ROSS®

Pneumatic Valves & Valve Manifolds
DALE CX, LX, & LT Series

Product Catalog

ROSS®
a global family

DALE Valves & Valve Manifolds CX, LX, & LT Series

Poppet Valves Function

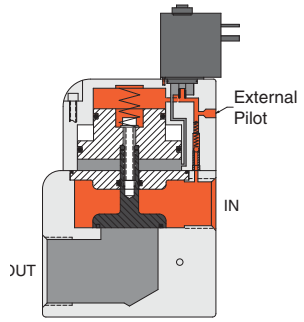
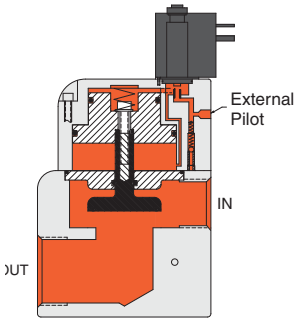
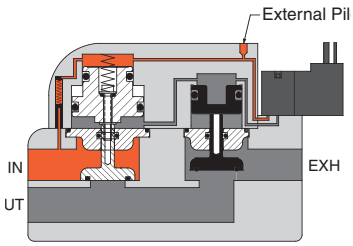
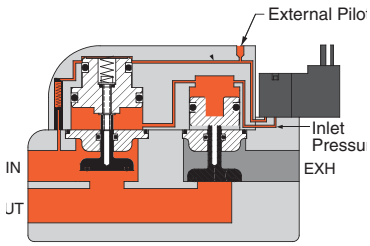
ROSS poppet valves pop open and closed almost instantly. Surface areas of the double piston and poppet are carefully calculated to produce strong shifting forces in both directions. This results in a design which ensures high speed, repeatability and high shifting forces.

DALE CX & LX Series – Externally piloted valves for use in leak tight, low pressure, vacuum, and process applications.
DALE LT Series – Valves for use in leak test applications.

Vacuum – Leak Tight			Leak Test
CX Valve	CX Valve Manifold	LX Series Valve	LT Series Valve Manifold
			

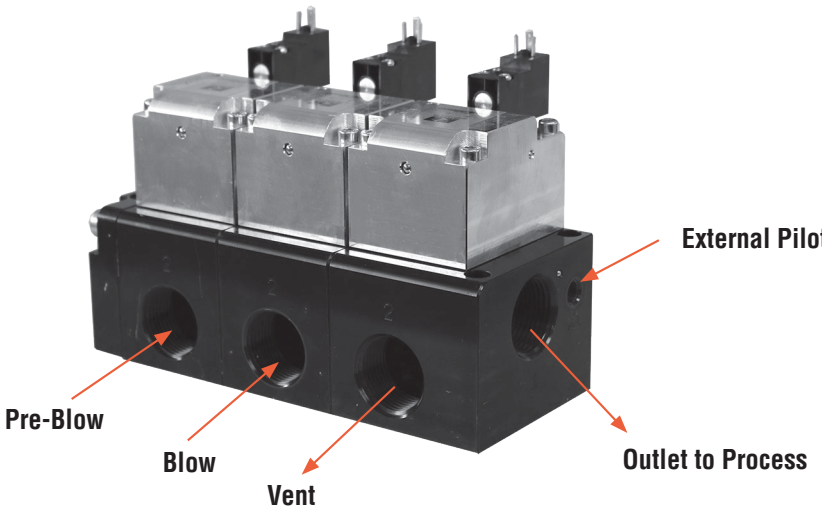
Illustration examples.

VALVE FUNCTION	SOLENOID PILOT	PRESSURE CONTROLLED	AVAILABLE INLET PORT SIZES									MAXIMUM FLOW CV (Nl/min)	MOUNTING		Page
			1/4	3/8	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2		IN-LINE	MANIFOLD	
CX Series															
2/2	●		●		●		●		●		●	108 (110000)	●	●	4–13
		●			●		●		●		●	110 (110000)	●	●	
3/2	●				●		●					12 (12000)	●	●	14-20
		●			●		●					12 (12000)	●	●	
Valve Manifold Configurator															21
LX Series															
2/2	●			●	●	●	●	●	●	●	●	63 (62000)	●		22–27
		●		●	●	●	●	●	●	●	●	63 (62000)	●		
LT Series															
3/4	●		●									0.9 (890)		●	28–31
Accessories															32–34

Solenoid Pilot Controlled Valves		
	Valve Not Actuated	Valve Actuated
2/2 Normally Closed		
	Valve Not Actuated	Valve Actuated
3/2 Normally Closed		

Blow Molding Application Example

The CX compact flexible manifold design eliminates piping, reduces system volume, provides fast consistent actuation and delivers an amazing flow rate up to 100 Cv (98400 Nl/min).



ROSS/FLEX® – Looking for a different solution?

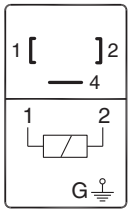
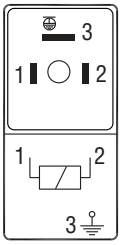
ROSS/FLEX® Customer defined application specific solutions that reduce cost, improve productivity and provide a perfect fit.

Vacuum – Leak Tight Valves and Valve Manifolds

Valve	Valve Manifold
	

Illustration examples.

Solenoid Pinouts

DIN EN 175301-803 Form A	DIN EN 175301-803 Form C
 1 - Positive 2 - Negative 3 - Ground	 1 - Positive 2 - Negative 3 - Ground

VALVE FEATURES

Poppet Construction	Provides high dirt tolerance
Bidirectional Flow	Surface areas of the double piston and poppet are carefully calculated to produce strong shifting forces in both directions, ensuring high speed and repeatability
High Flow	Full port flow
Pilot Supply	External
Positive Sealing	Dynamic sealing, self-compensating for wear
Mounting	In-line or manifold

PRODUCT CREDENTIALS

Declaration of Conformity

EAC

Specifications

STANDARD SPECIFICATIONS							
GENERAL	Function			2/2 Valve	Normally Closed (NC)		
					Normally Open (NO)		
	Construction Design				Poppet		
	Actuation			Electrical	Solenoid Pilot Controlled		Normally Closed
							Normally Open
				Pneumatic	Pressure Controlled		Normally Closed
	Mounting			Type	In-line, Manifold		
				Orientation	Any, preferably vertical		
	Connection				Threaded Port		NPT
							G
	Manual Override		Valves	Normally Closed	All Port Sizes		Non-locking
				Normally Open	Port Size	1/4 through 1	Non-locking
						1-1/2 through 2-1/2	Locking, turn-to-lock
OPERATING CONDITIONS	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.		
	Operating Pressure	Solenoid Pilot Controlled	Port Size	1/4	Vacuum to 250 psig (vacuum to 17.2 bar)		
				1/2 through 2-1/2	Vacuum to 145 psig (vacuum to 10 bar)		
				1/4	External Pilot Supply		70 to 145 psig (5 to 10 bar)
				1/2 through 2-1/2	External Pilot Supply		30 to 145 psig (2 to 10 bar)
		Pressure Controlled			Vacuum to 250 psig (vacuum to 17.2 bar)		
					External Pilot Supply		30 to 250 psig (2 to 17.2 bar)
	External Pilot Supply Pressure				Must be equal to or greater than inlet pressure		
ELECTRICAL DATA FOR SOLENOID PILOT	Solenoids		Valve Port Size		Current	Operating Voltage	Power Consumption (each solenoid)
			1/4 through 1		DC	24 volts	1.5 watts
					AC	110 volts, 50 Hz 120 volts, 60 HZ	50 Hz: 5.4 VA 60 Hz: 5.0 VA
			1-1/2 through 2-1/2		DC	24 volts	5.8 watts nominal, 6.5 watts maximum
					AC	110 volts, 50 Hz 120 volts, 50/60 Hz	50 Hz, 5.8 watts nominal, 6.5 watts maximum 50/60 Hz, 5.8 watts nominal, 6.5 watts maximum
			Rated for continuous duty				
	Enclosure Rating				IP65, IEC 60529		
	Electrical Connection				DIN EN 175301-803		Form A
							Form C
CONSTRUCTION MATERIAL	Valve Body				Cast Aluminum		
	Poppet				Acetal and Stainless Steel		
	Seals				Buna-N		

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

Ordering Information

2/2 Solenoid Pilot Controlled Valves

MODEL NUMBER CONFIGURATOR — 2-Way 2-Position Valves

CX	1	4	N	B	4	7	5	01	W	

Series

Valve Function

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

Revision Level

Port Thread

NPT	N
G	D

Port Size

In		Out	
1/4	2	1/4	2
1/2	4	3/8	3
		1/2	4
1	6	3/4	5
		1	6
1-1/2	8	1-1/4	7
		1-1/2	8
2-1/2	0	2	9
		2-1/2	0

Actuation

Solenoid Pilot

Pilot Supply

External

Unit Type / Number of Stations

Unit Type	Number of Stations	
Valve	1	01
Valve Manifold	2	12
	3	13
	4	14
	5	15
	6	16
	7	17
	8	18
	9	19
	10	10

Current / Voltage*

Current	Voltage*	
DC	24 V	W
AC	110 V, 50 Hz 120 V, 50/60 Hz	Z
	230 V, 50/60 Hz	Y

* For other voltages consult ROSS.

Coil Connection*

DIN EN 175301-803 **(Leave Blank)**	
Form A - M12 adapter (24 V DC only)	009

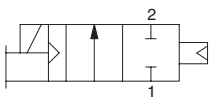
*See options for connectors or wiring kits.

Model Number examples: CX14NB47501W, CX23NDB47501Y009.

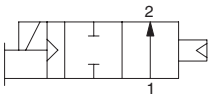
Manifolds can be ordered from two to ten stations. Complete valves-on-manifold assemblies can be ordered to fit your precise requirements.
For preassembled manifold valves with the same model number, select the part number from the configurator above.
For ordering the Dale Series CX manifold valves with different valve functions, please see page 21 for manifold configurator.

Valve Schematic

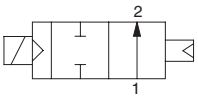
Normally Closed



Normally Open

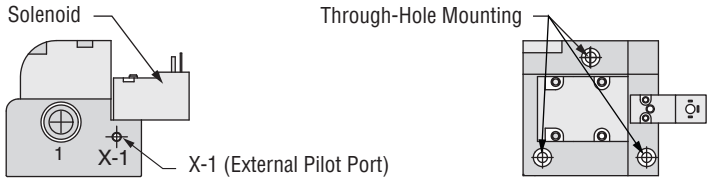


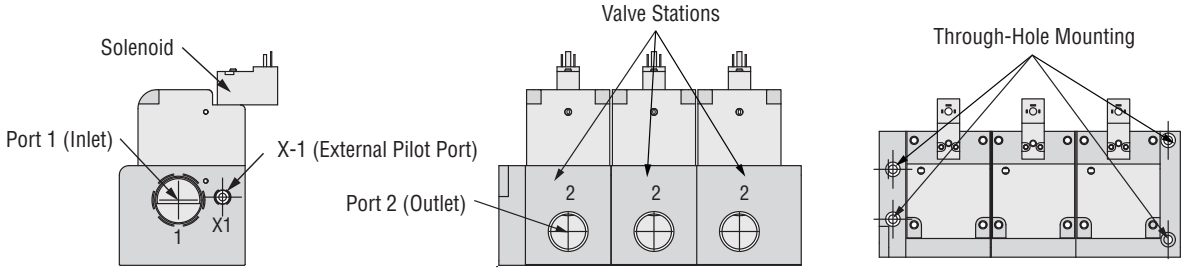
1/2 &1



1-1/2 & 2-1/2

Size		Pilot Port Thread Size (X-1)		Flow C_v (Nl/min)		≈ Weight lb (kg)
Port 1	Port 2	NPT	G	Valve	Manifold	Valve
1/4	1/4	10-32 UNF	M5	0.9 (890)	0.9 (890)	1.3 (0.6)
1/2	3/8	10-32 UNF	M5	3.5 (3400)	3.7 (3600)	1.4 (0.6)
	1/2					
1	3/4	1/8-27 NPT	G1/8	12.3 (12000)	13.7 (13000)	3.5 (1.6)
	1					
1-1/2	1-1/4	1/8-27 NPT	G1/8	44.9 (44000)	44.9 (44000)	10.0 (4.6)
	1-1/2					
2-1/2	2	1/8-27 NPT	G1/8	108 (110000)	108 (110000)	19.5 (8.9)
	2-1/2					





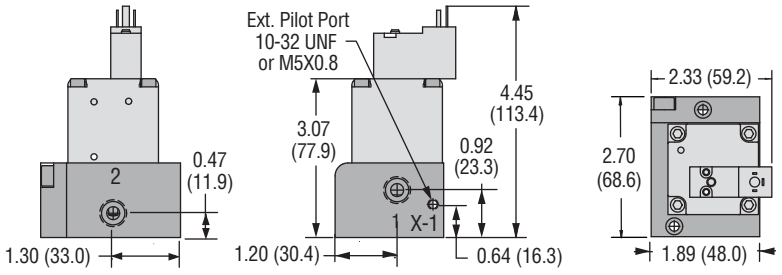
DIMENSIONS

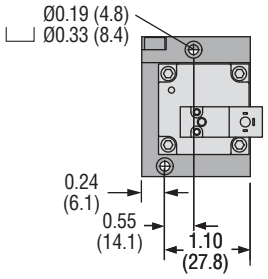
Inches (mm)

Port Size

2/2 Solenoid Pilot Controlled Valves

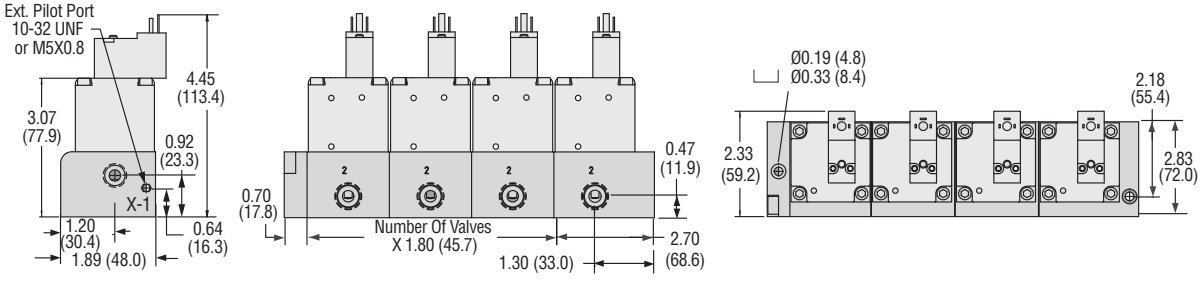
Mounting Details





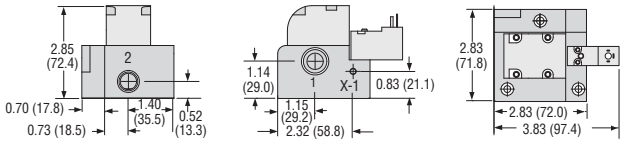
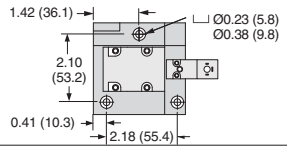
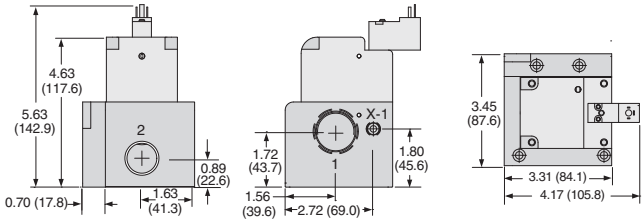
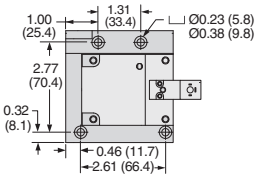
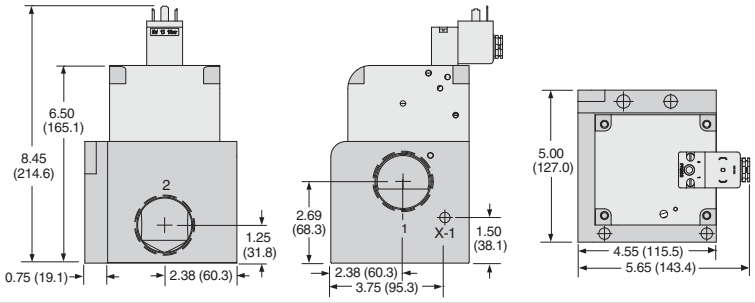
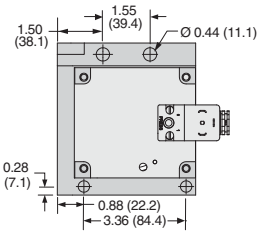
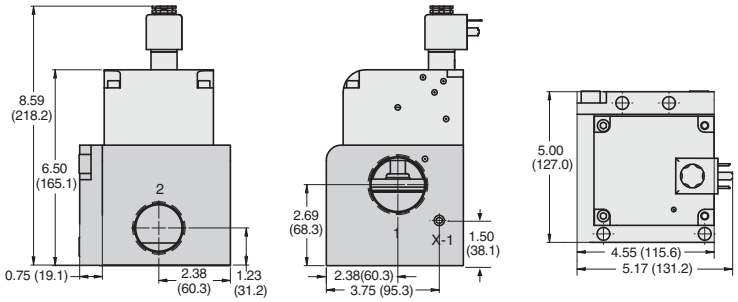
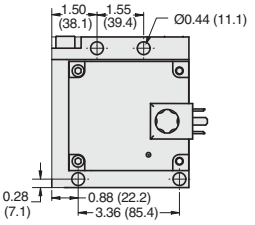
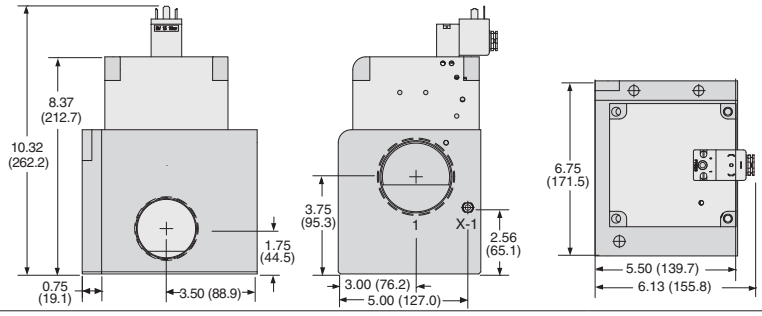
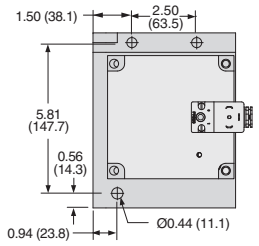
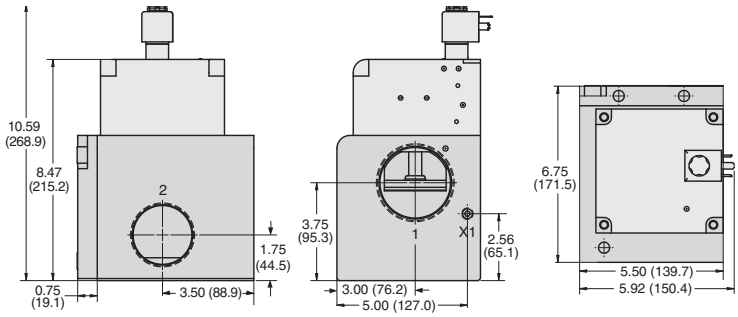
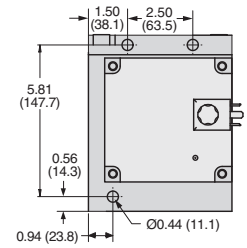
1/4

2/2 Solenoid Pilot Controlled Valve Manifolds



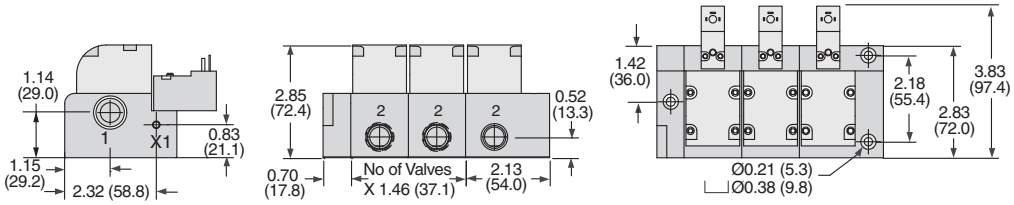
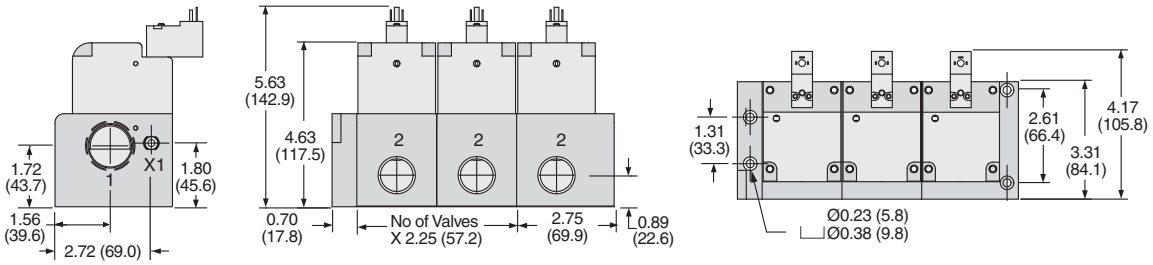
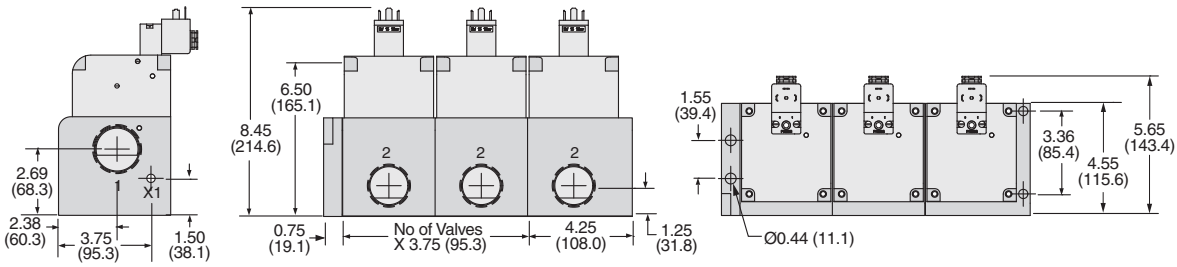
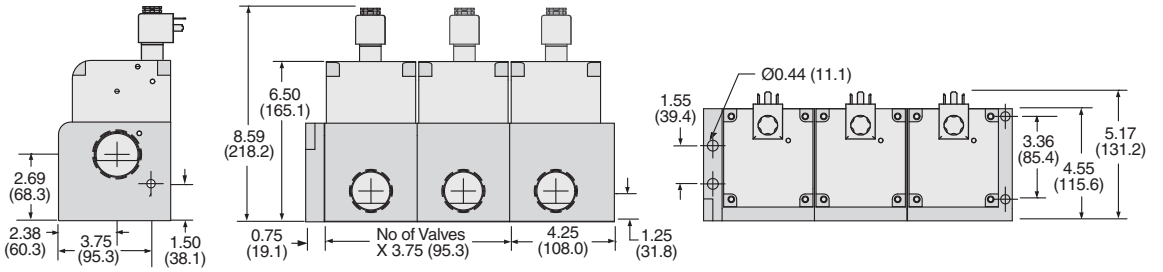
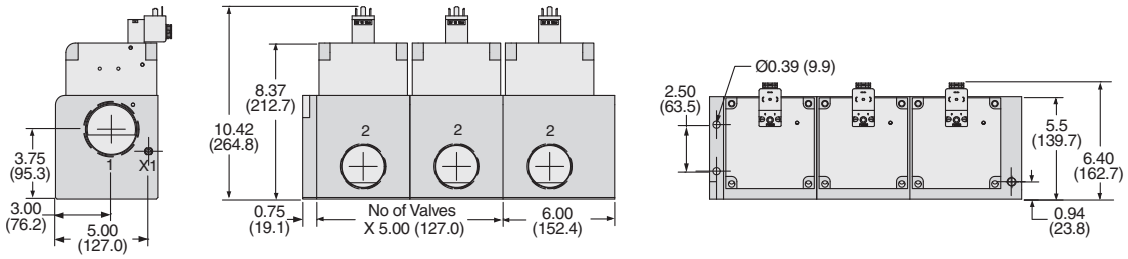
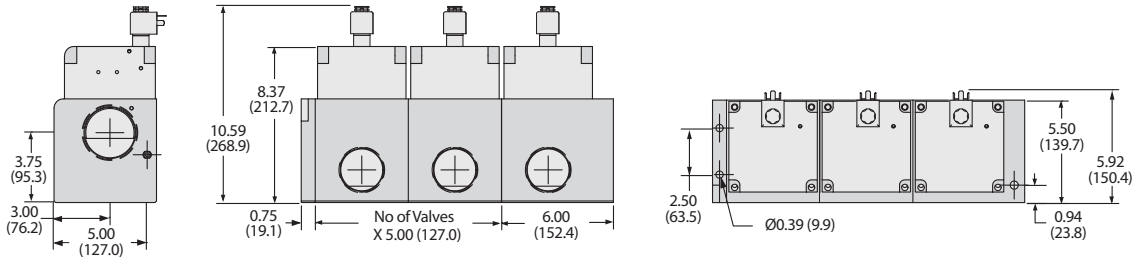
Downloadable CAD models available.

DIMENSIONS — Inches (mm)

Port Size	2/2 Valves	Mounting Details
3/8 & 1/2 NC & NO		
3/4 & 1 NC & NO		
1-1/4 & 1-1/2 NC		
1-1/4 & 1-1/2 NO		
2 & 2-1/2 NC		
2 & 2-1/2 NO		

Downloadable CAD models available.

DIMENSIONS — Inches (mm)

Port Size	2/2 Valve Manifolds
3/8 & 1/2 NC & NO	
3/4 & 1 NC & NO	
1-1/4 & 1-1/2 NC	
1-1/4 & 1-1/2 NO	
2 & 2-1/2 NC	
2 & 2-1/2 NO	

Downloadable CAD models available.

Ordering Information

2/2 Pressure Controlled Valves

MODEL NUMBER CONFIGURATOR — 2-Way 2-Position Valves

CX	1	4	N	B	3	5	5	01

Series

Valve Function

2/2 Normally Closed

Revision Level

Port Thread	
NPT	N
G	D

Port Size	In		Out	
	1/2	4	3/8	3
			1/2	4
	1	6	3/4	5
			1	6
	1-1/2	8	1-1/4	7
			1-1/2	8
	2-1/2	0	2	9
			2-1/2	0

Unit Type	Number of Stations	
Valve	1	01
Valve Manifold	2	12
	3	13
	4	14
	5	15
	6	16
	7	17
	8	18
	9	19
	10	10

Pilot Supply

External

Actuation

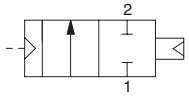
Air Pilot

Model Number examples: CX14NB45501, CX23NDB45501.

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 part number from the configurator above.
For ordering the Dale Series CX manifold valves with different valve functions, please see page 21 for manifold configurator.

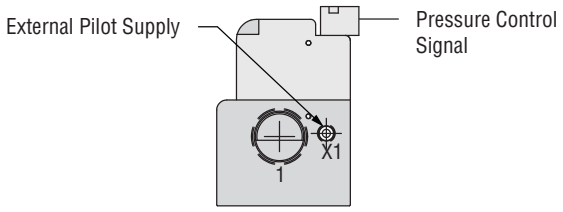
Size		Pilot Port Thread Size (X-1)		Flow C_V (Nl/min)		≈ Weight lb (kg)
Port 1	Port 2	NPT	G	Valve	Manifold	Valve
1/2	3/8	10-32 UNF	M5	3.5 (3400)	3.7 (3600)	1.4 (0.6)
	1/2					
1	3/4	1/8-27 NPT	G1/8	12.3 (12000)	13.7 (13000)	3.5 (1.6)
	1					
1-1/2	1-1/4	1/8-27 NPT	G1/8	44.9 (44000)	44.9 (44000)	10.0 (4.6)
	1-1/2					
2-1/2	2	1/8-27 NPT	G1/8	108 (110000)	108 (110000)	19.5 (8.9)
	2-1/2					

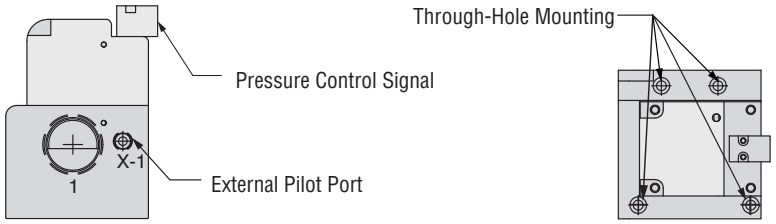
Valve Schematic — **Normally Closed**

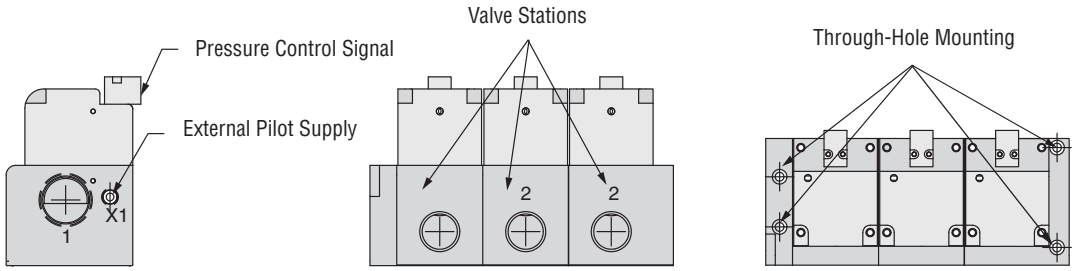


NOTE

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.

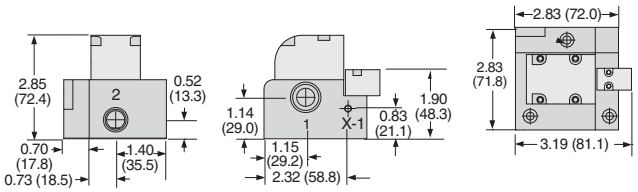
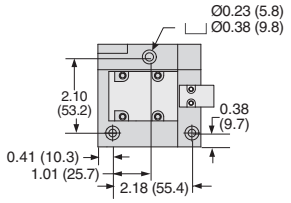
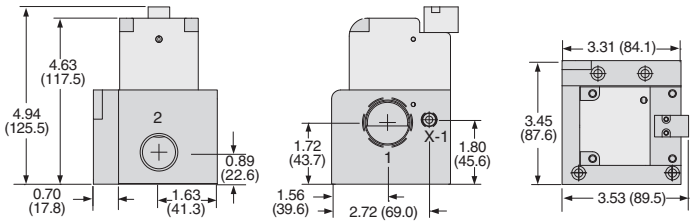
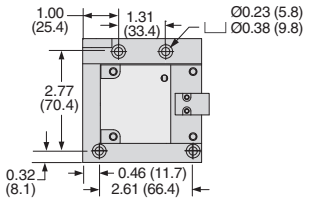
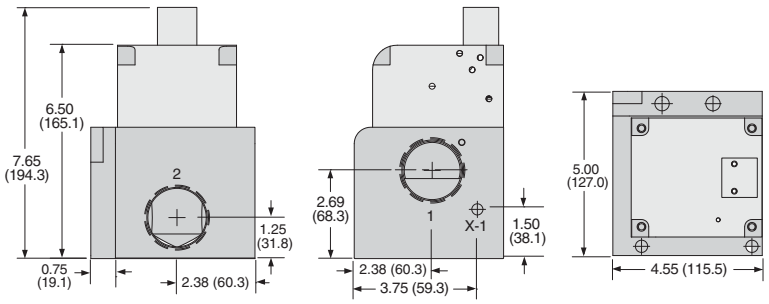
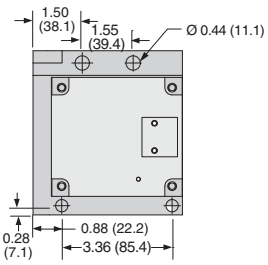
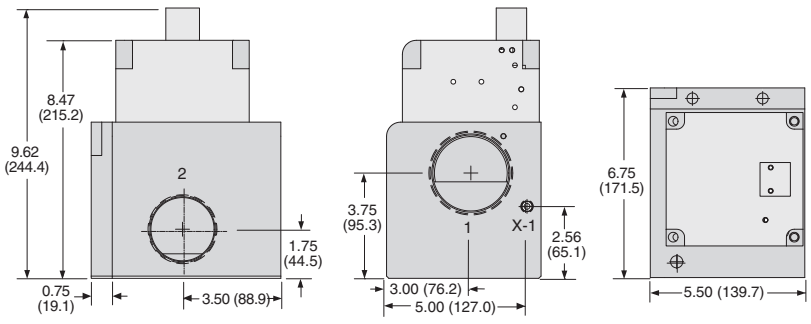
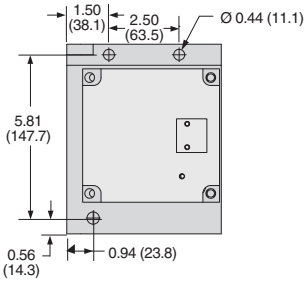






DIMENSIONS

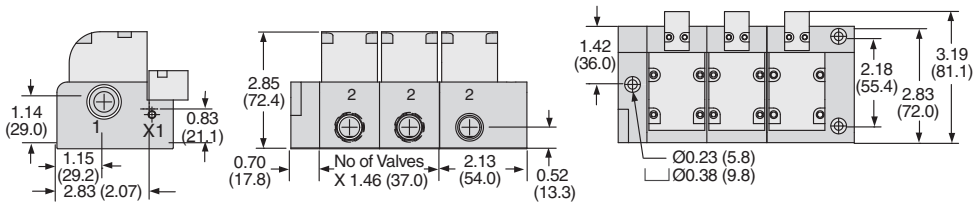
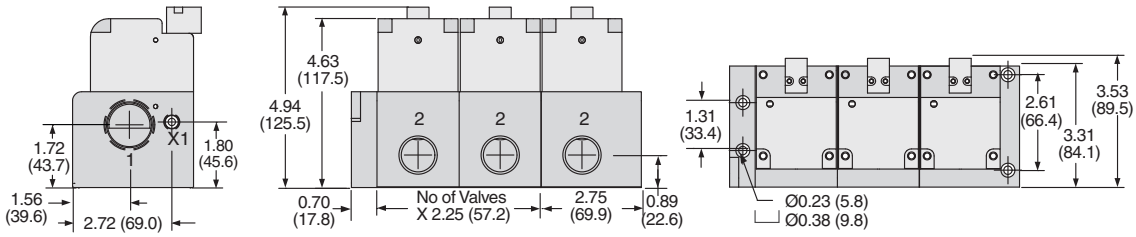
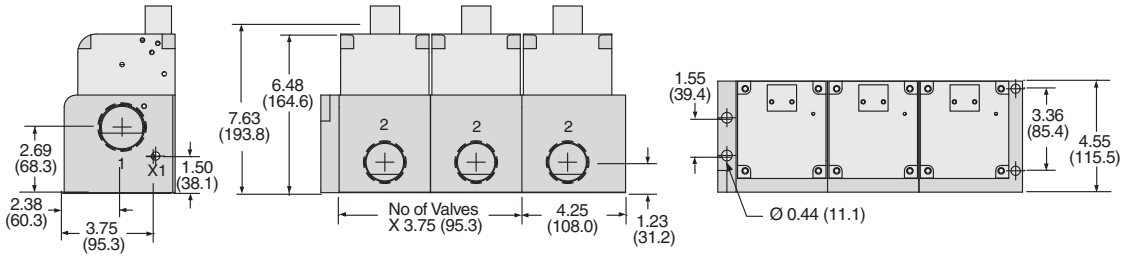
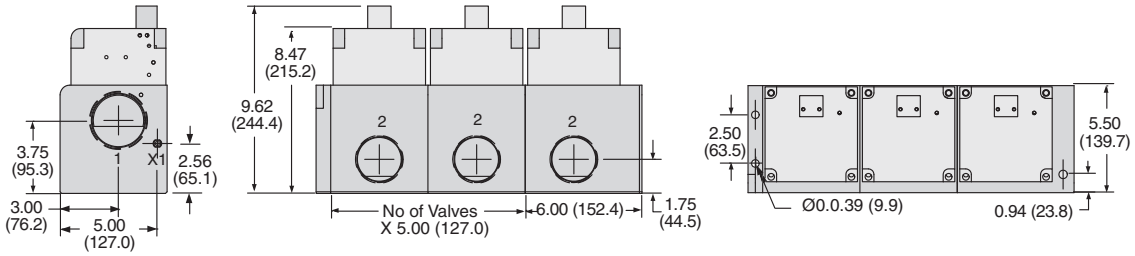
Inches (mm)

Port Size	2-2 Valves	Mounting Details
3/8 & 1/2		
3/4 & 1		
1-1/4 & 1-1/2		
2 & 2-1/2		

Downloadable CAD models available.

DIMENSIONS

Inches (mm)

Port Size	2/2 Valve Manifolds
3/8 & 1/2	
3/4 & 1	
1-1/4 & 1-1/2	
2 & 2-1/2	

Downloadable CAD models available.

Vacuum – Leak Tight Valves and Valve Manifolds

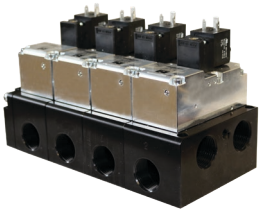
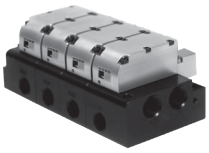
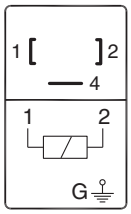
Solenoid Pilot Controlled		Pressure Controlled	
Valve	Valve Manifold	Valve	Valve Manifold
			

Illustration examples.

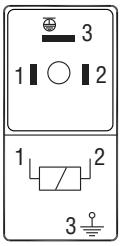
Solenoid Pinouts

DIN EN 175301-803 Form A



1 - Positive
2 - Negative
3 - Ground

DIN EN 175301-803 Form C



1 - Positive
2 - Negative
3 - Ground

VALVE FEATURES

Poppet Construction	Provides high dirt tolerance
Bidirectional Flow	Surface areas of the double piston and poppet are carefully calculated to produce strong shifting forces in both directions, ensuring high speed and repeatability
High Flow	Full port flow
Pilot Supply	External
Positive Sealing	Dynamic sealing, self-compensating for wear
Mounting	In-line or manifold

PRODUCT CREDENTIALS

Declaration of Conformity

EAC

Specifications

STANDARD SPECIFICATIONS						
GENERAL	Function			3/2 Valve	Normally Closed (NC)	
					Normally Open (NO)	
	Construction Design				Poppet	
	Actuation			Electrical	Solenoid Pilot Controlled	Normally Closed
						Normally Open
				Pneumatic	Pressure Controlled	Normally Closed
	Mounting		Type		In-line, Manifold	
			Orientation		Any, preferably vertical	
	Connection				Threaded Port	NPT
						G
	Manual Override	Normally Closed	All Port Sizes		Non-locking	
		Normally Open	Port Size	3/8 & 1/2	Non-locking	
				3/4 & 1	Locking, turn-to-lock	
OPERATING CONDITIONS	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.	
	Operating Pressure		Solenoid Pilot Controlled		Vacuum to 145 psig (vacuum to 10 bar)	
					External Pilot Supply	50 to 145 psig (3.4 to 10 bar)
			Pressure Controlled		Vacuum to 250 psig (vacuum to 17.2 bar)	
					External Pilot Supply	50 to 250 psig (3.4 to 17.2 bar)
	External Pilot Supply Pressure				Must be equal to or greater than inlet pressure	
ELECTRICAL DATA FOR SOLENOID PILOT	Solenoids	Valve Port Size	Current	Operating Voltage	Power Consumption (each solenoid)	
		3/8 & 1/2	DC	24 volts	1.5 watts	
			AC	110 volts, 50 Hz 120 volts, 60 HZ	50 Hz: 5.4 VA 60 Hz: 5.0 VA	
		3/4 & 1	DC	24 volts	5.8 watts nominal, 6.5 watts maximum	
			AC	110 volts, 50 Hz 120 volts, 50/60 Hz	50 Hz, 5.8 watts nominal, 6.5 watts maximum 50/60 Hz, 5.8 watts nominal, 6.5 watts maximum	
		Rated for continuous duty				
	Enclosure Rating				IP65, IEC 60529	
	Electrical Connection				DIN EN 175301-803	Form A
						Form C
CONSTRUCTION MATERIAL	Valve Body				Cast Aluminum	
	Poppet				Acetal and Stainless Steel	
	Seals				Buna-N	

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

Ordering Information

3/2 Solenoid Pilot Controlled Valves

MODEL NUMBER CONFIGURATOR — 3-Way 2-Position Valves

CX	3	4	N	B	4	7	5	01	W	

Series

Valve Function

3/2 Normally Closed	3
3/2 Normally Open	4

Revision Level

Port Thread

NPT	N
G	D

Port Size

In		Out	
1/2	4	3/8	3
		1/2	4
1	6	3/4	5
		1	6

Actuation

Solenoid Pilot

Pilot Supply

External

Coil Connection*

DIN EN 175301-803 (Leave Blank)	
Form A - M12 adapter (24 V DC only)	009

*See options for connectors or wiring kits.

Current	Voltage*	
DC	24 V	W
AC	110 V, 50 Hz 120 V, 50/60 Hz	Z
	230 V, 50/60 Hz	Y

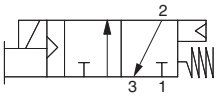
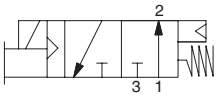
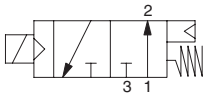
* For other voltages consult ROSS.

Unit Type	Number of Stations	
Valve	1	01
Valve Manifold	2	12
	3	13
	4	14
	5	15
	6	16
	7	17
	8	18
	9	19
	10	10

Model Number examples: CX34NB47101W, CX23NDB47512Y009.

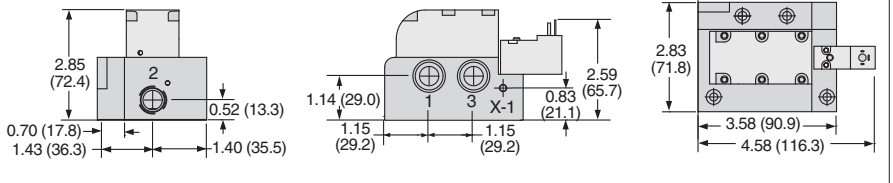
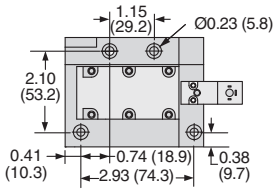
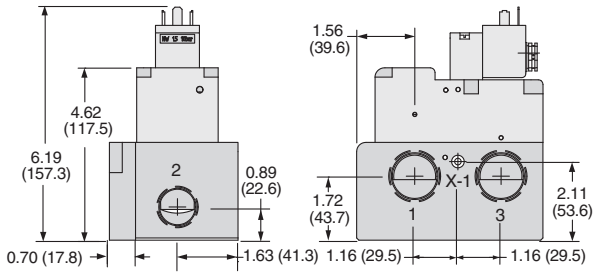
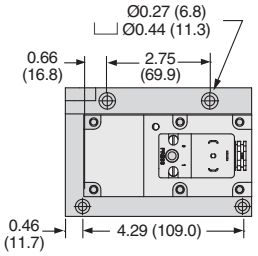
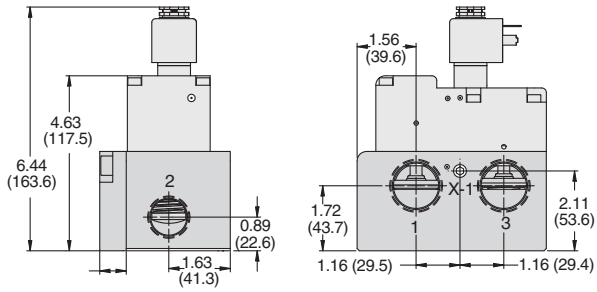
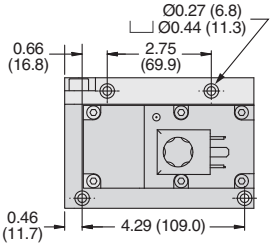
Manifolds can be ordered from two to ten stations. Complete valves-on-manifold assemblies can be ordered to fit your precise requirements.
For preassembled manifold valves with the same model number, select the part number from the configurator above.
For ordering the Dale Series CX manifold valves with different valve functions, please see page 21 for manifold configurator.

Valve Schematic

Normally Closed	Normally Open	
		
1/2 through 1	1/2	1

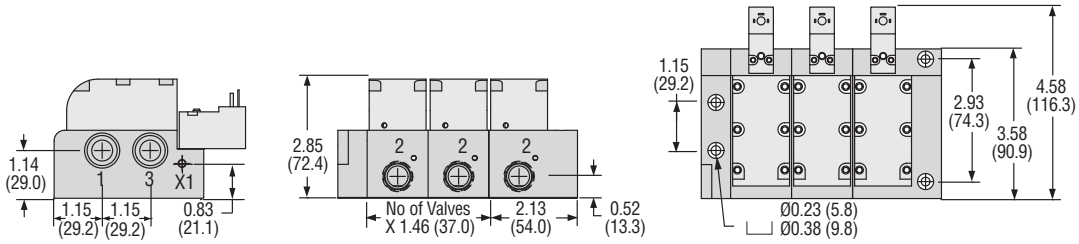
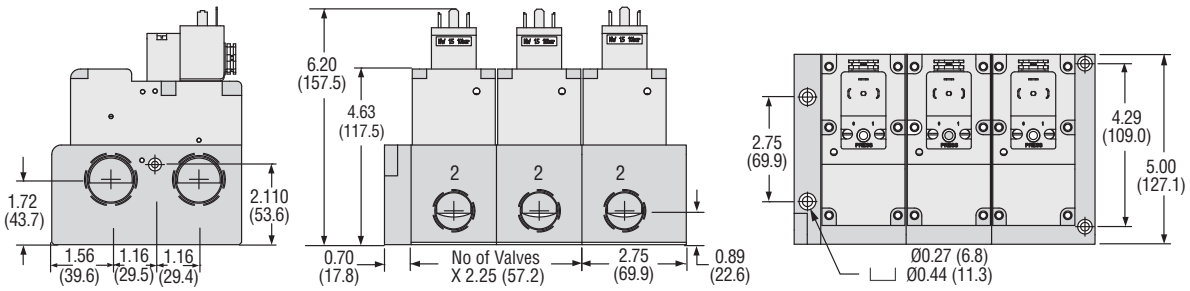
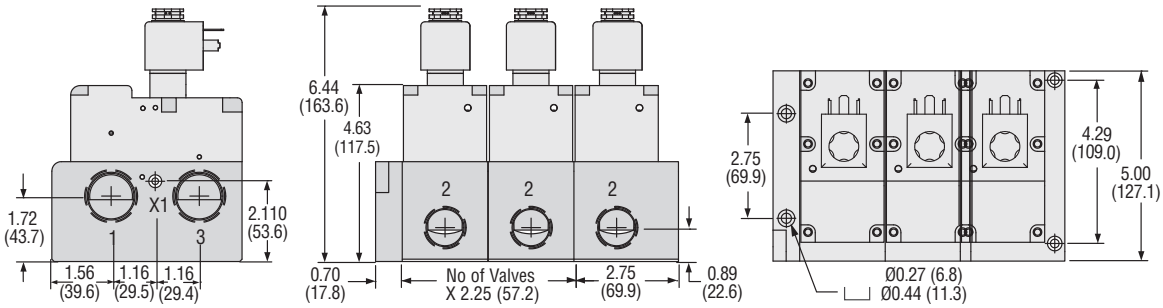
Size			Pilot Port Thread Size (X-1)		Flow C_v (Nl/min)		≈ Weight lb (kg)
Port 1	Port 2	Port 3	NPT	G	Valve	Manifold	Valve
1/2	3/8	3/8	10-32 UNF	M5	3.5 (3400)	3.7 (3600)	1.4 (0.6)
	1/2	1/2					
1	3/4	3/4	1/8-27 NPT	G1/8	12.3 (12100)	13.7 (13000)	3.5 (1.6)
	1	1					

DIMENSIONS — Inches (mm)

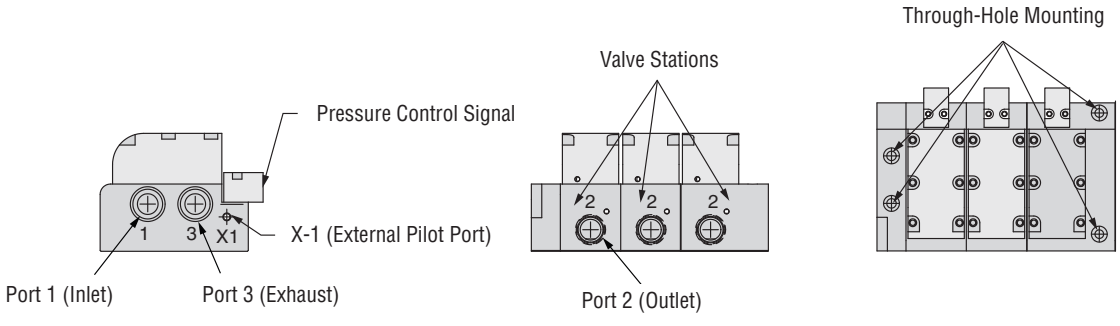
Port Size	3/2 Valves	Mounting Details
3/8 & 1/2 NC & NO		
3/4 & 1 NC		
3/4 & 1 NO		

Downloadable CAD models available.

DIMENSIONS — Inches (mm)

Port Size	3/2 Valve Manifolds
3/8 & 1/2 NC & NO	
3/4 & 1 NC	
3/4 & 1 NO	

Downloadable CAD models available.



3/2 Pressure Controlled Valves

MODEL NUMBER CONFIGURATOR — 3-Way 2-Position Valves

CX	3	4	N	B	4	5	5	01

Series

Default Position

Normally Closed

Revision Level

Port Thread	
NPT	N
G	D

Port Size	In		Out	
1/2	1/2	4	3/8	3
			1/2	4
1	1	6	3/4	5
			1	6

Unit Type	Number of Stations	
Valve	1	01
Valve Manifold	2	12
	3	13
	4	14
	5	15
	6	16
	7	17
	8	18
	9	19
	10	10

Pilot Supply

External

Actuation

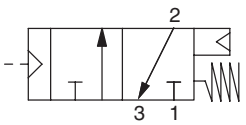
Air Pilot

Model Number examples: CX34NB45501, CX33DB45513.

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 part number from the configurator above.
For ordering the Dale Series CX manifold valves with different valve functions, please see page 21 for manifold configurator.

Size			Pilot Port Thread Size (X-1)		Flow C_V (Nl/min)		≈ Weight lb (Kg)
Port 1	Port 2	Port 3	NPT	G	Valve	Manifold	Valve
1/2	3/8	3/8	10-32 UNF	M5	3.5 (3400)	3.7 (3600)	1.4 (0.6)
	1/2	1/2					
1	3/4	3/4	1/8-27 NPT	G1/8	12.3 (12000)	13.7 (134000)	3.5 (1.6)
	1	1					

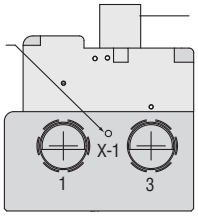
Valve Schematic — **Normally Closed**



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.

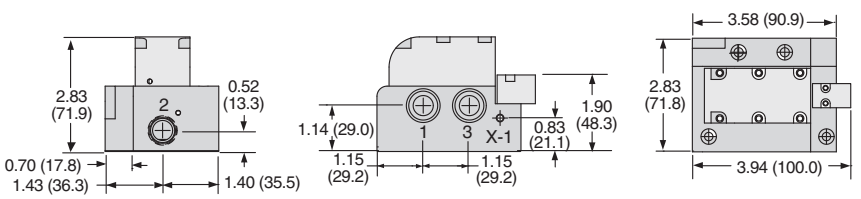
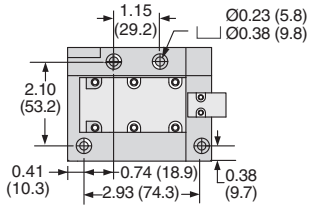
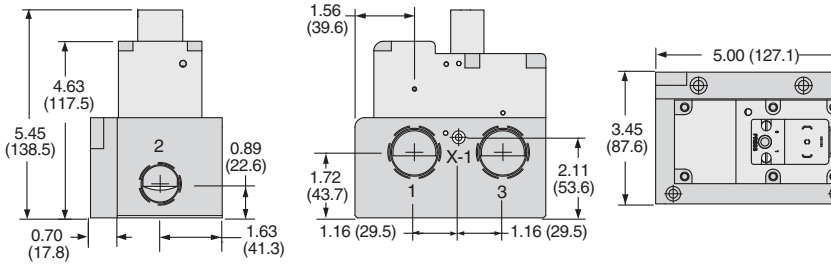
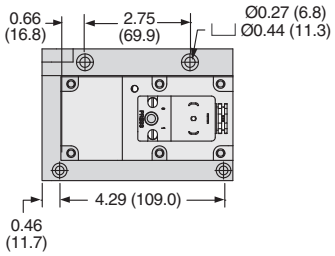
External Pilot Supply

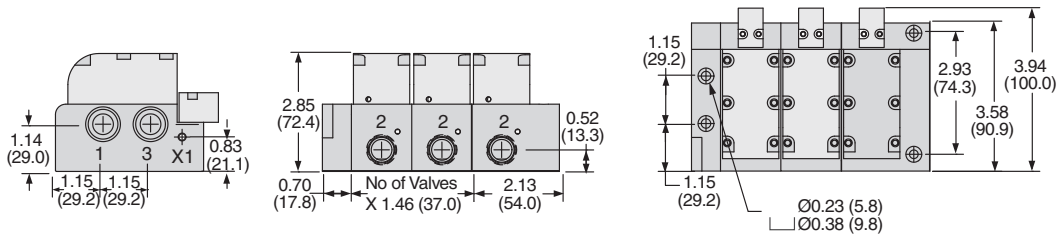
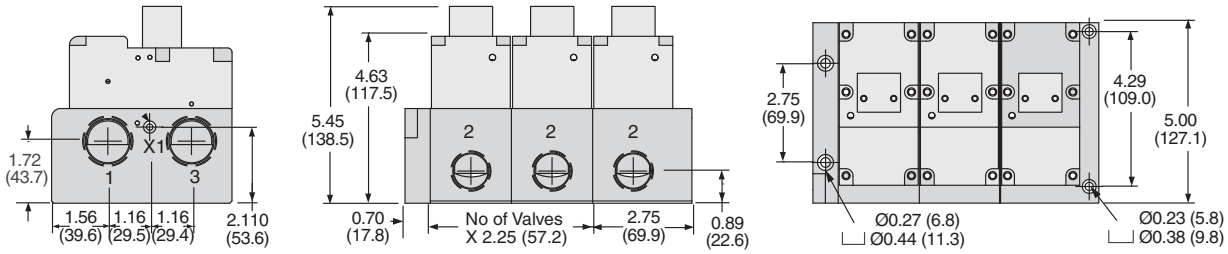


Pressure Control Signal

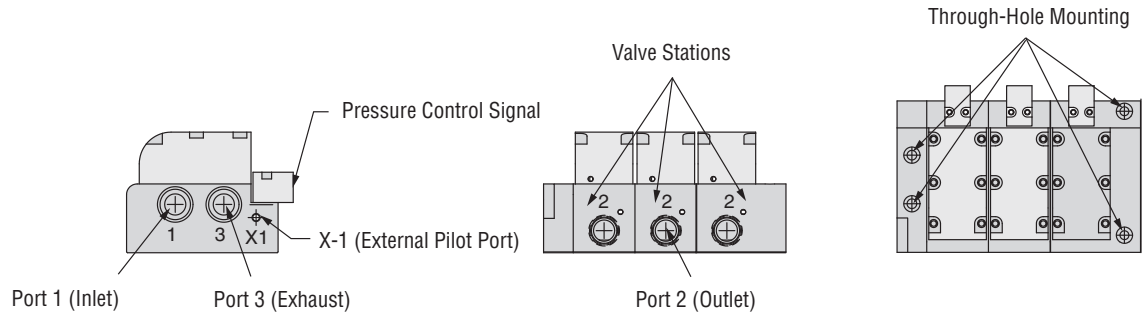
Valve Manifold Technical Data

DIMENSIONS — Inches (mm)

Port Size	3/2 Valves	Mounting Details
3/8-1/2		
3/4-1		

Port Size	3/2 Valve Manifolds
3/8-1/2	
3/4-1	

Downloadable CAD models available.



Valve Manifolds CX Series

This form can be used when your application requires a 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	**CX**	☐		
Valve Type	**2/2**	☐	**3/2**	☐

Compatible Combinations

- Solenoid Pilot Controlled & Pressure Controlled 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)

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

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

Example:

Valve Position Number	Valve Model Number**
1	CX34NB37511W
2	CX34NB37511W
3	CX44NB37511W
4	CX44NB37511W
5	Blank
6	CX34NB47511W
7	CX34NB47511W
8	CX44NB35511
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.

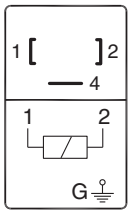
Vacuum – Leak Tight Valves

Solenoid Pilot Controlled	Pressure Controlled
	

Illustration examples.

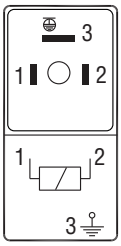
Solenoid Pinouts

DIN EN 175301-803 Form A



1 - Positive
2 - Negative
3 - Ground

DIN EN 175301-803 Form C



1 - Positive
2 - Negative
3 - Ground

VALVE FEATURES

Poppet Construction	Provides high dirt tolerance
Bidirectional Flow	Surface areas of the double piston and poppet are carefully calculated to produce strong shifting forces in both directions, ensuring high speed and repeatability
High Flow	Full port flow
Pilot Supply	External
Positive Sealing	Dynamic sealing, self-compensating for wear
Mounting	In-line

PRODUCT CREDENTIALS

Declaration of Conformity

EAC

STANDARD SPECIFICATIONS

GENERAL	Function			2/2 Valve	Normally Closed (NC)	
					Normally Open (NO)	
	Construction Design				Poppet	
	Actuation			Electrical	Solenoid Pilot Controlled	Normally Closed
						Normally Open
				Pneumatic	Pressure Controlled	Normally Closed
	Mounting	Type			Inline	
		Orientation			Any, preferably vertical	
	Connection				Threaded Port	NPT
						G
	Manual Override	Normally Closed	All Port Sizes		Non-locking	
		Normally Open	Port Size	3/8 through 1	Non-locking	
				1-1/2 through 2-1/2	Locking, turn-to-lock	
OPERATING CONDITIONS	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.	
	Operating Pressure	Solenoid Pilot Controlled			Vacuum to 145 psig (vacuum to 10 bar)	
					External Pilot Supply	30 to 145 psig (2 to 10 bar)
		Pressure Controlled			Vacuum to 250 psig (vacuum to 17.2 bar)	
					External Pilot Supply	30 to 250 psig (2 to 17.2 bar)
	External Pilot Supply Pressure				Must be equal to or greater than inlet pressure	

ELECTRICAL DATA FOR SOLENOID PILOT	Solenoids			Rated for continuous duty
	Valve Port Size	Current	Operating Voltage	Power Consumption (each solenoid)
	1/4 through 1	DC	24 volts	1.5 watts
		AC	110 volts, 50 Hz 120 volts, 60 HZ	50 Hz: 5.4 VA 60 Hz: 5.0 VA
	1-1/2 through 2-1/2	DC	24 volts	5.8 watts nominal, 6.5 watts maximum
		AC	110 volts, 50 Hz 120 volts, 50/60 Hz	50 Hz, 5.8 watts nominal, 6.5 watts maximum 50/60 Hz, 5.8 watts nominal, 6.5 watts maximum
	Enclosure Rating			IP65, IEC 60529
	Electrical Connection			DIN EN 175301-803 Form A
				Form C

CONSTRUCTION MATERIAL	Valve Body	Cast Aluminum
	Poppet	Acetal and Stainless Steel
	Seals	Buna-N

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

Ordering Information

2/2 Solenoid Pilot Controlled

MODEL NUMBER CONFIGURATOR — 2-Way 2-Position Valves

LX	1	4	N	B	4	7	5	01	W	

Series

Valve Function

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

Revision Level

Port Thread

NPT	N
G	D

Port Size

In		Out	
1/2	3	3/8	3
	4	1/2	4
1	5	3/4	5
	6	1	6
1-1/2	7	1-1/4	7
	8	1-1/2	8
2-1/2	9	2	9
	0	2-1/2	0

Coil Connection*

DIN EN 175301-803 (Leave Blank)	
Form A - M12 adapter (24 V DC only)	009

*See options for connectors or wiring kits.

Current	Voltage*	
DC	24 V	W
AC	110 V, 50 Hz 120 V, 50/60 Hz	Z
	230 V, 50/60 Hz	Y

* For other voltages consult ROSS.

Unit Type

Valve

Pilot Supply

External

Actuation

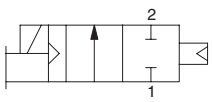
Solenoid Pilot

Model Number examples: LX14NB47501W, LX24NB47501Y009.

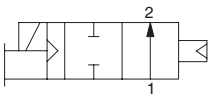
Size		Pilot Port Thread Size (X-1)		Flow C_V (Nl/min)	≈ Weight lb (kg)
Port 1	Port 2	NPT	G		
3/8	3/8	1/8-27 NPT	G1/8	3.6 (3500)	1.5 (0.7)
1/2	1/2				
3/4	3/4	1/8-27 NPT	G1/8	12.2 (12000)	3.5 (1.6)
1	1				
1-1/4	1-1/4	1/8-27 NPT	G1/8	36.1 (36000)	9.3 (4.2)
1-1/2	1-1/2				
2	2	1/8-27 NPT	G1/8	62.7 (62000)	19.3 (8.8)
2-1/2	2-1/2				

Valve Schematic

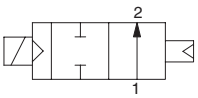
Normally Closed



Normally Open

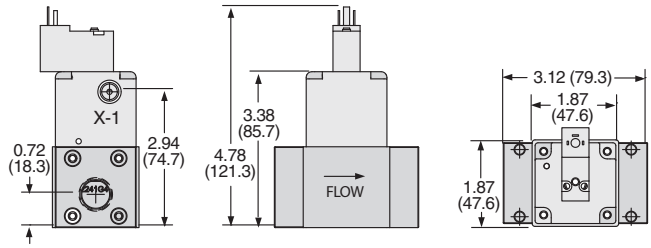
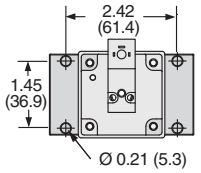
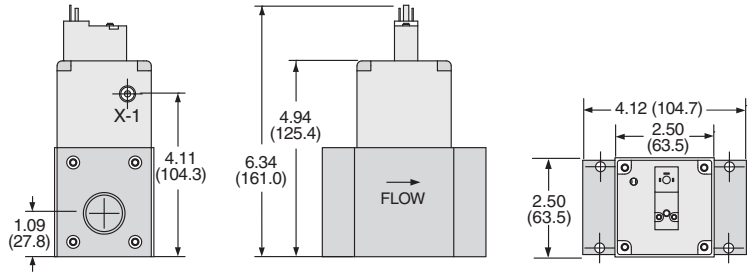
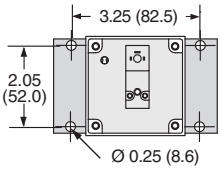
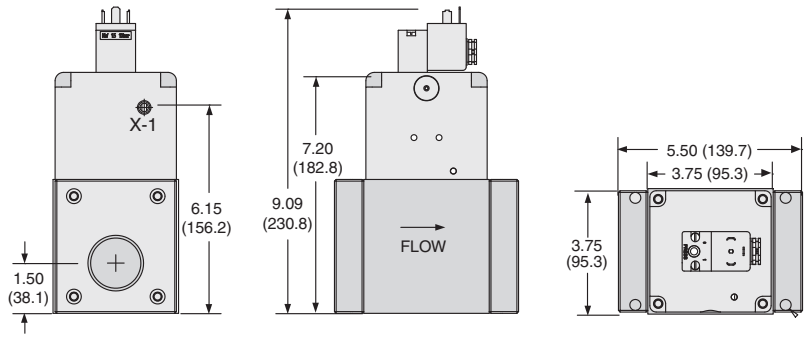
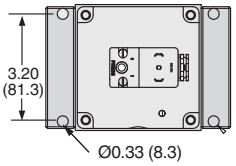
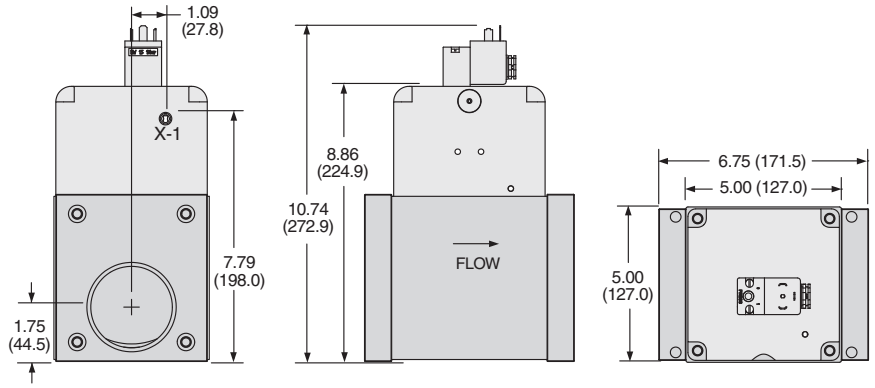
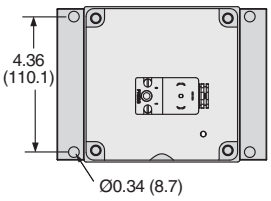


3/8 through 1

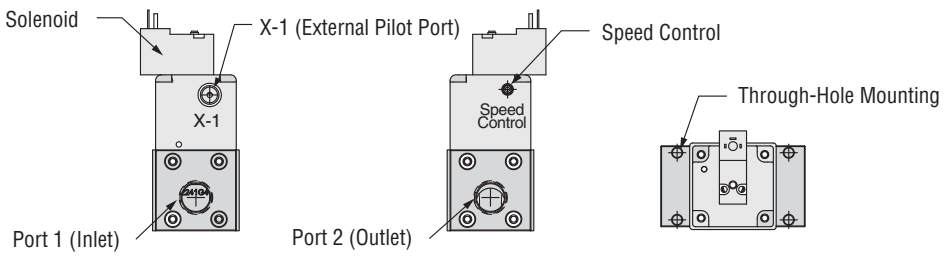


1-1/2 through 2-1/2

DIMENSIONS — Inches (mm)

Port Size		Mounting Details
3/8 - 12		
3/4 - 1		
1-1/4 & 1-1/2		
2 & 2-1/2		

Downloadable CAD models available.



Ordering Information

2/2 Pressure Controlled Valves

MODEL NUMBER CONFIGURATOR — 2-Way 2-Position Valves

LX	1	4	N	B	4	1	5	01

Series

Valve Function
2/2 Normally Closed

Revision Level

Port Thread	
NPT	N
G	D

Unit Type
Valve

Pilot Supply
External

Actuation
Air Pilot

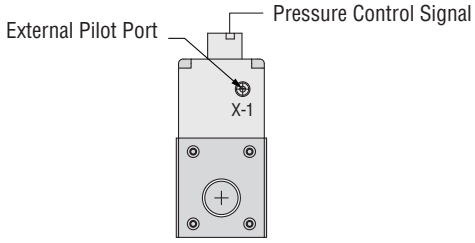
Port Size	In		Out	
	1/2	3	3/8	3
		4	1/2	4
	1	5	3/4	5
		6	1	6
	1-1/2	7	1-1/4	7
		8	1-1/2	8
	2-1/2	9	2	9
		0	2-1/2	0

Model Number examples: LX14NB47501, LX15DB57501.

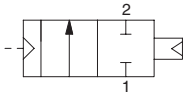
Size		Pilot Port Thread Size (X-1)		Flow C_V (Nl/min)	≈ Weight lb (kg)
Port 1	Port 2	NPT	G		
3/8	3/8	1/8-27 NPT	G1/8	3.6 (3500)	1.5 (0.7)
1/2	1/2				
3/4	3/4	1/8-27 NPT	G1/8	12.2 (12000)	3.5 (1.6)
1	1				
1-1/4	1-1/4	1/8-27 NPT	G1/8	36.1 (36000)	9.3 (4.2)
1-1/2	1-1/2				
2	2	1/8-27 NPT	G1/8	62.7 (62000)	19.3 (8.8)
2-1/2	2-1/2				

NOTE

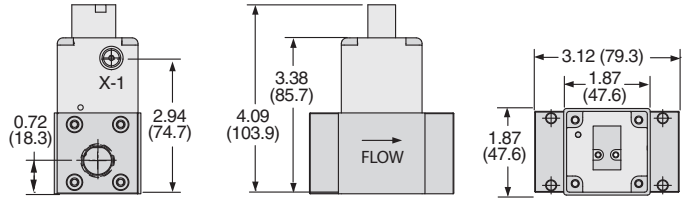
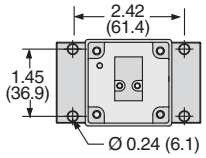
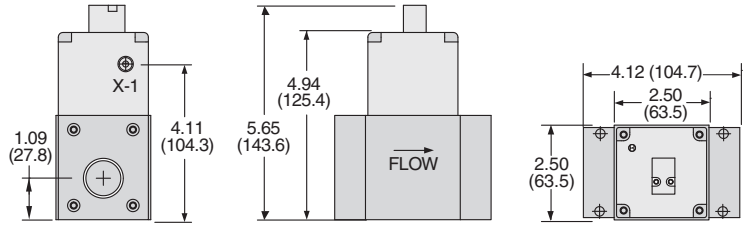
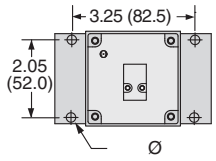
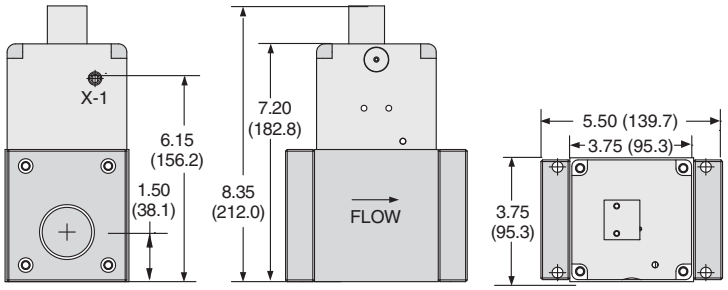
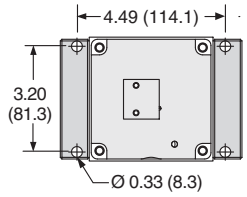
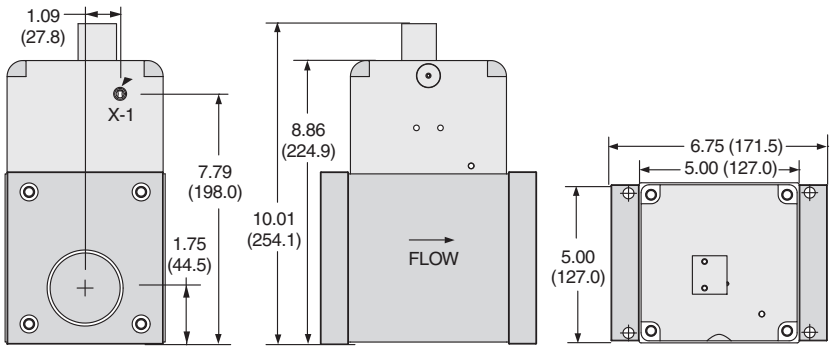
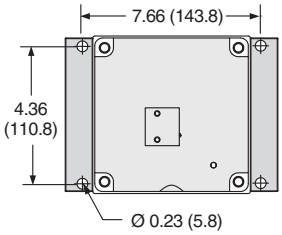
The Dale Series pressure controlled valves require both an external pilot supply and a control signal to operate the valve. When a pressure control signal is applied the valve shifts to the open position.



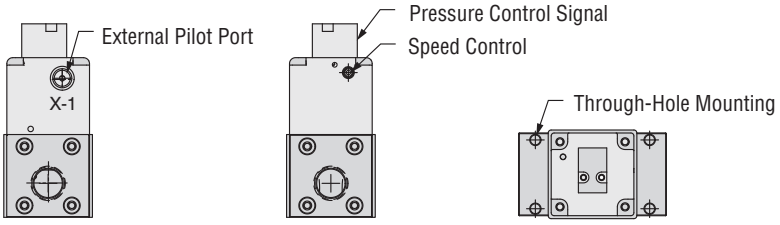
Valve Schematic	Normally Closed	



DIMENSIONS — Inches (mm)

Port Size		Mounting Details
3/8 - 12		
3/4 - 1		
1-1/4 & 1-1/2		
2 & 2-1/2		

Downloadable CAD models available.

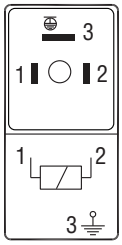


Leak Test Valves

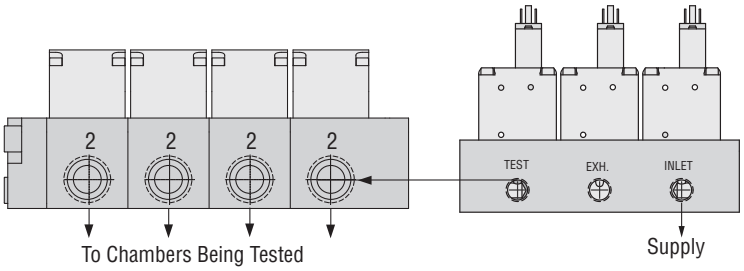
Illustration example.

Solenoid Pinouts

DIN EN 175301-803 Form C



1 - Positive
2 - Negative
3 - Ground



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.

VALVE FEATURES

Poppet construction	Provides high dirt tolerance
Bi-directional flow	Surface areas of the double piston and poppet are carefully calculated to produce strong shifting forces in both directions, ensuring high speed and repeatability
High Flow	Full port flow
Positive sealing	Dynamic sealing, self-compensating for wear
Mounting	In-line

Specifications

STANDARD SPECIFICATIONS

GENERAL	Function		3/4 Valve	Normally Closed (NC)	
	Construction Design		Poppet		
	Actuation		Electrical	Solenoid Pilot Controlled	
	Mounting	Type	In-line		
		Orientation	Any, preferably vertical		
	Connection		Threaded Port	NPT	
				G	
	Manual Override		Non-locking		
OPERATING CONDITIONS	Temperature		Ambient	40° to 120°F (4° to 50°C)	
			Media		
	Flow Media		Filtered air		
			For liquid applications, consult ROSS.		
	Operating Pressure		2 to 145 psig (0.13 to 10 bar)		
			External Pilot Supply	50 to 145 psig (3.4 to 10 bar)	
	External Pilot Supply Pressure		Must be equal to or greater than inlet pressure		

ELECTRICAL DATA FOR SOLENOID PILOT	Solenoids	Current	Operating Voltage	Power Consumption (each solenoid)
		DC	24 volts	1.5 watts
		AC	110 volts, 50 Hz 120 volts, 60 HZ	50 Hz, 5.4 VA 60 Hz, 5.0 VA
		Rated for continuous duty		
	Enclosure Rating	IP65, IEC 60529		
	Electrical Connection	DIN EN 175301-803		Form C

CONSTRUCTION MATERIAL	Valve Body	Cast Aluminum
	Poppet	Acetal and Stainless Steel
	Seals	Buna-N

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

PRODUCT CREDENTIALS

Declaration of Conformity

EAC

Ordering Information

MODEL NUMBER CONFIGURATOR — 3-Way 4-Position Valves

LT	3	4	N	B	2	7	5	00	W	

Series

Valve Function
Normally Closed

Inlet Port Size
1/4

Port Thread	
NPT	N
G	D

Revision Level

Outlet Port Size
1/4

Actuation
Solenoid Pilot

Coil Connection*	
DIN EN 175301-803 (Leave Blank)	
Form A - M12 adapter (24 V DC only)	009

*See options for connectors or wiring kits.

Current	Voltage*	
DC	24 V	W
AC	110 V, 50 Hz 120 V, 50/60 Hz	Z
	230 V, 50/60 Hz	Y

* For other voltages consult ROSS.

Unit Type
Manifold

Pilot Supply
External

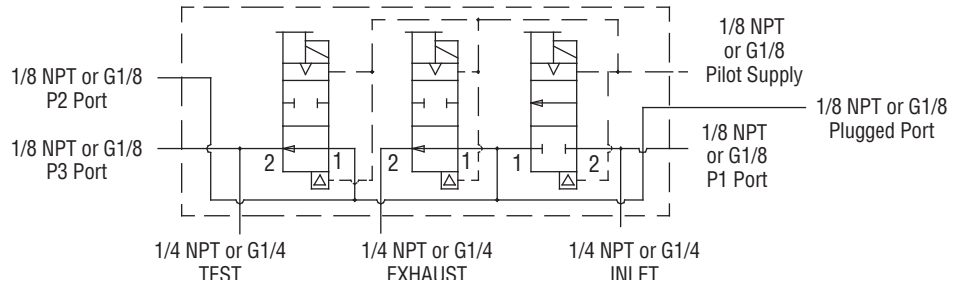
Model Number examples: LT34NB27500W, LT34DB27500Z009.

Size				Sensor Ports			Pilot Port Thread Size (X-1)		Flow C_V (Nl/min)	≈ Weight lb (kg)
Port 1	Port 3	Port 3	Test Port	P1	P2	P3	NPT	G		
1/4	1/4	1/4	1/4	1/8	1/8	1/8	1/8-27 NPT	G1/8	0.9 (890)	3.6 (1.7)

FLEXIBLE FIELD CONFIGURATION

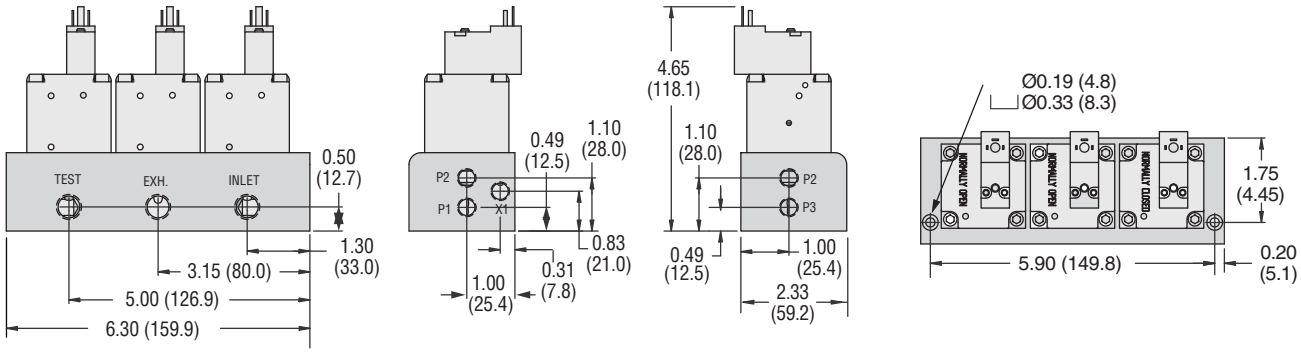
The LT Series valves can be field configured for flow, pressure decay, or differential pressure testing by selecting different combinations of the three sensor ports.

Valve Schematic

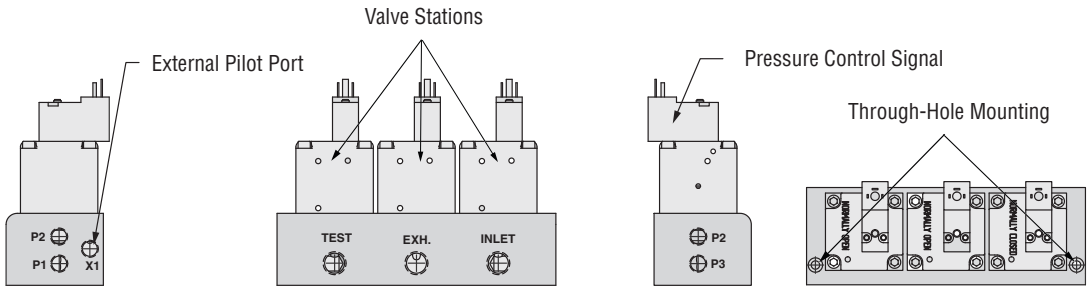


DIMENSIONS

Inches (mm)



Downloadable CAD models available.



PREWIRED ELECTRICAL CONNECTORS

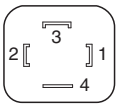
Cable with Connector without Light	Cable with Lighted Connector
	

Illustration examples.

	Valve Series	Port Size	Cable						Kit Number			
			End 1	End 2	Connection	Quantity Included	Length meters (feet)	Cord Diameter	Connector			
			Connector Type DIN EN 175301-803						Without Light	Lighted		
										24 V DC	120 V AC	230 V AC
Pre-wired Connectors	CX	1/4	Form C	Flying leads	1	1	2 (6.5)	10-mm	2449K77	2476K77-W	2476K77-Z	2476K77-Y
		1/2										
		1										
		1-1/2	Form A	Flying leads	1	1	2 (6.5)	10-mm	721K77	720K77-W	720K77-Z	720K77-Y
		2-1/2										
	LX	3/8	Form C	Flying leads	1	1	2 (6.5)	10-mm	2449K77	2476K77-W	2476K77-Z	2476K77-Y
		1/2										
		3/4										
		1										
		1-1/4	Form A	Flying leads	1	1	2 (6.5)	10-mm	721K77	720K77-W	720K77-Z	720K77-Y
		1-1/2										
		2										
		2-1/2										
	CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.											

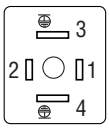
Connector Pinouts

DIN EN 175301-803 Form A



1 - Black
2 - Black
4 - Green/Yellow (Ground)

DIN EN 175301-803 Form C



1 - Brown
2 - Blue
3 - Green/Yellow (Ground)
4 - Green/Yellow (Ground)

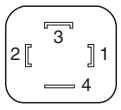
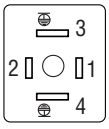
ELECTRICAL CONNECTORS

with Cable Grip, without Light	with Cable Grip, with Light
	

Illustration examples.

	Valve Series	Port Size	Connector			Kit Number			
			Type DIN EN 175301-803	Fitting Connection	Quantity Included	Connector			
						Without Light	Lighted		
							24 V DC	120 V AC	230 V AC
Connectors	CX	1/4	Form C	Cable grip	1	2452K77	2453K77-W	2453K77-Z	2453K77-Y
		1/2							
		1							
		1-1/2	Form A	Cable grip	1	937K87	936K87-W	936K87-Z	936K87-Y
		2-1/2							
	LX	3/8	Form C	Cable grip	1	2452K77	2453K77-W	2453K77-Z	2453K77-Y
		1/2							
		3/4							
		1							
		1-1/4	Form A	Cable grip	1	937K87	936K87-W	936K87-Z	936K87-Y
		1-1/2							
		2							
		2-1/2							
	CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.								

Connector Pinouts

DIN EN 175301-803 Form A	DIN EN 175301-803 Form C
	
1 - Black 2 - Black 4 - Green/Yellow (Ground)	1 - Brown 2 - Blue 3 - Green/Yellow (Ground) 4 - Green/Yellow (Ground)

EXHAUST SILENCERS

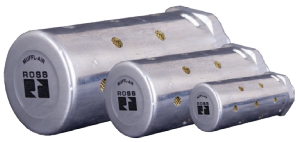
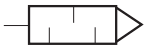


Illustration examples.

SPECIFICATIONS	**Silencer Material**	**Pressure Range** psig (bar)	**Schematic**
	Aluminum	0-290 (0-20) maximum	

Port Size	**Thread Type**	**Flow** C_V (Nl/min)	**Model Number**		**Dimensions** inches (mm)		**≈ Weight** lb (kg)
			NPT Thread	**R/Rp Thread**	**Length**	**Hex Size (D)**	
1/4	Male	2.3 (2300)	5500A2003	D5500A2003	2.2 (6)	0.81 (21)	0.07 (0.03)
1/2	Male	6.8 (6700)	5500A4003	D5500A4003	3.6 (9)	1.25 (32)	0.2 (0.1)
1	Male	18 (18000)	5500A6003	D5500A6003	5.4 (14)	2.0 (51)	0.9 (0.4)

CAUTIONS, WARNINGS And STANDARD WARRANTY

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

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 Global Family 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 Global Family 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 Global Family location.

4. Each ROSS Global Family Product should be used within its specification limits. In addition, use only ROSS Group components to repair ROSS Global FamilyProducts.

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 Global Family recommends a filter with a 5-micron rating for normal applications.

2. All standard ROSS Global Family 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 Global Family 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 Global Family's obligation under this warranty is limited to repair, replacement or refund of the purchase price paid for products which the ROSS Global Family 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 Global Family freight prepaid.

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

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