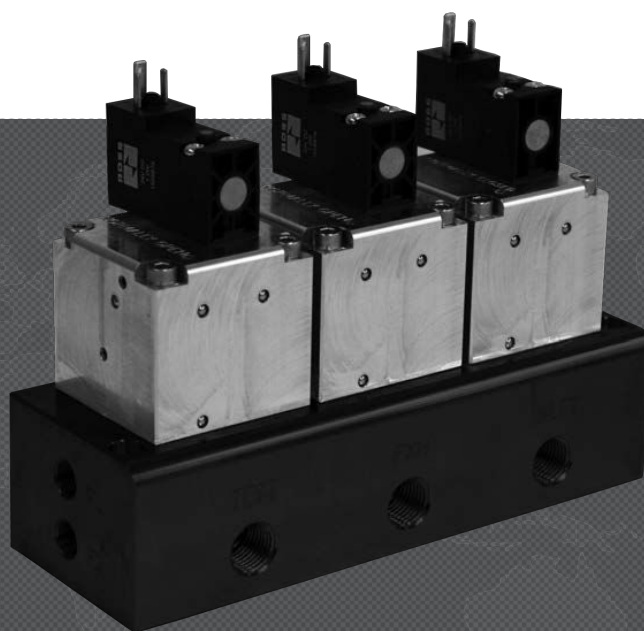




POPPET VALVES DALE SERIES

**POPPET VALVES & MANIFOLDS
LEAK TIGHT VALVES & MANIFOLDS**



ROSS CONTROLS



CP Series



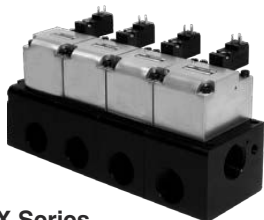
LF Series



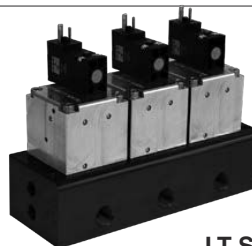
Internally or externally piloted series for use in standard pressure applications with 30 psi (2 bar) minimum operating pressure.



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.

Accessories



VALVE TYPE/FUNCTION	SOLENOID	PRESSURE	AVAILABLE INLET PORT SIZES										MAXIMUM FLOW Cv	MOUNTING		Page
														IN-LINE	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

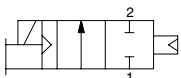
Solenoid Pilot Controlled Valves

Dale CP Series

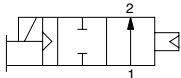
2-Way 2-Position Valves, Spring Assisted Air Return									
Port Size		Internal Pilot Supply				Pilot Port Thread		Avg. C _v	Weight lb (kg)
		Normally Closed		Normally Open					
		Model Number#		Model Number#					
1	2	NPT Threads	BSPP Threads	NPT Threads	BSPP Threads	NPT	BSPP		
1/2	3/8	CP14NB37101Z	CP14DB37101Z	CP24NB37101Z	CP24DB37101Z	10-32 UNF	M5	3.5	1.4 (0.6)
1/2	1/2	CP14NB47101Z	CP14DB47101Z	CP24NB47101Z	CP24DB47101Z	10-32 UNF	M5	3.5	1.4 (0.6)
1	3/4	CP16NB57101Z	CP16DB57101Z	CP26NB57101Z	CP26DB57101Z	1/8-27 NPT	G1/8	12.3	3.5 (1.6)
1	1	CP16NB67101Z	CP16DB67101Z	CP26NB67101Z	CP26DB67101Z	1/8-27 NPT	G1/8	12.3	3.5 (1.6)
1½	1¼	CP18NB77101Z	CP18DB77101Z	CP28NB77101Z	CP28DB77101Z	1/8-27 NPT	G1/8	44.9	10.0 (4.6)
1½	1½	CP18NB87101Z	CP18DB87101Z	CP28NB87101Z	CP28DB87101Z	1/8-27 NPT	G1/8	44.9	10.0 (4.6)
2½	2	CP10NB97101Z	CP10DB97101Z	CP20NB97101Z	CP20DB97101Z	1/8-27 NPT	G1/8	108	19.5 (8.9)
2½	2½	CP10NB07101Z	CP10DB07101Z	CP20NB07101Z	CP20DB07101Z	1/8-27 NPT	G1/8	108	19.5 (8.9)

Voltage: Z=110-120 VAC, 50/60 Hz; W=24 VDC, e.g., CP14NB37101W.

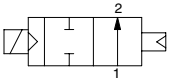
1/2 thru 2½
Normally Closed



1/2 & 1
Normally Open



1½ & 2½
Normally Open





Port Sizes
3/8 & 1/2



Port Sizes
3/4 thru 2½

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 Design	Poppet	Flow Media	Filtered air <i>For liquid applications, consult ROSS.</i>
Mounting Type	Inline	Pilot Supply	Internal or External
Solenoids	Rated for continuous duty	Operating Pressure	30 to 145 psig (2 to 10 bar) Pilot Supply - Internal or External: 30 to 145 psig (2 to 10 bar) <i>When external pilot supply, pressure must be equal to or greater than inlet pressure.</i>
Voltage/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	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal & Stainless Steel Seals: Buna-N
Enclosure Rating	IP65, IEC 60529	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
Electrical Connection	EN 175301-803 Form A or Form C connector		
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		

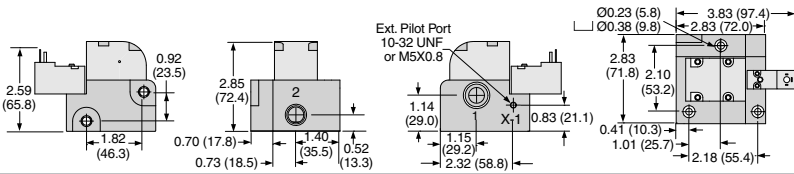
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Solenoid Pilot Controlled Valves

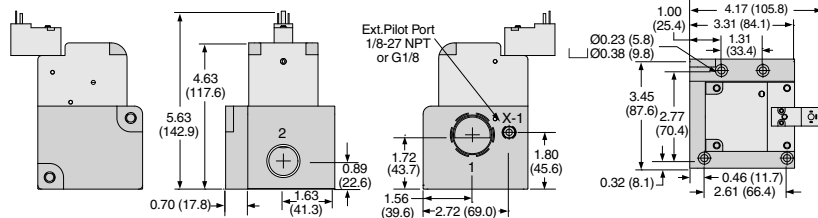
Dale CP Series

Valve Dimensions – inches (mm)

Port Size 3/8 & 1/2

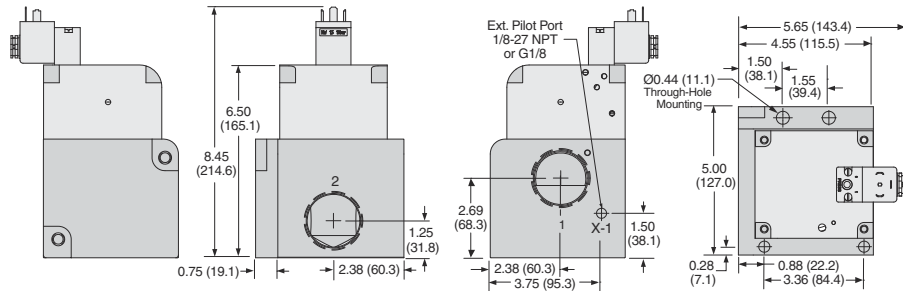


Port Size 3/4 & 1

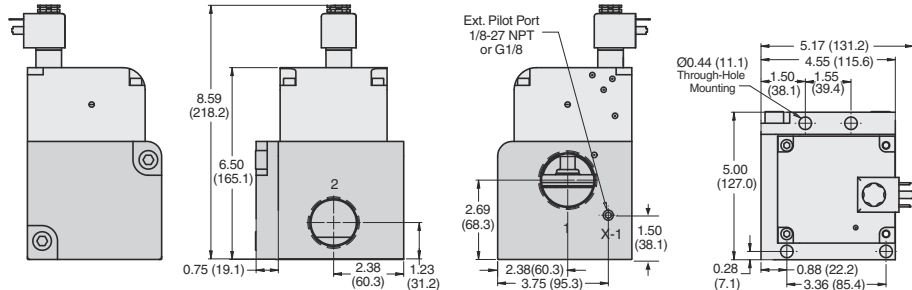


Port Size 1 1/4 & 1 1/2

Normally Closed

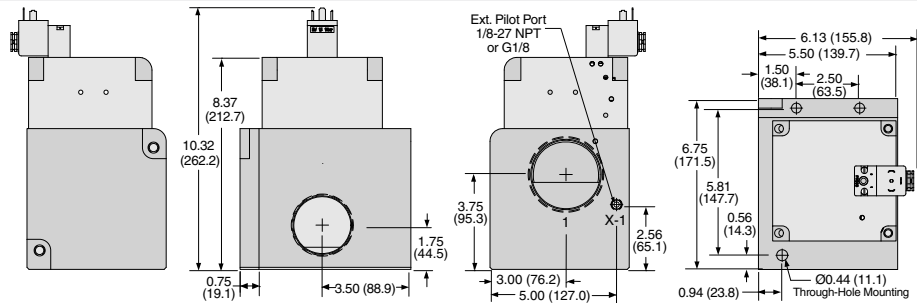


Normally Open

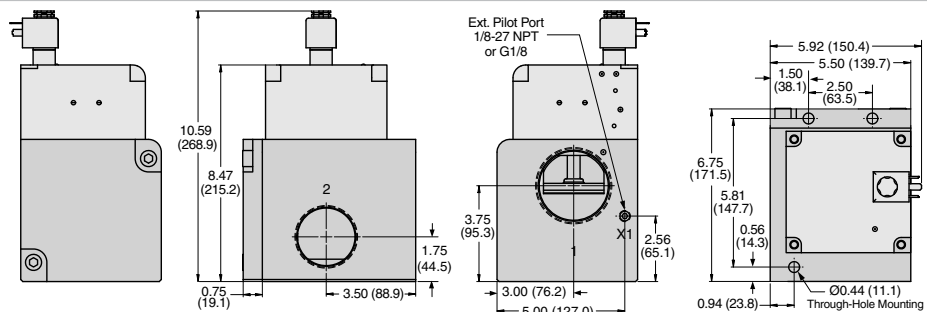


Port Size 2 & 2 1/2

Normally Closed

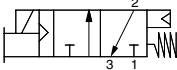
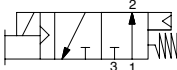
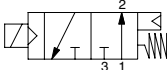


Normally Open



Solenoid Pilot Controlled Valves

Dale CP Series

3-Way 2-Position Valves, Spring Assisted Air Return									
Port Size		Internal Pilot Supply				Pilot Port Thread		Avg. C _v	Weight lb (kg)
		Normally Closed		Normally Open					
		Model Number#		Model Number#					
1, 3	2	NPT Threads	BSPP Threads	NPT Threads	BSPP Threads	NPT	BSPP		
1/2	3/8	CP34NB37101Z	CP34DB37101Z	CP44NB37101Z	CP44DB37101Z	10-32 UNF	M5	3.5	1.8 (0.8)
1/2	1/2	CP34NB47101Z	CP34DB47101Z	CP44NB47101Z	CP44DB47101Z	10-32 UNF	M5	3.5	1.8 (0.8)
1	3/4	CP36NB57101Z	CP36DB57101Z	CP46NB57101Z	CP46DB57101Z	1/8-27 NPT	G1/8	12.3	5.3 (2.4)
1	1	CP36NB67101Z	CP36DB67101Z	CP46NB67101Z	CP46DB67101Z	1/8-27 NPT	G1/8	12.3	5.3 (2.4)
# Voltage: Z=110-120 VAC, 50/60 Hz; W=24 VDC, e.g., CP34NB37101W.									
<div><div></div><div>1/2 " & 1" Normally Closed</div><div></div><div>1/2" Normally Open</div><div></div><div>1" Normally Open</div></div>									



Port Sizes
3/8 & 1/2



Port Sizes
3/4 & 1

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		Width	Length	
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 290 psig (0 to 20 bar) maximum. **Flow Media:** Filtered air.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air <i>For liquid applications, consult ROSS.</i>
Mounting Type	Inline	Pilot Supply	Internal or External
Solenoids	Rated for continuous duty	Operating Pressure	30 to 145 psig (2 to 10 bar) Pilot Supply - Internal or External: 30 to 145 psig (2 to 10 bar) <i>When external pilot supply, pressure must be equal to or greater than inlet pressure.</i>
Voltage/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	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal & Stainless Steel Seals: Buna-N
Enclosure Rating	IP65, IEC 60529	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
Electrical Connection	EN 175301-803 Form A or Form C connector		
Temperature	Ambient: 40° to 120°F (4 to 50°C) Media: 40° to 175°F (4° to 80°C)		

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

Solenoid Pilot Controlled Valves

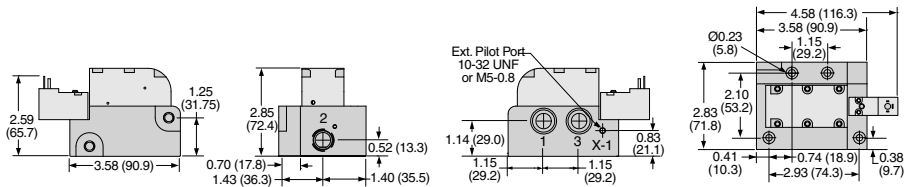
Dale CP Series

Valve Dimensions – inches (mm)

Port Size 3/8 & 1/2

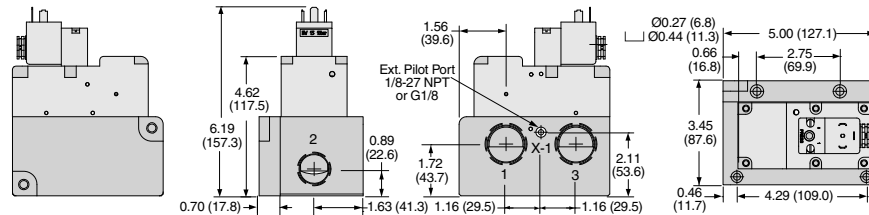
B1

B

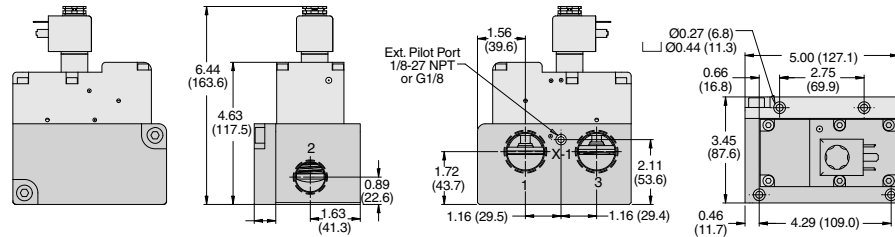


Port Size 3/4 & 1

Normally Closed



Normally Open



ROSS/FLEX® Looking for a different solution?

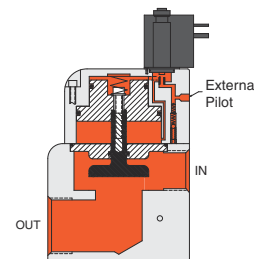
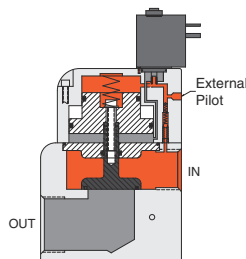
ROSS/FLEX® Customer defined application specific solutions that reduce cost, improve productivity and provide a perfect fit.

Valve Operation Overview

1 - Valve Not Actuated

2 - Valve Actuated

2/2 Normally Closed

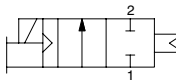


Solenoid Pilot Controlled Valve Manifolds

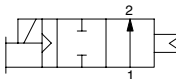
Dale CP Series

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.

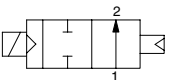
2-Way 2-Position Valves, Spring Assisted Air Return								
Port Size		Internal Pilot Supply				Pilot Port Thread		Avg. C _v
		Normally Closed		Normally Open				
		Model Number#*		Model Number#*				
1	2	NPT Threads	BSPP Threads	NPT Threads	BSPP Threads	NPT	BSPP	
1/2	3/8	CP14NB3711XZ	CP14DB3711XZ	CP24NB3711XZ	CP24DB3711XZ	10-32 UNF	M5	3.7
1/2	1/2	CP14NB4711XZ	CP14DB4711XZ	CP24NB4711XZ	CP24DB4711XZ	10-32 UNF	M5	3.7
1	3/4	CP16NB5711XZ	CP16DB5711XZ	CP26NB5711XZ	CP26DB5711XZ	1/8-27 NPT	G1/8	13.7
1	1	CP16NB6711XZ	CP16DB6711XZ	CP26NB6711XZ	CP26DB6711XZ	1/8-27 NPT	G1/8	13.7
1½	1¼	CP18NB7711XZ	CP18DB7711XZ	CP28NB7711XZ	CP28DB7711XZ	1/8-27 NPT	G1/8	44.9
1½	1½	CP18NB8711XZ	CP18DB8711XZ	CP28NB8711XZ	CP28DB8711XZ	1/8-27 NPT	G1/8	44.9
2½	2	CP10NB9711XZ	CP10DB9711XZ	CP20NB9711XZ	CP20DB9711XZ	1/8-27 NPT	G1/8	108
2½	2½	CP10NB0711XZ	CP10DB0711XZ	CP20NB0711XZ	CP20DB0711XZ	1/8-27 NPT	G1/8	108



1/2" thru 2½" Normally Closed



1/2" & 1" Normally Open

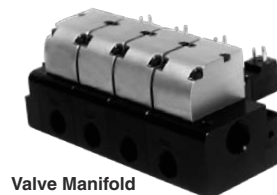


1½" & 2½" Normally Open

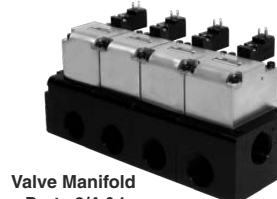
Voltage: Z=110-120 VAC, 50/60 Hz; W=24 VDC, e.g., CP14NB3711XW.

*X Number of Stations – 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., CP14NB37114Z (4 = 4 Stations), CP14NB37110Z, (0 = 10 Stations).

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



Valve Manifold
Ports 3/8 & 1/2



Valve Manifold
Ports 3/4 & 1



Valve Manifold
Ports 1¼ thru 2½

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 Design	Poppet	Flow Media	Filtered air For liquid applications, consult ROSS.
Mounting Type	Inline	Pilot Supply	Internal or External
Solenoids	Rated for continuous duty	Operating Pressure	30 to 145 psig (2 to 10 bar) Pilot Supply - Internal or External: 30 to 145 psig (2 to 10 bar) When external pilot supply, pressure must be equal to or greater than inlet pressure.
Voltage/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	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal & Stainless Steel Seals: Buna-N
Enclosure Rating	IP65, IEC 60529	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
Electrical Connection	EN 175301-803 Form A or Form C connector		
Temperature	Ambient: 40° to 120°F (4 to 50°C) Media: 40° to 175°F (4° to 80°C)		

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

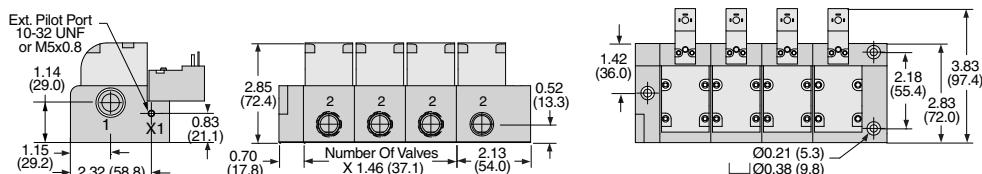
Solenoid Pilot Controlled Valve Manifolds

Dale CP Series

Dimensions – inches (mm)

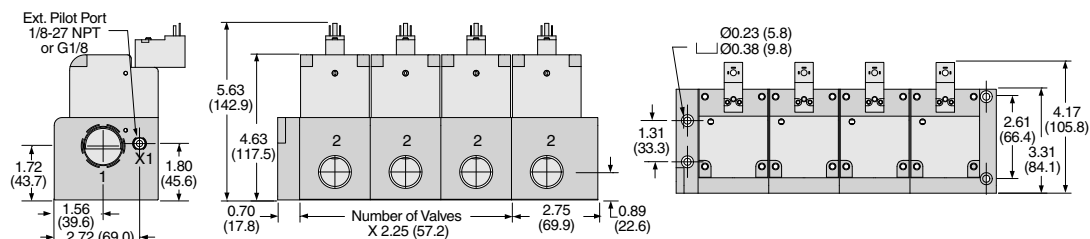
B1

Port Size 3/8 & 1/2



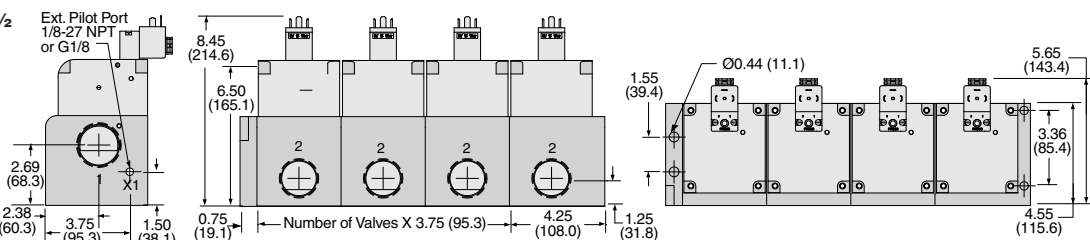
B

Port Size 3/4 & 1

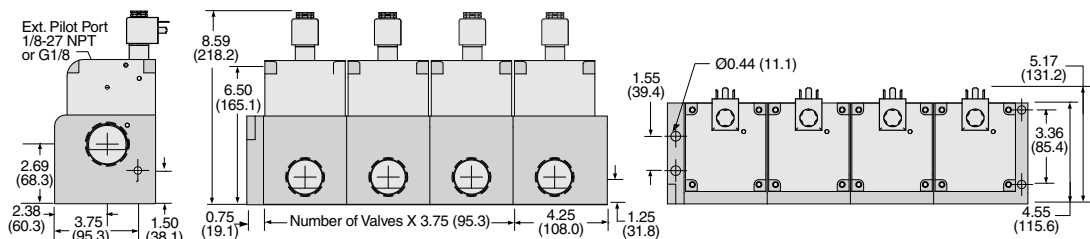


Port Size 1 1/4 & 1 1/2

Normally Closed

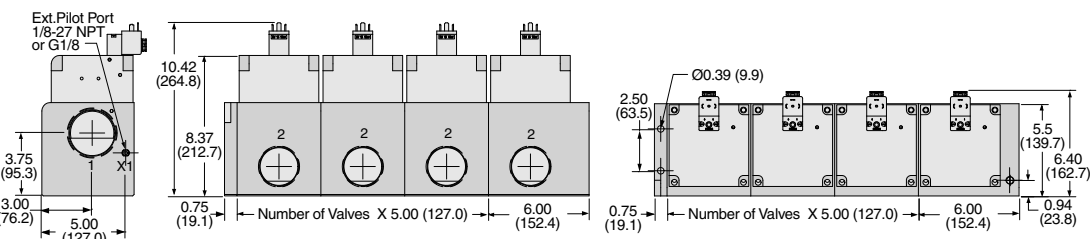


Normally Open

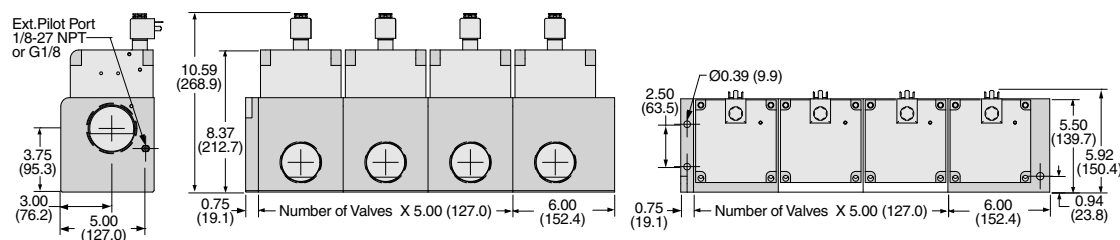


Port Size 2 & 2 1/2

Normally Closed



Normally Open



Solenoid Pilot Controlled Valve Manifolds

Dale CP Series

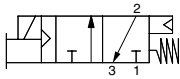
Manifolds can be ordered from two to ten stations. Complete valves-on-manifold assemblies can be ordered to fit your precise requirements. For preassembled manifold valves with the same model number, select the model number from the table below. For ordering the Dale CP Series manifold valves with different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

3-Way 2-Position Valves, Spring Assisted Air Return									
Port Size		Internal Pilot Supply				Pilot Port Thread		Avg. C _v	
		Normally Closed		Normally Open					
		Model Number#*		Model Number#*					
1, 3	2	NPT Threads	BSPP Threads	NPT Threads	BSPP Threads	NPT	BSPP		
1/2	3/8	CP34NB3711XZ	CP34DB3711XZ	CP44NB3711XZ	CP44DB3711XZ	10-32 UNF	M5	3.6	
1/2	1/2	CP34NB4711XZ	CP34DB4711XZ	CP44NB4711XZ	CP44DB4711XZ	10-32 UNF	M5	3.6	
1	3/4	CP36NB5711XZ	CP36DB5711XZ	CP46NB5711XZ	CP46DB5711XZ	1/8-27 NPT	G1/8	12.3	
1	1	CP36NB6711XZ	CP36DB6711XZ	CP46NB6711XZ	CP46DB6711XZ	1/8-27 NPT	G1/8	12.3	

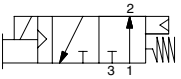
Voltage: Z=110-120 VAC, 50/60 Hz; W=24 VDC, e.g., CP14NB3711XW.

*X Number of Stations – 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., CP14NB37114Z (4 = 4 Stations), CP14NB37110Z, (0 = 10 Stations).

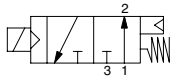
Contact ROSS for 1 station valve manifolds or refer to single CX Valve product page.



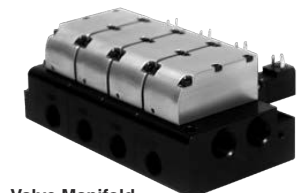
1/2" & 1" Normally Closed



1/2" Normally Open



1" Normally Open



Valve Manifold
Ports 3/8 & 1/2



Valve Manifold
Ports 3/4 & 1

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		Width	Length	
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 290 psig (0 to 20 bar) maximum. Flow Media: Filtered air.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air For liquid applications, consult ROSS.
Mounting Type	Inline	Pilot Supply	Internal or External
Solenoids	Rated for continuous duty	Operating Pressure	30 to 145 psig (2 to 10 bar) Pilot Supply - Internal or External: 30 to 145 psig (2 to 10 bar) When external pilot supply, pressure must be equal to or greater than inlet pressure.
Voltage/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	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal & Stainless Steel Seals: Buna-N
Enclosure Rating	IP65, IEC 60529	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
Electrical Connection	EN 175301-803 Form A or Form C connector		
Temperature	Ambient: 40° to 120°F (4 to 50°C) Media: 40° to 175°F (4° to 80°C)		

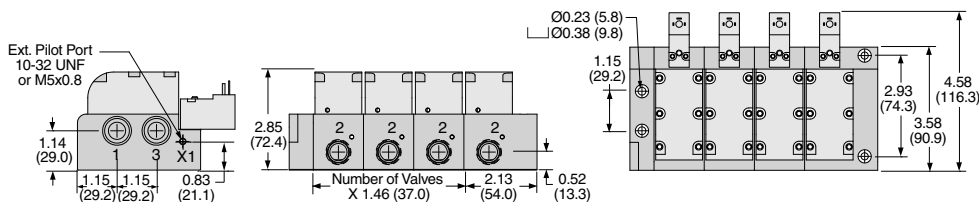
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Solenoid Pilot Controlled Valve Manifolds

Dale CP Series

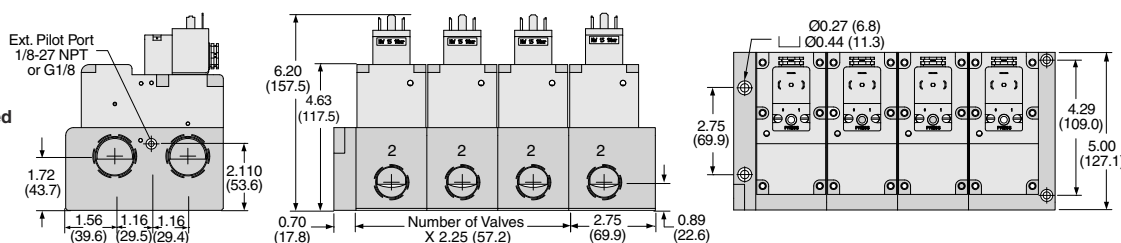
Dimensions – inches (mm)

Port Size 3/8 & 1/2

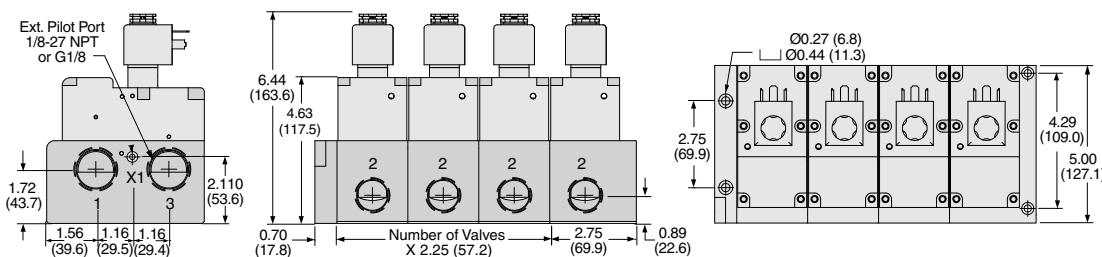


Port Size 3/4 & 1

Normally Closed



Normally Open

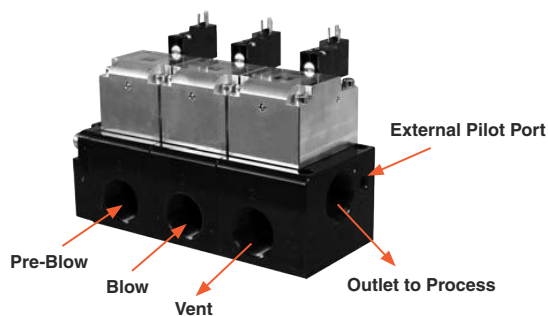


ROSS/FLEX® Looking for a different solution?

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

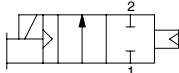
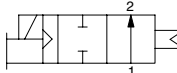
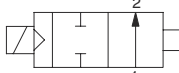
Blow Molding Application Example

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		Internal Pilot Supply				Pilot Port Thread		Avg. C _v	Weight lb (kg)
		Normally Closed		Normally Open					
		Model Number#		Model Number#					
1	2	NPT Threads	BSPP Threads	NPT Threads	BSPP Threads	NPT	BSPP		
3/8	3/8	LF13NB37101Z	LF13DB37101Z	LF23NB37101Z	LF23DB37101Z	1/8-27 NPT	G1/8	3.6	1.5 (0.7)
1/2	1/2	LF14NB47101Z	LF14DB47101Z	LF24NB47101Z	LF24DB47101Z	1/8-27 NPT	G1/8	3.6	1.5 (0.7)
3/4	3/4	LF15NB57101Z	LF15DB57101Z	LF25NB57101Z	LF25DB57101Z	1/8-27 NPT	G1/8	12.2	3.5 (1.6)
1	1	LF16NB67101Z	LF16DB67101Z	LF26NB67101Z	LF26DB67101Z	1/8-27 NPT	G1/8	12.2	3.5 (1.6)
1¼	1¼	LF17NB77101Z	LF17DB77101Z	LF27NB77101Z	LF27DB77101Z	1/8-27 NPT	G1/8	36.1	9.3 (4.2)
1½	1½	LF18NB87101Z	LF18DB87101Z	LF28NB87101Z	LF28DB87101Z	1/8-27 NPT	G1/8	36.1	9.3 (4.2)
2	2	LF19NB97101Z	LF19DB97101Z	LF29NB97101Z	LF29DB97101Z	1/8-27 NPT	G1/8	62.7	19.3 (8.8)
2½	2½	LF10NB07101Z	LF10DB07101Z	LF20NB07101Z	LF20DB07101Z	1/8-27 NPT	G1/8	62.7	19.3 (8.8)
# Voltage: Z=110-120 VAC, 50/60 Hz; W=24 VDC, e.g., LF13NB37101W.									
									
Normally Closed		3/8" thru 1" Normally Open		1¼" thru 2½" Normally Open					



Ports 3/8 thru 1



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 Design	Poppet	Flow Media	Filtered air <i>For liquid applications, consult ROSS.</i>
Mounting Type	Inline	Pilot Supply	Internal or External
Solenoids	Rated for continuous duty	Operating Pressure	30 to 145 psig (2 to 10 bar) Pilot Supply - Internal or External: 30 to 145 psig (2 to 10 bar) <i>When external pilot supply, pressure must be equal to or greater than inlet pressure.</i>
Voltage/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	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal & Stainless Steel Seals: Buna-N
Enclosure Rating	IP65, IEC 60529	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
Electrical Connection	EN 175301-803 Form A or Form C connector		
Temperature	Ambient: 40° to 120°F (4 to 50°C) Media: 40° to 175°F (4° to 80°C)		

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

Solenoid Pilot Controlled Valves

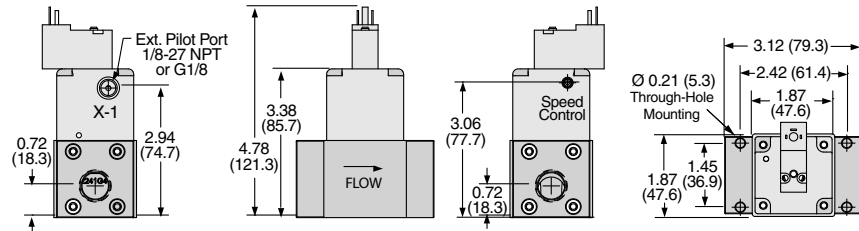
Dale LF Series

Valve Dimensions – inches (mm)

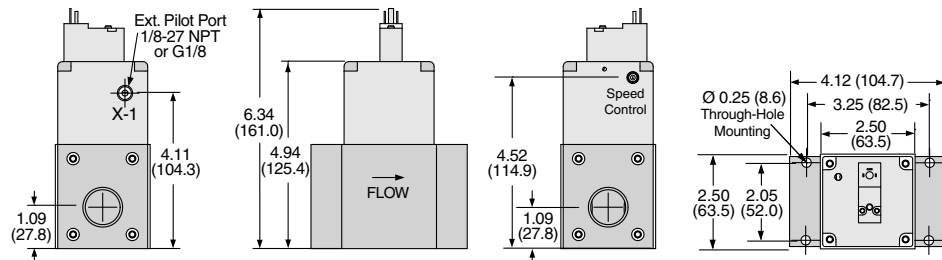
B1

B

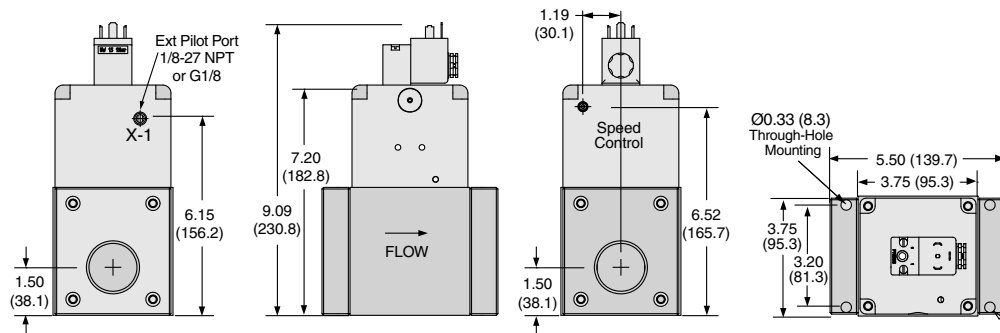
Port Size 3/8 & 1/2



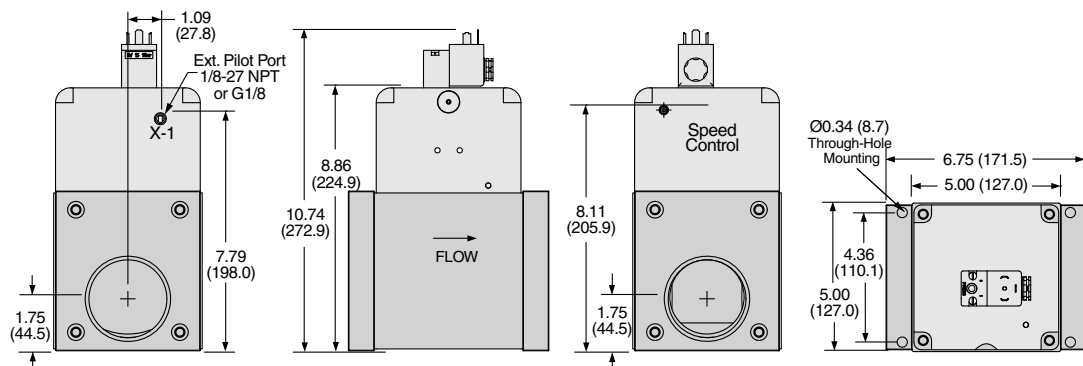
Port Size 3/4 & 1



Port Size 1 1/4 & 1 1/2

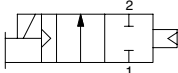
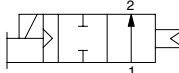
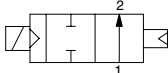


Port Size 2 & 2 1/2



Solenoid Pilot Controlled Valves

Leak Tight Dale CX Series

2-Way 2-Position Valves, Air Return										
Port Size		External Pilot Supply				Pilot Port Thread		Avg. C _v	Weight lb (kg)	
		Normally Closed		Normally Open						
		Model Number#		Model Number#						
1	2	NPT Threads	BSPP Threads	NPT Threads	BSPP Threads	NPT	BSPP			
1/4	1/4	CX12NB27501Z	CX12DB27501Z	CX22NB27501Z	CX22DB27501Z	10-32 UNF	M5	0.9	1.3 (0.6)	
1/2	3/8	CX14NB37501Z	CX14DB37501Z	CX24NB37501Z	CX24DB37501Z	10-32 UNF	M5	3.5	1.4 (0.6)	
1/2	1/2	CX14NB47501Z	CX14DB47501Z	CX24NB47501Z	CX24DB47501Z	10-32 UNF	M5	3.5	1.4 (0.6)	
1	3/4	CX16NB57501Z	CX16DB57501Z	CX26NB57501Z	CX26DB57501Z	1/8-27 NPT	G1/8	12.3	3.5 (1.6)	
1	1	CX16NB67501Z	CX16DB67501Z	CX26NB67501Z	CX26DB67501Z	1/8-27 NPT	G1/8	12.3	3.5 (1.6)	
1½	1¼	CX18NB77501Z	CX18DB77501Z	CX28NB77501Z	CX28DB77501Z	1/8-27 NPT	G1/8	44.9	10.0 (4.6)	
1½	1½	CX18NB87501Z	CX18DB87501Z	CX28NB87501Z	CX28DB87501Z	1/8-27 NPT	G1/8	44.9	10.0 (4.6)	
2½	2	CX10NB97501Z	CX10DB97501Z	CX20NB97501Z	CX20DB97501Z	1/8-27 NPT	G1/8	108	19.5 (8.9)	
2½	2½	CX10NB07501Z	CX10DB07501Z	CX20NB07501Z	CX20DB07501Z	1/8-27 NPT	G1/8	108	19.5 (8.9)	
# Voltage: Z=110-120 VAC, 50/60 Hz; W=24 VDC, e.g., CX12NB27501W.										
<div><div><p>1/4" thru 1/2" Normally Closed</p></div><div><p>1/4" thru 1" Normally Open</p></div><div><p>1½" & 2½" Normally Open</p></div></div>										



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.

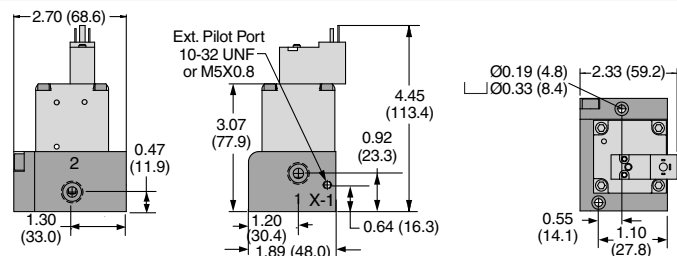
ACCESSORIES – Electrical Connectors

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 Design	Poppet	Pilot Supply	External
Mounting Type	Inline	Operating Pressure	Port Size 1/4: Vacuum to 250 psig (vacuum to 17.2 bar) Port Size 1½ thru 2½: Vacuum to 145 psig (vacuum to 10 bar) Pilot Supply - External: Port Size 1/4: 70 to 145 psig (5 to 10 bar) Port Size 1½ thru 2½: 30 to 145 psig (2 to 10 bar) Pilot supply pressure must be equal to or greater than inlet pressure.
Solenoids	Rated for continuous duty	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal & Stainless Steel Seals: Buna-N
Voltage/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 1½ 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	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
Enclosure Rating	IP65, IEC 60529		
Electrical Connection	EN 175301-803 Form A or Form C connector		
Temperature	Ambient: 40° to 120°F (4 to 50°C) Media: 40° to 175°F (4° to 80°C)		
Flow Media	Filtered air For liquid applications, consult ROSS.		

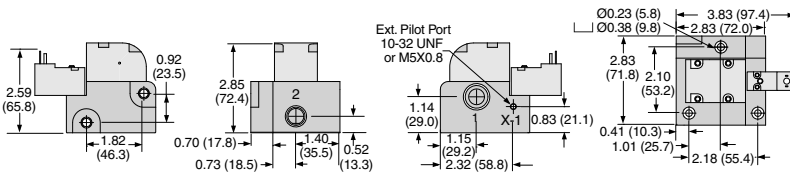
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Solenoid Pilot Controlled Valves

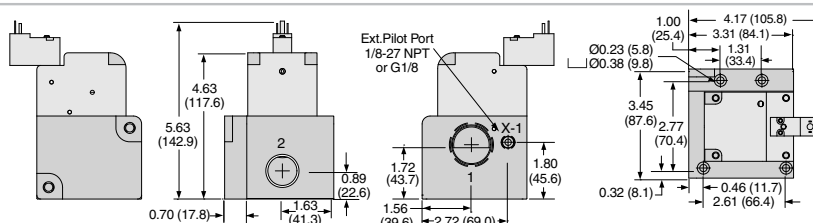
Leak Tight Dale CX Series

Valve Dimensions – inches (mm)

Port Size 3/8 & 1/2

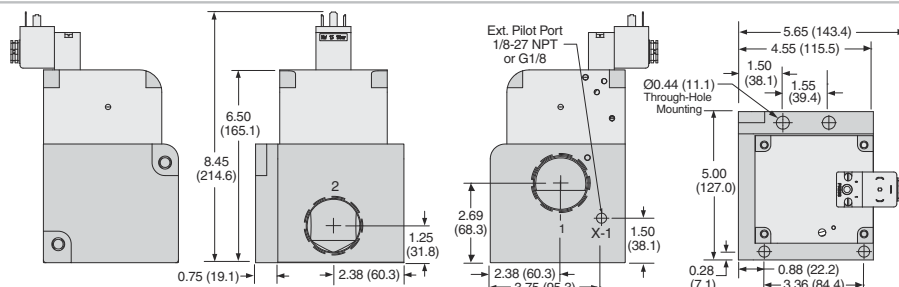


Port Size 3/4 & 1

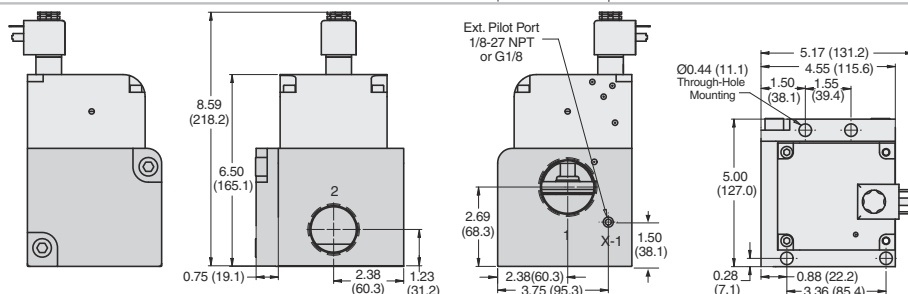


Port Size 1 1/4 & 1 1/2

Normally Closed

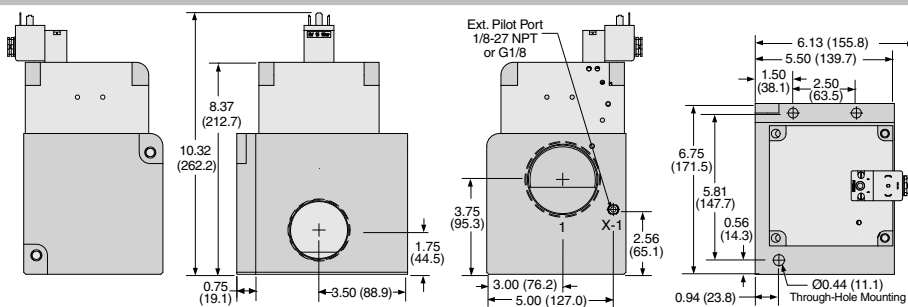


Normally Open

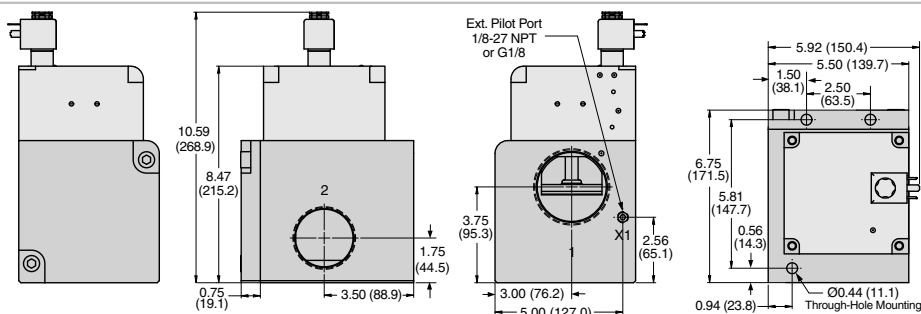


Port Size 2 & 2 1/2

Normally Closed

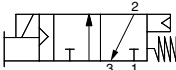
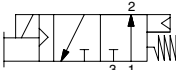
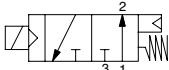


Normally Open



Solenoid Pilot Controlled Valves

Leak Tight Dale CX Series

3-Way 2-Position Valves, Spring Assisted Air Return										
Port Size		External Pilot Supply				Pilot Port Thread		Avg. C _v	Weight lb (kg)	
		Normally Closed		Normally Open						
		Model Number#*		Model Number#*						
1, 3	2	NPT Threads	BSPP Threads	NPT Threads	BSPP Threads	NPT	BSPP			
1/2	3/8	CX34NB37501Z	CX34DB37501Z	CX44NB37501Z	CX44DB37501Z	10-32 UNF	M5	3.5	1.8 (0.8)	
1/2	1/2	CX34NB47501Z	CX34DB47501Z	CX44NB47501Z	CX44DB47501Z	10-32 UNF	M5	3.5	1.8 (0.8)	
1	3/4	CX36NB57501Z	CX36DB57501Z	CX46NB57501Z	CX46DB57501Z	1/8-27 NPT	G1/8	12.3	5.3 (2.4)	
1	1	CX36NB67501Z	CX36DB67501Z	CX46NB67501Z	CX46DB67501Z	1/8-27 NPT	G1/8	12.3	5.3 (2.4)	
# Voltage: Z=110-120 VAC, 50/60 Hz; W=24 VDC, e.g., CX34NB37501W.										
<div><div></div><div>1/2" & 1" Normally Closed</div></div> <div><div></div><div>1/2" Normally Open</div></div> <div><div></div><div>1" Normally Open</div></div>										



Port Sizes 3/8 & 1/2



Port Sizes 3/4 & 1

B1

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		Width	Length	
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 290 psig (0 to 20 bar) maximum. **Flow Media:** Filtered air.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air <i>For liquid applications, consult ROSS.</i>
Mounting Type	Inline	Pilot Supply	External
Solenoids	Rated for continuous duty	Operating Pressure	Vacuum to 145 psig (vacuum to 10 bar) Pilot Supply - External: 50 to 145 psig (3.4 to 10 bar) <i>Pilot supply pressure must be equal to or greater than inlet pressure.</i>
Voltage/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	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal & Stainless Steel Seals: Buna-N
Enclosure Rating	IP65, IEC 60529	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
Electrical Connection	EN 175301-803 Form A or Form C connector		
Temperature	Ambient: 40° to 120°F (4 to 50°C) Media: 40° to 175°F (4° to 80°C)		

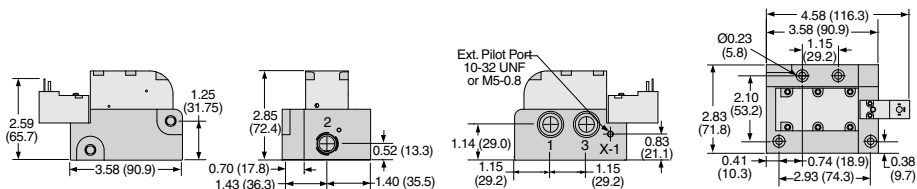
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Solenoid Pilot Controlled Valves

Leak Tight Dale CX Series

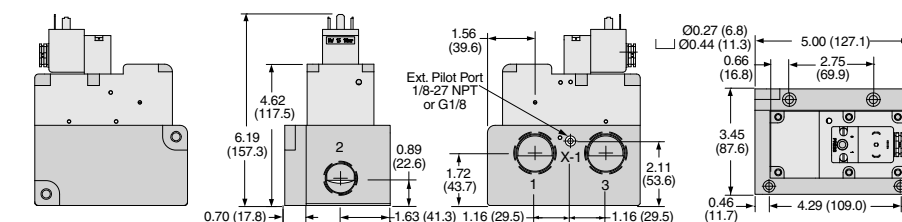
Valve Dimensions – inches (mm)

Port Size 3/8 & 1/2

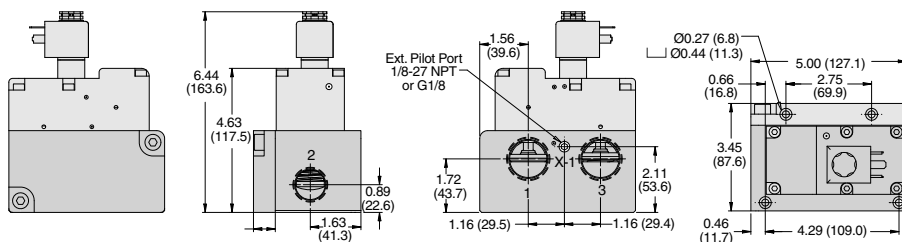


Port Size 3/4 & 1

Normally Closed



Normally Open

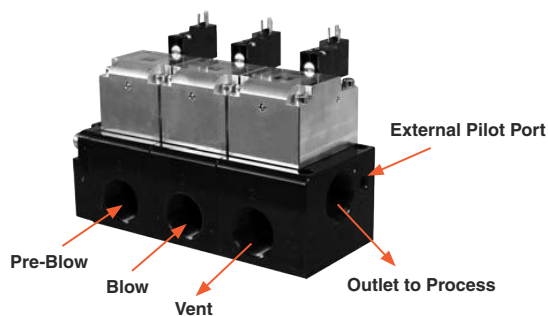


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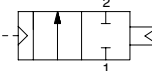
Blow Molding Application Example

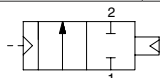
The CP & CX compact flexible manifold design eliminates piping, reduces system volume, provides fast consistent actuation and delivers an amazing flow rate up to 100 Cv.



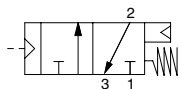
Pressure Controlled Valves

Leak Tight Dale CX Series

2-Way 2-Position Valves, Air Return							
Port Size		External Pilot Supply		Pilot Port Thread		Avg. C _v	Weight lb (kg)
		Normally Closed					
		Model Number*					
1	2	NPT Threads	BSPP Threads	NPT	BSPP		
1/2	3/8	CX14NB35501	CX14DB35501	10-32 UNF	M5	3.5	1.4 (0.6)
1/2	1/2	CX14NB45501	CX14DB45501	10-32 UNF	M5	3.5	1.4 (0.6)
1	3/4	CX16NB55501	CX16DB55501	1/8-27 NPT	G1/8	12.3	3.5 (1.6)
1	1	CX16NB65501	CX16DB65501	1/8-27 NPT	G1/8	12.3	3.5 (1.6)
1½	1¼	CX18NB75501	CX18DB75501	1/8-27 NPT	G1/8	44.9	10.0 (4.6)
1½	1½	CX18NB85501	CX18DB85501	1/8-27 NPT	G1/8	44.9	10.0 (4.6)
2½	2	CX10NB95501	CX10DB95501	1/8-27 NPT	G1/8	108	19.5 (8.9)
2½	2½	CX10NB05501	CX10DB05501	1/8-27 NPT	G1/8	108	19.5 (8.9)
<div></div>							



3-Way 2-Position Valves, Spring Assisted Air Return							
Port Size		External Pilot Supply		Pilot Port Thread		Avg. C _v	Weight lb (kg)
		Normally Closed					
		Model Number*					
1, 3	2	NPT Threads	BSPP Threads	NPT	BSPP		
1/2	3/8	CX34NB35501	CX34DB35501	10-32 UNF	M5	3.5	1.4 (0.6)
1/2	1/2	CX34NB45501	CX34DB45501	10-32 UNF	M5	3.5	1.4 (0.6)
1	3/4	CX36NB55501	CX36DB55501	1/8-27 NPT	G1/8	12.3	3.5 (1.6)
1	1	CX36NB65501	CX36DB65501	1/8-27 NPT	G1/8	12.3	3.5 (1.6)



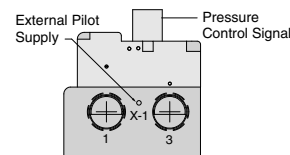
Port Sizes
3/8 & 1/2



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		Width	Length	
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 290 psig (0 to 20 bar) maximum. **Flow Media:** Filtered air.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	Vacuum to 250 psig (vacuum to 17.2 bar)
Mounting Type	Inline		Pilot Supply: 2/2 Valves: 30 to 250 psig (2 to 17.2 bar) 3/2 Valves: 50 to 250 psig (3.4 to 17.2 bar) Pilot supply pressure must be equal to or greater than inlet pressure.
Temperature	Ambient: 40° to 120°F (4 to 50°C) Media: 40° to 175°F (4° to 80°C)		
Flow Media	Filtered air For liquid applications, consult ROSS.	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal & Stainless Steel Seals: Buna-N
Pilot Supply	External		

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

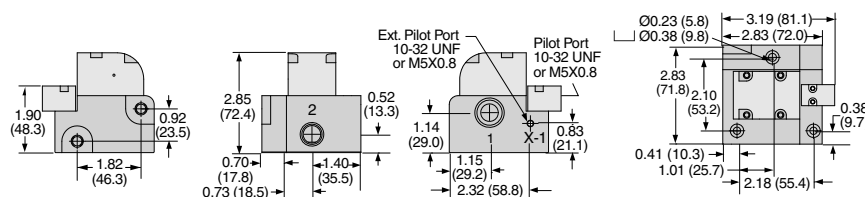
Pressure Controlled Valves

Leak Tight Dale CX Series

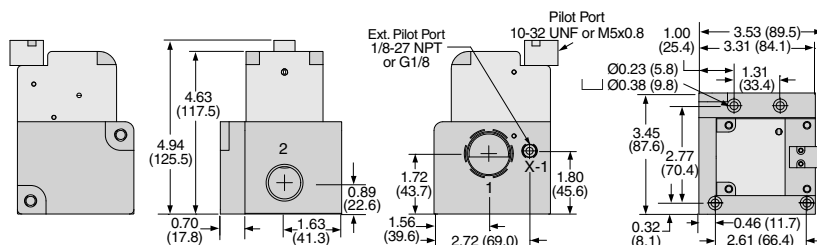
Valve Dimensions – inches (mm)

2/2 Valves

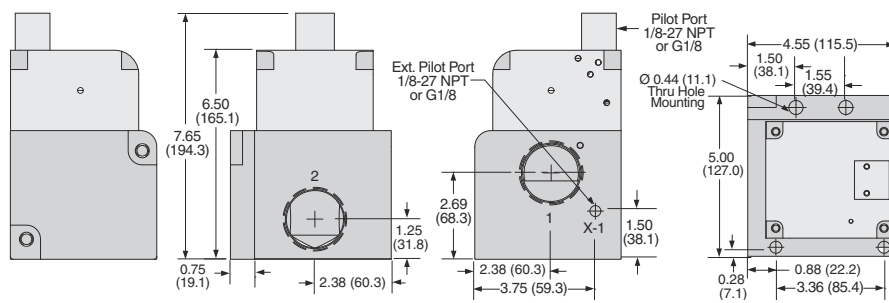
Port Size 3/8 & 1/2



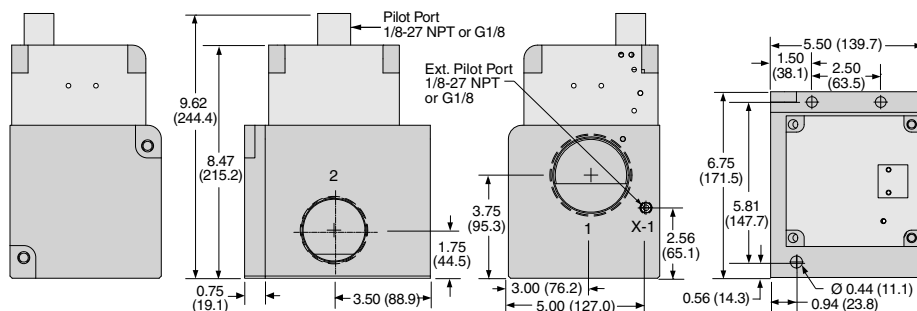
Port Size 3/4 & 1



Port Size 1 1/4 & 1 1/2

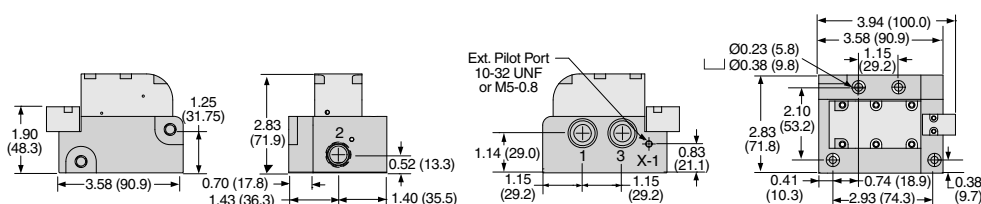


Port Size 2 & 2 1/2

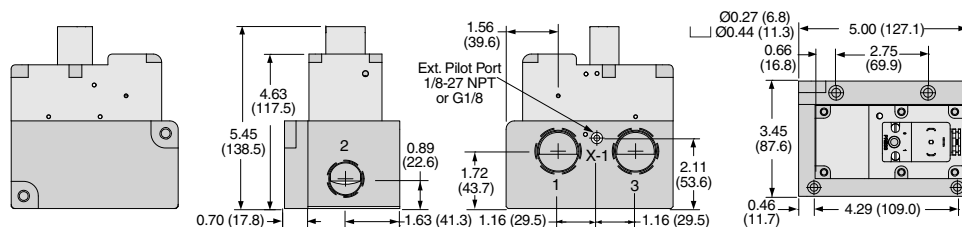


3/2 Valves

Port Size 3/8 & 1/2



Port Size 3/4 & 1

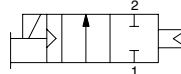


Solenoid Pilot Controlled Valve Manifolds

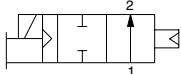
Leak Tight Dale CX Series

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.

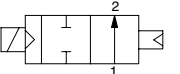
2-Way 2-Position Valves, Air Return									
Port Size		External Pilot Supply				Pilot Port Thread		Avg. C _v	
		Normally Closed		Normally Open					
		Model Number#*		Model Number#*					
1	2	NPT Threads	BSPP Threads	NPT Threads	BSPP Threads	NPT	BSPP		
1/4	1/4	CX12NB2751XZ	CX12DB2751XZ	CX22NB2751XZ	CX22DB2751XZ	10-32 UNF	M5	0.9	
1/2	3/8	CX14NB3751XZ	CX14DB3751XZ	CX24NB3751XZ	CX24DB3751XZ	10-32 UNF	M5	3.5	
1/2	1/2	CX14NB4751XZ	CX14DB4751XZ	CX24NB4751XZ	CX24DB4751XZ	10-32 UNF	M5	3.5	
1	3/4	CX16NB5751XZ	CX16DB5751XZ	CX26NB5751XZ	CX26DB5751XZ	1/8-27 NPT	G1/8	12.3	
1	1	CX16NB6751XZ	CX16DB6751XZ	CX26NB6751XZ	CX26DB6751XZ	1/8-27 NPT	G1/8	12.3	
1½	1¼	CX18NB7751XZ	CX18DB7751XZ	CX28NB7751XZ	CX28DB7751XZ	1/8-27 NPT	G1/8	44.9	
1½	1½	CX18NB8751XZ	CX18DB8751XZ	CX28NB8751XZ	CX28DB8751XZ	1/8-27 NPT	G1/8	44.9	
2½	2	CX10NB9751XZ	CX10DB9751XZ	CX20NB9751XZ	CX20DB9751XZ	1/8-27 NPT	G1/8	108	
2½	2½	CX10NB0751XZ	CX10DB0751XZ	CX20NB0751XZ	CX20DB0751XZ	1/8-27 NPT	G1/8	108	



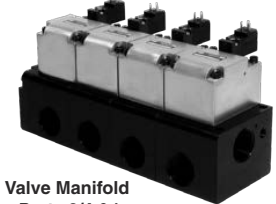
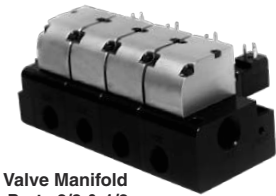
1/4" thru 2½" Normally Closed



1/4" thru 1" Normally Open



1½" & 2½" Normally Open



Voltage: Z=110-120 VAC, 50/60 Hz; W=24 VDC, e.g., CX12NB2751XW.

*X Number of Stations – 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., CX12NB27514Z (4 = 4 Stations), CX12NB27510Z, (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 Design	Poppet	Flow Media	Filtered air
Mounting Type	Inline	Pilot Supply	For liquid applications, consult ROSS.
Solenoids	Rated for continuous duty	Operating Pressure	Port Size 1/4: Vacuum to 145 psig (vacuum to 10 bar) Port Size 1/2 thru 2½: Vacuum to 145 psig (vacuum to 10 bar) Pilot Supply - External: 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) Pilot supply pressure must be equal to or greater than inlet pressure.
Voltage/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 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	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal & Stainless Steel Seals: Buna-N
Enclosure Rating	IP65, IEC 60529	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
Electrical Connection	EN 175301-803 Form A or Form C connector		
Temperature	Ambient: 40° to 120°F (4 to 50°C) Media: 40° to 175°F (4° to 80°C)		

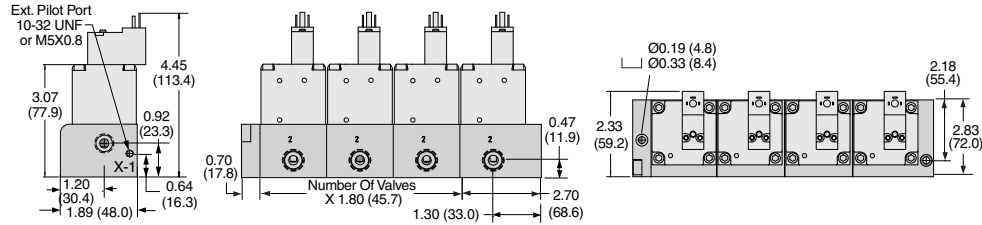
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Solenoid Pilot Controlled Valve Manifolds

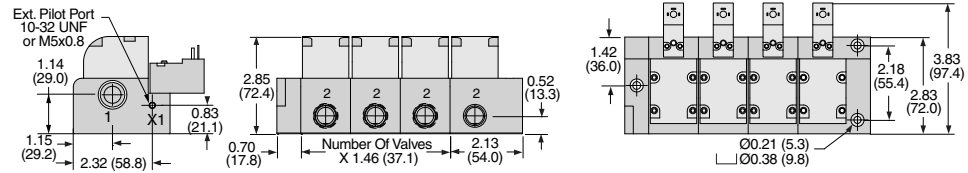
Leak Tight Dale CX Series

Dimensions – inches (mm)

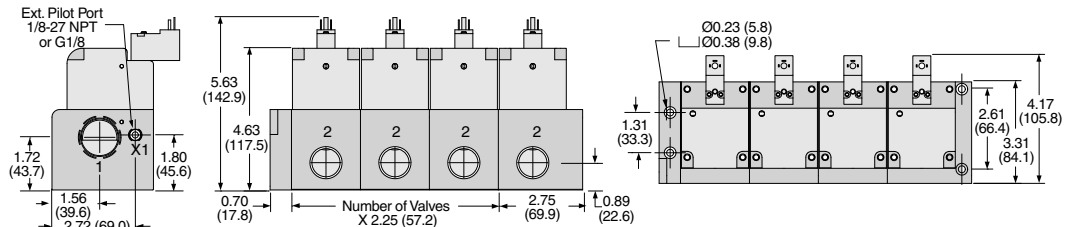
Port Size 1/4



Port Size 3/8 & 1/2

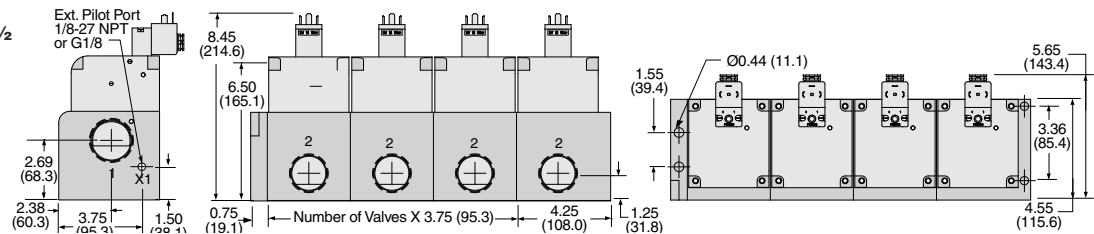


Port Size 3/4 & 1

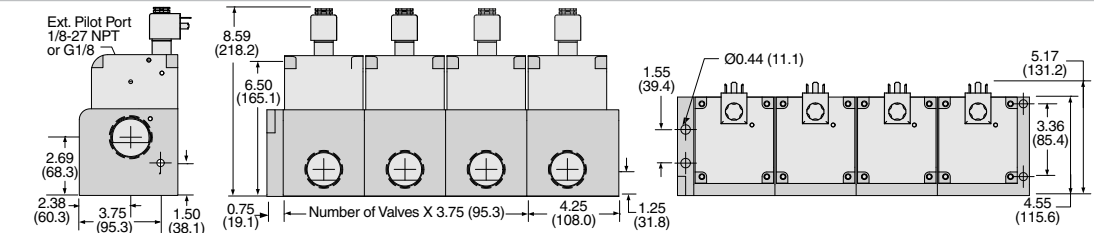


Port Size 1 1/4 & 1 1/2

Normally Closed

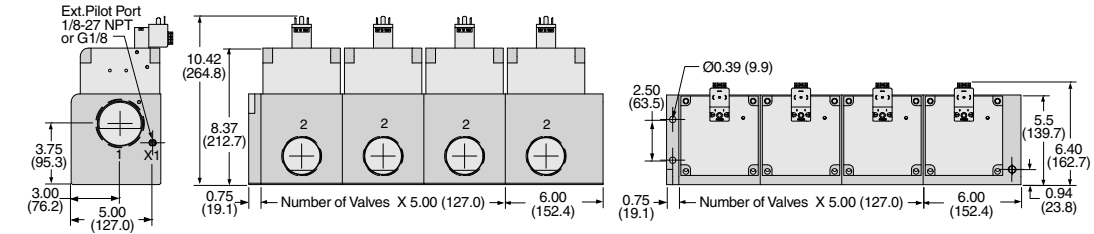


Normally Open

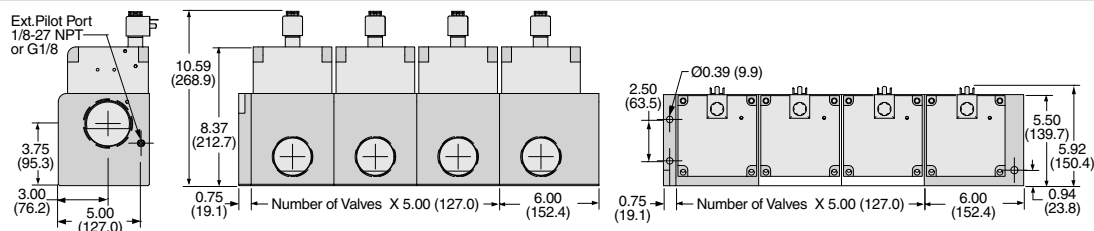


Port Size 2 & 2 1/2

Normally Closed



Normally Open



Solenoid Pilot Controlled Valve Manifolds

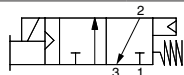
Leak Tight Dale CX Series

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.

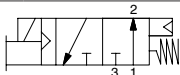
3-Way 2-Position Valves, Spring Assisted Air Return								
Port Size	External Pilot Supply				Pilot Port Thread		Avg. C _v	
	Normally Closed		Normally Open					
	Model Number#*		Model Number#*		NPT	BSPP		
1, 3	2	NPT Threads	BSPP Threads	NPT Threads	BSPP Threads	NPT	BSPP	
1/2	3/8	CX34NB37501XZ	CX34DB37501XZ	CX44NB37501XZ	CX44DB37501XZ	10-32 UNF	M5	3.6
1/2	1/2	CX34NB47501XZ	CX34DB47501XZ	CX44NB47501XZ	CX44DB47501XZ	10-32 UNF	M5	3.6
1	3/4	CX36NB57501XZ	CX36DB57501XZ	CX46NB57501XZ	CX46DB57501XZ	1/8-27 NPT	G1/8	12.3
1	1	CX36NB67501XZ	CX36DB67501XZ	CX46NB67501XZ	CX46DB67501XZ	1/8-27 NPT	G1/8	12.3

Voltage: Z=110-120 VAC, 50/60 Hz; W=24 VDC, e.g., CX34NB37501XW.

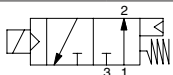
*X Number of Stations – To indicate the number of stations desired, for 2 to 9 stations, replace X in the model number with the specific number of stations, for 10 stations replace X with 0, e.g., CX34NB375014Z (4 = 4 Stations), CX34NB375010Z, (0 = 10 Stations).



1/2" & 1" Normally Closed



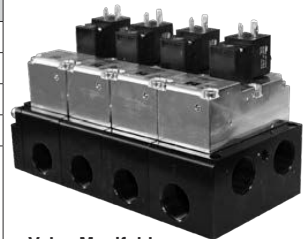
1/2" Normally Open



1" Normally Open



Valve Manifold
Ports 3/8 & 1/2



Valve Manifold
Ports 3/4 & 1

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		Width	Length	
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 290 psig (0 to 20 bar) maximum. **Flow Media:** Filtered air.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air <i>For liquid applications, consult ROSS.</i>
Mounting Type	Inline	Pilot Supply	External
Solenoids	Rated for continuous duty	Operating Pressure	Vacuum to 145 psig (vacuum to 10 bar) Pilot Supply - External: 50 to 145 psig (3.4 to 10 bar) <i>Pilot supply pressure must be equal to or greater than inlet pressure.</i>
Voltage/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	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal & Stainless Steel Seals: Buna-N
Enclosure Rating	IP65, IEC 60529	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
Electrical Connection	EN 175301-803 Form A or Form C connector		
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		

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

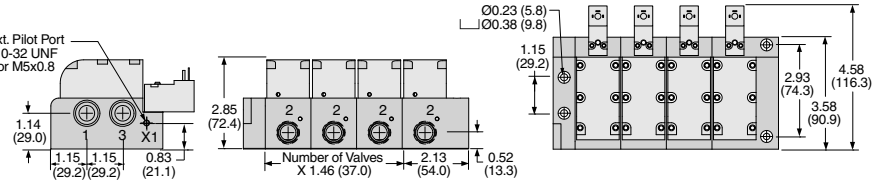
Solenoid Pilot Controlled Valve Manifolds

Leak Tight Dale CX Series

Dimensions – inches (mm)

B1

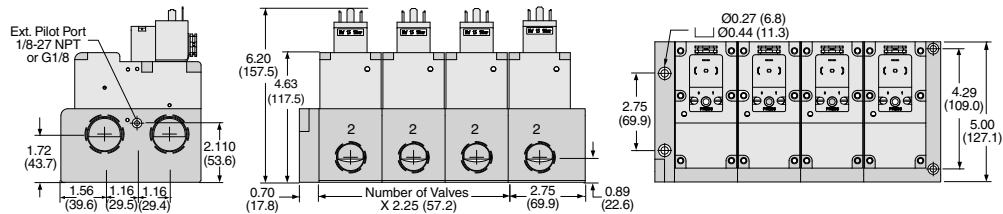
Port Size 3/8 & 1/2



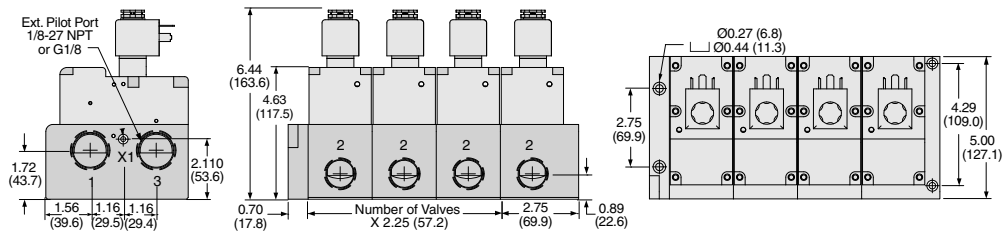
B

Port Size 3/4 & 1

Normally Closed



Normally Open

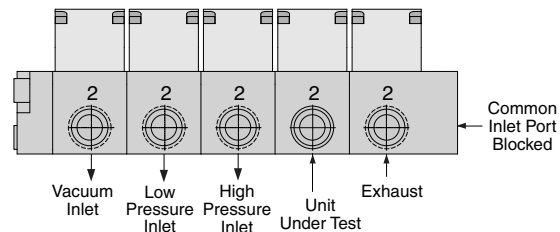


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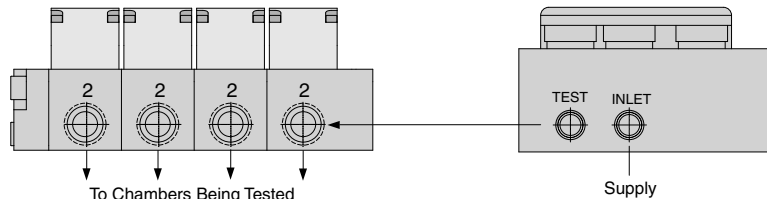
Leak Test Systems using Dale CX & LT Series Valves

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

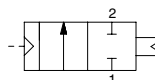
Manifolds can be ordered from two (2) to ten (10) stations.

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

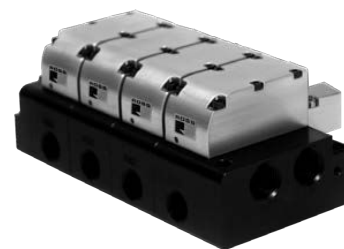
For preassembled manifold valves with the same model number, select the model number from the table below.

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		External Pilot Supply		Pilot Port Thread		Avg. C _v
		Normally Closed				
		Model Number*				
1	2	NPT Threads	BSPP Threads	NPT	BSPP	
1/2	3/8	CX14NB3551X	CX14DB3551X	10-32 UNF	M5	3.7
1/2	1/2	CX14NB4551X	CX14DB4551X	10-32 UNF	M5	3.7
1	3/4	CX16NB5551X	CX16DB5551X	1/8-27 NPT	G1/8	13.7
1	1	CX16NB6551X	CX16DB6551X	1/8-27 NPT	G1/8	13.7
1½	1¼	CX18NB7551X	CX18DB7551X	1/8-27 NPT	G1/8	44.9
1½	1½	CX18NB8551X	CX18DB8551X	1/8-27 NPT	G1/8	44.9
2½	2	CX10NB9551X	CX10DB9551X	1/8-27 NPT	G1/8	108
2½	2½	CX10NB0551X	CX10DB0551X	1/8-27 NPT	G1/8	108

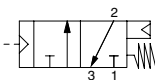


Valve Manifold
Ports 3/8 & 1/2



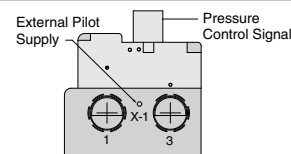
Valve Manifold
Ports 3/8 & 1/2

3-Way 2-Position Valves, Spring Assisted Air Return							
Port Size		External Pilot Supply		Pilot Port Thread		Avg. C _v	
		Normally Closed					
		Model Number*					
1, 3	2	NPT Threads	BSPP Threads	NPT	BSPP		
1/2	3/8	CX34NB3551X	CX34DB3551X	10-32 UNF	M5	3.6	
1/2	1/2	CX34NB4551X	CX34DB4551X	10-32 UNF	M5	3.6	
1	3/4	CX36NB5551X	CX36DB5551X	1/8-27 NPT	G1/8	12.3	
1	1	CX36NB6551X	CX36DB6551X	1/8-27 NPT	G1/8	12.3	



***X Number of Stations** – 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		Width	Length	
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 290 psig (0 to 20 bar) maximum. **Flow Media:** Filtered air.

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

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	Vacuum to 250 psig (vacuum to 17.2 bar)
Mounting Type	Inline		Pilot Supply:
Temperature	Ambient: 40° to 120°F (4 to 50°C) Media: 40° to 175°F (4° to 80°C)		2/2 Valves: 30 to 250 psig (2 to 17.2 bar) 3/2 Valves: 50 to 250 psig (3.4 to 17.2 bar) Pilot supply pressure must be equal to or greater than inlet pressure.
Flow Media	Filtered air For liquid applications, consult ROSS.	Construction Material	Valve Body: Cast Aluminum
Pilot Supply	External		Poppet: Acetal & Stainless Steel Seals: Buna-N

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

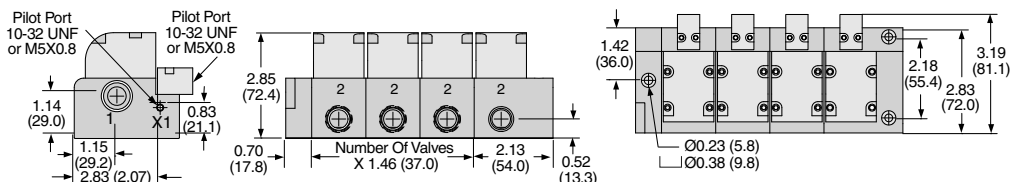
Pressure Controlled Valve Manifolds

Leak Tight Dale CX Series

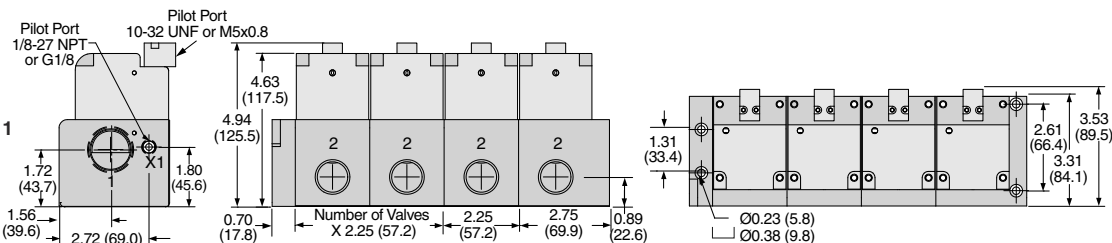
Dimensions – inches (mm)

2/2 Valves

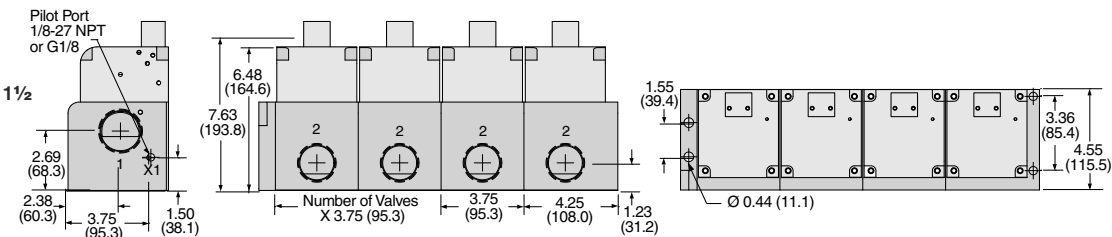
Port Size 3/8 & 1/2



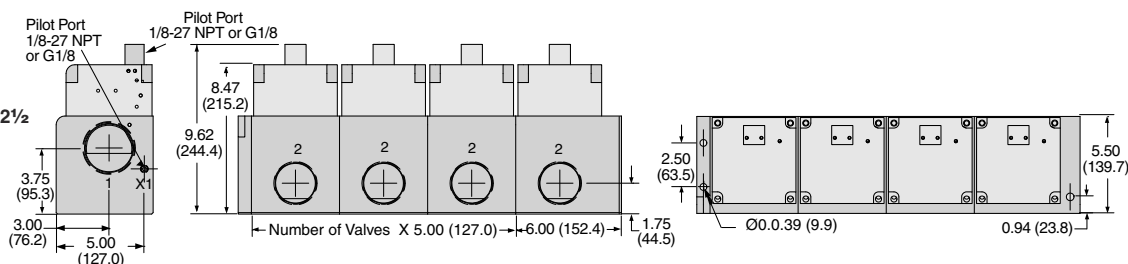
Port Size 3/4 & 1



Port Size 1 1/4 & 1 1/2

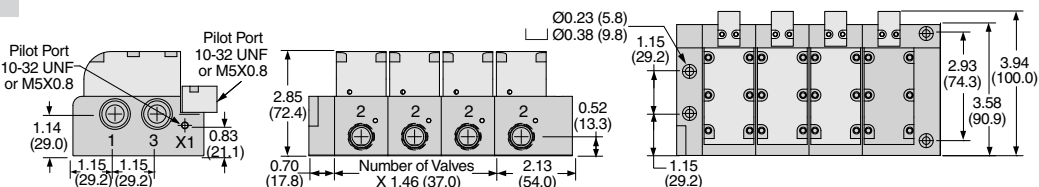


Port Size 2 & 2 1/2

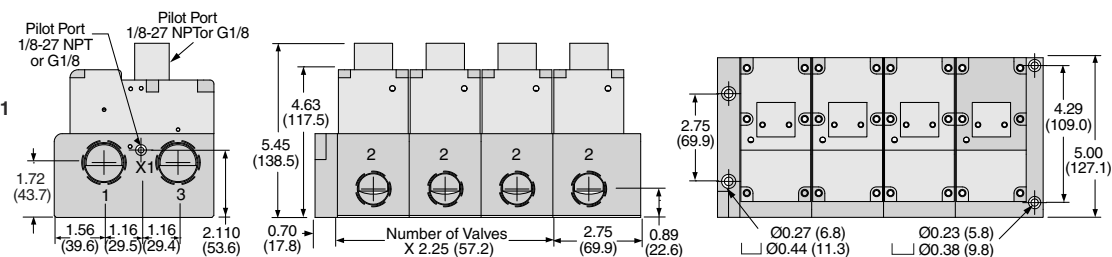


3/2 Valves

Port Size 3/8 & 1/2

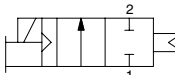
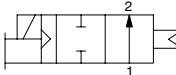
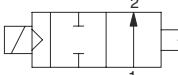


Port Size 3/4 & 1



Solenoid Pilot Controlled Valves

Leak Tight Dale LX Series

2-Way 2-Position Valves, Air Return									
Port Size		External Pilot Supply				Pilot Port Thread		Avg. C _v	Weight lb (kg)
		Normally Closed		Normally Open					
		Model Number#		Model Number#					
1	2	NPT Threads	BSPP Threads	NPT Threads	BSPP Threads	NPT	BSPP		
3/8	3/8	LX13NB37501Z	LX13DB37501Z	LX23NB37501Z	LX23DB37501Z	10-32 UNF	M5	3.6	1.5 (0.7)
1/2	1/2	LX14NB47501Z	LX14DB47501Z	LX24NB47501Z	LX24DB47501Z	10-32 UNF	M5	3.6	1.5 (0.7)
3/4	3/4	LX15NB57501Z	LX15DB57501Z	LX25NB57501Z	LX25DB57501Z	1/8-27 NPT	G1/8	12.2	3.5 (1.6)
1	1	LX16NB67501Z	LX16DB67501Z	LX26NB67501Z	LX26DB67501Z	1/8-27 NPT	G1/8	12.2	3.5 (1.6)
1¼	1¼	LX17NB77501Z	LX17DB77501Z	LX27NB77501Z	LX27DB77501Z	1/8-27 NPT	G1/8	36.1	9.3 (4.2)
1½	1½	LX18NB87501Z	LX18DB87501Z	LX28NB87501Z	LX28DB87501Z	1/8-27 NPT	G1/8	36.1	9.3 (4.2)
2	2	LX19NB97501Z	LX19DB97501Z	LX29NB97501Z	LX29DB97501Z	1/8-27 NPT	G1/8	62.7	19.3 (8.8)
2½	2½	LX10NB07501Z	LX10DB07501Z	LX20NB07501Z	LX20DB07501Z	1/8-27 NPT	G1/8	62.7	19.3 (8.8)
# Voltage: Z=110-120 VAC, 50/60 Hz; W=24 VDC, e.g., LX13NB37501W.									
<div><div><p>Normally Closed</p></div><div><p>3/8" thru 1" Normally Open</p></div><div><p>1¼" & 2½" Normally Open</p></div></div>									



B1

B



Ports 1 1/4 thru 2 1/2

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
	1 1/4-2 1/2	EN 175301-803 Form A	936K87-W	936K87-Z	720K77-W	720K77-Z

*Pre-wired connectors include a 2 meter (6 1/2 ft.) cord.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air <i>For liquid applications, consult ROSS.</i>
Mounting Type	Inline	Pilot Supply	External
Solenoids	Rated for continuous duty	Operating Pressure	Vacuum to 145 psig (vacuum to 10 bar) Pilot Supply - External: 30 to 145 psig (2 to 10 bar) <i>Pilot supply pressure must be equal to or greater than inlet pressure.</i>
Voltage/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 1 1/4 thru 2 1/2: 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	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal & Stainless Steel Seals: Buna-N
Enclosure Rating	IP65, IEC 60529	Manual Override	Normally Closed Valves: All Sizes; Non-locking Normally Open Valves: Port Size 1/2 & 1: Non-locking Port Size 1 1/2 & 2 1/2: Locking, turn-to-lock
Electrical Connection	EN 175301-803 Form A or Form C connector		
Temperature	Ambient: 40° to 120°F (4 to 50°C) Media: 40° to 175°F (4° to 80°C)		

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

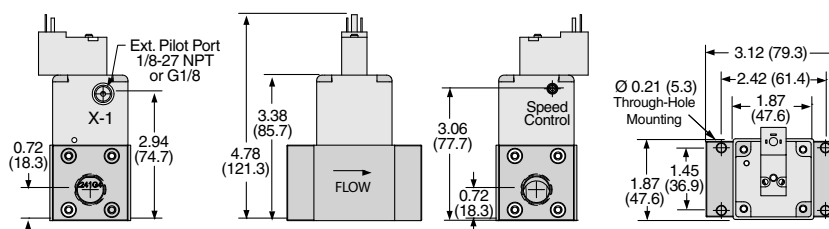
Solenoid Pilot Controlled Valves

Leak Tight Dale LX Series

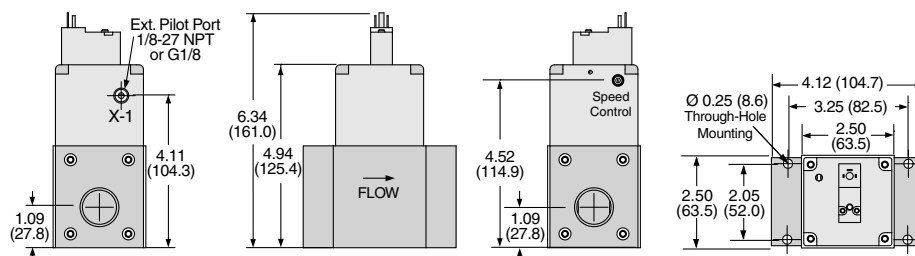
Valve Dimensions – inches (mm)

B1

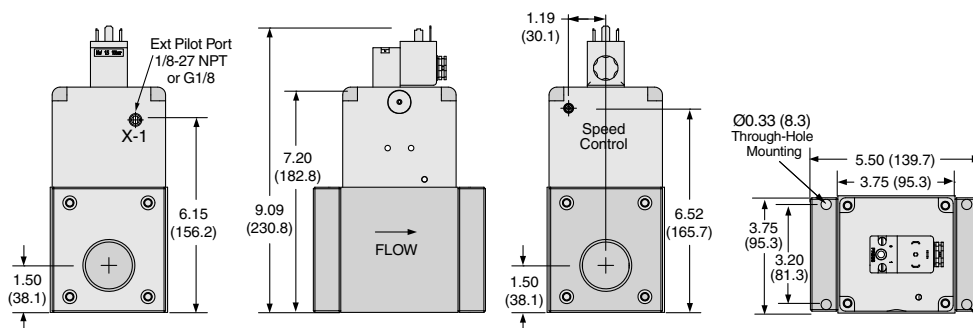
Port Size 3/8 & 1/2



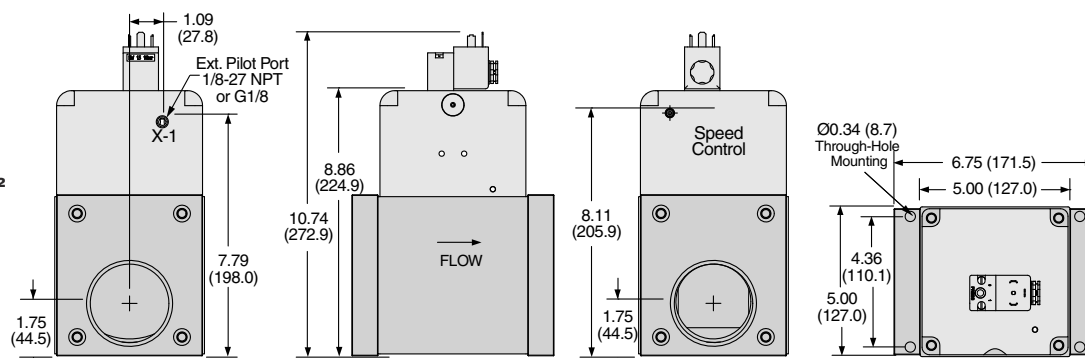
Port Size 3/4 & 1



Port Size 1 1/4 & 1 1/2



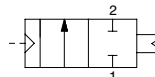
Port Size 2 & 2 1/2



Pressure Controlled Valves

Leak Tight Dale LX Series

2-Way 2-Position Valves, Air Return							
Port Size		External Pilot Supply		Pilot Port Thread		Avg. C _v	Weight lb (kg)
		Normally Closed					
		Model Number					
1	2	NPT Threads	BSPP Threads	NPT	BSPP		
3/8	3/8	LX13NB35501	LX13DB35501	10-32 UNF	M5	3.6	1.5 (0.7)
1/2	1/2	LX14NB45501	LX14DB45501	10-32 UNF	M5	3.6	1.5 (0.7)
3/4	3/4	LX15NB55501	LX15DB55501	1/8-27 NPT	G1/8	12.2	3.5 (1.6)
1	1	LX16NB65501	LX16DB65501	1/8-27 NPT	G1/8	12.2	3.5 (1.6)
1¼	1¼	LX17NB75501	LX17DB75501	1/8-27 NPT	G1/8	36.1	9.3 (4.2)
1½	1½	LX18NB85501	LX18DB85501	1/8-27 NPT	G1/8	36.1	9.3 (4.2)
2	2	LX19NB95501	LX19DB95501	1/8-27 NPT	G1/8	62.7	19.3 (8.8)
2½	2½	LX10NB05501	LX10DB05501	1/8-27 NPT	G1/8	62.7	19.3 (8.8)

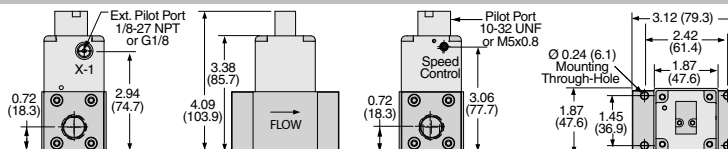


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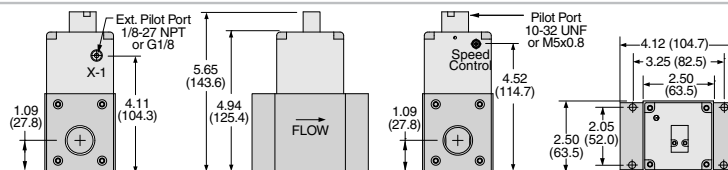
B

Valve Dimensions – inches (mm)

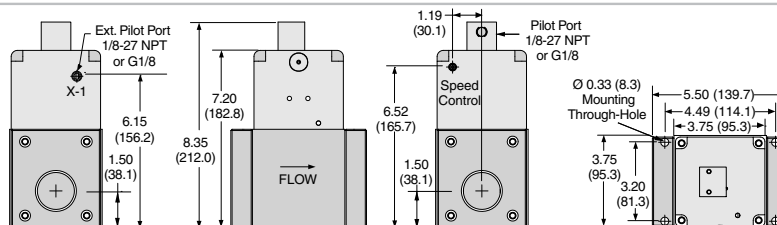
Port Size 3/8 & 1/2



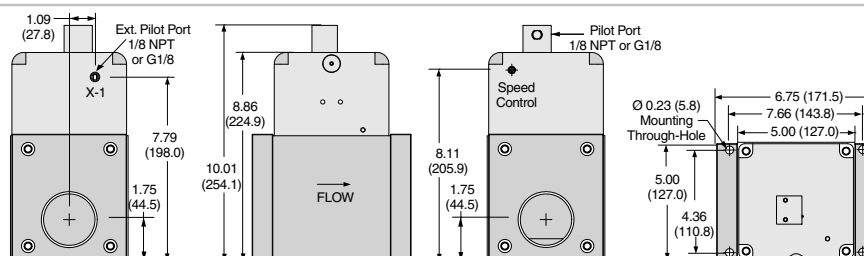
Port Size 3/4 & 1



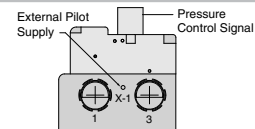
Port Size 1¼ & 1½



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 Design	Poppet	Operating Pressure	Vacuum to 250 psig (vacuum to 17.2 bar)
Mounting Type	Inline	Pilot Supply:	30 to 250 psig (2 to 17.2 bar)
Temperature	Ambient: 40° to 120°F (4 to 50°C) Media: 40° to 175°F (4° to 80°C)	Pilot supply pressure must be equal to or greater than inlet pressure.	
Flow Media	Filtered air For liquid applications, consult ROSS.	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal & Stainless Steel Seals: Buna-N
Pilot Supply	External		

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

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.

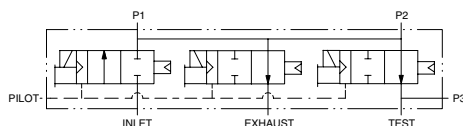
B1

B

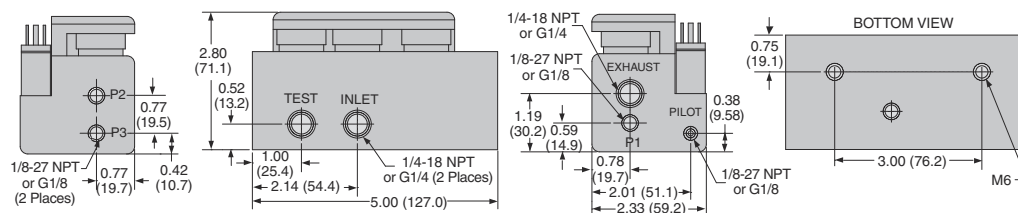
3-Way 4-Position Valve, Multi Solenoid Actuated

Port Size			Normally Closed		Pilot Port Thread		Avg. C _v	Weight lb (kg)
			Model Number#					
In	Exh.	Test	NPT Threads	BSPP Threads	NPT	BSPP		
1/4	1/4	1/4	LT32NB27500Z	LT32DB27500Z	1/8-27 NPT	G1/8	2.2	2.9 (1.3)

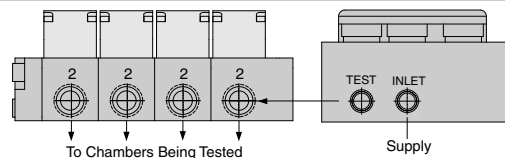
Voltage: Z=110-120 VAC, 50/60 Hz; W=24 VDC, e.g., LT32NB27500W.



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		Width	Length	
1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. Flow Media: Filtered air.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Pilot Supply	Internal or External
Mounting Type	Inline	Operating Pressure	2 to 145 psig (0.13 to 10 bar)
Solenoids	Rated for continuous duty	Pilot Supply - Internal or External:	50 to 145 psig (3.4 to 10 bar)
Voltage/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	When external pilot supply, pressure must be equal to or greater than inlet pressure.	
Temperature	Ambient/Media: 40° to 120°F (4 to 50°C)	Pilot Port	1/8 NPT, or G1/8 ports
Flow Media	Filtered air For liquid applications, consult ROSS.	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal & Stainless Steel Seals: Buna-N

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

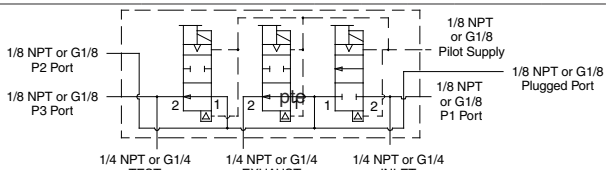
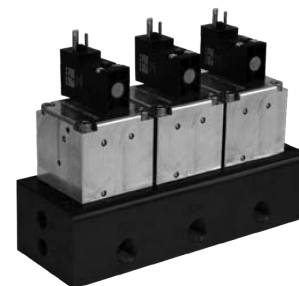
Solenoid Pilot Controlled Valve Manifold

Leak Tight Dale LT Series

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

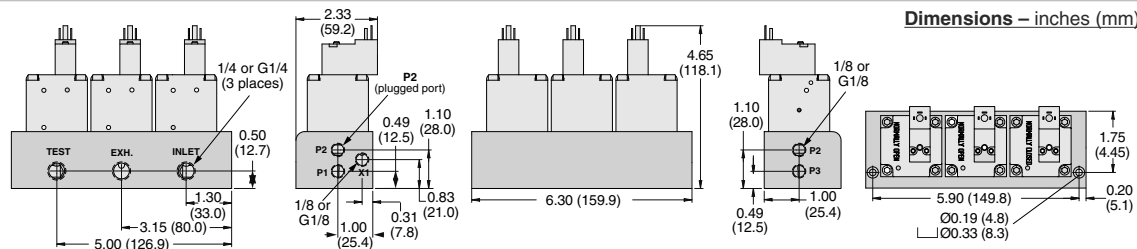
3-Way 4-Position Valve, Multi Solenoid Actuated											
Port Size			Normally Closed		Sensor Ports			Pilot Port Thread		Avg. C _v	Weight lb (kg)
In	Exh.	Test	Model Number#		P1	P2	P3	NPT	BSPP		
1/4	1/4	1/4	LT32NB27500Z01	LT32DB27500Z01	1/8	1/8	1/8	1/8 NPT	G 1/8	0.9	3.6 (1.7)

Voltage: Z=110-120 VAC, 50/60 Hz; W=24 VDC, e.g., LT32NB27500W01.

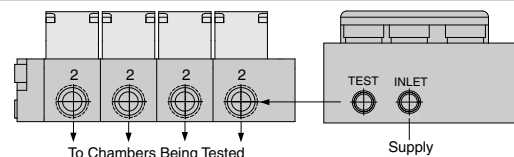



B1

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		Width	Length	
1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. Flow Media: Filtered air.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air For liquid applications, consult ROSS.
Mounting Type	Inline	Pilot Supply	Internal or External
Solenoids	DC power; Rated for continuous duty	Operating Pressure	2 to 145 psig (0.13 to 10 bar) Pilot Supply - Internal or External: 50 to 145 psig (3.4 to 10 bar) When external pilot supply, pressure must be equal to or greater than inlet pressure.
Voltage/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	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal & Stainless Steel Seals: Buna-N
Enclosure Rating	IP65, IEC 60529		
Electrical Connection	EN 175301-803 Form A or Form C connector		
Temperature	Ambient/Media: 40° to 120°F (4 to 50°C)		

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

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.

B1

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B

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 systems.

Other literature is available for engineering, maintenance, and service requirements.

If you need products or specifications not shown in this catalog, please visit ROSS' website, contact ROSS or your ROSS distributor. The ROSS Support Team 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' at rosscontrols.com.