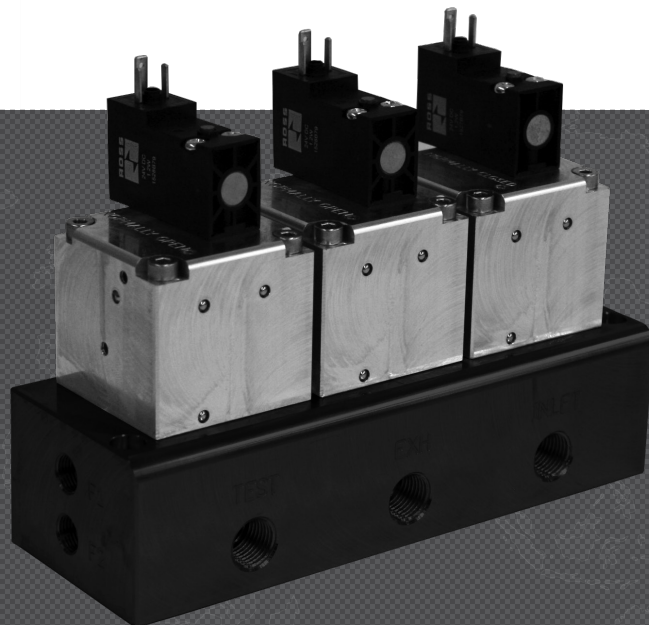




POPPET VALVES DALE SERIES

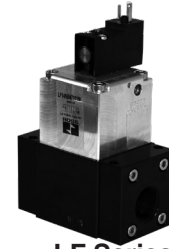
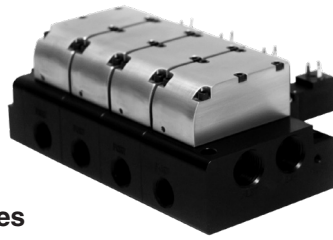
POPPET VALVES & MANIFOLDS
LEAK TIGHT VALVES & MANIFOLDS



ROSS CONTROLS



CP Series

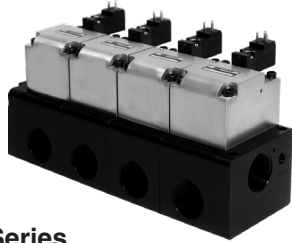


LF Series

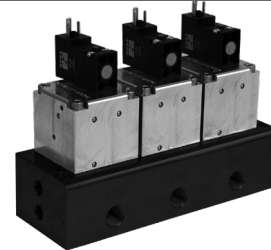
Internally or externally piloted series for use in standard pressure applications with 30 psi (2 bar) minimum operating pressure.



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

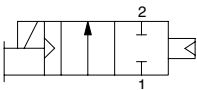


VALVE TYPE/FUNCTION	SOLENOID	PRESSURE	AVAILABLE INLET PORT SIZES									MAXIMUM FLOW Cv	MOUNTING		Page
			1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2		IN-LINE	MANIFOLD	
CP SERIES Valves & Manifolds															
2/2												108			D1.3 - D1.8
3/2												12.3			D1.5 - D1.10
LF SERIES															
2/2												62.7			D1.11 - D1.12
CX SERIES for Leak Test Applications															
2/2												108			D1.13 - D1.14
3/2												12.3			D1.15 - D1.16
2/2												108			D1.17 - D1.18
3/2												12.3			D1.19 - D1.20
CX SERIES MANIFOLDS for Leak Test Applications															
2/2												108			D1.21 - D1.22
3/2												12.3			D1.23 - D1.24
2/2												108			D1.25 - D1.26
3/2												12.3			D1.23 - D1.24
LX SERIES for Leak Test Applications															
2/2												62.7			D1.25 - D1.26
2/2												62.7			D1.27
LT SERIES															
3/4												2.2			D1.28
Valve Manifold Configurator															
D1.29															

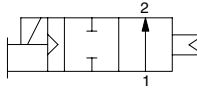
2-Way 2-Position Valves, Spring Assisted Air Return									
Port Size		Internal Pilot Supply				Pilot Port Thread		Avg. C _v	Weight lb (kg)
		Normally Closed		Normally Open					
		Model Number#		Model Number#					
1	2	NPT Threads	G Threads	NPT Threads	G Threads	NPT	G		
1/2	3/8	CP14NB37101W	CP14DB37101W	CP24NB37101W	CP24DB37101W	10-32 UNF	M5	3.5	1.4 (0.6)
1/2	1/2	CP14NB47101W	CP14DB47101W	CP24NB47101W	CP24DB47101W	10-32 UNF	M5	3.5	1.4 (0.6)
1	3/4	CP16NB57101W	CP16DB57101W	CP26NB57101W	CP26DB57101W	1/8-27 NPT	G1/8	12.3	3.5 (1.6)
1	1	CP16NB67101W	CP16DB67101W	CP26NB67101W	CP26DB67101W	1/8-27 NPT	G1/8	12.3	3.5 (1.6)
1½	1¼	CP18NB77101W	CP18DB77101W	CP28NB77101W	CP28DB77101W	1/8-27 NPT	G1/8	44.9	10.0 (4.6)
1½	1½	CP18NB87101W	CP18DB87101W	CP28NB87101W	CP28DB87101W	1/8-27 NPT	G1/8	44.9	10.0 (4.6)
2½	2	CP10NB97101W	CP10DB97101W	CP20NB97101W	CP20DB97101W	1/8-27 NPT	G1/8	108	19.5 (8.9)
2½	2½	CP10NB07101W	CP10DB07101W	CP20NB07101W	CP20DB07101W	1/8-27 NPT	G1/8	108	19.5 (8.9)

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., CP14NB37101Z.

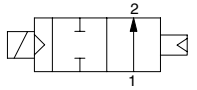
1/2 thru 2½
Normally Closed



1/2 & 1
Normally Open



1½ & 2½
Normally Open





Port Sizes
3/8 & 1/2



Port Sizes
3/4 thru 2½

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	In-line	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; 1.5 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.

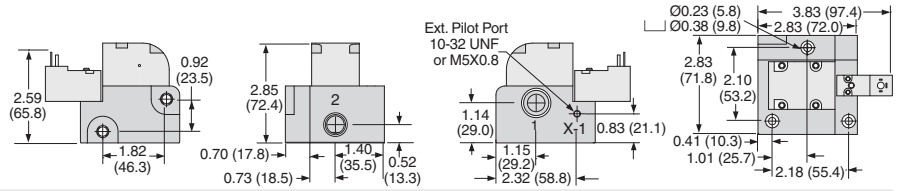


Solenoid Pilot Controlled Valves

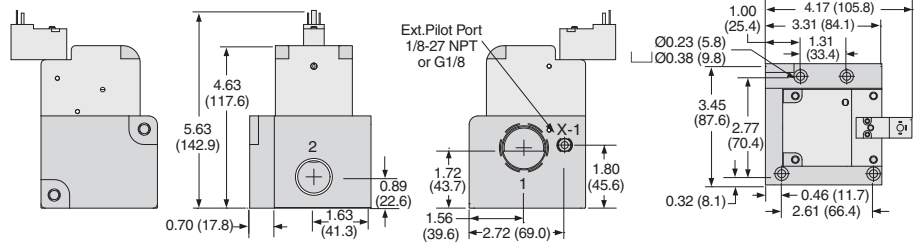
Dale CP Series

Valve Dimensions – inches (mm)

Port Size 3/8 & 1/2

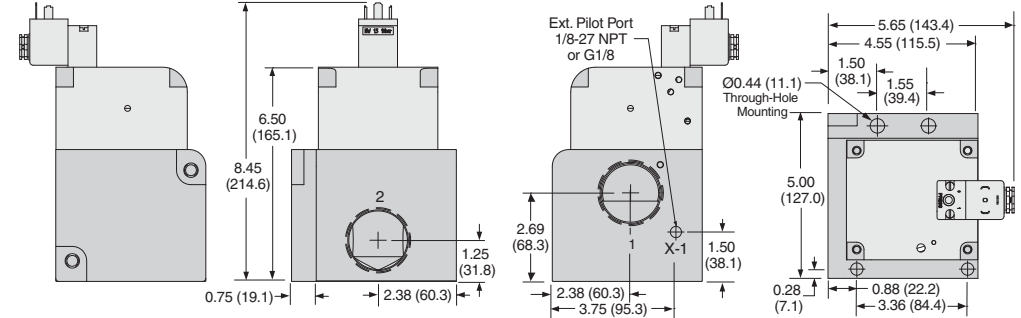


Port Size 3/4 & 1

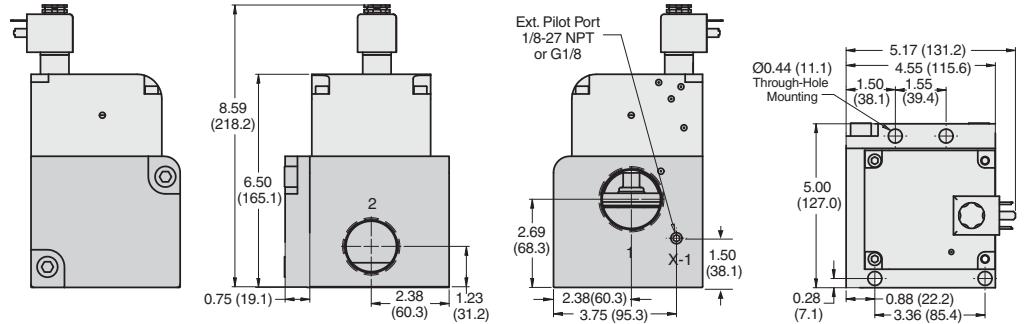


Port Size 1 1/4 & 1 1/2

Normally Closed

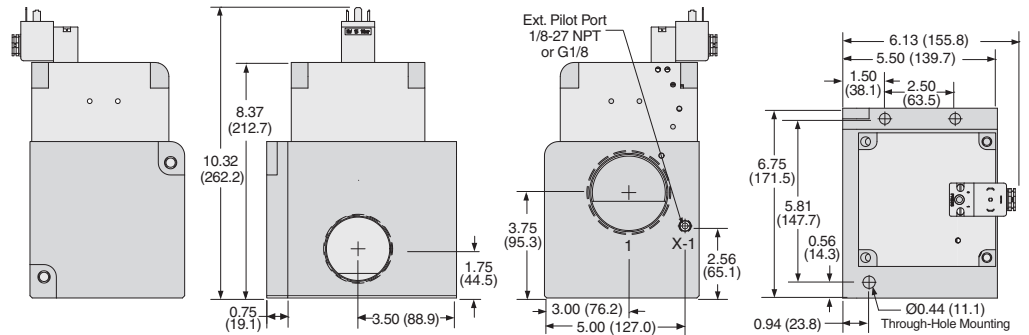


Normally Open

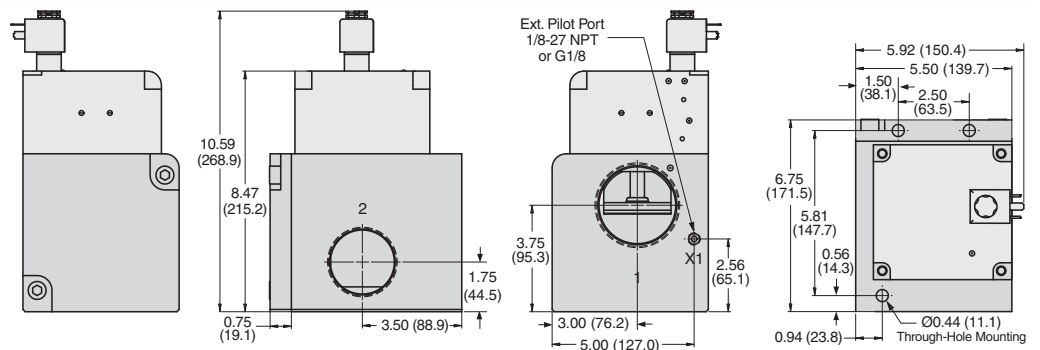


Port Size 2 & 2 1/2

Normally Closed



Normally Open



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	G Threads	NPT Threads	G Threads	NPT	BSPF		
1/2	3/8	CP34NB37101W	CP34DB37101W	CP44NB37101W	CP44DB37101W	10-32 UNF	M5	3.5	1.8 (0.8)
1/2	1/2	CP34NB47101W	CP34DB47101W	CP44NB47101W	CP44DB47101W	10-32 UNF	M5	3.5	1.8 (0.8)
1	3/4	CP36NB57101W	CP36DB57101W	CP46NB57101W	CP46DB57101W	1/8-27 NPT	G1/8	12.3	5.3 (2.4)
1	1	CP36NB67101W	CP36DB67101W	CP46NB67101W	CP46DB67101W	1/8-27 NPT	G1/8	12.3	5.3 (2.4)

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., CP34NB37101Z.

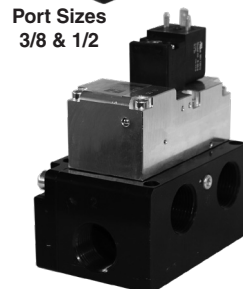
1/2" & 1"
Normally Closed

1/2"
Normally Open

1"
Normally Open



Port Sizes
3/8 & 1/2



Port Sizes
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	R/Rp 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):

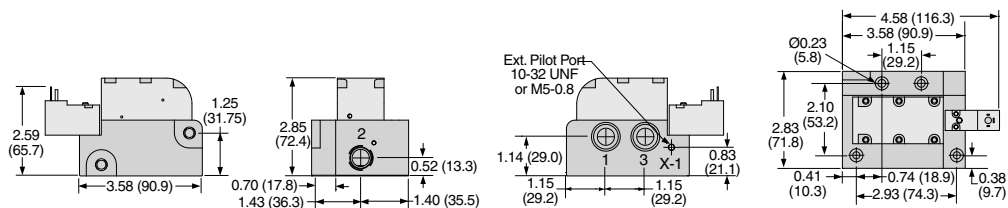
Construction Design	Poppet	Flow Media	Filtered air <i>For liquid applications, consult ROSS.</i>
Mounting Type	In-line	Pilot Supply	Internal or External
Solenoids	Rated for continuous duty	Operating Pressure	30 to 145 psig (2 to 10 bar) Pilot Supply - Internal or External: 30 to 145 psig (2 to 10 bar) <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; 1.5 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.



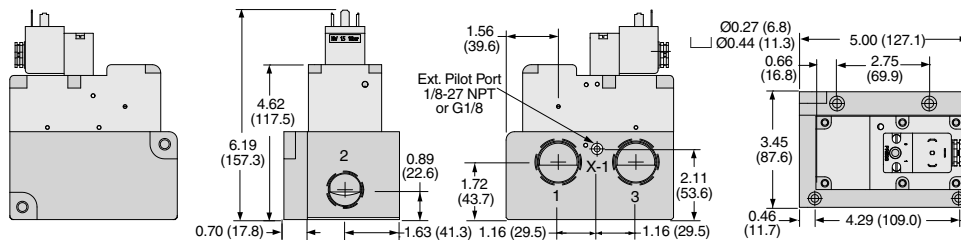
Valve Dimensions – inches (mm)

Port Size 3/8 & 1/2

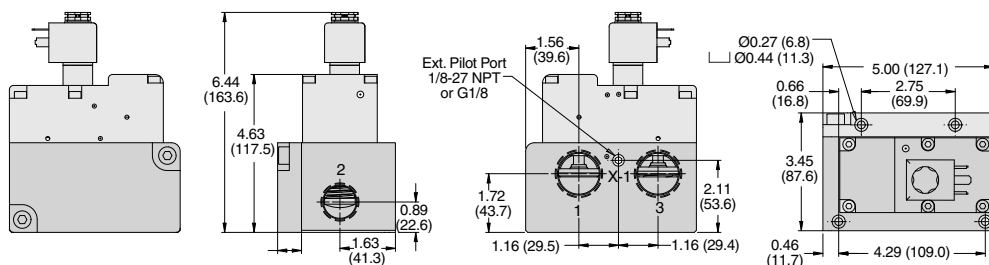


Port Size 3/4 & 1

Normally Closed



Normally Open



ROSS/FLEX® Looking for a different solution?

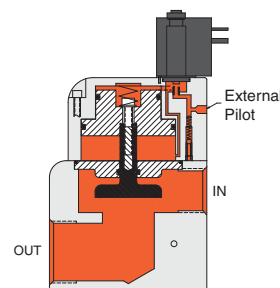
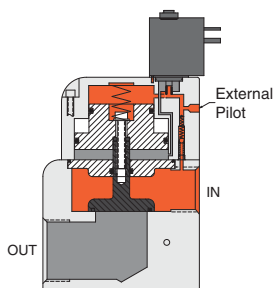
ROSS/FLEX® Customer defined application specific solutions that reduce cost, improve productivity and provide a perfect fit.

Valve Operation Overview

1 - Valve Not Actuated

2 - Valve Actuated

2/2 Normally Closed

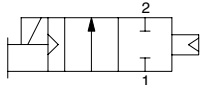
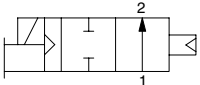
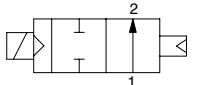


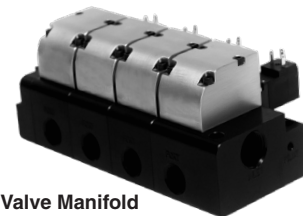
Solenoid Pilot Controlled Valve Manifolds

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	G Threads	NPT Threads	G Threads	NPT	G	
1/2	3/8	CP14NB3711XW	CP14DB3711XW	CP24NB3711XW	CP24DB3711XW	10-32 UNF	M5	3.7
1/2	1/2	CP14NB4711XW	CP14DB4711XW	CP24NB4711XW	CP24DB4711XW	10-32 UNF	M5	3.7
1	3/4	CP16NB5711XW	CP16DB5711XW	CP26NB5711XW	CP26DB5711XW	1/8-27 NPT	G1/8	13.7
1	1	CP16NB6711XW	CP16DB6711XW	CP26NB6711XW	CP26DB6711XW	1/8-27 NPT	G1/8	13.7
1½	1¼	CP18NB7711XW	CP18DB7711XW	CP28NB7711XW	CP28DB7711XW	1/8-27 NPT	G1/8	44.9
1½	1½	CP18NB8711XW	CP18DB8711XW	CP28NB8711XW	CP28DB8711XW	1/8-27 NPT	G1/8	44.9
2½	2	CP10NB9711XW	CP10DB9711XW	CP20NB9711XW	CP20DB9711XW	1/8-27 NPT	G1/8	108
2½	2½	CP10NB0711XW	CP10DB0711XW	CP20NB0711XW	CP20DB0711XW	1/8-27 NPT	G1/8	108

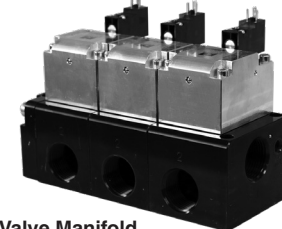
 <p>1/2" thru 2½" Normally Closed</p>	 <p>1/2" & 1" Normally Open</p>	 <p>1½" & 2½" Normally Open</p>
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Valve Manifold Ports 3/8 & 1/2



Valve Manifold Ports 3/4 & 1



Valve Manifold Ports 1/4 thru 2½

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., CP14NB3711XZ.

*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., CP14NB37114W (4 = 4 Stations), CP14NB37110W, (0 = 10 Stations).

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

EXTERNAL PILOT SUPPLY CONVERSION:

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

ACCESSORIES - Electrical Connectors

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

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

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air <i>For liquid applications, consult ROSS.</i>
Mounting Type	In-line	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; 1.5 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.

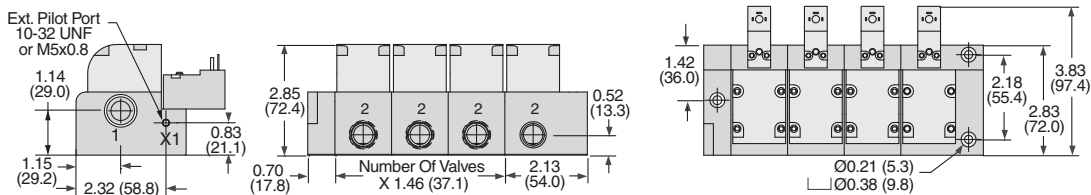


Solenoid Pilot Controlled Valve Manifolds

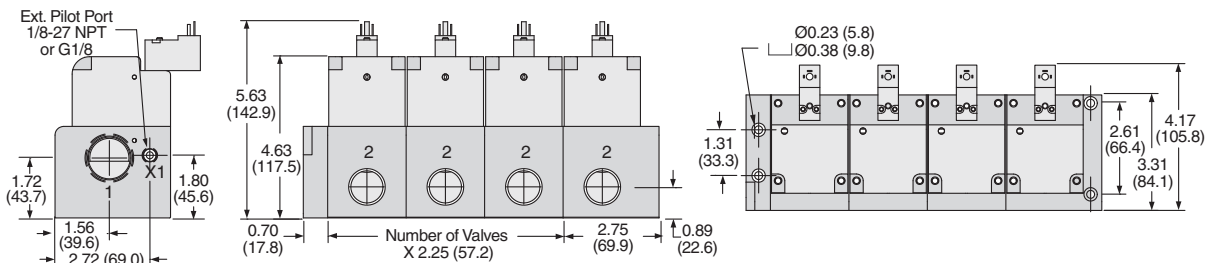
Dale CP Series

Dimensions – inches (mm)

Port Size 3/8 & 1/2

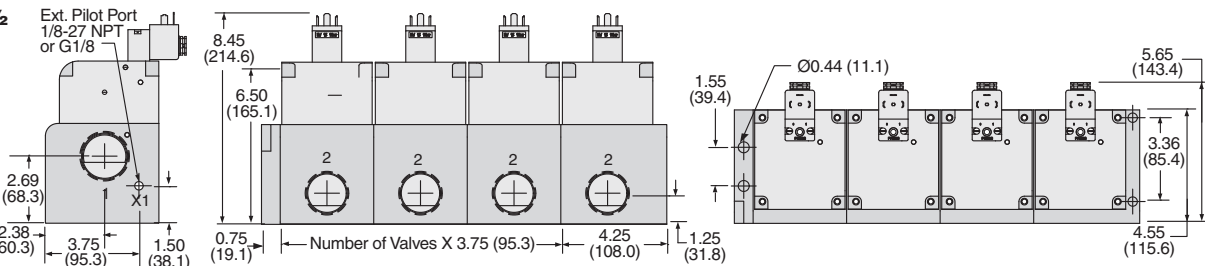


Port Size 3/4 & 1

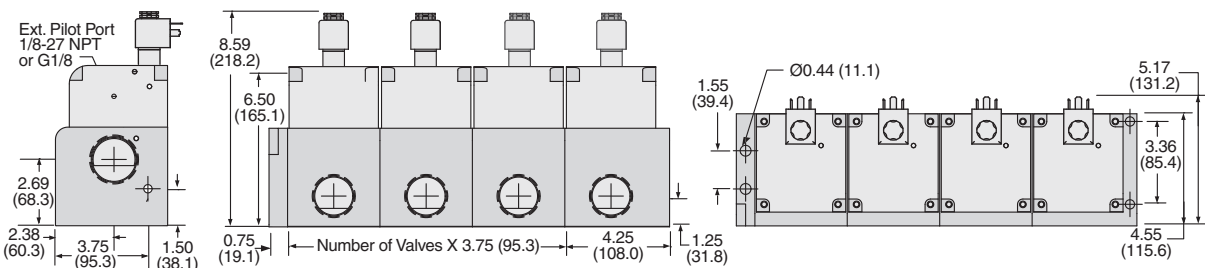


Port Size 1 1/4 & 1 1/2

Normally Closed

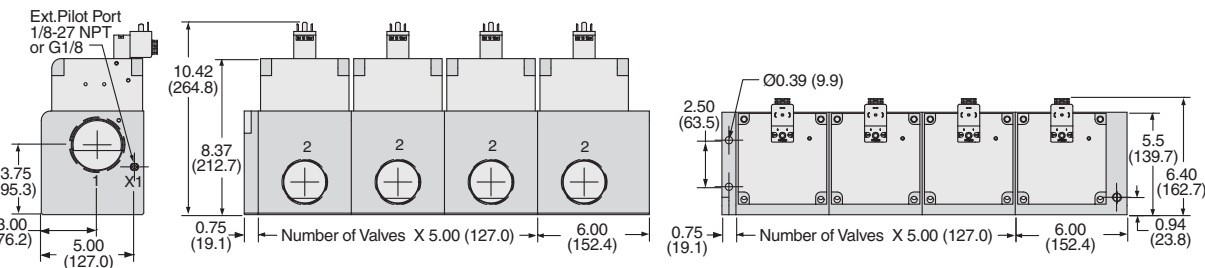


Normally Open

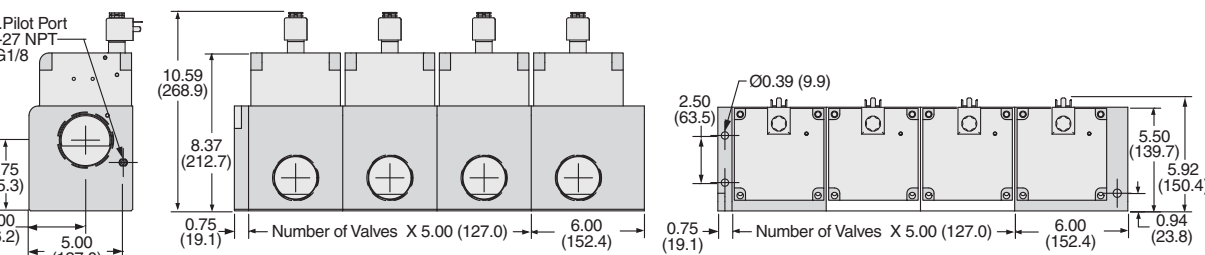


Port Size 2 & 2 1/2

Normally Closed



Normally Open



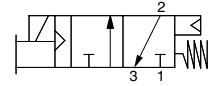
Solenoid Pilot Controlled Valve Manifolds

Dale CP Series

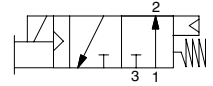
Manifolds can be ordered from two to ten stations. Complete valves-on-manifold assemblies can be ordered to fit your precise requirements. For preassembled manifold valves with the same model number, select the model number from the table below. For ordering the Dale CP Series manifold valves with different 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	G Threads	NPT Threads	G Threads	NPT	G		
1/2	3/8	CP34NB3711XW	CP34DB3711XW	CP44NB3711XW	CP44DB3711XW	10-32 UNF	M5	3.6	
1/2	1/2	CP34NB4711XW	CP34DB4711XW	CP44NB4711XW	CP44DB4711XW	10-32 UNF	M5	3.6	
1	3/4	CP36NB5711XW	CP36DB5711XW	CP46NB5711XW	CP46DB5711XW	1/8-27 NPT	G1/8	12.3	
1	1	CP36NB6711XW	CP36DB6711XW	CP46NB6711XW	CP46DB6711XW	1/8-27 NPT	G1/8	12.3	

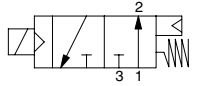
Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., CP14NB3711XZ.
 *X Number of Stations – To indicate the number of stations desired, for 2 to 9 stations, replace X in the model number with the specific number of stations, for 10 stations replace X with 0, e.g., CP14NB37114W (4 = 4 Stations), CP14NB37110W, (0 = 10 Stations).
 Contact ROSS for 1 station valve manifolds or refer to single CX Valve product page.



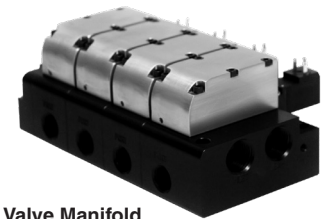
1/2" & 1" Normally Closed



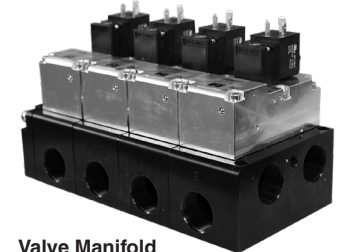
1/2" Normally Open



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	G 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	In-line	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; 1.5 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.

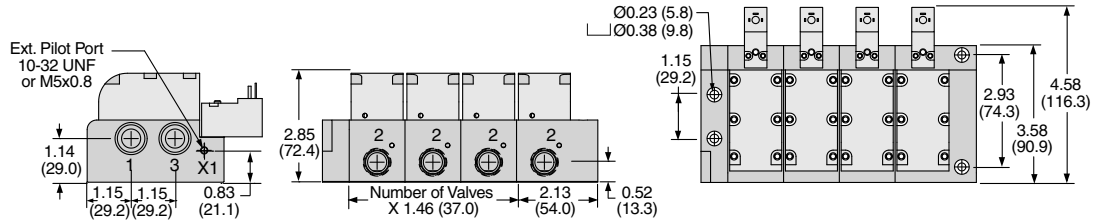


Solenoid Pilot Controlled Valve Manifolds

Dale CP Series

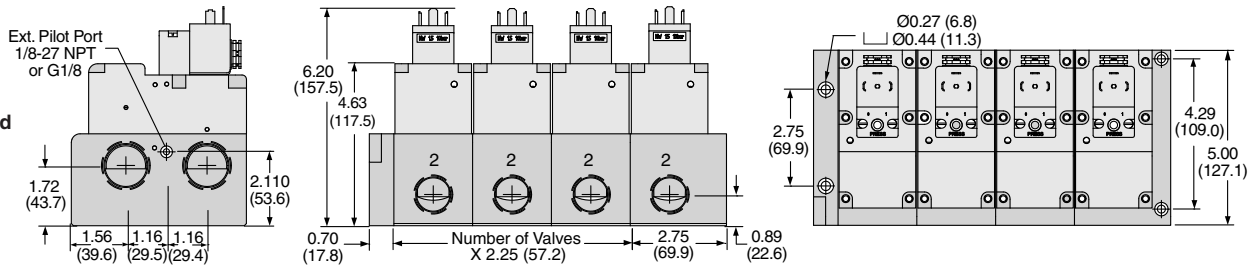
Dimensions – inches (mm)

Port Size 3/8 & 1/2

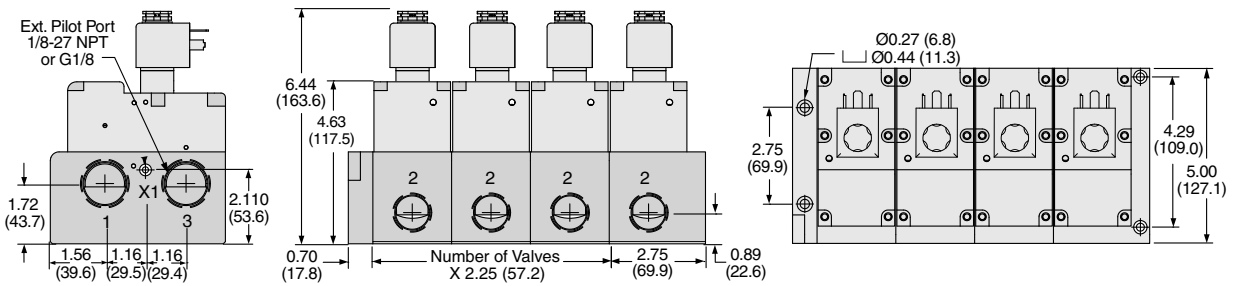


Port Size 3/4 & 1

Normally Closed



Normally Open

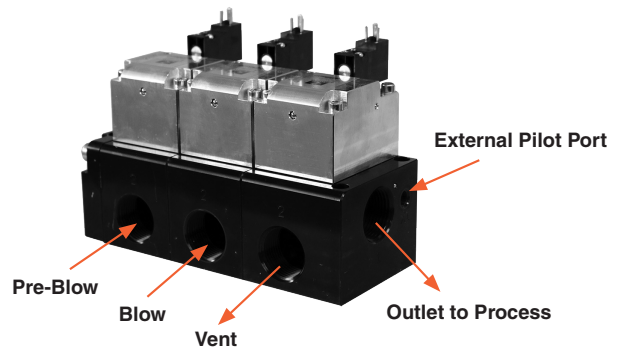


ROSS/FLEX® Looking for a different solution?

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

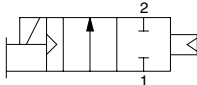
Blow Molding Application Example

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.

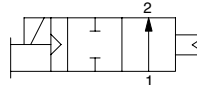


2-Way 2-Position Valves, Spring Assisted Air Return									
Port Size		Internal Pilot Supply				Pilot Port Thread		Avg. C _v	Weight lb (kg)
		Normally Closed		Normally Open					
		Model Number#		Model Number#					
1	2	NPT Threads	G Threads	NPT Threads	G Threads	NPT	G		
3/8	3/8	LF13NB37101W	LF13DB37101W	LF23NB37101W	LF23DB37101W	1/8-27 NPT	G1/8	3.6	1.5 (0.7)
1/2	1/2	LF14NB47101W	LF14DB47101W	LF24NB47101W	LF24DB47101W	1/8-27 NPT	G1/8	3.6	1.5 (0.7)
3/4	3/4	LF15NB57101W	LF15DB57101W	LF25NB57101W	LF25DB57101W	1/8-27 NPT	G1/8	12.2	3.5 (1.6)
1	1	LF16NB67101W	LF16DB67101W	LF26NB67101W	LF26DB67101W	1/8-27 NPT	G1/8	12.2	3.5 (1.6)
1¼	1¼	LF17NB77101W	LF17DB77101W	LF27NB77101W	LF27DB77101W	1/8-27 NPT	G1/8	36.1	9.3 (4.2)
1½	1½	LF18NB87101W	LF18DB87101W	LF28NB87101W	LF28DB87101W	1/8-27 NPT	G1/8	36.1	9.3 (4.2)
2	2	LF19NB97101W	LF19DB97101W	LF29NB97101W	LF29DB97101W	1/8-27 NPT	G1/8	62.7	19.3 (8.8)
2½	2½	LF10NB07101W	LF10DB07101W	LF20NB07101W	LF20DB07101W	1/8-27 NPT	G1/8	62.7	19.3 (8.8)

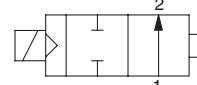
Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., LF13NB37101Z.



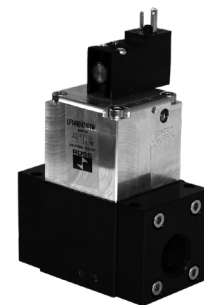
Normally Closed



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	In-line	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; 1.5 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	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.

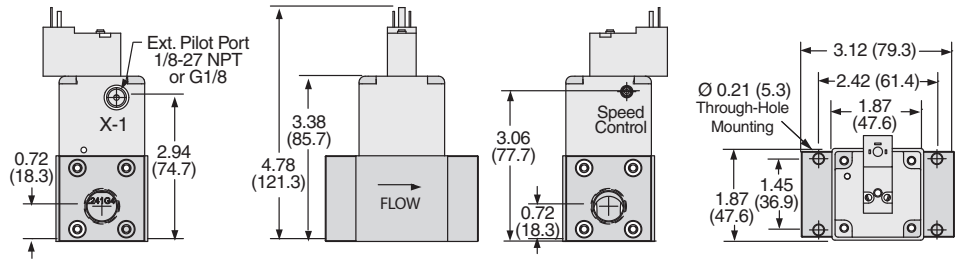


Solenoid Pilot Controlled Valves

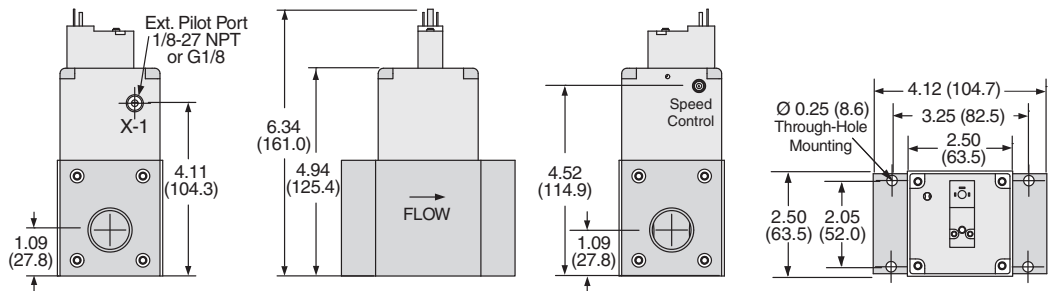
Dale LF Series

Valve Dimensions – inches (mm)

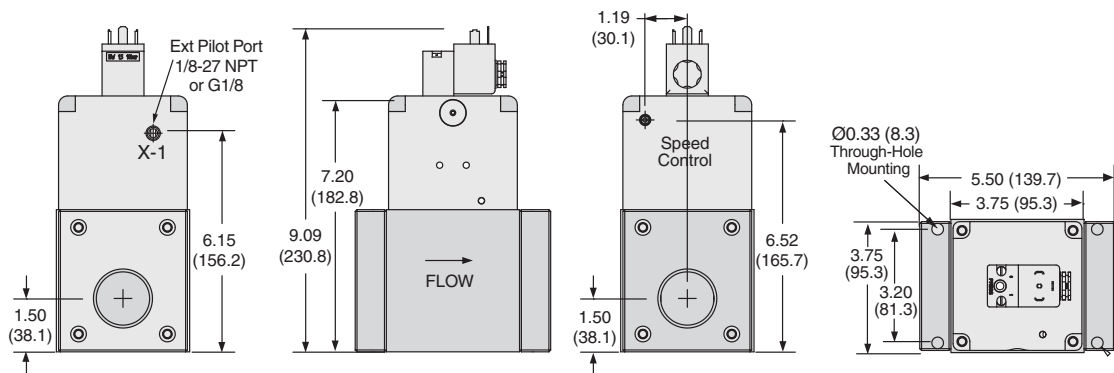
Port Size 3/8 & 1/2



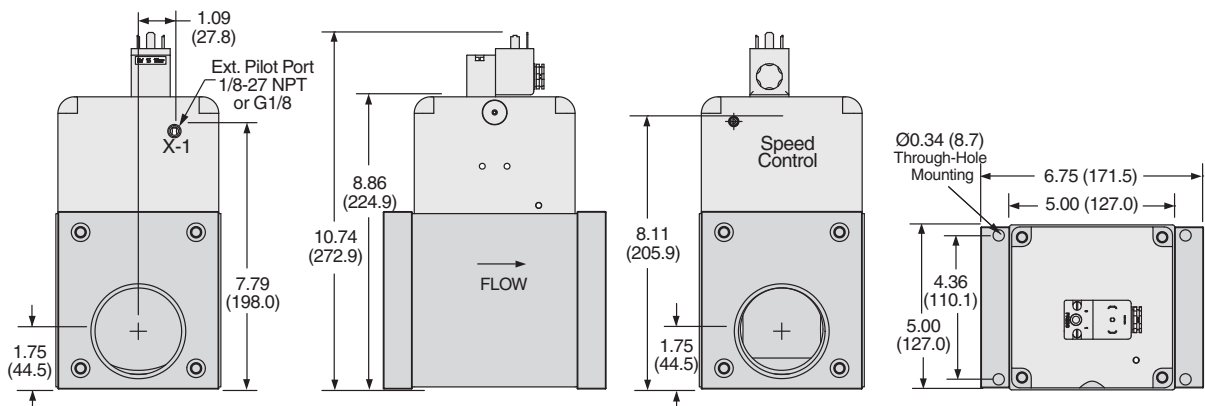
Port Size 3/4 & 1



Port Size 1 1/4 & 1 1/2



Port Size 2 & 2 1/2

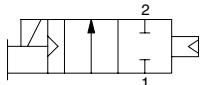


Solenoid Pilot Controlled Valves

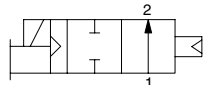
Leak Tight Dale CX Series

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	G Threads	NPT Threads	G Threads	NPT	G		
1/4	1/4	CX12NB27501W	CX12DB27501W	CX22NB27501W	CX22DB27501W	10-32 UNF	M5	0.9	1.3 (0.6)
1/2	3/8	CX14NB37501W	CX14DB37501W	CX24NB37501W	CX24DB37501W	10-32 UNF	M5	3.5	1.4 (0.6)
1/2	1/2	CX14NB47501W	CX14DB47501W	CX24NB47501W	CX24DB47501W	10-32 UNF	M5	3.5	1.4 (0.6)
1	3/4	CX16NB57501W	CX16DB57501W	CX26NB57501W	CX26DB57501W	1/8-27 NPT	G1/8	12.3	3.5 (1.6)
1	1	CX16NB67501W	CX16DB67501W	CX26NB67501W	CX26DB67501W	1/8-27 NPT	G1/8	12.3	3.5 (1.6)
1½	1¼	CX18NB77501W	CX18DB77501W	CX28NB77501W	CX28DB77501W	1/8-27 NPT	G1/8	44.9	10.0 (4.6)
1½	1½	CX18NB87501W	CX18DB87501W	CX28NB87501W	CX28DB87501W	1/8-27 NPT	G1/8	44.9	10.0 (4.6)
2½	2	CX10NB97501W	CX10DB97501W	CX20NB97501W	CX20DB97501W	1/8-27 NPT	G1/8	108	19.5 (8.9)
2½	2½	CX10NB07501W	CX10DB07501W	CX20NB07501W	CX20DB07501W	1/8-27 NPT	G1/8	108	19.5 (8.9)

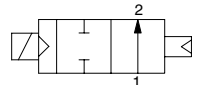
Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., CX12NB27501Z.



1/4" thru 2½" Normally Closed



1/4" thru 1" Normally Open



1½" & 2½" Normally Open

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



Port Sizes
3/8 & 1/2



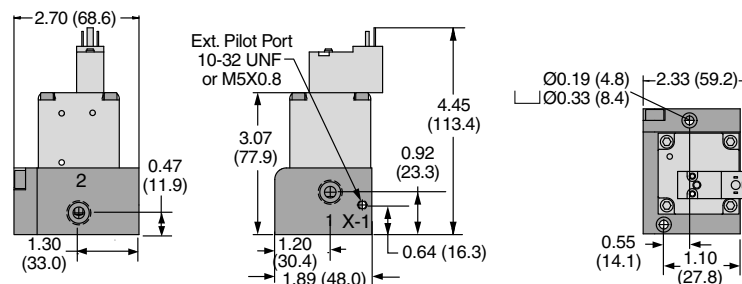
Port Sizes
1/4, 3/4 thru 2½

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 D1.14 for all size valves dimensions on this page.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Pilot Supply	External
Mounting Type	In-line	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) <i>Pilot supply pressure must be equal to or greater than inlet pressure.</i>
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; 1.5 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 <i>For liquid applications, consult ROSS.</i>		

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

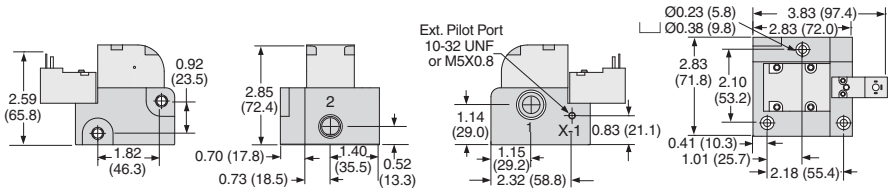


Solenoid Pilot Controlled Valves

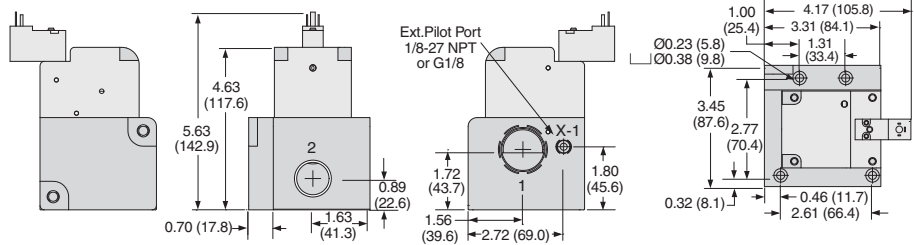
Leak Tight Dale CX Series

Valve Dimensions – inches (mm)

Port Size 3/8 & 1/2

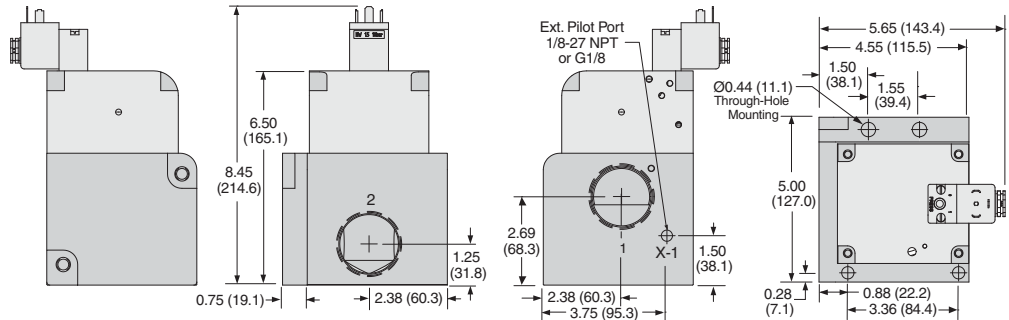


Port Size 3/4 & 1

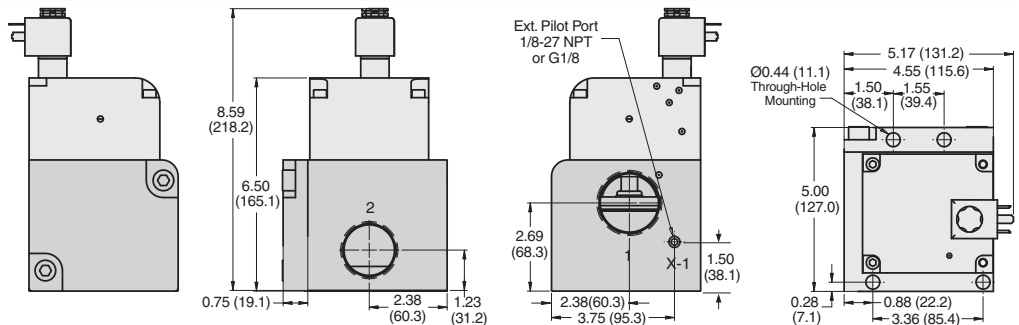


Port Size 1 1/4 & 1 1/2

Normally Closed

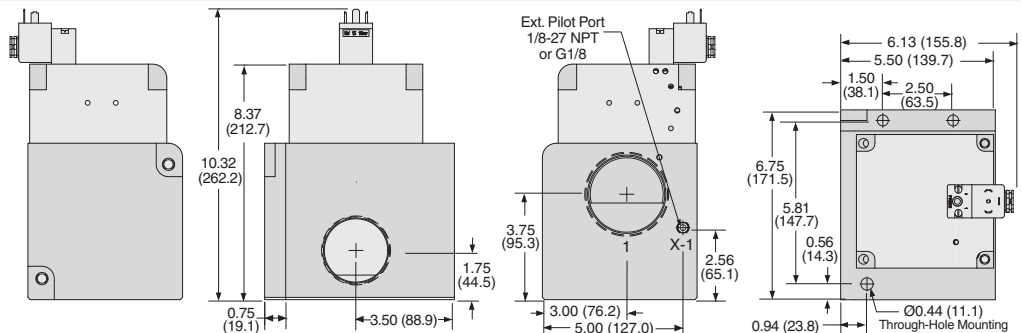


Normally Open

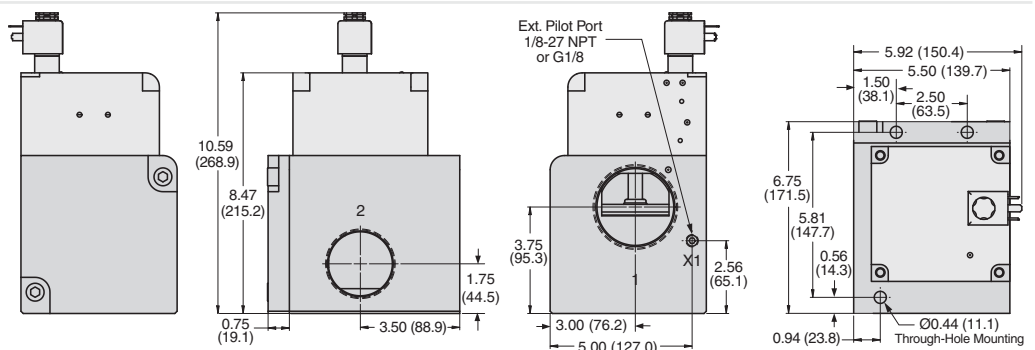


Port Size 2 & 2 1/2

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	G Threads	NPT Threads	G Threads	NPT	G		
1/2	3/8	CX34NB37501W	CX34DB37501W	CX44NB37501W	CX44DB37501W	10-32 UNF	M5	3.5	1.8 (0.8)
1/2	1/2	CX34NB47501W	CX34DB47501W	CX44NB47501W	CX44DB47501W	10-32 UNF	M5	3.5	1.8 (0.8)
1	3/4	CX36NC57501W	CX36DC57501W	CX46NC57501W	CX46DC57501W	1/8-27 NPT	G1/8	12.3	5.3 (2.4)
1	1	CX36NC67501W	CX36DC67501W	CX46NC67501W	CX46DC67501W	1/8-27 NPT	G1/8	12.3	5.3 (2.4)

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., CX34NB37501Z.

1/2" & 1" Normally Closed

1/2" Normally Open

1" Normally Open

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



Port Sizes 3/8 & 1/2



Port Sizes 3/4 & 1

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	R/Rp 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
Mounting Type	In-line		For liquid applications, consult ROSS.
Solenoids	Rated for continuous duty	Pilot Supply	External
Voltage/Power Consumption (each solenoid)	Port Size 1/2: 24 volts DC; 1.5 watts on DC 110 volts AC, 50 Hz: 5.4 VA 120 volts AC, 60 Hz: 5.0 VA	Operating Pressure	Vacuum to 145 psig (vacuum to 10 bar)
	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		Pilot Supply - External: 50 to 145 psig (3.4 to 10 bar) Pilot supply pressure must be equal to or greater than inlet pressure.
Enclosure Rating	IP65, IEC 60529	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal & Stainless Steel Seals: Buna-N
Electrical Connection	EN 175301-803 Form A or Form C connector	Manual Override	Normally Closed Valves: All Sizes; Non-locking
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		Normally Open Valves: Port Size 1/2: Non-locking Port Size 1: Locking, turn-to-lock

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

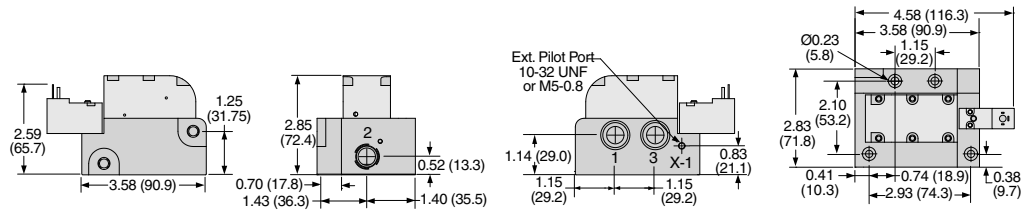


Solenoid Pilot Controlled Valves

Leak Tight Dale CX Series

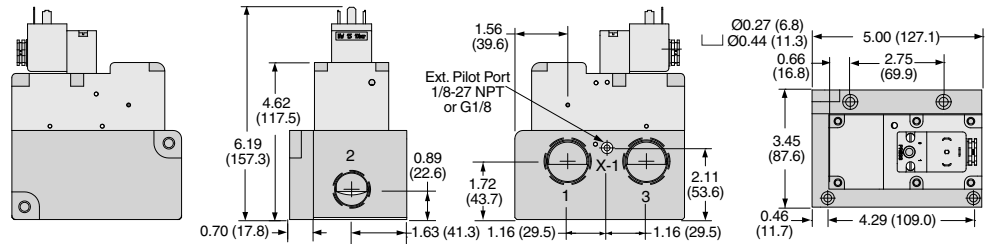
Valve Dimensions – inches (mm)

Port Size 3/8 & 1/2

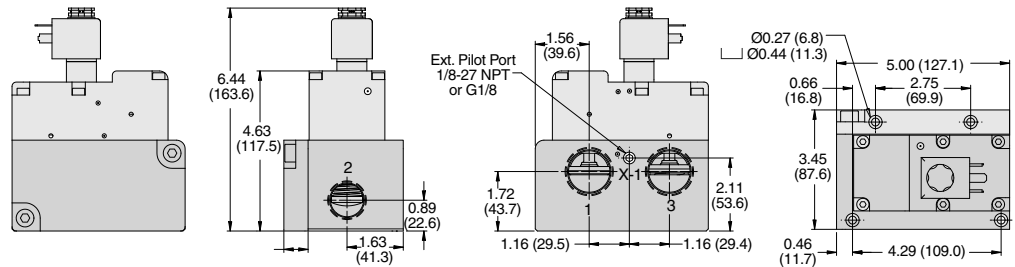


Port Size 3/4 & 1

Normally Closed



Normally Open

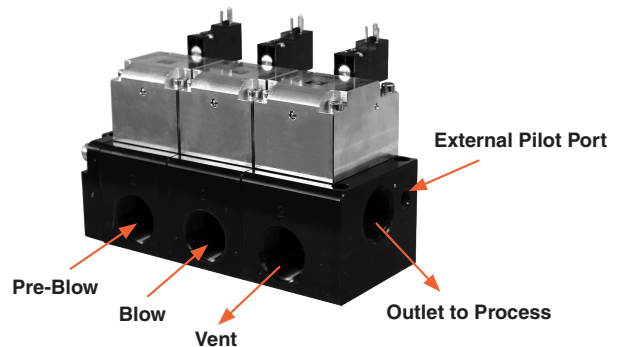


ROSS/FLEX® Looking for a different solution?

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

Blow Molding Application Example

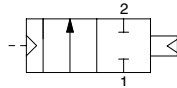
The CP & CX compact flexible manifold design eliminates piping, reduces system volume, provides fast consistent actuation and delivers an amazing flow rate up to 100 Cv.



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	G Threads	NPT	G		
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)

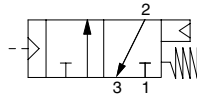


Port Sizes
3/8 & 1/2

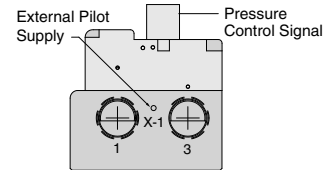
Port Sizes
3/4 thru 2½



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	G Threads	NPT	G		
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	CX36NC55501	CX36DC55501	1/8-27 NPT	G1/8	12.3	3.5 (1.6)
1	1	CX36NC65501	CX36DC65501	1/8-27 NPT	G1/8	12.3	3.5 (1.6)



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	R/Rp 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	In-line		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) <i>Pilot supply pressure must be equal to or greater than inlet pressure.</i>
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal & Stainless Steel Seals: Buna-N
Flow Media	Filtered air <i>For liquid applications, consult ROSS.</i>		
Pilot Supply	External		

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



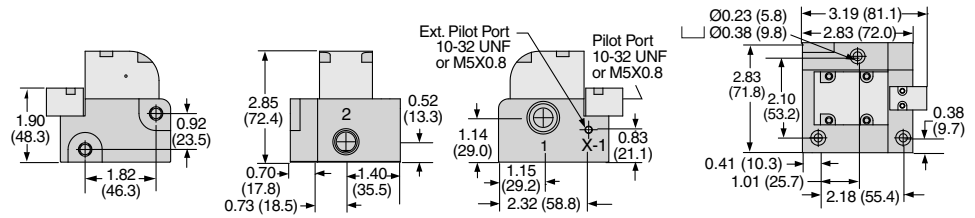
Pressure Controlled Valves

Leak Tight Dale CX Series

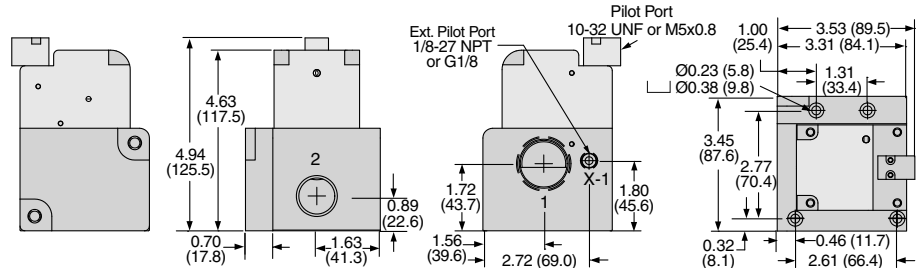
Valve Dimensions – inches (mm)

2/2 Valves

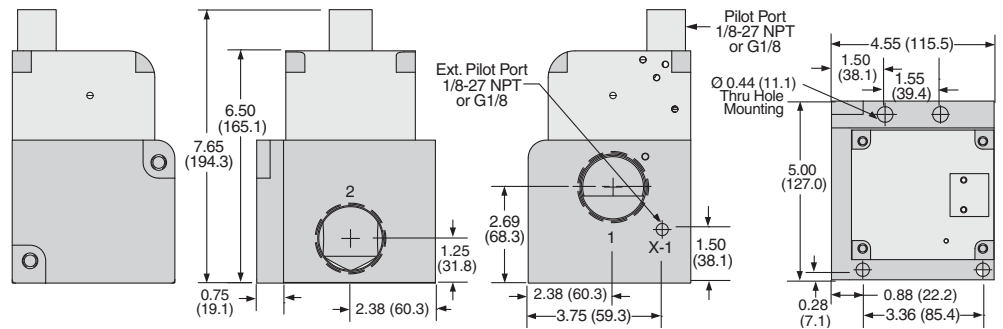
Port Size 3/8 & 1/2



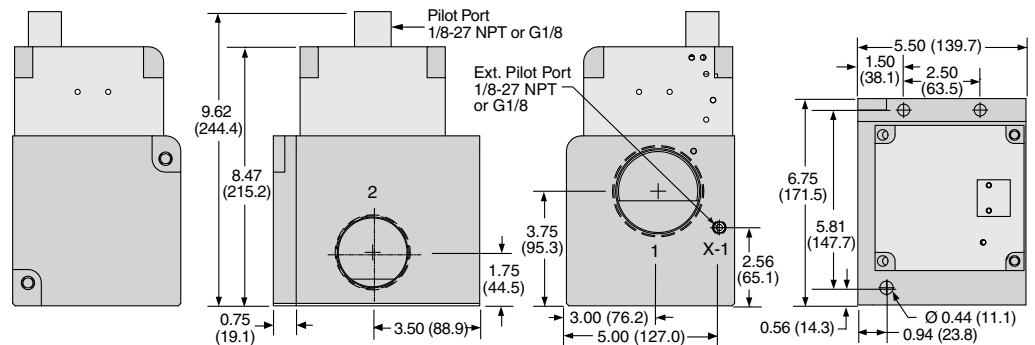
Port Size 3/4 & 1



Port Size 1 1/4 & 1 1/2

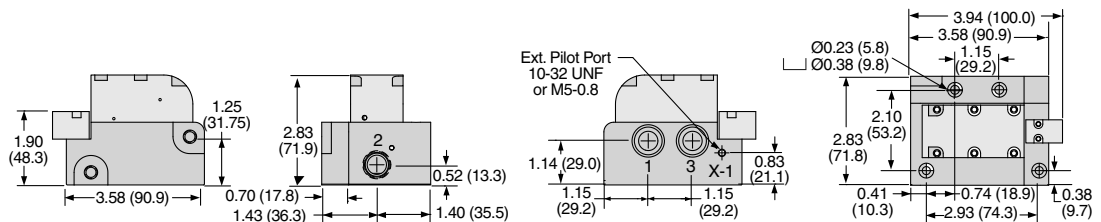


Port Size 2 & 2 1/2

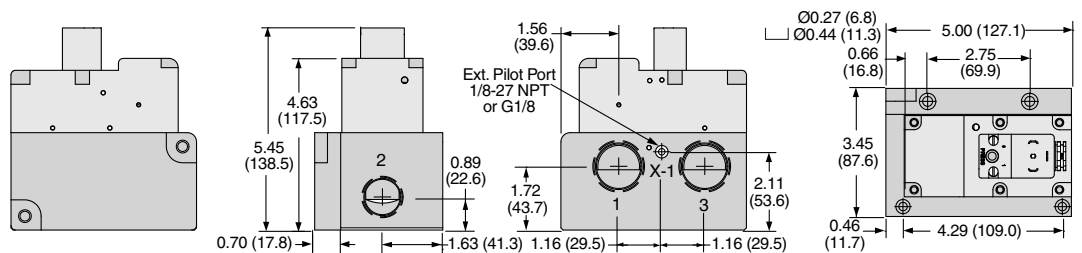


3/2 Valves

Port Size 3/8 & 1/2



Port Size 3/4 & 1



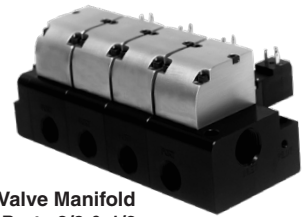
Solenoid Pilot Controlled Valve Manifolds

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	G Threads	NPT Threads	G Threads	NPT	G		
1/4	1/4	CX12NB2751XW	CX12DB2751XW	CX22NB2751XW	CX22DB2751XW	10-32 UNF	M5	0.9	
1/2	3/8	CX14NB3751XW	CX14DB3751XW	CX24NB3751XW	CX24DB3751XW	10-32 UNF	M5	3.5	
1/2	1/2	CX14NB4751XW	CX14DB4751XW	CX24NB4751XW	CX24DB4751XW	10-32 UNF	M5	3.5	
1	3/4	CX16NB5751XW	CX16DB5751XW	CX26NB5751XW	CX26DB5751XW	1/8-27 NPT	G1/8	12.3	
1	1	CX16NB6751XW	CX16DB6751XW	CX26NB6751XW	CX26DB6751XW	1/8-27 NPT	G1/8	12.3	
1½	1¼	CX18NB7751XW	CX18DB7751XW	CX28NB7751XW	CX28DB7751XW	1/8-27 NPT	G1/8	44.9	
1½	1½	CX18NB8751XW	CX18DB8751XW	CX28NB8751XW	CX28DB8751XW	1/8-27 NPT	G1/8	44.9	
2½	2	CX10NB9751XW	CX10DB9751XW	CX20NB9751XW	CX20DB9751XW	1/8-27 NPT	G1/8	108	
2½	2½	CX10NB0751XW	CX10DB0751XW	CX20NB0751XW	CX20DB0751XW	1/8-27 NPT	G1/8	108	

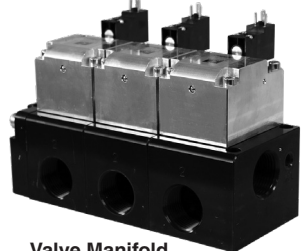
1/4" thru 2½" Normally Closed	1/4" thru 1" Normally Open	1½" & 2½" Normally Open



Valve Manifold Ports 3/8 & 1/2



Valve Manifold Ports 3/4 & 1



Valve Manifold Ports 1/4, 1/4 thru 2½

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., e.g., CX12NB2751XZ.

*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., CX12NB27514W (4 = 4 Stations), CX12NB27510W, (0 = 10 Stations).

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

ACCESSORIES – Electrical Connectors

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

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

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air <i>For liquid applications, consult ROSS.</i>
Mounting Type	In-line	Pilot Supply	External
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) <i>Pilot supply pressure must be equal to or greater than inlet pressure.</i>
Voltage/Power Consumption (each solenoid)	Port Size 1/4 thru 1: 24 volts DC; 1.5 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.

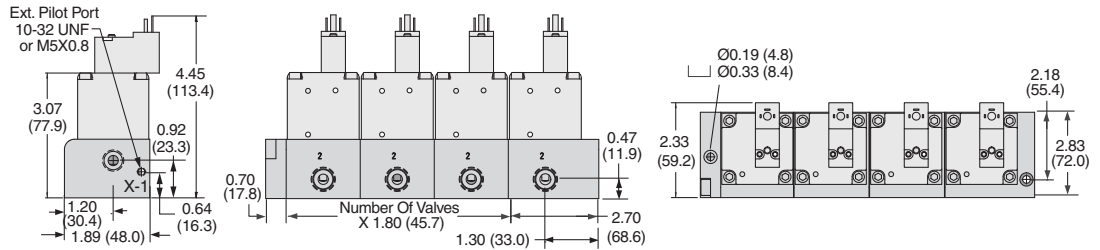


Solenoid Pilot Controlled Valve Manifolds

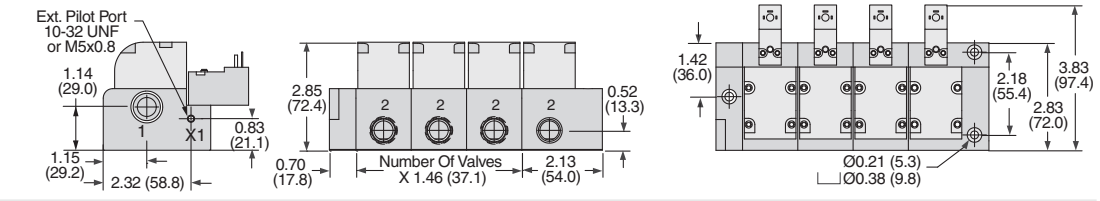
Leak Tight Dale CX Series

Dimensions – inches (mm)

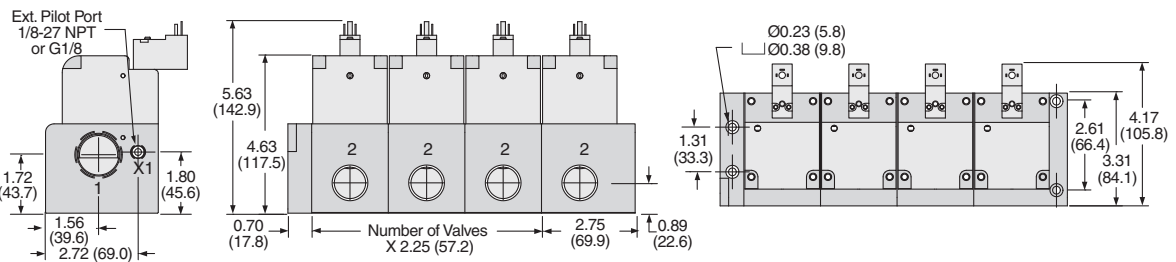
Port Size 1/4



Port Size 3/8 & 1/2

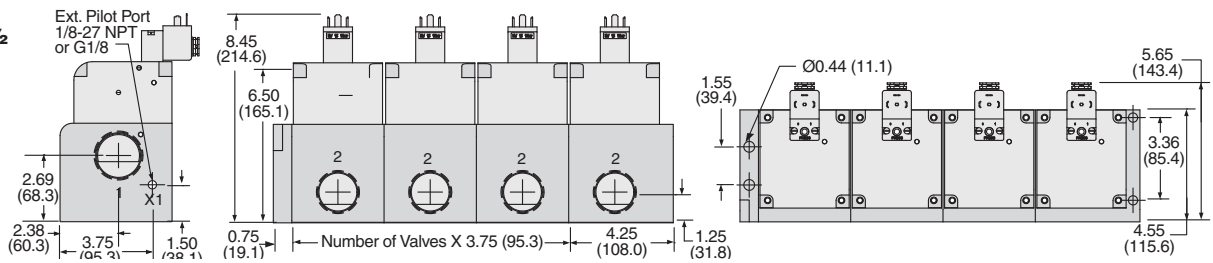


Port Size 3/4 & 1

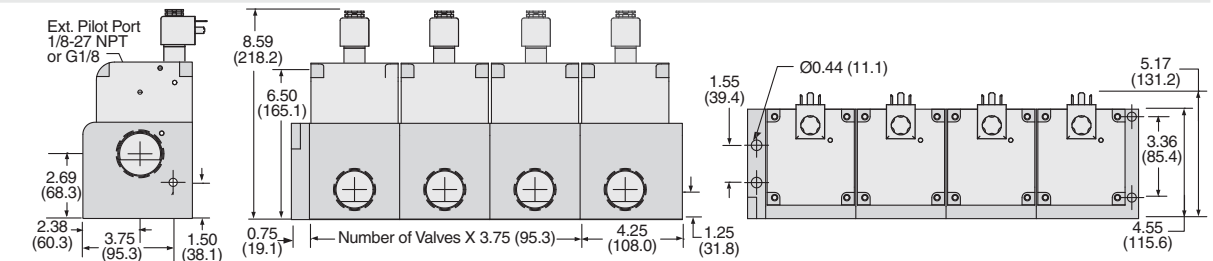


Port Size 1 1/4 & 1 1/2

Normally Closed

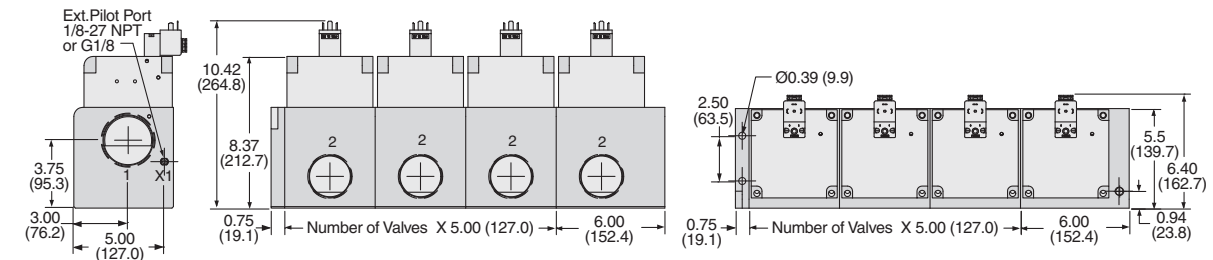


Normally Open

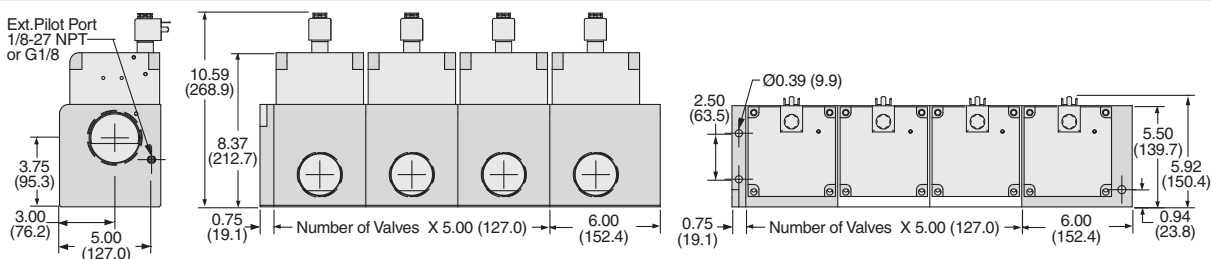


Port Size 2 & 2 1/2

Normally Closed



Normally Open



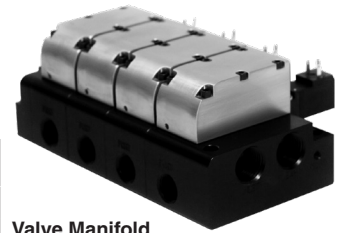
Solenoid Pilot Controlled Valve Manifolds

Leak Tight Dale CX Series

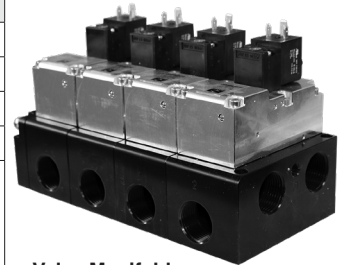
Manifolds can be ordered from two (2) to ten (10) stations. Complete valves-on-manifold assemblies can be ordered to fit your precise requirements.

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.



Valve Manifold Ports 3/8 & 1/2



Valve Manifold Ports 3/4 & 1

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#*					
1, 3	2	NPT Threads		G Threads		NPT		G	
1/2	3/8	CX34NB3751XW	CX34DB3751XW	CX44NB3751XW	CX44DB3751XW	10-32 UNF	M5	3.6	
1/2	1/2	CX34NB4751XW	CX34DB4751XW	CX44NB4751XW	CX44DB4751XW	10-32 UNF	M5	3.6	
1	3/4	CX36NC5751XW	CX36DC5751XW	CX46NC5751XW	CX46DC5751XW	1/8-27 NPT	G1/8	12.3	
1	1	CX36NC6751XW	CX36DC6751XW	CX46NC6751XW	CX46DC6751XW	1/8-27 NPT	G1/8	12.3	

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., CX34NB3751XZ.
 *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., CX34NB37514W (4 = 4 Stations), CX34NB37510W, (0 = 10 Stations).

1/2" & 1" Normally Closed

1/2" Normally Open

1" Normally Open

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	G 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	In-line	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) Pilot supply pressure must be equal to or greater than inlet pressure.
Voltage/Power Consumption (each solenoid)	Port Size 1/2: 24 volts DC; 1.5 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.

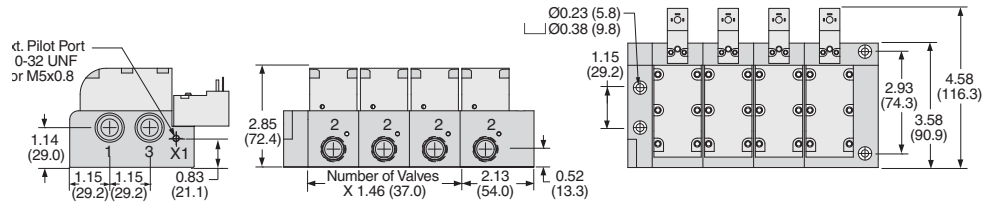


Solenoid Pilot Controlled Valve Manifolds

Leak Tight Dale CX Series

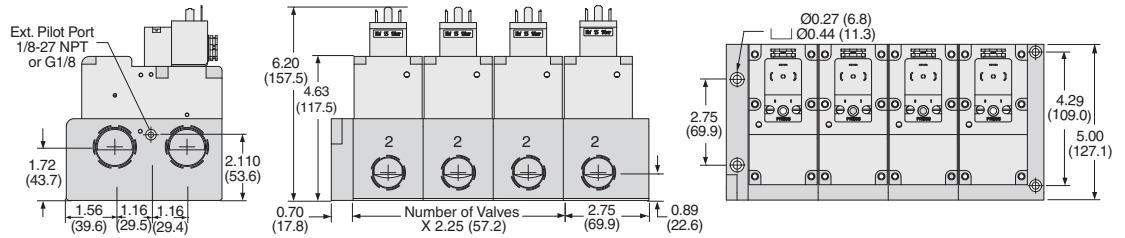
Dimensions – inches (mm)

Port Size 3/8 & 1/2

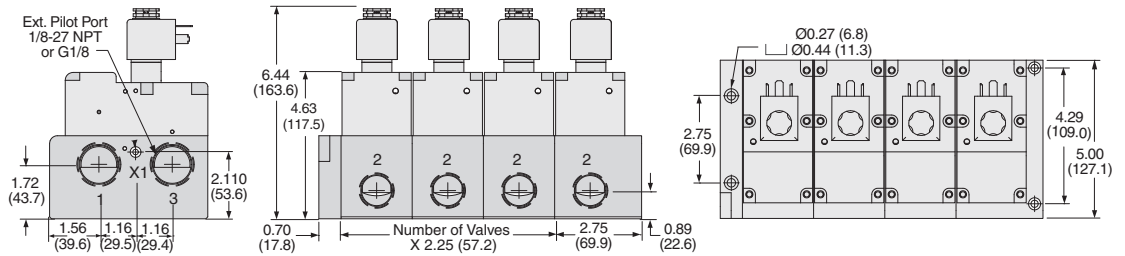


Port Size 3/4 & 1

Normally Closed



Normally Open

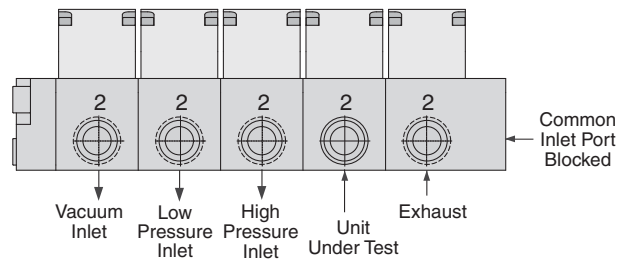


ROSS/FLEX® Looking for a different solution?

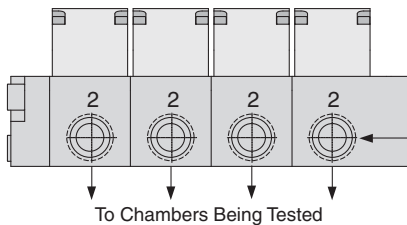
ROSS/FLEX® Customer defined application specific solutions that reduce cost, improve productivity and provide a perfect fit.

Leak Test Systems using Dale CX & LT Series Valves

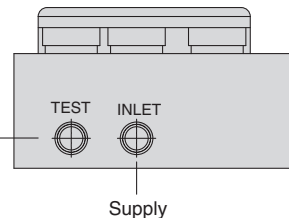
Shown below are typical manifold layouts. Many flexible, compact, manifold designs and configurations can be achieved using the Dale Series valves.



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

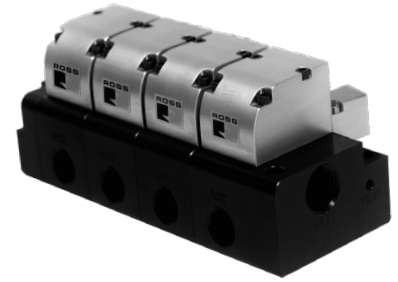
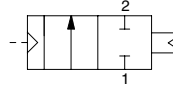
Manifolds can be ordered from two (2) to ten (10) stations.

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.

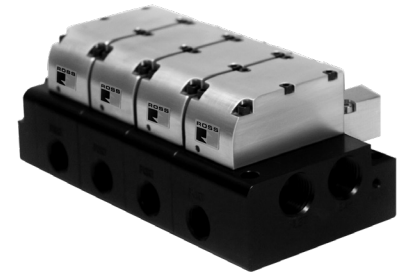
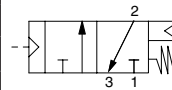
For ordering the Dale CX Series manifold valves with different valve functions, please see page B1.24 for manifold configurator.

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	G Threads	NPT	G	
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

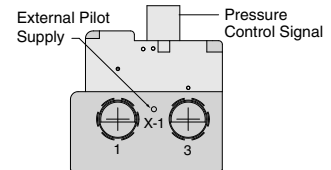
3-Way 2-Position Valves, Spring Assisted Air Return						
Port Size		External Pilot Supply		Pilot Port Thread		Avg. C _v
		Normally Closed				
		Model Number*				
1, 3	2	NPT Threads	G Threads	NPT	BSPP	
1/2	3/8	CX34NB3551X	CX34DB3551X	10-32 UNF	M5	3.6
1/2	1/2	CX34NB4551X	CX34DB4551X	10-32 UNF	M5	3.6
1	3/4	CX36NC5551X	CX36DC5551X	1/8-27 NPT	G1/8	12.3
1	1	CX36NC6551X	CX36DC6551X	1/8-27 NPT	G1/8	12.3



Valve Manifold
Ports 3/8 & 1/2

***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	R/Rp 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	In-line		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) <i>Pilot supply pressure must be equal to or greater than inlet pressure.</i>
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal & Stainless Steel Seals: Buna-N
Flow Media	Filtered air <i>For liquid applications, consult ROSS.</i>		
Pilot Supply	External		

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



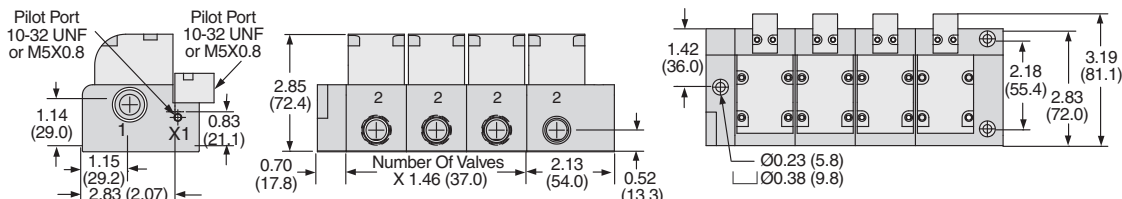
Pressure Controlled Valve Manifolds

Leak Tight Dale CX Series

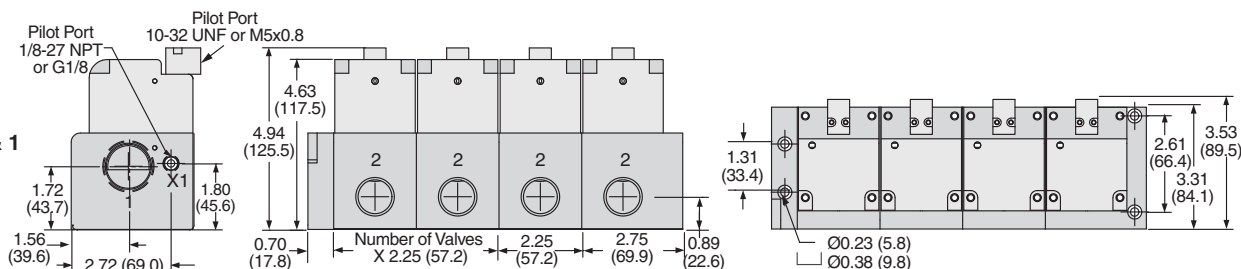
Dimensions – inches (mm)

2/2 Valves

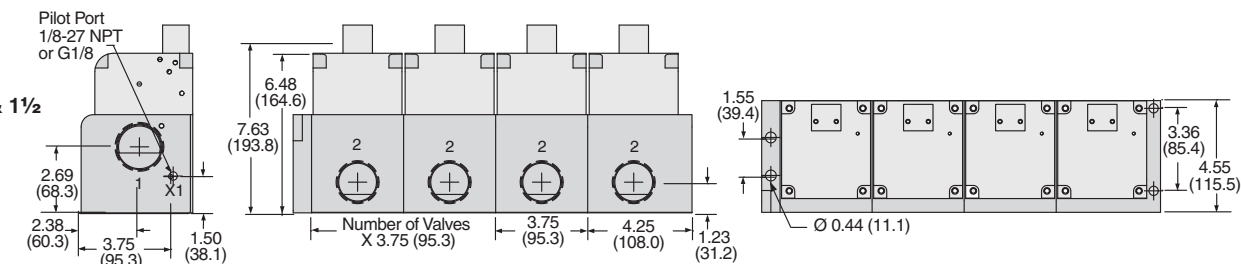
Port Size 3/8 & 1/2



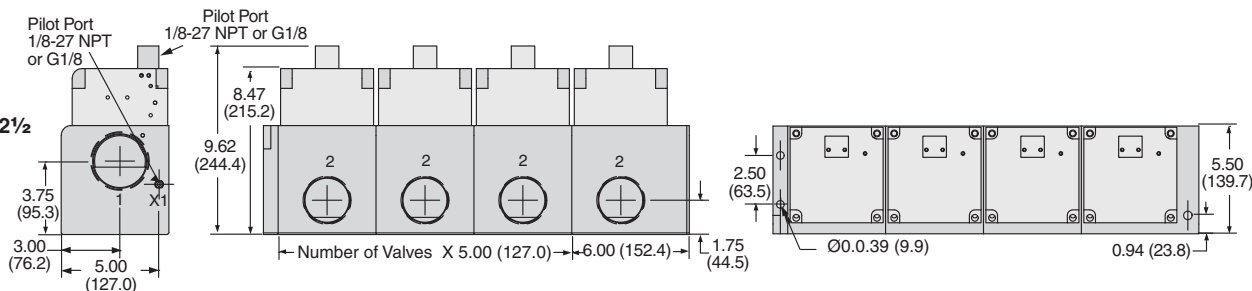
Port Size 3/4 & 1



Port Size 1 1/4 & 1 1/2

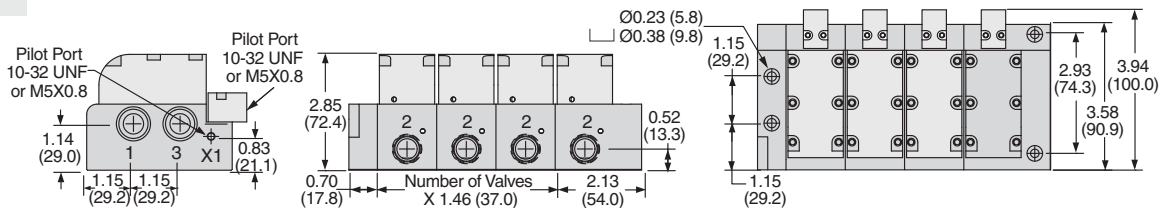


Port Size 2 & 2 1/2

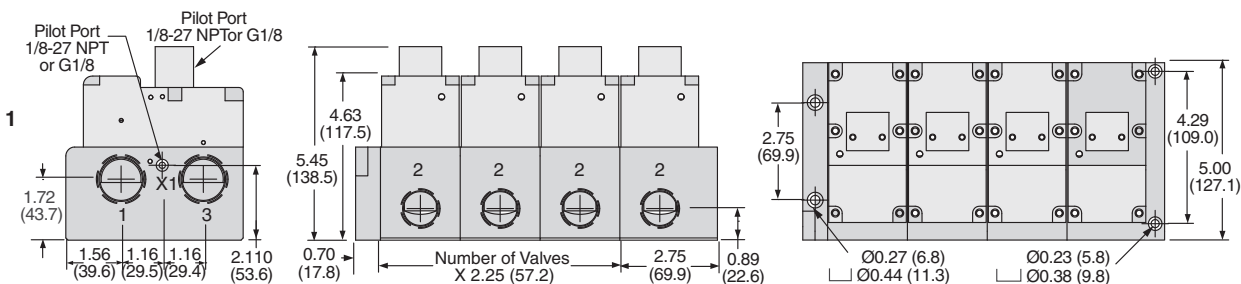


3/2 Valves

Port Size 3/8 & 1/2



Port Size 3/4 & 1

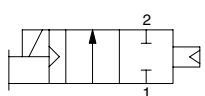


Solenoid Pilot Controlled Valves

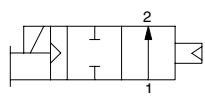
Leak Tight Dale LX Series

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	G Threads	NPT Threads	G Threads	NPT	G		
3/8	3/8	LX13NB37501W	LX13DB37501W	LX23NB37501W	LX23DB37501W	1/8-27 NPT	G1/8	3.6	1.5 (0.7)
1/2	1/2	LX14NB47501W	LX14DB47501W	LX24NB47501W	LX24DB47501W	1/8-27 NPT	G1/8	3.6	1.5 (0.7)
3/4	3/4	LX15NB57501W	LX15DB57501W	LX25NB57501W	LX25DB57501W	1/8-27 NPT	G1/8	12.2	3.5 (1.6)
1	1	LX16NB67501W	LX16DB67501W	LX26NB67501W	LX26DB67501W	1/8-27 NPT	G1/8	12.2	3.5 (1.6)
1¼	1¼	LX17NB77501W	LX17DB77501W	LX27NB77501W	LX27DB77501W	1/8-27 NPT	G1/8	36.1	9.3 (4.2)
1½	1½	LX18NB87501W	LX18DB87501W	LX28NB87501W	LX28DB87501W	1/8-27 NPT	G1/8	36.1	9.3 (4.2)
2	2	LX19NB97501W	LX19DB97501W	LX29NB97501W	LX29DB97501W	1/8-27 NPT	G1/8	62.7	19.3 (8.8)
2½	2½	LX10NB07501W	LX10DB07501W	LX20NB07501W	LX20DB07501W	1/8-27 NPT	G1/8	62.7	19.3 (8.8)

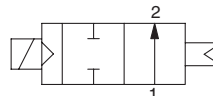
Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., LX13NB37501Z.



Normally Closed



3/8" thru 1" Normally Open



1¼" & 2½" Normally Open

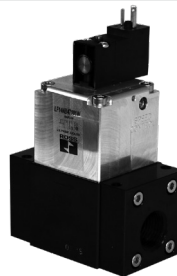


Ports 3/8 thru 1



Ports 1¼ thru 2½

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



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



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

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

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

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air <i>For liquid applications, consult ROSS.</i>
Mounting Type	In-line	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; 1.5 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.

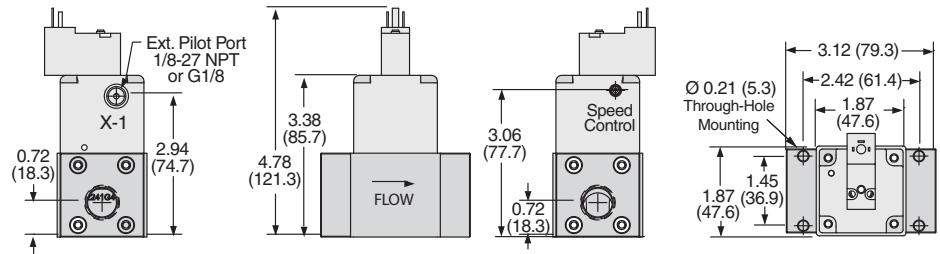


Solenoid Pilot Controlled Valves

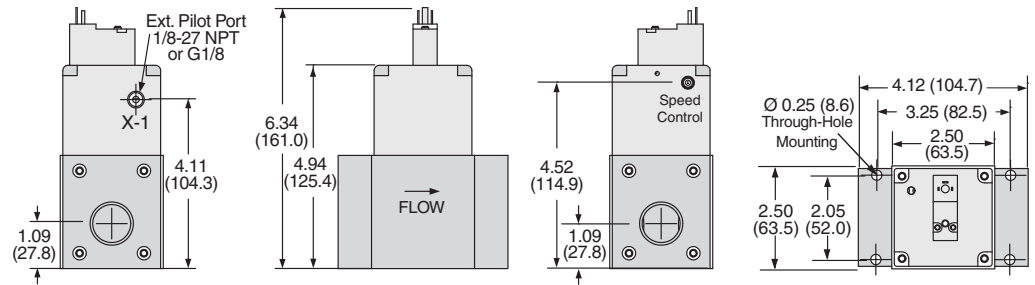
Leak Tight Dale LX Series

Valve Dimensions – inches (mm)

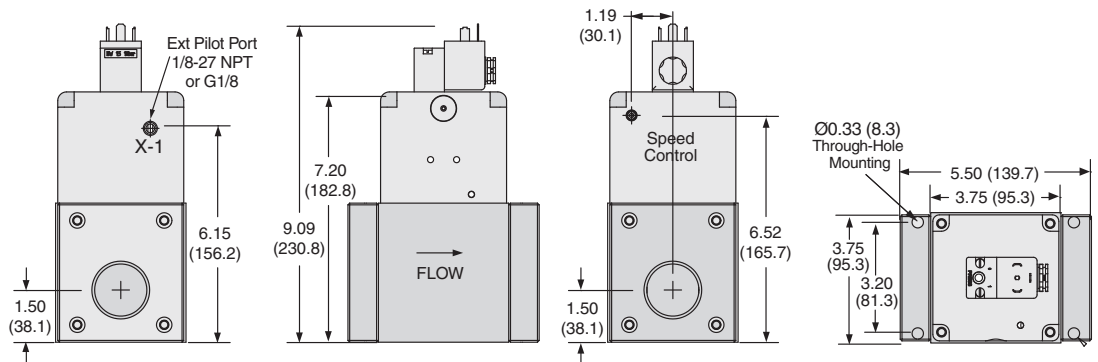
Port Size 3/8 & 1/2



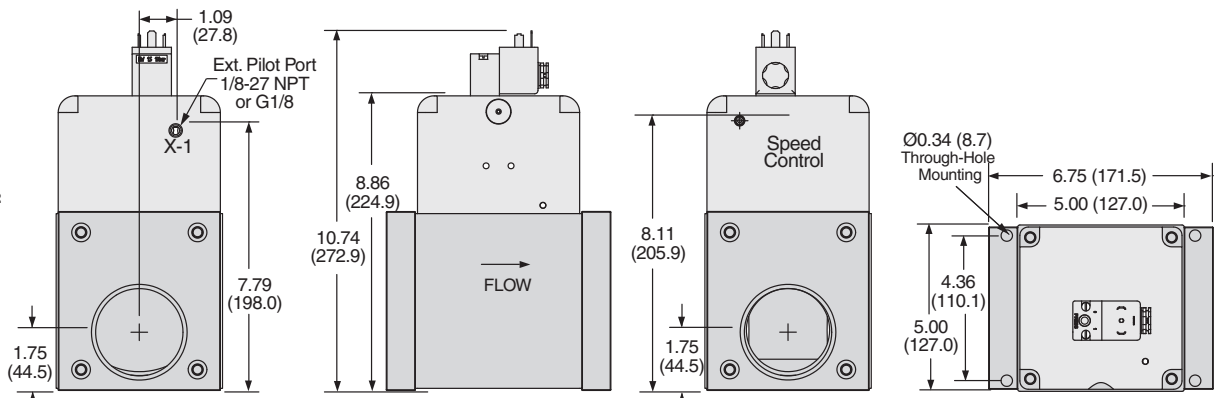
Port Size 3/4 & 1



Port Size 1 1/4 & 1 1/2



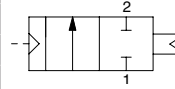
Port Size 2 & 2 1/2



Pressure Controlled Valves

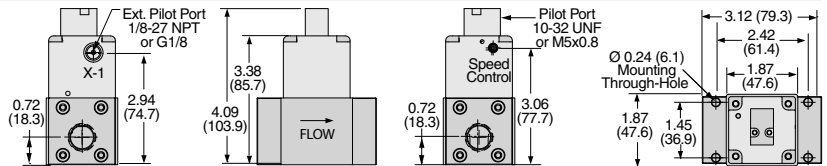
Leak Tight Dale LX Series

2-Way 2-Position Valves, Air Return							
Port Size		External Pilot Supply		Pilot Port Thread		Avg. C _v	Weight lb (kg)
		Normally Closed					
1	2	Model Number		NPT	G		
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)

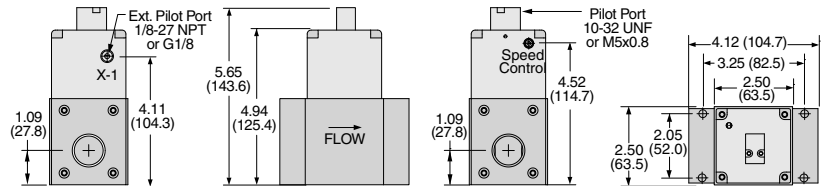


Valve Dimensions – inches (mm)

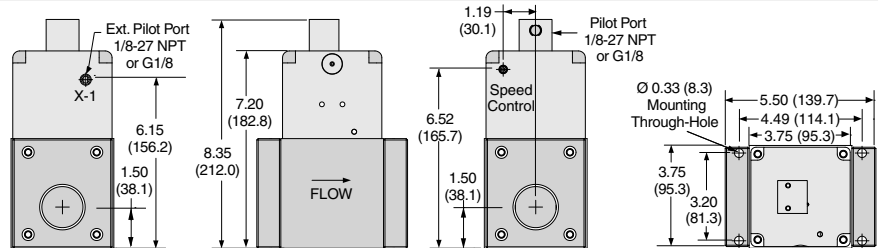
Port Size 3/8 & 1/2



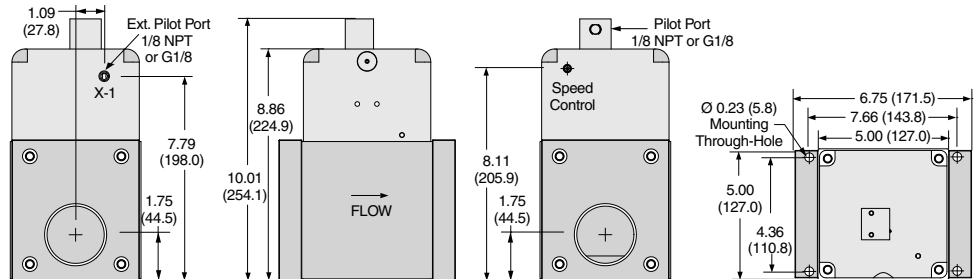
Port Size 3/4 & 1



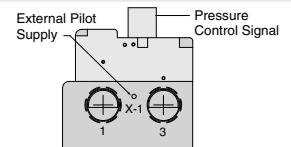
Port Size 1¼ & 1½



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	In-line		Pilot Supply: 30 to 250 psig (2 to 17.2 bar)
Temperature	Ambient: 40° to 120°F (4° to 50°C)	Construction Material	Pilot supply pressure must be equal to or greater than inlet pressure.
	Media: 40° to 175°F (4° to 80°C)		Valve Body: Cast Aluminum
Flow Media	Filtered air		Poppet: Acetal & Stainless Steel
Pilot Supply	External		Seals: Buna-N

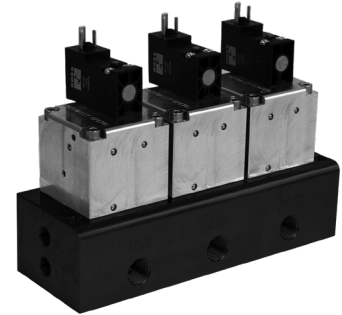
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Solenoid Pilot Controlled Valve Manifold

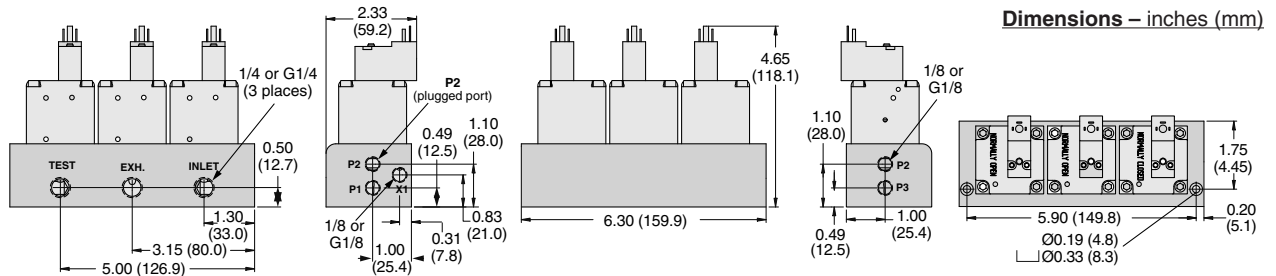
**Leak Tight
Dale LT Series**

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.

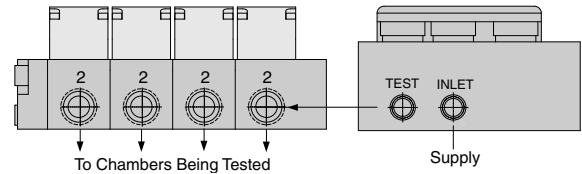


3-Way 4-Position Valve, Multi Solenoid Actuated											
Port Size			Normally Closed		Sensor Ports			Pilot Port Thread		Avg. C _v	Weight lb (kg)
			Model Number#								
In	Exh.	Test	NPT Threads	G Threads	P1	P2	P3	NPT	G		
1/4	1/4	1/4	LT32NB27500W01	LT32DB27500W01	1/8	1/8	1/8	1/8 NPT	G 1/8	0.9	3.6 (1.7)

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., LT32NB27500Z01.



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	R/Rp 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 <i>For liquid applications, consult ROSS.</i>
Mounting Type	In-line	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) <i>When external pilot supply, pressure must be equal to or greater than inlet pressure.</i>
Voltage/Power Consumption (each solenoid)	24 volts DC; 1.5 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

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.

of Stations 2 3 4 5 6 7 8 9 10

Port Thread: NPT G

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.



CAUTIONS, WARNINGS And STANDARD WARRANTY

ROSS OPERATING VALVE, ROSS CONTROLS®, ROSS DECCO®, and AUTOMATIC VALVE INDUSTRIAL, collectively the "ROSS Group".

PRE-INSTALLATION or SERVICE

1. Before servicing a valve or other pneumatic component, be sure all sources of energy are turned off, the entire pneumatic system is shut down and exhausted, and all power sources are locked out (ref: OSHA 1910.147, EN 1037).
2. All ROSS Group Products, including service kits and parts, should be installed and/or serviced only by persons having training and experience with pneumatic equipment. Because any product can be tampered with and/or need servicing after installation, persons responsible for the safety of others or the care of equipment must check ROSS Group Products on a regular basis and perform all necessary maintenance to ensure safe operating conditions.
3. All applicable instructions should be read and complied with before using any fluid power system 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 Group location.
4. Each ROSS Group Product should be used within its specification limits. In addition, use only ROSS Group components to repair ROSS Group Products.

WARNINGS:

Failure to follow these instructions can result in personal injury and/or property damage.

FILTRATION and LUBRICATION

1. 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. The ROSS Group recommends a filter with a 5-micron rating for normal applications.
2. All standard ROSS Group filters and lubricators with polycarbonate plastic bowls are designed for compressed air applications only. 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 and hazardous leakage. Immediately replace crazed, cracked, or deteriorated bowls.
3. Only use lubricants which are compatible with materials used in the valves and other components in the system. Normally, compatible lubricants are petroleum base 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 personal injury, and/or damage to property.

WARNINGS:

Failure to follow these instructions can result in personal injury and/or property damage.

AVOID INTAKE/EXHAUST RESTRICTION

1. Do not restrict air flow in the supply line. To do so could reduce the pressure of the supply air below minimum requirements for the valve and thereby causing erratic action.

2. 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.

WARNINGS: *Failure to follow these instructions can result in personal injury and/or property damage.*

SAFETY APPLICATIONS

1. 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.

2. Safe Exhaust (dump) valves without a self-contained monitoring device should be used only in conjunction with a control system which assures monitoring of the valve. All Safe Exhaust valve installations should incorporate a monitoring system which inhibits further operation of the valve and machine in the event of a failure within the valve mechanism.

3. Per specifications and regulations, the ROSS L-O-X® and L-O-X® with EEZ-ON®, N06 and N16 Series operation products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

WARNINGS:

Failure to follow these instructions can result in personal injury and/or property damage.

STANDARD WARRANTY

All products sold by the ROSS Group are warranted for a one-year period [with the exception of Filters, Regulators and Lubricators ("FRLs") which are warranted for a period of seven (7) years] from the date of purchase. All products are, during their respective warranty periods, warranted to be free of defects in material and workmanship. The ROSS Group's obligation under this warranty is limited to repair, replacement or refund of the purchase price paid for products which the ROSS Group has determined, in its sole discretion, are defective. All warranties become void if a product has been subject to misuse, misapplication, improper maintenance, modification or tampering. Products for which warranty protection is sought must be returned to the ROSS Group freight prepaid.

THE WARRANTY EXPRESSED ABOVE IS IN LIEU OF AND EXCLUSIVE OF ALL OTHER WARRANTIES AND THE ROSS GROUP EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES EITHER EXPRESSED OR IMPLIED WITH RESPECT TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THE ROSS GROUP 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 THE ROSS GROUP 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 THE ROSS GROUP MAY EXTEND THE LIABILITY OF THE ROSS GROUP AS SET FORTH HEREIN.





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