slot in the top of the button with a screwdriver.

Flush Button	
Locking Type	Kit Number
Non-Locking	790K87
Locking	792K87



Extended Button	
Locking Type	Kit Number
Non-Locking	791K87



Extended Button with Palm	
Locking Type	Kit Number
Non-Locking	984H87



Electrical Connector

Valves available with installed prewired connectors, please consult ROSS.

System 8 Pilot

Models available with preinstalled System 8 solenoid pilot, consult ROSS.

Silencers

Port size 1/4 thru 2



Port size 2½



Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)		<div>Male Pipe Threads Female Pipe Threads </div>
		NPT Treads	BSPT Threads		A	B			
3/8	Male	5500A3003	D5500A3003	4.3	1.3 (32)	3.5 (88)	0.2 (0.1)		
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)		
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)		
1½	Female	5500A8001	D5500A8001	29.9	2.5 (64)	5.7 (144)	1.0 (0.5)		
2½	Female	5500A9002	D5500A9002	103.7	4.0 (102)	5.7 (145)	2.9 (1.4)		
<p>Pressure Range: 0 to 300 psig (0 to 20.7 bar) maximum.</p> <p>Flow Media: Filtered air.</p>									

IMPORTANT NOTE: Please read carefully and thoroughly all of the CAUTIONS, WARNINGS on the inside back cover.

B

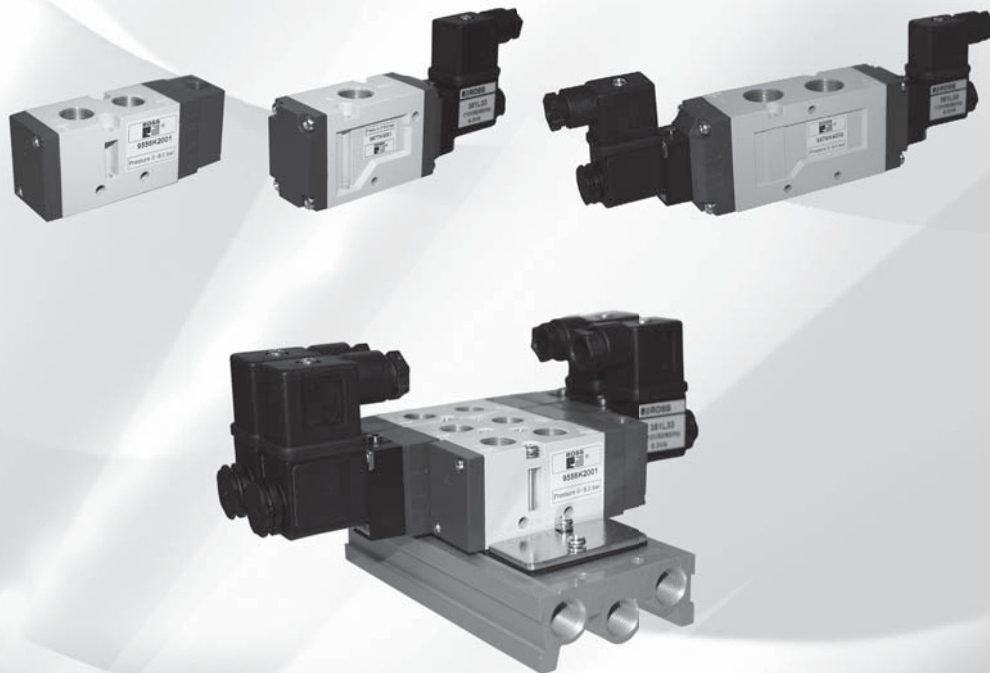
B3

B

ROSS CONTROLS®



INLINE DIRECTIONAL CONTROL VALVES SLIM-LINE 95 SERIES



INLINE DIRECTIONAL VALVES AND MANIFOLDS– KEY FEATURES

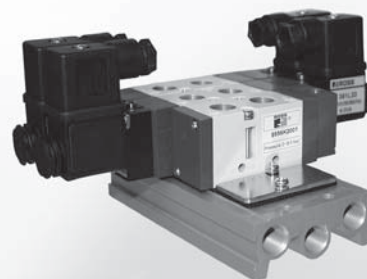
- 24 volts DC and 110 volts AC options for solenoid control
- Available with 1/8, 1/4, 3/8, and 1/2 port options
- Flexible mounting - inline or manifold
- Resilient seal spool construction
- Compact size
- High flow capacity
- Lube or non-lube service
- Manual overrides
- Pressure ports located in valve body



Solenoid Controlled



Pressure Controlled



Manifold Options

VALVE TYPE	AVAILABLE PORT SIZES				MAX. FLOW Cv	MOUNTING		Page
	1/8	1/4	3/8	1/2		INLINE	MANIFOLD	
SOLENOID PILOT CONTROLLED								
3/2 NC/NO Spring return					2.6			B4.3
5/2 Spring Return					4.5			B4.4
5/2 Detented					4.5			B4.5
5/3 Spring Center					2.2			B4.6
PRESSURE CONTROLLED								
3/2 NC/NO Spring return					2.6			B4.7
5/2 Spring Return					4.5			B4.8
5/2 Detented					4.5			B4.9
5/3 Spring Center					3.4			B4.10
MANIFOLD BLOCKS, OPTIONS, & ACCESSORIES								
Manifold Blocks (3/2 Valves)								B4.11
Manifold Blocks (5/2 & 5/3 Valves)								B4.12
Manifold Blanking Plates								B4.11 - B4.12
Pilot Coils & Connectors								B4.11 - B4.12
Silencers								B4.11 - B4.12

Single Solenoid Pilot Controlled Valves

95 Series

3-Way 2-Position Valves, Single Solenoid, Spring Return					
Port Size		Valve Model Number*		Avg. C _v	Weight lb (kg)
1, 2	3	Normally Closed	Normally Open		
1/8	1/8	9573K1001**	9574K1001**	0.9	0.38 (0.17)
1/4	1/4	9573K2001**	9574K2001**	1.3	0.70 (0.32)
3/8	3/8	9573K3001**	9574K3001**	2.6	1.15 (0.52)

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D9573K1001W.
 ** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 9573K1001W.

Normally Closed

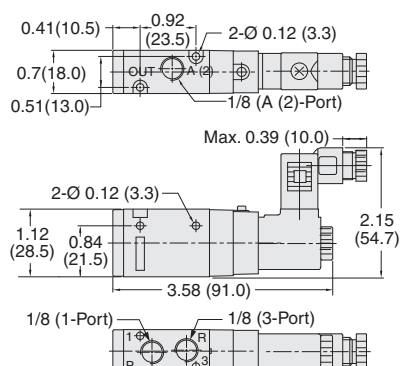
Normally Open



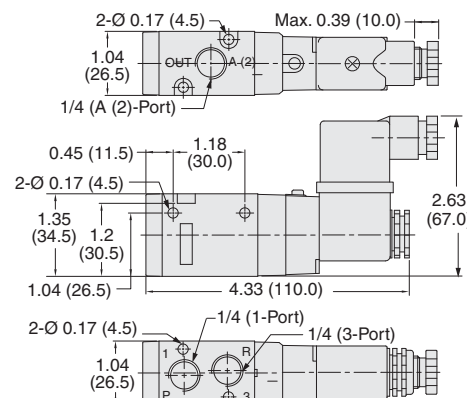
B

Valve Dimensions – inches (mm)

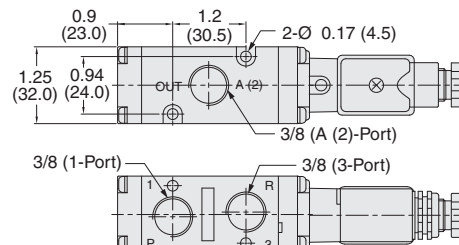
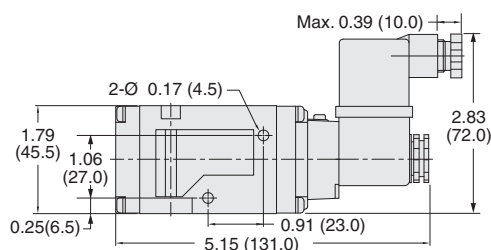
Port Size 1/8



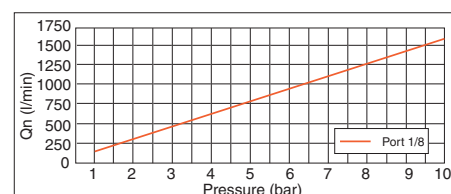
Port Size 1/4



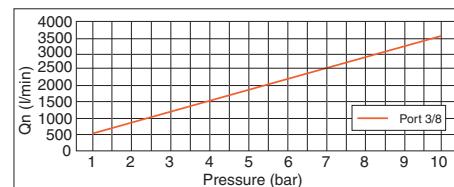
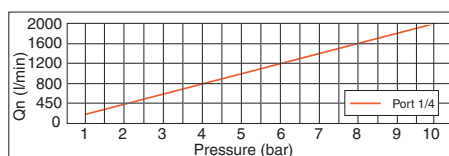
Port Size 3/8



B4



FLOW CHARTS



Solenoid and Connector included.

Manifolds and Accessories ordered separately, refer to page B4.11. For other options, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Spool.

Mounting Type: Inline or manifold mounted.

Solenoid Pilot: AC or DC power, rated for continuous duty.

Standard Voltages: 24 volts DC; 110 volts AC, 50/60 Hz.

Power Consumption: 3.5 VA holding on 50/60 Hz; 2.5 watts on DC.

Enclosure Rating: IP65, IEC 60529.

Electrical Connections:

Port Size 1/8: MICRO-MINI EN 175301-803 connector.

Port Size 1/4 & 3/8: EN 175301-803 Industrial Form B connector.

Ambient/Media Temperature: 41° to 140°F (5° to 60°C).

Flow Media: Filtered air.

Inlet Pressure: 22.5 to 150 psig (1.5 to 10 bar).

Manual Override: Pushbutton, non-locking.

Valves available with installed prewired connectors, please consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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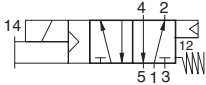
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B4.3

Single Solenoid Pilot Controlled Valves

95 Series

5-Way 2-Position Valves, Single Solenoid, Spring Return

Port Size		Valve Model Number*	Avg. C _v	Weight lb (kg)	
1, 2, 4	3, 5				
1/8	1/8	9576K1001**	0.9	0.43 (0.20)	
1/4	1/8	9576K2001**	1.3	0.80 (0.36)	
3/8	3/8	9576K3001**	2.6	1.29 (0.59)	
1/2	1/2	9576K4001**	4.5	1.66 (0.75)	

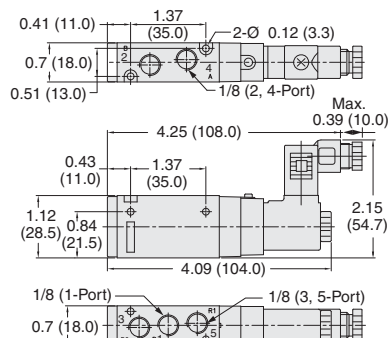
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D9576K1001W.

** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 9576K1001W.

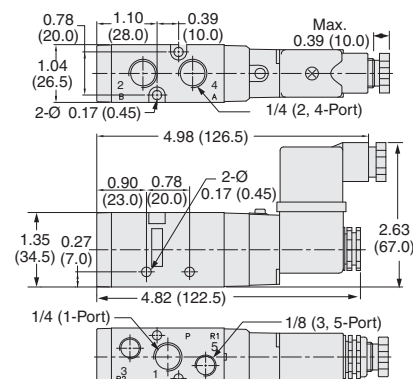


Valve Dimensions – inches (mm)

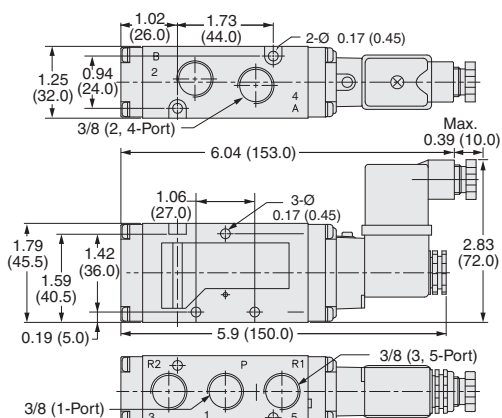
Port Size 1/8



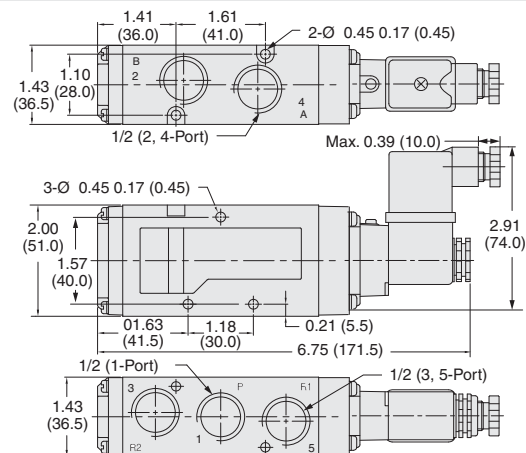
Port Size 1/4



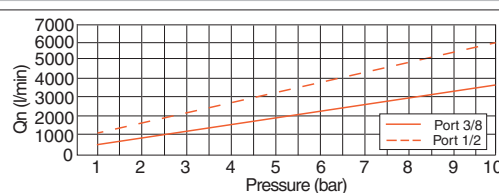
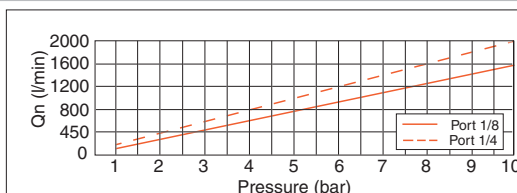
Port Size 3/8



Port Size 1/2



FLOW CHARTS



Solenoid and Connector included.
Manifolds and Accessories ordered separately, refer to page B4.12. For other options, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Spool.

Mounting Type: Inline or manifold mounted.

Solenoid Pilot: AC or DC power, rated for continuous duty.

Standard Voltages: 24 volts DC; 110 volts AC, 50/60 Hz.

Power Consumption: 3.5 VA holding on 50/60 Hz; 2.5 watts on DC.

Enclosure Rating: IP65, IEC 60529.

Electrical Connections:

Port Size 1/8: MICRO-MINI EN 175301-803 connector.

Port Size 1/4, 3/8 & 1/2: EN 175301-803 Industrial Form B connector.

Ambient/Media Temperature: 41° to 140°F (5° to 60°C).

Flow Media: Filtered air.

Inlet Pressure: 22.5 to 150 psig (1.5 to 10 bar).

Manual Override: Pushbutton, non-locking.

Valves available with installed prewired connectors, please consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Double Solenoid Pilot Controlled Valves

95 Series

5-Way 2-Position Valves, Double Solenoid, Detented				
Port Size		Valve Model Number*	Avg. C _v	Weight lb (kg)
1, 2, 4	3, 5			
1/8	1/8	9576K1002**	0.9	0.62 (0.28)
1/4	1/8	9576K2002**	1.3	1.04 (0.47)
3/8	3/8	9576K3002**	2.6	1.58 (0.72)
1/2	1/2	9576K4002**	4.5	2.04 (0.93)

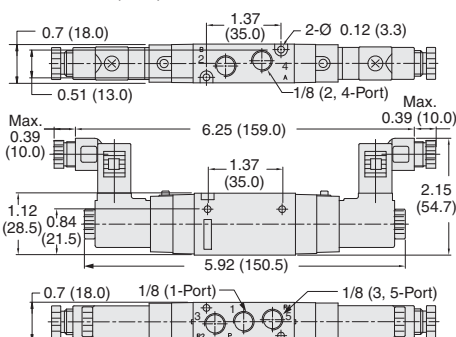
* NPT port threads. For BSP threads add a "D" prefix to the model number e.g., D9576K1002W.
 ** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 9576K1002W.



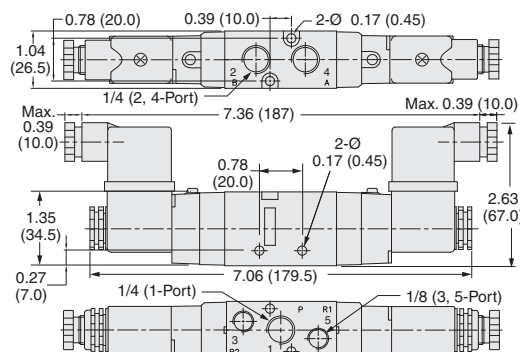
B

Valve Dimensions – inches (mm)

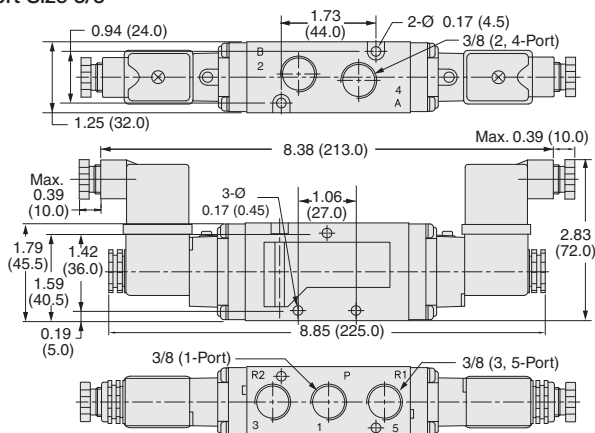
Port Size 1/8



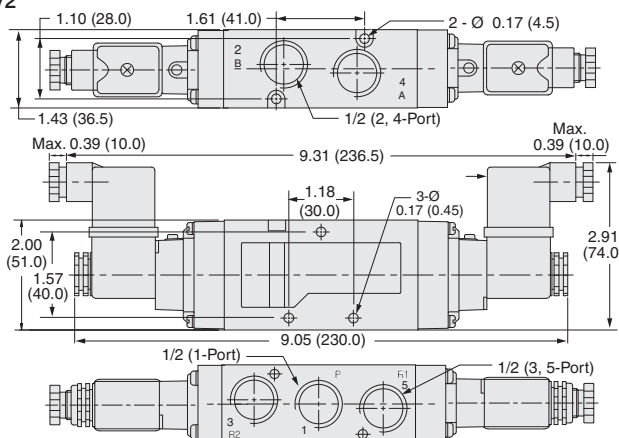
Port Size 1/4



Port Size 3/8

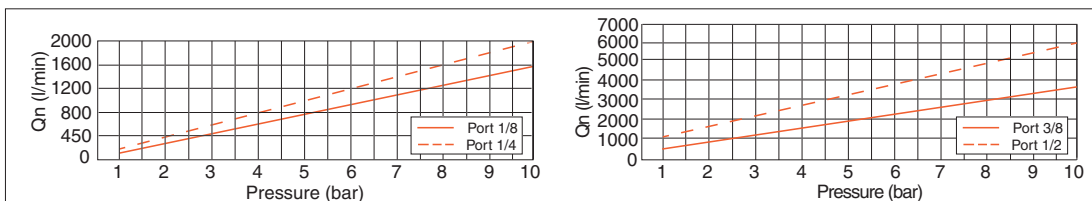


Port Size 1/2



B4

FLOW CHARTS



Solenoid and Connector included.
Manifolds and Accessories ordered separately, refer to page B4.12. For other options, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Spool.

Mounting Type: Inline or manifold mounted.

Solenoid Pilot: AC or DC power, rated for continuous duty.

Standard Voltages: 24 volts DC; 110 volts AC, 50/60 Hz.

Power Consumption: 3.5 VA holding on 50/60 Hz; 2.5 watts on DC.

Enclosure Rating: IP65, IEC 60529.

Electrical Connections:

Port Size 1/8: MICRO-MINI EN 175301-803 connector.

Port Size 1/4, 3/8 & 1/2: EN 175301-803 Industrial Form B connector.

Ambient/Media Temperature: 41° to 140°F (5° to 60°C).

Flow Media: Filtered air.

Inlet Pressure: 22.5 to 150 psig (1.5 to 10 bar).

Manual Override: Pushbutton, non-locking.

Valves available with installed prewired connectors, please consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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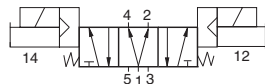
B4.5

5-Way 3-Position Valves, Double Solenoid, Spring Center

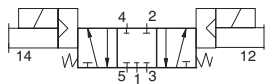
Port Size		Valve Model Number*			Avg. C _v	Weight lb (kg)
1, 2, 4	3, 5	Power Center	Closed Center	Open Center		
1/8	1/8	9577K1019**	9577K1010**	9577K1007**	0.7	0.70 (0.32)
1/4	1/8	9577K2019**	9577K2010**	9577K2007**	1.1	1.26 (0.57)
3/8	3/8	9577K3019**	9577K3010**	9577K3007**	2.2	1.71 (0.78)
1/2	1/2	9577K4019**	9577K4010**	9577K4007**	4.5	2.41 (1.09)



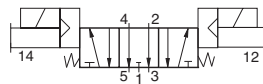
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D9577K1019W.
 ** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 9577K1019W.



Power Center



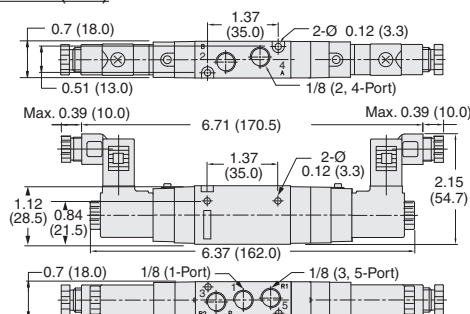
Closed Center



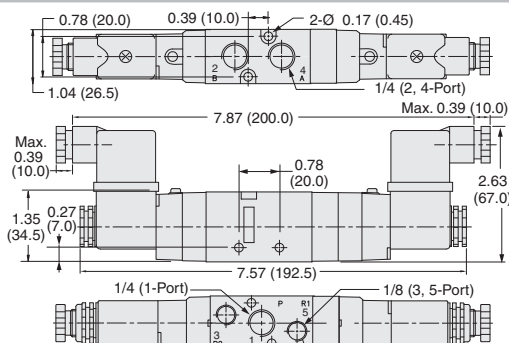
Open Center

Valve Dimensions – inches (mm)

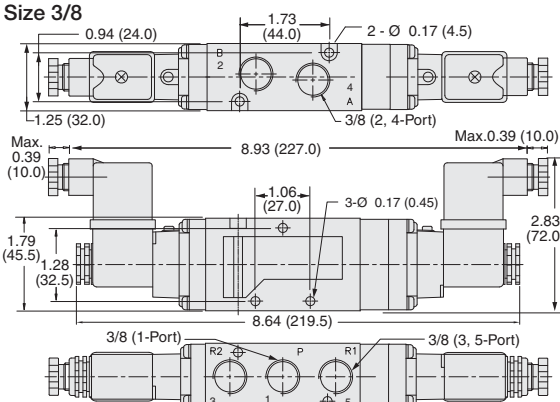
Port Size 1/8



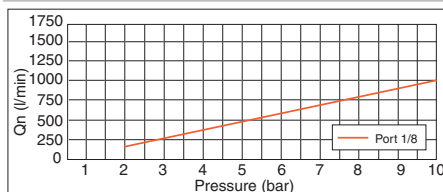
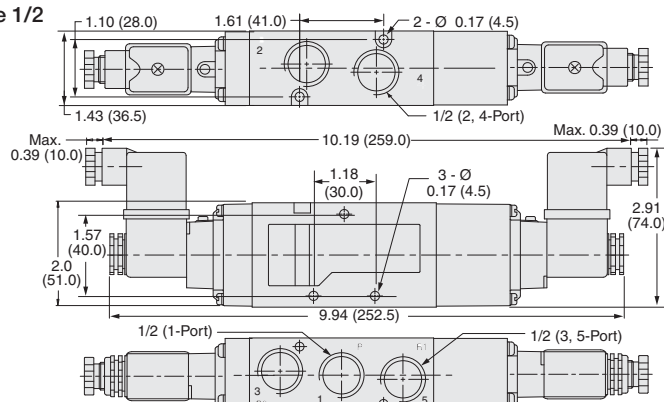
Port Size 1/4



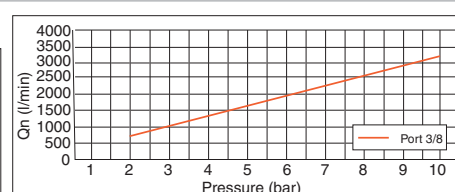
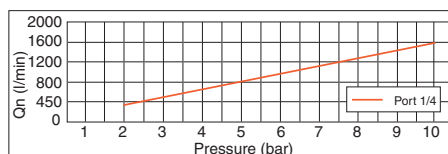
Port Size 3/8



Port Size 1/2



FLOW CHARTS



Solenoid and Connector included.
Manifolds and Accessories ordered separately, refer to page B4.12. For other options, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Spool.
Mounting Type: Inline or manifold mounted.
Solenoid Pilot: AC or DC power, rated for continuous duty.
Standard Voltages: 24 volts DC; 110 volts AC, 50/60 Hz.
Power Consumption: 3.5 VA holding on 50/60 Hz; 2.5 watts on DC.
Enclosure Rating: IP65, IEC 60529.

Electrical Connections:
 Port Size 1/8: MICRO-MINI EN 175301-803 connector.
 Port Size 1/4, 3/8 & 1/2: EN 175301-803 Industrial Form B connector.
Ambient/Media Temperature: 41° to 140°F (5° to 60°C).
Flow Media: Filtered air.
Inlet Pressure: 30 to 150 psig (2 to 10 bar).
Manual Override: Pushbutton, non-locking.

Valves available with installed prewired connectors, please consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

3-Way 2-Position Valves, Single Pilot, Spring Return						
Port Size		Signal Port Thread	Valve Model Number*		Avg. C _v	Weight lb (kg)
1, 2	3		Normally Closed	Normally Open		
1/8	1/8	10-32 UNF	9553K1000	9554K1000	0.9	0.26 (0.12)
1/4	1/4	1/8	9553K2000	9554K2000	1.3	0.51 (0.23)
3/8	3/8	1/8	9553K3000	9554K3000	2.6	0.86 (0.39)

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D9553K1000.

Normally Closed

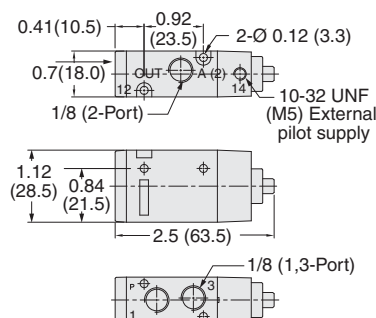
Normally Open



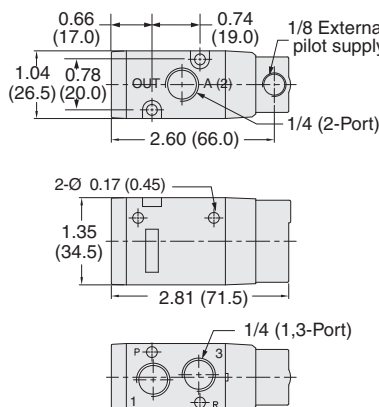
B

Valve Dimensions – inches (mm)

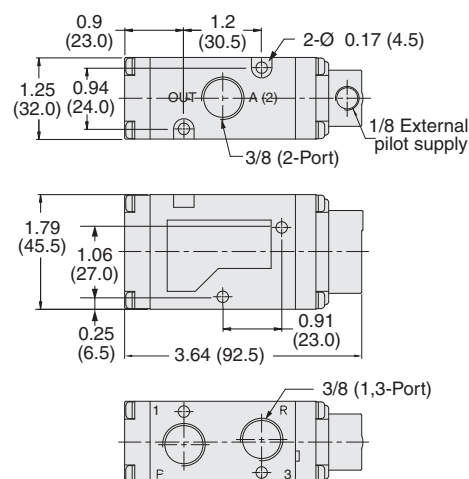
Port Size 1/8



Port Size 1/4

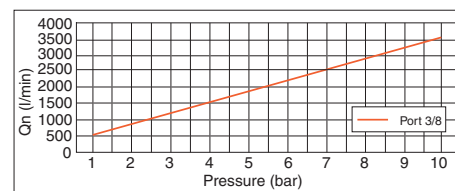
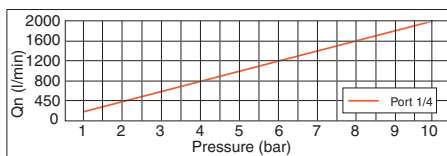
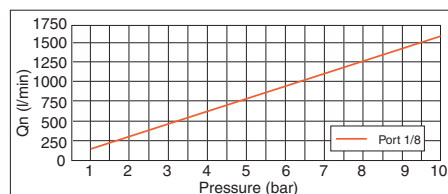


Port Size 3/8



B4

FLOW CHARTS



Manifolds and Accessories ordered separately, refer to page B4.11. For other options, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Spool.

Mounting Type: Inline or manifold mounted.

Ambient/Media Temperature: 41° to 140°F (5° to 60°C).

Flow Media: Filtered air.

Inlet Pressure: 22.5 to 150 psig (1.5 to 10 bar).

Pilot Pressure: Must be equal to or greater than inlet pressure.

Manual Override: Pushbutton, non-locking.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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Rev. 10/02/17

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B4.7

Single Pilot Pressure Controlled Valves

95 Series

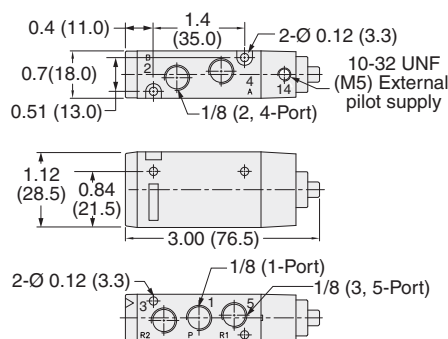
5-Way 2-Position Valves, Single Pilot, Spring Return					
Port Size		Signal Port Thread	Valve Model Number*	Avg. C _v	Weight lb (kg)
1, 2, 4	3, 5				
1/8	1/8	1/8	9556K1001	0.9	0.26 (0.12)
1/4	1/8	1/8	9556K2001	1.3	0.48 (0.22)
3/8	3/8	1/8	9556K3001	2.6	1.02 (0.46)
1/2	1/2	1/8	9556K4001	4.5	1.39 (0.63)

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D9556K1001.

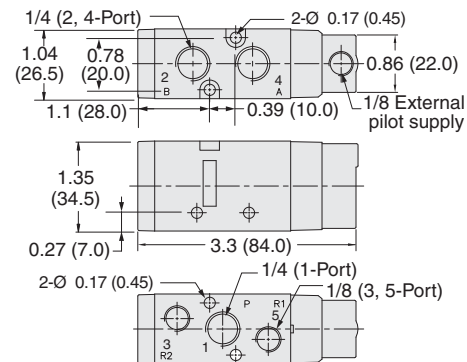


Valve Dimensions – inches (mm)

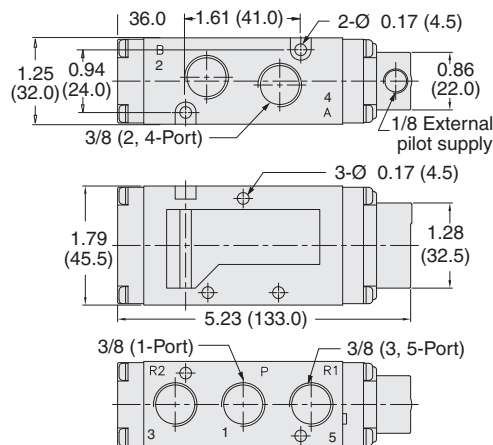
Port Size 1/8



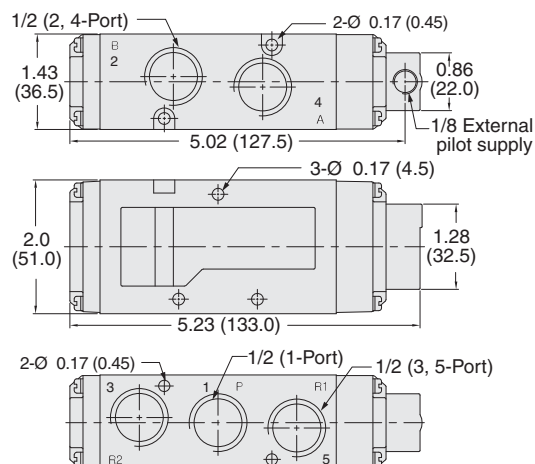
Port Size 1/4



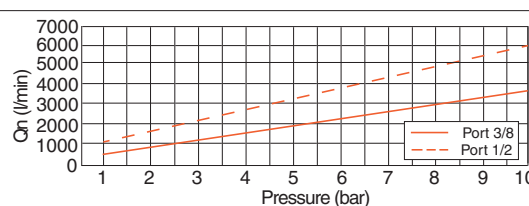
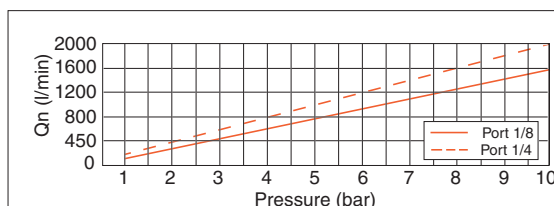
Port Size 3/8



Port Size 1/2



FLOW CHARTS



Manifolds and Accessories ordered separately, refer to page B4.12. For other options, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

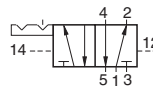
Construction: Spool.
Mounting Type: Inline or manifold mounted.
Ambient/Media Temperature: 41° to 140°F (5° to 60°C).
Flow Media: Filtered air.

Inlet Pressure: 22.5 to 150 psig (1.5 to 10 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.
Manual Override: Pushbutton, non-locking.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

5-Way 2-Position Valves, Double Pilot, Detented					
Port Size		Signal Port Thread	Valve Model Number*	Avg. C _v	Weight lb (kg)
1, 2, 4	3, 5				
1/8	1/8	1/8	9556K1002	0.9	0.32 (0.15)
1/4	1/8	1/8	9556K2002	1.3	0.59 (0.27)
3/8	3/8	1/8	9556K3002	2.6	1.07 (0.49)
1/2	1/2	1/8	9556K4002	4.5	1.55 (0.70)

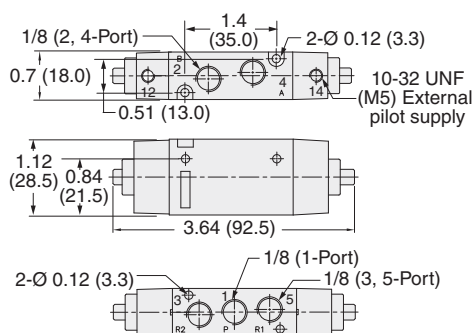
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D9556K1002.



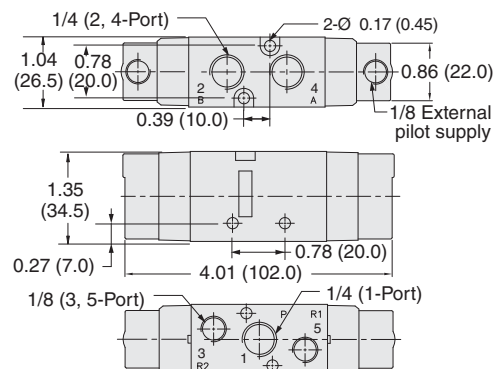
B

Valve Dimensions – inches (mm)

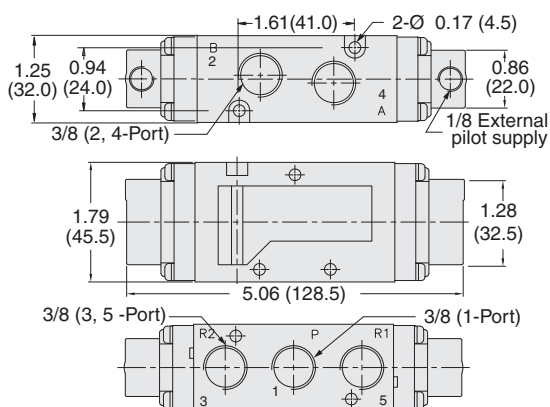
Port Size 1/8



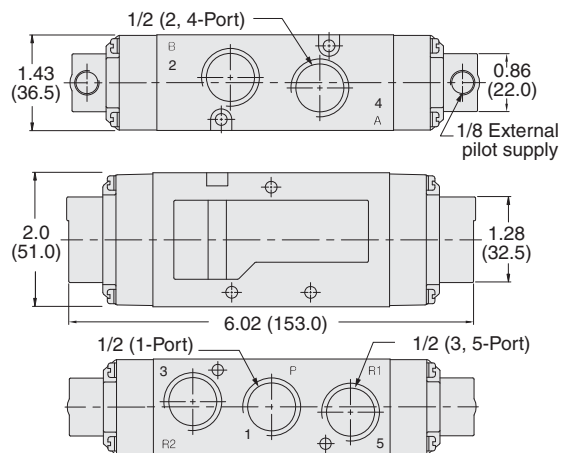
Port Size 1/4



Port Size 3/8

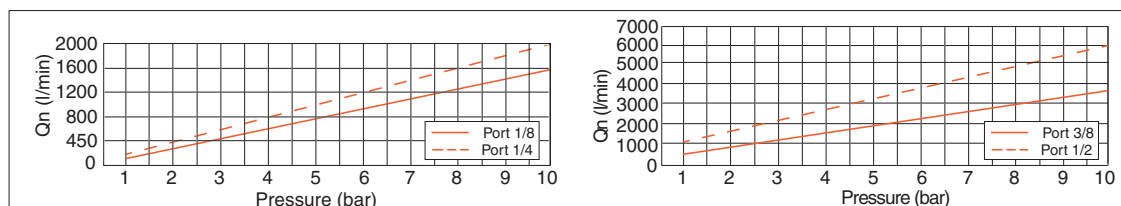


Port Size 1/2



B4

FLOW CHARTS



Manifolds and Accessories ordered separately, refer to page B4.12. For other options, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Spool.

Mounting Type: Inline or manifold mounted.

Ambient/Media Temperature: 41° to 140°F (5° to 60°C).

Flow Media: Filtered air.

Inlet Pressure: 22.5 to 150 psig (1.5 to 10 bar).

Pilot Pressure: Must be equal to or greater than inlet pressure.

Manual Override: Pushbutton, non-locking.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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Rev. 10/02/17

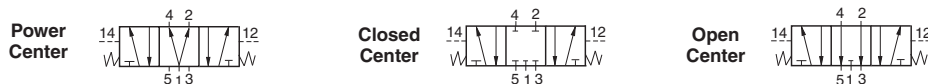
www.rosscontrols.com

B4.9

5-Way 3-Position Valves, Double Pilot, Spring Center

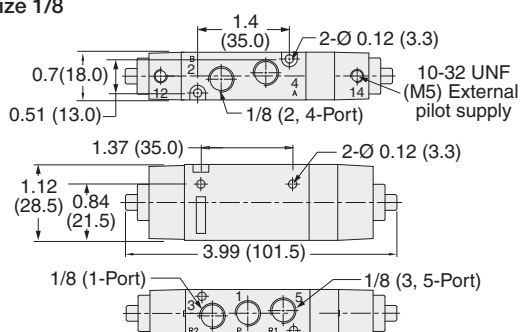
Port Size		Signal Port Thread	Valve Model Number*			Avg. C _v	Weight lb (kg)
1, 2, 4	3, 5		Power Center	Closed Center	Open Center		
1/8	1/8	10-32 UNF	9557K1019	9557K1010	9557K1007	0.7	0.38 (0.17)
1/4	1/8	1/8	9557K2019	9557K2010	9557K2007	1.1	0.51 (0.23)
3/8	3/8	1/8	9557K3019	9557K3010	9557K3007	2.2	1.39 (0.63)
1/2	1/2	1/8	9557K4019	9557K4010	9557K4007	3.4	1.98 (0.90)

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D9557K1019.

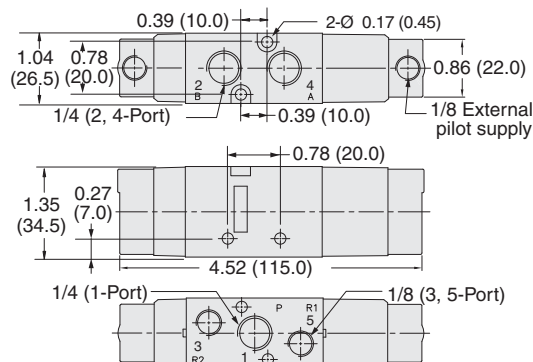


Valve Dimensions – inches (mm)

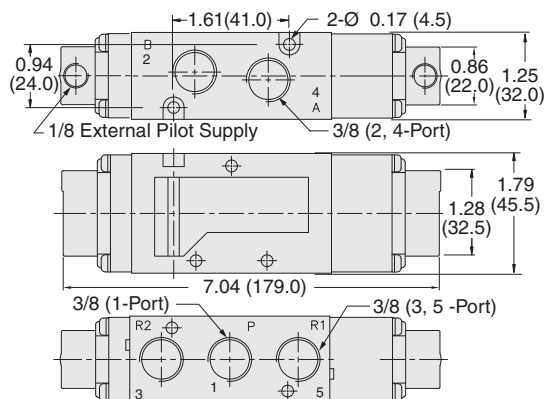
Port Size 1/8



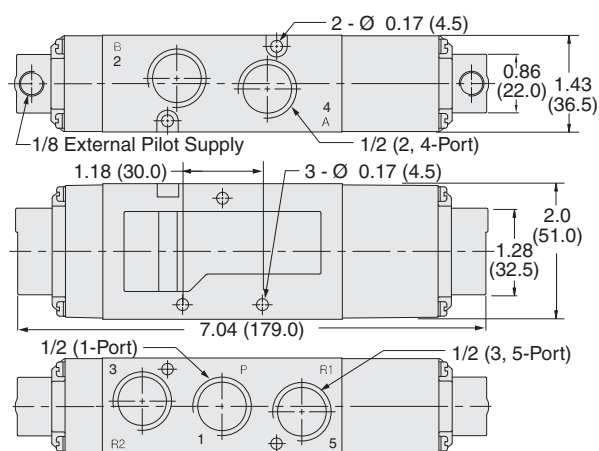
Port Size 1/4



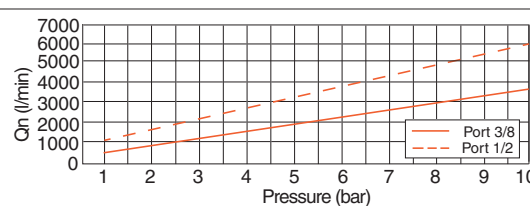
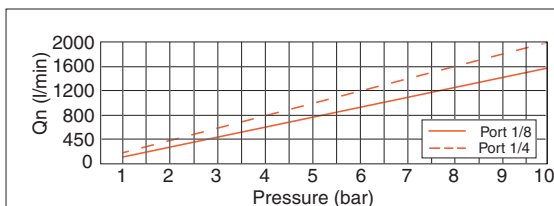
Port Size 3/8



Port Size 1/2



FLOW CHARTS



Manifolds and Accessories ordered separately, refer to page B4.12. For other options, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Spool.
Mounting Type: Inline or manifold mounted.
Ambient/Media Temperature: 41° to 140°F (5° to 60°C).
Flow Media: Filtered air.

Inlet Pressure: 30 to 150 psi (2 to 10 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.
Manual Override: Pushbutton, non-locking.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Slim-Line Manifold Base for 3/2- Spring Return or Detented Valves

for 95 Series

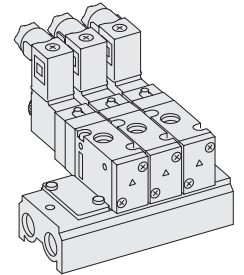
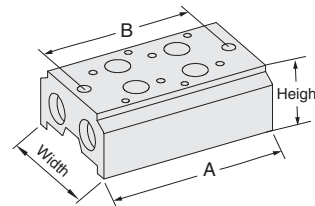
Port Size		Manifold Base Model Number*				
1, 3	2	2 Valves Unit	4 Valves Unit	6 Valves Unit	8 Valves Unit	10 Valves Unit
1/8	1/8	1472H91	1474H91	1476H91	1478H91	1480H91
1/4	1/4	1492H91	1494H91	1496H91	1498H91	1500H91

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D1472H91.



B

Port Size	Base Dimensions	Numbers of Valves Unit				
		2	4	6	8	10
		Dimensions – inches (mm)				
1/8	Height	0.98 (25)	0.98 (25)	0.98 (25)	0.98 (25)	0.98 (25)
	Length (A)	2.32 (59)	3.82 (97)	5.31 (135)	6.81 (173)	8.31 (211)
	Length (B)	1.85 (47)	3.35 (85)	4.84 (123)	6.34 (161)	7.83 (199)
	Width	1.65 (42)	1.65 (42)	1.65 (42)	1.65 (42)	1.65 (42)
1/4	Height	1.06 (27)	1.06 (27)	1.06 (27)	1.06 (27)	1.06 (27)
	Length (A)	3.03 (77)	5.16 (131)	7.28 (185)	9.41 (239)	11.53 (293)
	Length (B)	2.60 (66)	4.72 (120)	6.85 (174)	8.98 (228)	11.10 (282)
	Width	1.97 (50)	1.97 (50)	1.97 (50)	1.97 (50)	1.97 (50)



MANIFOLD BLANKING KITS	Port Size	Kit Number
	1/8	1813H77
	1/4	1814H77

Manifold blanking kits include: blanking plate, manifold gasket and mounting bolts.



Manifold Gasket

Blanking Plate

B4

ACCESSORIES & OPTIONS

Electrical Connectors	Connector Form	Port Size	Model Number*	
			24 Volts DC	110 Volts AC
	EN 175301-803 MICRO-MINI	1/8	1766L77	1780L77
	EN 175301-803 Industrial Form B connector	1/4, 3/8, 1/2	1767L77	1781L77

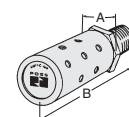
*3-Pin Electrical Connectors with LED & Surge Suppressor



Silencers

Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	BSPT Threads		A	B	
1/8	Male	5500A1003	D5500A1003	1.2	0.9 (21)	2.2 (55)	0.1 (0.1)
1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)
3/8	Male	5500A3013	D5500A3013	2.7	0.9 (21)	2.2 (55)	0.1 (0.1)

Pressure Range: 0 to 300 psig (0 to 20.7 bar) maximum. Flow Media: Filtered air.



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IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

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B4.11

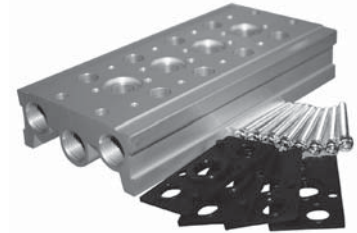
Slim-Line Manifold Base

for 5/2 & 5/3- Spring Return or Detented Valves

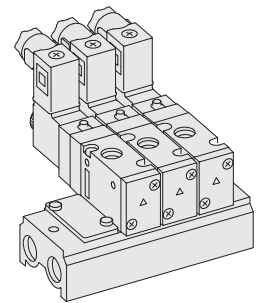
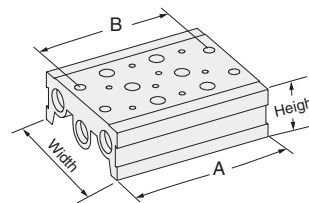
for 95 Series

Port Size		Manifold Base Model Number*				
1, 2, 4	3, 5	2 Valves Unit	4 Valves Unit	6 Valves Unit	8 Valves Unit	10 Valves Unit
1/8	1/8	1392H91	1394H91	1396H91	1398H91	1390H91
1/4	1/4	1412H91	1414H91	1416H91	1418H91	1420H91
3/8	3/8	1432H91	1434H91	1436H91	1438H91	1440H91
1/2	1/2	1652H91	1654H91	1656H91	1658H91	1650H91

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D1392H91.

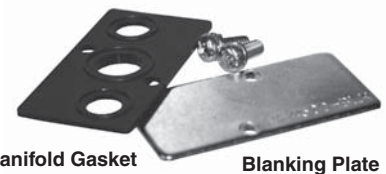


Port Size	Base Dimensions	Numbers of Valves Unit				
		2	4	6	8	10
		Dimensions – inches (mm)				
1/8	Height	1.02 (26)	1.02 (26)	1.02 (26)	1.02 (26)	1.02 (26)
	Length (A)	2.32 (59)	3.81 (97)	5.31 (135)	6.81 (173)	8.31 (211)
	Length (B)	1.85 (47)	3.35 (85)	4.84 (123)	6.34 (161)	7.83 (199)
	Width	4.33 (110)	4.33 (110)	4.33 (110)	4.33 (110)	4.33 (110)
1/4	Height	1.06 (27)	1.06 (27)	1.06 (27)	1.06 (27)	1.06 (27)
	Length (A)	3.29 (83.5)	5.45 (138.5)	7.62 (193.5)	9.78 (248.5)	11.95 (303.5)
	Length (B)	2.81 (71.5)	4.98 (126.5)	7.15 (181.5)	9.31 (236.5)	7.94 (201.5)
	Width	2.68 (68)	2.68 (68)	2.68 (68)	2.68 (68)	2.68 (68)
3/8	Height	1.18 (30)	1.18 (30)	1.18 (30)	1.18 (30)	1.18 (30)
	Length (A)	3.66 (93)	6.26 (159)	8.86 (225)	11.46 (291)	14.05 (357)
	Length (B)	3.15 (80)	5.75 (146)	8.35 (212)	10.94 (278)	13.54 (344)
	Width	3.43 (87)	3.43 (87)	3.43 (87)	3.43 (87)	3.43 (87)
1/2	Height	1.32 (33.5)	1.32 (33.5)	1.32 (33.5)	1.32 (33.5)	1.32 (33.5)
	Length (A)	4.05 (103)	7.01 (178)	9.96 (253)	12.91 (328)	15.87 (403)
	Length (B)	3.46 (88)	6.42 (163)	9.37 (238)	12.32 (313)	15.27 (388)
	Width	3.86 (98)	3.86 (98)	3.86 (98)	3.86 (98)	3.86 (98)



MANIFOLD BLANKING KITS	Port Size	Model Number
	1/8	1806H77
	1/4	1807H77
	3/8	1808H77
	1/2	1809H77

Manifold blanking kits include blanking plate, manifold gasket and mounting bolts.



Manifold Gasket

Blanking Plate

ACCESSORIES & OPTIONS

Electrical Connectors	Connector Form	Port Size	Model Number*	
			24 Volts DC	110 Volts AC
	EN 175301-803 Form A MICRO-MINI	1/8	1766L77	1780L77
	EN 175301-803 Industrial Form B connector	1/4, 3/8, 1/2	1767L77	1781L77

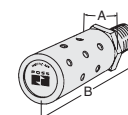
*3-Pin Electrical Connectors with LED & Surge Suppressor



Silencers

Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	BSPT Threads		A	B	
1/8	Male	5500A1003	D5500A1003	1.2	0.9 (21)	2.2 (55)	0.1 (0.1)
1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)
3/8	Male	5500A3013	D5500A3013	2.7	0.9 (21)	2.2 (55)	0.1 (0.1)
1/2	Male	5500A4003	D5500A4003	2.7	1.3 (32)	3.6 (92)	0.2 (0.1)

Pressure Range: 0 to 300 psig (0 to 20.7 bar) maximum. Flow Media: Filtered air.



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

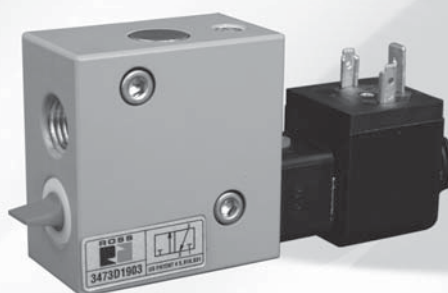
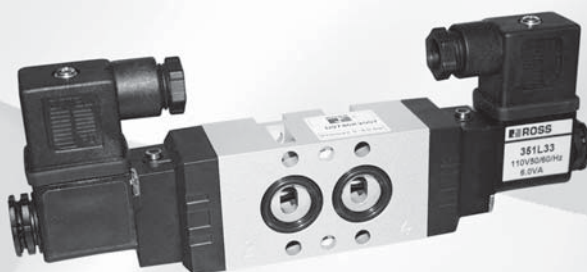
B

ROSS CONTROLS®



NAMUR INTERFACE VALVES

95 & 34 SERIES



NAMUR INTERFACE 95 SERIES VALVES – KEY FEATURES

- Compact inline ported valve consisting 5/2-way with either solenoid pilot control
- 24 volts DC and 110 volts AC options for solenoid control
- Available port sizes - 1/4"
- Resilient spool & sleeve construction
- High flow capacity
- Pressure ports located in valve body
- Manual override included
- Lube or non-lube service
- Fast response times

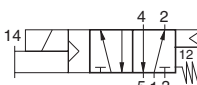
NAMUR INTERFACE 34 SERIES VALVES – KEY FEATURES

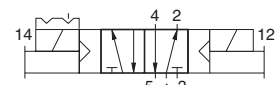
- “Duck-bill” protected exhaust port(s):
 - Limits wash down fluids from entering the valve
 - Minimizes the collection point for contamination
- Corrosion resistant epoxy powder coat
- Solenoid Pilot – Low wattage, fast shifting, repeatable, long life
- Patented Ball-poppet internals - Near zero internal leakage for the life of the valve, self cleaning valve seats, sure shifting
- Faster and more precise operation than a spool valve
- 3/2 Normally Closed

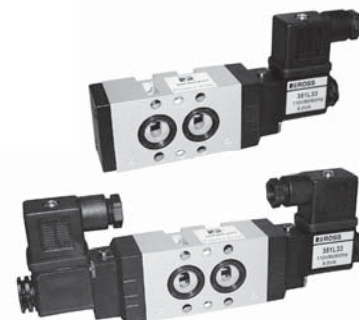
VALVE TYPE/SERIES	PORT SIZES		MAX. FLOW Cv	Page
	CONNECTION	1/4		
95 SERIES				
SOLENOID PILOT CONTROLLED with NAMUR INTERFACE				
5/2			1.3	B5.3
34 SERIES				
SOLENOID PILOT CONTROLLED with NAMUR INTERFACE				
3/2, 52	M12, or EN 175301-803 Form A		0.25	B5.4

Solenoid Pilot Controlled Valves

NAMUR Interface
95 Series

5-Way 2-Position Valves, Single Solenoid, Spring Return				
Port Size	Valve Model Number*	Avg. C _v	Weight lb (kg)	
1, 3, 5				
1/4				
	9576K2901**	1.3	0.80 (0.36)	

5-Way 2-Position Valves, Double Solenoid, Detented				
Port Size	Valve Model Number*	Avg. C _v	Weight lb (kg)	
1, 3, 5				
1/4				
	9576K2902**	1.3	1.04 (0.47)	



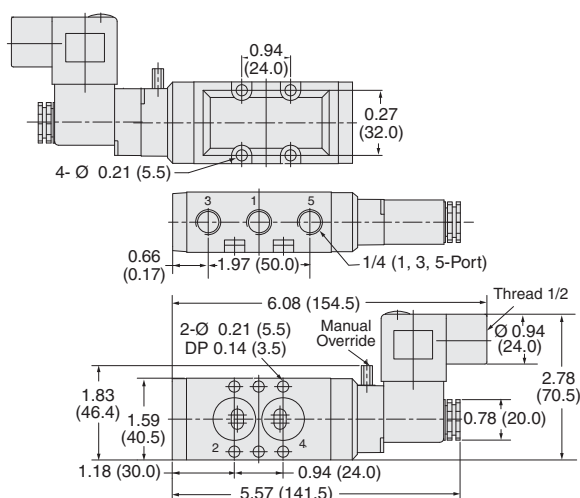
B

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D9576K2901W.

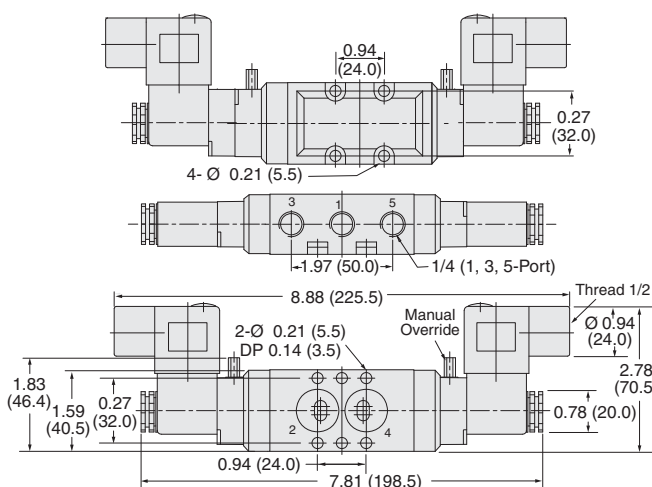
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 9576K2901W.

Valve Dimensions – inches (mm)

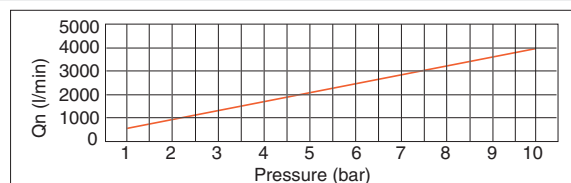
Single Solenoid Valve



Double Solenoid Valve



FLOW CHART



ACCESSORIES & OPTIONS

Electrical Connectors

Connector Form	Port Size	Model Number*	
		24 Volts DC	110 Volts AC
EN 175301-803 Form B	1/4	1767L77	1781L77

*3-Pin Electrical Connectors with LED & Surge Suppressor



Silencers

Port Size	Threads	Model Number
1/4	Male - NPT	5500A2003
	Male - BSPT	D5500A2003



B5

For other options, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Spool.
Mounting Type: Inline.
Solenoid Pilot: AC or DC power, rated for continuous duty.
Standard Voltages: 24 volts DC; 110 volts AC, 50/60 Hz.
Power Consumption: 5.5 VA holding on 50/60 Hz; 2.5 watts on DC.
Enclosure Rating: IP65, IEC 60529.

Electrical Connections: Industrial Form B EN 175301-803 connector.
Ambient/Media Temperature: 41° to 140°F (5° to 60°C).
Flow Media: Filtered air.
Inlet Pressure: 22.5 to 150 psig (1.5 to 10 bar).
Manual Override: Pushbutton, non-locking.

Valves available with installed prewired connectors, please consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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Rev. 10/02/17

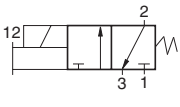
www.rosscontrols.com

B5.3

Solenoid Pilot Controlled Valves

NAMUR Interface Washdown 34 Series

3-Way 2-Position Valves, Spring Return

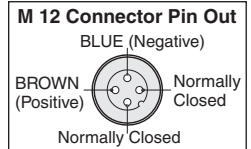
Electrical Connection	Valve Model Number*	Avg. C _v	Mounting Bolts	Weight lb (kg)	
M12	3473D1904**	0.25	10-32	0.8 (0.3)	
EN 175301-803 Form A	3473D1900**	0.25	10-32	0.8 (0.3)	



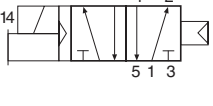
Model shown with
M12 electrical connector



Model shown with
EN electrical connector



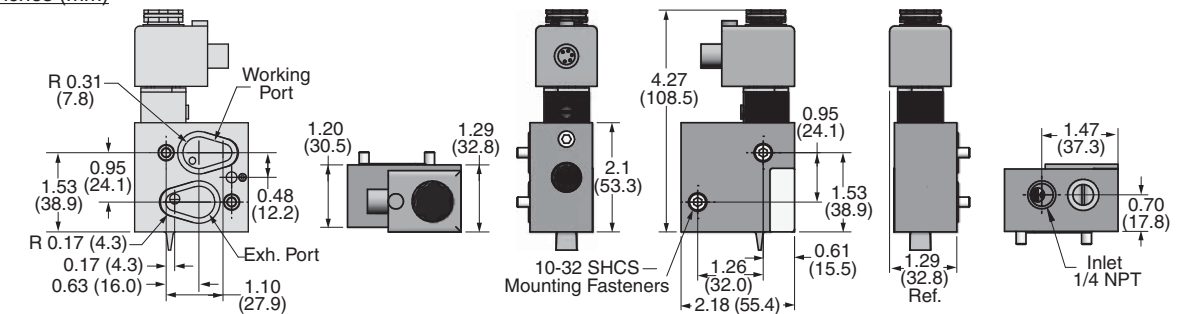
5-Way 2-Position Valves, Spring Return

Electrical Connection	Valve Model Number*	Avg. C _v	Mounting Bolts	Weight lb (kg)	
M12	3476C1904**	0.25	10-32	0.9 (0.4)	
EN 175301-803 Form A	3476C1900**	0.25	10-32	0.9 (0.4)	

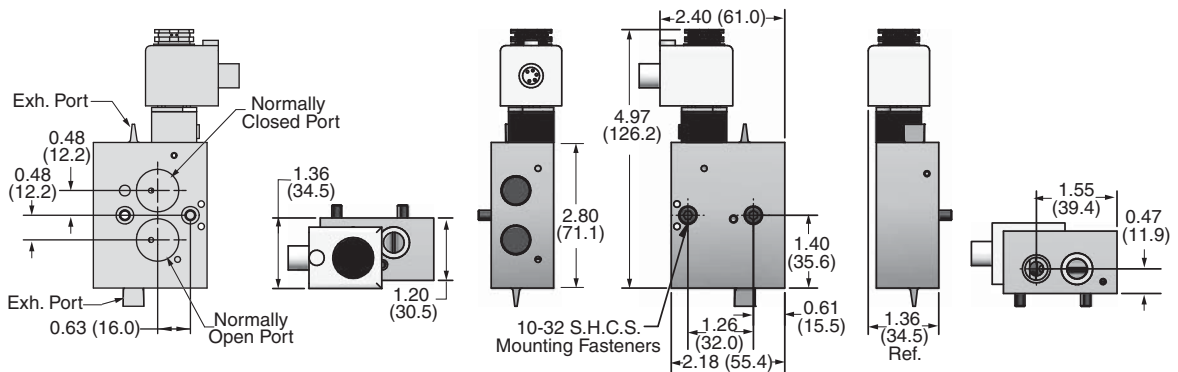
***Note:** 10-24 and M5 mounting fasteners available upon request.
****** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 3476C1904W.
 For other voltages, consult ROSS.

Valve Dimensions – inches (mm)

3/2 Valves



5/2 Valves



STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: Inline.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption: 24 volts DC, 0.7 watt; 110-120 volts AC, 50/60 Hz.
Enclosure Rating: IP65, IEC 60529.
Electrical Connections: EN 175301-803 Form A connector, or M12.
Ambient/Media Temperatures: 4° to 122°F (-10° to 50°C).
 For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.

Flow Media: Filtered air.
Inlet Pressure: 29 to 116 psig (2 to 8 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.
Port Threads: NPT.
Standard: NEMA 4X (enclosure constructed for indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; and also provides protection in highly corrosive environments).

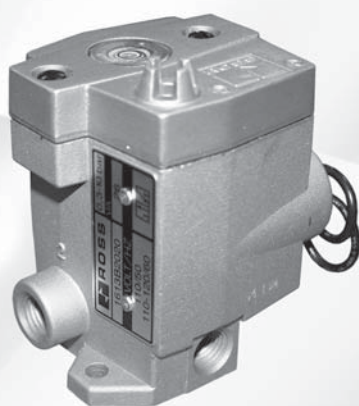
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

B

ROSS CONTROLS®



COMPACT VALVES 16 SERIES



B

Compact Valves Solenoid Pilot Controlled

16 Series

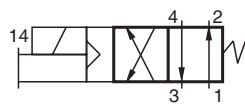


B

3-Way 2-Position Valves, Spring Return							
Port Size	Valve Model Number*		C _v		Average Response Constants#		Weight lb (kg)
1, 2, 3	Normally Closed (NC)	Normally Open (NO)	NC	NO	M	F	
1/8	1613B1020**	1614B1020**	0.3	0.3	5	2.90	1.4 (0.6)
1/4	1613B2020**	1614B2020**	0.3	0.3	5	2.90	1.4 (0.6)



4-Way 2-Position Valves, Spring Return							
Port Size	Valve Model Number*	C _v		Average Response Constants#		Weight lb (kg)	
1, 2, 3, 4		1-2	2-4	M	F		
1/4	1616C2020**	0.3	0.3	5	2.90	2.4 (1.1)	



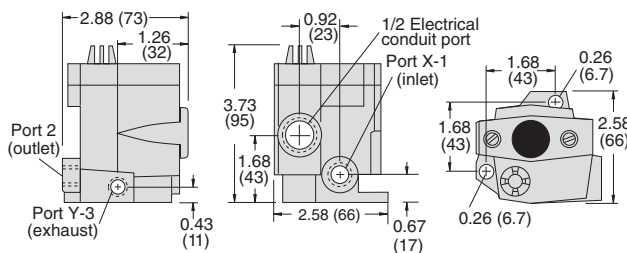
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D1613B1020W.

** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 1613B1020W. For other voltages, consult ROSS.

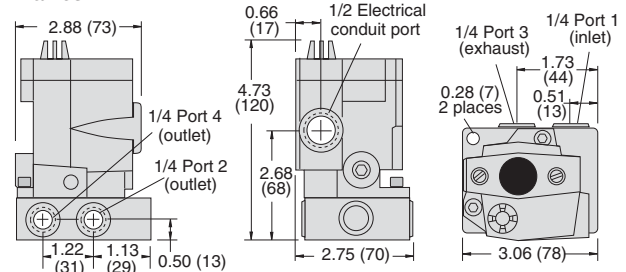
Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

3/2 Valves



4/2 Valves



ACCESSORIES & OPTIONS

Silencers



Port Size	Thread Type	Model Number		Avg. C _v
		NPT Threads	BSPT Threads	
1/8	Male	5500A1003	D5500A1003	1.2
1/4	Male	5500A2003	D5500A2003	2.1

Pressure Range: 0 to 300 psig (0 to 20.7 bar) maximum. **Flow Media:** Filtered air.

Indicator Light Kits

The indicator light gives the option to visually verify valve operation, it extends through the solenoid or pilot cover and is illuminated when the solenoid is energized.

Kit Number		Indicator Light
24 volts DC	110-120 volts AC 50-60 Hz	
862K87-W	862K87-Z	

Manual Override Kits

FLUSH BUTTON	
Locking Type	Kit Number
Non-Locking	790K87
Locking	792K87



EXTENDED BUTTON	
Locking Type	Kit Number
Non-Locking	791K87



EXTENDED BUTTON with PALM	
Locking Type	Kit Number
Non-Locking	984H87



Buttons in the override kits are made of metal and are spring-returned. The locking type button, can be kept in the actuated position by turning the slot in the top of the button with a screwdriver.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.

Mounting Type: Inline.

Solenoid Pilot: Rated for continuous duty.

Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.

Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.

Ambient Temperature: 40° to 120°F (4° to 50°F).

Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air.

Inlet Pressure: 3/2 Valves: 5 to 150 psig (0.3 to 10 bar).

4/2 Valves: 30 to 150 psig (2 to 10 bar).

Manual Override: Flush; rubber, non-locking.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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B6.3

Compact Valves and Manifolds

Solenoid Pilot Controlled

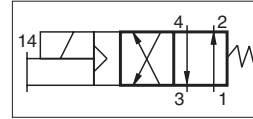
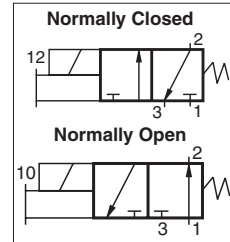
16 Series

3-Way 2-Position Valves, Spring Return							
Port Size	Valve Model Number**		C _v		Average Response Constants#		Weight lb (kg)
1, 2, 3	Normally Closed (NC)	Normally Open (NO)	NC	NO	M	F	
1/4	1613C2322**	1614B2322**	0.3	0.3	5	2.90	2.4 (1.1)

Manifold not included with the valve. Order manifold station model number 256B91.

4-Way 2-Position Valves, Spring Return						
Port Size	Valve Model Number*	C _v		Average Response Constants#		Weight lb (kg)
1, 2, 3, 4		1-2	2-4	M	F	
1/4	1616C2322**	0.3	0.3	5	2.90	2.4 (1.1)

Manifold not included with the valve. Order manifold station model number 257B91.

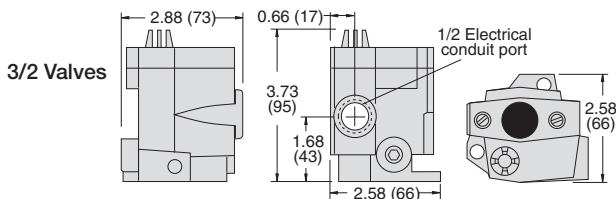


* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D1613C2322W.

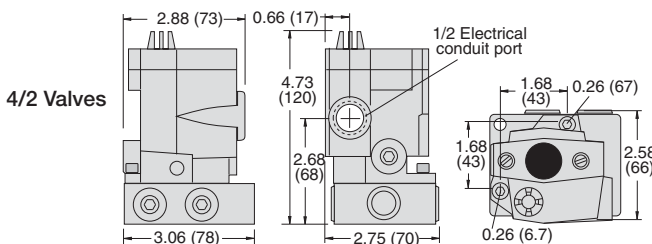
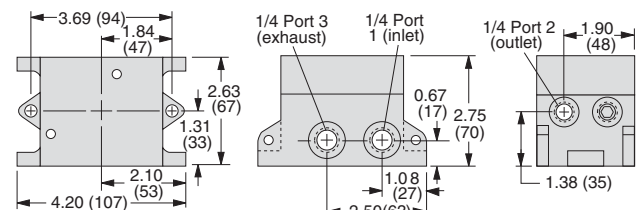
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 1613C2322W. For other voltages, consult ROSS.

Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

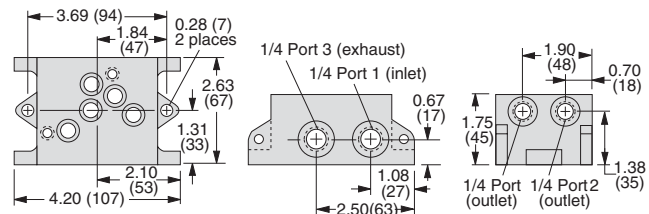
Dimensions – inches (mm)



3/2 Manifold Station



4/2 Manifold Station



ACCESSORIES & OPTIONS

Silencers



Port Size	Thread Type	Model Number		Avg. C _v
		NPT Threads	BSPT Threads	
1/8	Male	5500A1003	D5500A1003	1.2
1/4	Male	5500A2003	D5500A2003	2.1

Pressure Range: 0 to 300 psig (0 to 20.7 bar) maximum. Flow Media: Filtered air.

Indicator Light Kits

The indicator light gives the option to visually verify valve operation, it extends through the solenoid or pilot cover and is illuminated when the solenoid is energized.

Kit Number		Indicator Light
24 volts DC	110-120 volts AC 50-60 Hz	
862K87-W	862K87-Z	

Manual Override Kits

FLUSH BUTTON	
Locking Type	Kit Number
Non-Locking	790K87
Locking	792K87



EXTENDED BUTTON	
Locking Type	Kit Number
Non-Locking	791K87



EXTENDED BUTTON with PALM	
Locking Type	Kit Number
Non-Locking	984H87



Buttons in the override kits are made of metal and are spring-returned. The locking type button, can be kept in the actuated position by turning the slot in the top of the button with a screwdriver.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: Inline.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.

Ambient Temperature: 40° to 120°F (4° to 50°F).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 3/2 Valves: 5 to 150 psig (0.3 to 10 bar).
 4/2 Valves: 30 to 150 psig (2 to 10 bar).
Manual Override: Flush flexible manual override (non-locking).

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

General Information

Standard Specifications

The standard specifications for the products on each page of this catalog are given on the same page or referenced. For solenoid pilot valves, models with internal pilot supply are listed. Most models are also available for use with external pilot supply or have a built-in pilot supply selector valve.

The products in this catalog are intended for use in industrial pneumatic systems. Most products are adaptable to other uses and conditions not covered by the standard specifications given in this catalog. Weights shown are approximate and are subject to change. Dimensions given, unless otherwise noted, are envelope dimensions (not for mounting). Consult ROSS for further information.

Port Threads

Ports of valves and bases described in this catalog have NPT (ANSI B2.1) threads. Other thread types can be specified by putting an appropriate prefix letter on the model or part number when ordering.

Thread Types by Model Prefix Letter

Pneumatic Port Threads	Prefix Letter	Threaded Electrical Opening
NPT (ANSI B2.1)	None	NPT
ISO 228 - DIN 259 Parallel, BSPP [#]	C*	—
ISO 228 - DIN 259 Parallel, BSPP [#]	D	G
ISO 228 - JIS B0203 Tapered [#]	J	ISO
SAE 1926- ISO 11926	S	NPT

* Used only for filters, regulators, lubricators.

[#] ISO 228 threads supersedes BSPP, G and JIS thread types.

Flow Ratings

Flow ratings are expressed as C_v where $C_v = 1$ corresponds to a steady state air flow of approximately 32 scfm under the following conditions:

Inlet pressure = 100 psig (6.7 bar)
Pressure drop = 10 psi (0.69 bar)
Air temperature = 68°F (20°C)
Relative humidity = 36%

Note: Because widely differing test standards are used to measure C_v values, the figures given in this catalog should not be used to compare ROSS valves with those of other makers. The C_v ratings given here are intended only for use with performance charts published by ROSS. The C_v ratings are averages for the various flow paths through the valve and are for steady flow conditions.

Approvals and Certifications

ROSS products are designed to meet a number of industrial standards, including the Canadian Standards Association (C.S.A.) guidelines. For more information on specific product approvals, contact your local distributor or ROSS.

Solenoids

All ROSS standard solenoids are rated for continuous duty (unless noted otherwise) and will operate the valve within the air pressure range specified in this catalog.

Explosion-Proof Solenoid Pilot available, for more information consult ROSS.

Voltage & Hertz

When ordering a solenoid valve, also specify the desired solenoid voltage and hertz.

Voltage Types by Model Suffix Letter

Voltage	Suffix Letter
120 volts AC	Z
220 volts AC	Y
12 volts DC	H
24 volts DC	W
48 volts DC	M
90 volts DC	K
110 volts DC	P
125 volts DC	C

Recommended Solenoid Voltages: 100-110 volts AC, 50 Hz; 100-120 volts AC, 60 Hz; 24 volts DC; 110 volts DC.

In addition, the following voltages are available:

200, 220 volts AC, 50 Hz
200, 240, 480 volts AC, 60 Hz
24, 48, 220 volts AC, 50 Hz
240 volts AC, 60 Hz
200, 220 volts AC, 50 Hz
200, 240 volts AC, 60 Hz.

For example: Model 2773B5001, 120 volts AC, 60 Hz.
Model W6076B2401, 220 volts AC, 50 Hz.

Please note that not all configurations are available for all models.

For additional information or help with voltage configuration, please contact your local distributor or ROSS.

Port Identification

Valve symbols in this catalog conform to the ISO 1219-1:1991 standard of the International Organization for Standardization (ISO) and the SAE J2051 standard of the Society of Automotive Engineers (SAE) respectively.

Information or Technical Assistance

For additional information or application assistance concerning ROSS products, consult ROSS or your local ROSS distributor (see contact information on the back cover).

Order Placement

For order placement, consult ROSS or your local ROSS distributor.

For a current list of countries and local distributors, visit ROSS' website at www.rosscontrols.com.



CAUTIONS, WARNINGS and STANDARD WARRANTY

PRE-INSTALLATION or SERVICE

1. Before servicing a valve or other pneumatic component, be sure that all sources of energy are turned off, the entire pneumatic system is shut off and exhausted, and all power sources are locked out (ref: OSHA 1910.147, EN 1037).
2. All ROSS products, including service kits and parts, should be installed and/or serviced only by persons having training and experience with pneumatic equipment. Because any installation can be tampered with or need servicing after installation, persons responsible for the safety of others or the care of equipment must check every installation on a regular basis and perform all necessary maintenance.
3. All applicable instructions should be read and complied with before using any fluid power system in order to prevent harm to persons or equipment. In addition, overhauled or serviced valves must be functionally tested prior to installation and use. If you have any questions, call your nearest ROSS location listed on the cover of this document.
4. Each ROSS product should be used within its specification limits. In addition, use only ROSS parts to repair ROSS products.

WARNING: *Failure to follow these directions can adversely affect the performance of the product or result in the potential for human injury or damage to property.*

FILTRATION and LUBRICATION

5. Dirt, scale, moisture, etc. are present in virtually every air system. Although some valves are more tolerant of these contaminants than others, best performance will be realized if a filter is installed to clean the air supply, thus preventing contaminants from interfering with the proper performance of the equipment. ROSS recommends a filter with a 5-micron rating for normal applications.
6. All standard ROSS filters and lubricators with polycarbonate plastic bowls are designed for compressed air applications only. Do *not* fail to use the metal bowl guard, where provided, to minimize danger from high pressure fragmentation in the event of bowl failure. Do not expose these products to certain fluids, such as alcohol or liquefied petroleum gas, as they can cause bowls to rupture, creating a combustible condition, hazardous leakage, and the potential for human injury or damage to property. Immediately replace a crazed, cracked, or deteriorated bowl. When bowl gets dirty, replace it or wipe it with a clean dry cloth.

7. Only use lubricants which are compatible with materials used in the valves and other components in the system. Normally, compatible lubricants are petroleum based oils with oxidation inhibitors, an aniline point between 180°F (82°C) and 220°F (104°C), and an ISO 32, or lighter, viscosity. Avoid oils with phosphate type additives which can harm polyurethane components, potentially leading to valve failure which risks human injury, and/or damage to property.

AVOID INTAKE/EXHAUST RESTRICTION

8. Do not restrict the air flow in the supply line. To do so could reduce the pressure of the supply air below the minimum requirements for the valve and thereby cause erratic action.
9. Do not restrict a valve's exhaust port as this can adversely affect its operation. Exhaust silencers must be resistant to clogging and must have flow capacities at least as great as the exhaust capacities of the valves. Contamination of the silencer can result in reduced flow and increased back pressure.

WARNING: *ROSS expressly disclaims all warranties and responsibility for any unsatisfactory performance or injuries caused by the use of the wrong type, wrong size, or an inadequately maintained silencer installed with a ROSS product.*

POWER PRESSES

10. Mechanical power presses and other potentially hazardous machinery using a pneumatically controlled clutch and brake mechanism must use a press control double valve with a monitoring device. A double valve without a self-contained monitoring device should be used only in conjunction with a control system which assures monitoring of the valve. All double valve installations involving hazardous applications should incorporate a monitoring system which inhibits further operation of the valve and machine in the event of a failure within the valve mechanism.

ENERGY ISOLATION/EMERGENCY STOP

11. Per specifications and regulations, ROSS L-O-X® and L-O-X® with EEZ-ON® operation products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

STANDARD WARRANTY

limited to repair or replacement of the product or refund of the purchase price paid solely at the discretion of ROSS and provided such product is returned to ROSS freight prepaid and upon examination by ROSS is found to be defective. This warranty becomes void in the event that product has been subject to misuse, misapplication, improper maintenance, modification or tampering.

THE WARRANTY EXPRESSED ABOVE IS IN LIEU OF AND EXCLUSIVE OF ALL OTHER WARRANTIES AND ROSS EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES EITHER EXPRESSED OR IMPLIED WITH RESPECT TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ROSS MAKES NO WARRANTY WITH RESPECT TO ITS PRODUCTS MEETING THE PROVISIONS OF ANY GOVERNMENTAL OCCUPATIONAL SAFETY AND/OR HEALTH LAWS OR REGULATIONS. IN NO EVENT IS ROSS LIABLE TO PURCHASER, USER, THEIR EMPLOYEES OR OTHERS FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES WHICH MAY RESULT FROM A BREACH OF THE WARRANTY DESCRIBED ABOVE OR THE USE OR MISUSE OF THE PRODUCTS. NO STATEMENT OF ANY REPRESENTATIVE OR EMPLOYEE OF ROSS MAY EXTEND THE LIABILITY OF ROSS AS SET FORTH HEREIN.

All products sold by ROSS CONTROLS are warranted for a one-year period [with the exception of all Filters, Regulators and Lubricators ("FRLs") which are warranted for a period of seven years] from the date of purchase to be free of defects in material and workmanship. ROSS' obligation under this warranty is





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Full-Service Global Locations

There are ROSS Distributors Throughout the World

To meet your requirements across the globe, ROSS distributors are located throughout the world. Through ROSS or its distributors, guidance is available for the selection of ROSS products, both for those using pneumatic components for the first time and those designing complex pneumatic systems.

Other literature is available for engineering, maintenance, and service requirements. If you need products or specifications not shown here, please contact ROSS or your ROSS distributor. They will be happy to assist you in selecting the best product for your application.

For a current list of countries and local distributors, visit ROSS' website at www.rosscontrols.com.