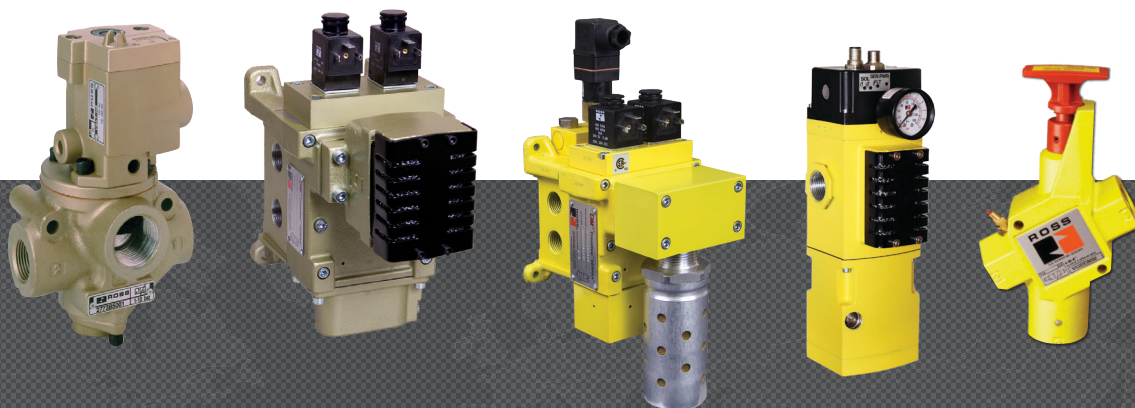




FLUID POWER PRODUCTS WITH CANADIAN REGISTRATION NUMBER

CRN



ROSS CONTROLS

Canadian Registration Number (CRN)

The Canadian Registration Number (CRN) is a number issued by each province or territory of Canada to the design of a boiler, pressure vessel or fitting as defined by CSA B51 Clause 4.3. The CRN identifies the design has been accepted and registered for use in that province or territory. The province or territory is represented by numeric digits following the decimal point within the CRN as shown in the list below. The first registering province or territory is the first digit after the decimal. Additional digits indicate other provinces that have also accepted the design.

1 – British Columbia
2 – Alberta
3 – Saskatchewan
4 – Manitoba
5 – Ontario

6 – Quebec
7 – New Brunswick
8 – Nova Scotia
9 – Prince Edward Island
0 (zero) – Newfoundland

T – Northwest Territories
Y – Yukon Territory
N – Nunavut

The letter C may follow the designation of first registration if a design is registered in all jurisdictions. No jurisdiction issues the letter C; it is a convenience for stamping once the manufacturer has received all the registrations.

The letters CL may follow the designation of first registration if a design is registered in all jurisdictions that require registration and is not registered in the jurisdictions that do not require registration.

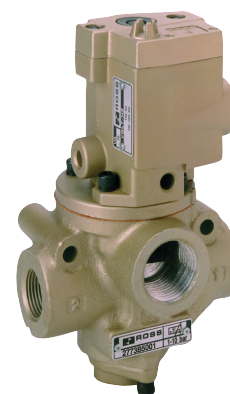
CONTENT		Page
CRN – General Information		2
Line Mounted Valves	27 Series Directional Control Valves Valves	3 - 10, 19
	21 Series Directional Control Valves Valves	11 - 18, 19
ANSI Valves	74 Series	20 - 21
Valves for Air Flow Control	19 Series	22 - 23
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	Series 27 EEZ-ON® Valves	
Safe Exhaust	Control Reliable Double Valves	34 - 41
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	DM® Series C	
Clutch/Brake Control	Control Reliable Double Valves	42 - 48
	DM® Series D	
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General Information	CAUTIONS, STANDARD WARRANTY	Inside Cover
	GLOBAL Locations	Cover

DIRECTIONAL CONTROL POPPET VALVES

27 SERIES

POPPET 27 SERIES VALVES – KEY FEATURES

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



Valves for external pilot supply are available. Registered in Ontario to the ASME B31.3, Process Piping Code – **CRN 0C1409.5ADD4**, for ordering information consult ROSS.

Valves in this section are Registered in Canada in the following jurisdictions: British Columbia, Saskatchewan, Manitoba, Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward Island, Newfoundland, Northwest Territories, Yukon Territory, Nunavut, to the ASME B31.3, Process Piping Code – **CRN 0C1409.53469087YTN**.

VALVE SERIES	DESCRIPTION		AVAILABLE INLET PORT SIZES														FUNCTIONS										Page
	Spool & Sleeve	Poppet																									
27			1/8	1/4	3/8	1/2	3/4	1	1¼	1½	2	2½	2/2	3/2	3/4	4/2	5/2 Single	5/2 Double	Max Flow (Cv)	Solenoid Control	Direct Solenoid Control	Pressure Control	3 - 10				
Options & Accessories																							19				

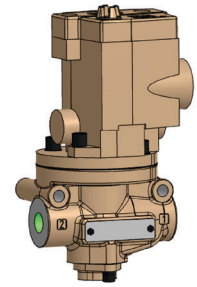
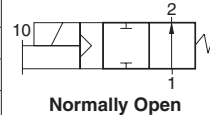
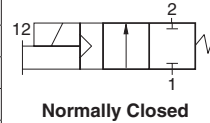
Solenoid Pilot Controlled Valves

27 Series

Valves on this page are Registered in Canada to the ASME B31.3, Process Piping Code – **CRN 0C1409.53469087YTN**.
Please see page 3, for the listing of jurisdictions where the product has been accepted and registered for use.

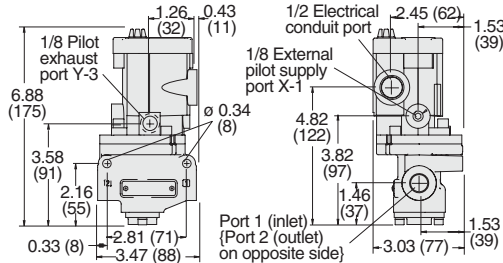
2-Way 2-Position Valves, Spring Return						
Port Size	Body Size	Valve Model Number**		C _v		Weight lb (kg)
		Normally Closed	Normally Open	NC	NO	
1/4	3/8	T2771B2001W	T2772B2001W	2.3	2.3	2.5 (1.2)
3/8	3/8	T2771B3001W	T2772B3001W	3.8	3.3	2.5 (1.2)
1/2	3/8	T2771B4011W	T2772B4011W	4.0	3.5	2.5 (1.2)
1/2	3/4	T2771B4001W	T2772B4001W	7.7	6.5	3.3 (1.5)
3/4	3/4	T2771B5001W	T2772B5001W	9.0	7.3	3.3 (1.5)
1	3/4	T2771B6011W	T2772B6011W	9.0	7.9	3.3 (1.5)
1	1 1/4	T2771B6001W	T2772B6001W	24	21	7.0 (3.2)
1 1/4	1 1/4	T2771B7001W	T2772B7001W	29	20	7.0 (3.2)
1 1/2	1 1/4	T2771B8011W	T2772B8011W	29	21	7.0 (3.2)
1 1/2	2	T2771B8001W	T2772B8001W	49	49	15.5 (6.9)
2	2	T2771B9001W	T2772B9001W	57	57	15.5 (6.9)
2 1/2	2	T2771B9011W	T2772B9011W	64	72	15.5 (6.9)

* NPT port thread. For BSPP thread add a "D" prefix to the model number e.g., **TD2771B2001W**.
Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., T2771B2001Z. For other voltages, consult ROSS.

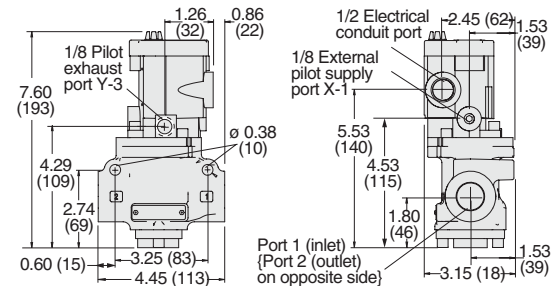


Valve Dimensions – inches (mm)

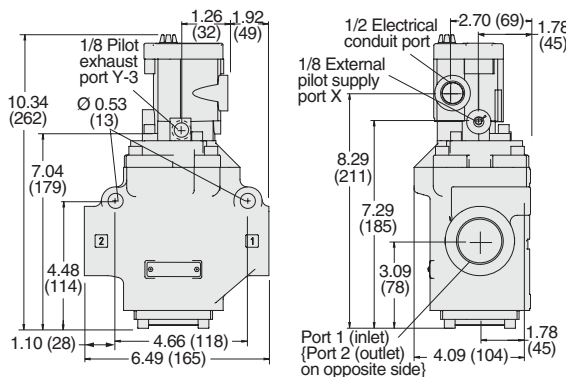
Body Size 3/8



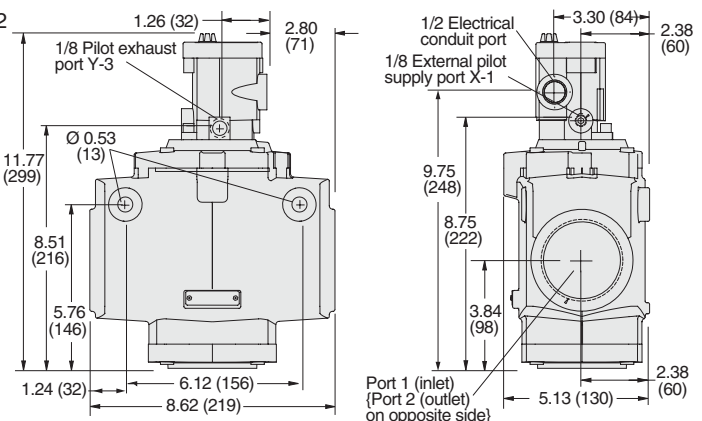
Body Size 3/4



Body Size 1 1/4



Body Size 2



Options: Indicator Light Kit, Manual Override Kits; refer to page 19.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	Body Size 3/8 & 1 1/4: 15 to 150 psig (1 to 10 bar) Body Size 2: 30 to 150 psig (2 to 10 bar) Pilot Supply - When external pilot supply, pressure must be equal to or greater than inlet pressure. Maximum Design Proof Pressure: 150 psig (10 bar)
Mounting Type	In-line	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Solenoids	Rated for continuous duty	Manual Override	Flush; rubber, non-locking
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Power Consumption	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz		
Temperature	Ambient: 40° to 120°F (4 to 50°C) Media: 40° to 175°F (4° to 80°C) Maximum Design Proof Temperature: 120°F (50°C)		
Flow Media	Filtered air		
Pilot Supply	Internal or External		

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

Solenoid Pilot Controlled Valves

27 Series

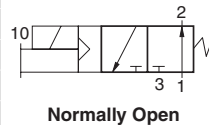
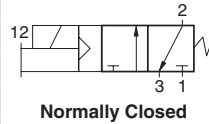
Valves on this page are Registered in Canada to the ASME B31.3, Process Piping Code – **CRN 0C1409.53469087YTN**.
Please see page 3, for the listing of jurisdictions where the product has been accepted and registered for use.

3-Way 2-Position Valves, Spring Return

Port Size	Body Size	Valve Model Number*#		C _v				Weight lb (kg)	
		Normally Closed	Normally Open	1-2	2-3	1-2	2-3		
1/4	1/2	3/8	T2773B2001W	T2774B2001W	2.5	3.1	2.3	2.7	2.5 (1.2)
3/8	1/2	3/8	T2773B3001W	T2774B3001W	3.6	5.3	2.8	3.2	2.5 (1.2)
1/2	1/2	3/8	T2773B4011W	T2774B4011W	3.3	5.3	2.8	3.2	2.5 (1.2)
1/2	1	3/4	T2773B4001W	T2774B4001W	6.3	9.2	6.3	8.0	3.3 (1.5)
3/4	1	3/4	T2773B5001W	T2774B5001W	7.7	11	6.9	7.4	3.3 (1.5)
1	1	3/4	T2773B6011W	T2774B6011W	8	12	6.8	7.5	3.3 (1.5)
1	1½	1¼	T2773B6001W	T2774B6001W	23	34	17	24	7.0 (3.2)
1¼	1½	1¼	T2773B7001W	T2774B7001W	30	32	19	24	7.0 (3.2)
1½	1½	1¼	T2773B8011W	T2774B8011W	30	31	19	23	7.0 (3.2)
1½	2½	2	T2773B8001W	T2774B8001W	68	70	57	59	16.5 (7.4)
2	2½	2	T2773B9001W	T2774B9001W	70	70	58	61	16.5 (7.4)
2½	2½	2	T2773B9011W	T2774B9011W	70	71	54	55	16.5 (7.4)

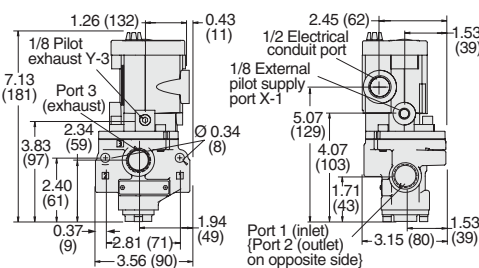
* NPT port thread. For BSPP thread add a "D" prefix to the model number e.g., **TD2773B2001W**.

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., T2773B2001Z. For other voltages, consult ROSS.

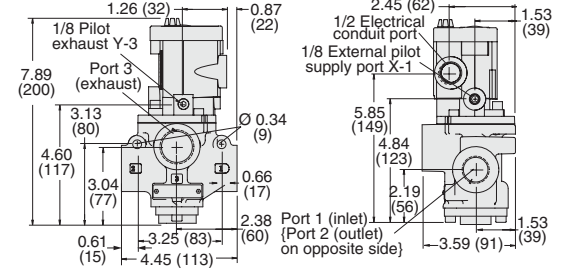


Valve Dimensions – inches (mm)

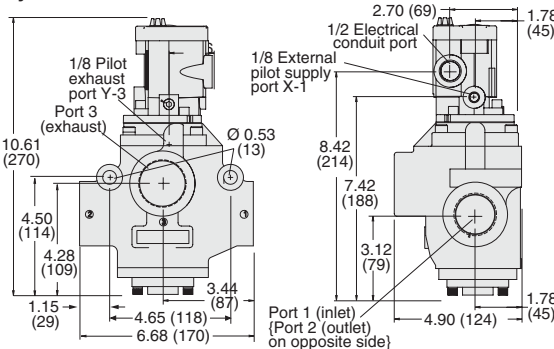
Body Size 3/8



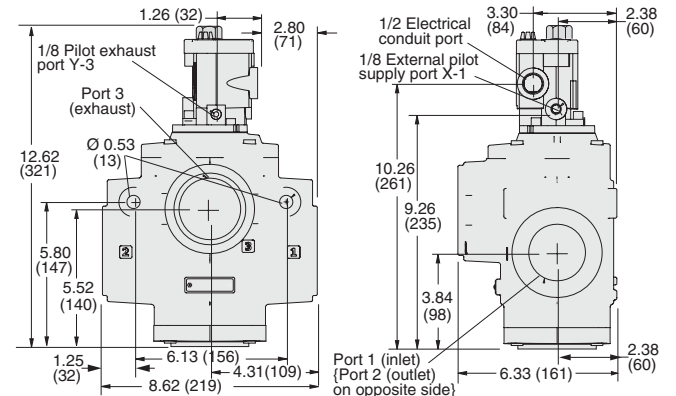
Body Size 3/4



Body Size 1¼



Body Size 2



Options: Indicator Light Kit, Manual Override Kits. Silencers ordered separately, refer to page 19.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	Body Size 3/8 & 1¼: 15 to 150 psig (1 to 10 bar) Body Size 2: 30 to 150 psig (2 to 10 bar)
Mounting Type	In-line		Pilot Supply - When external pilot supply, pressure must be equal to or greater than inlet pressure.
Solenoids	Rated for continuous duty	Construction Material	Maximum Design Proof Pressure: 150 psig (10 bar)
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz		Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Power Consumption	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	Manual Override	Flush; rubber, non-locking
Temperature	Ambient: 40° to 120°F (4 to 50°C) Media: 40° to 175°F (4° to 80°C) Maximum Design Proof Temperature: 120°F (50°C)	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Flow Media	Filtered air		
Pilot Supply	Internal or External		

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



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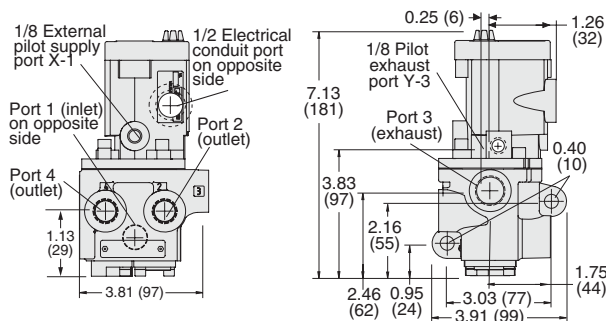
4-Way 2-Position Valves, Spring Return						
Port Size		Body Size	Valve Model Number*#	C _v		Weight lb (kg)
1, 2, 4	3			1-2, 1-4	4-3, 2-3	
1/4	1/2	3/8	T2776B2001W	2.1	2.9	3.0 (1.4)
3/8	1/2	3/8	T2776B3001W	2.9	4.2	3.0 (1.4)
1/2	1/2	3/8	T2776B4011W	3.1	7.3	3.0 (1.4)
1/2	1	3/4	T2776B4001W	5.6	8.1	5.3 (2.4)
3/4	1	3/4	T2776B5001W	7.0	9.3	5.3 (2.4)
1	1	3/4	T2776B6011W	7.8	10	5.3 (2.4)
1	1½	1¼	T2776B6001W	19	26	11.3 (5.1)
1¼	1½	1¼	T2776B7001W	21	27	11.3 (5.1)
1½	1½	1¼	T2776B8011W	22	27	11.3 (5.1)

* NPT port thread. For BSPP thread add a "D" prefix to the model number e.g., **TD2776B2001W**.
Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., T2776B2001Z. For other voltages, consult ROSS.

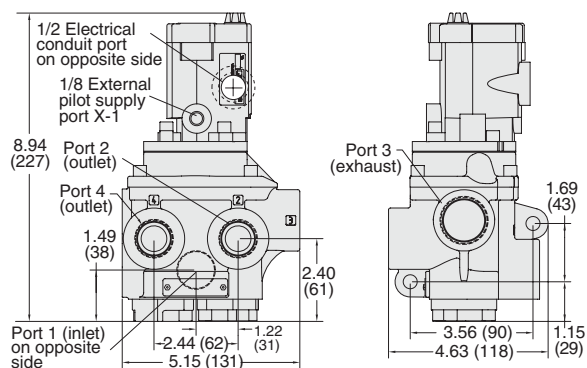


Valve Dimensions – inches (mm)

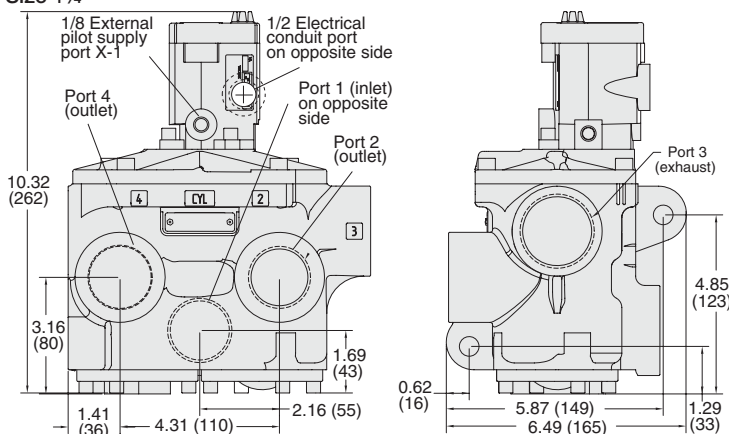
Body Size 3/8



Body Size 3/4



Body Size 1¼



Options: Indicator Light Kit, Manual Override Kits. Silencers ordered separately, refer to page 19.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	15 to 150 psig (1 to 10 bar)
Mounting Type	In-line	Pilot Supply	When external pilot supply, pressure must be equal to or greater than inlet pressure.
Solenoids	Rated for continuous duty	Maximum Design Proof Pressure	150 psig (10 bar)
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Power Consumption	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	Manual Override	Flush; rubber, non-locking
Temperature	Ambient: 40° to 120°F (4 to 50°C) Media: 40° to 175°F (4° to 80°C) Maximum Design Proof Temperature: 120°F (50°C)	Safety Integrity Level (SIL)	Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.
Flow Media	Filtered air		
Pilot Supply	Internal or External		

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

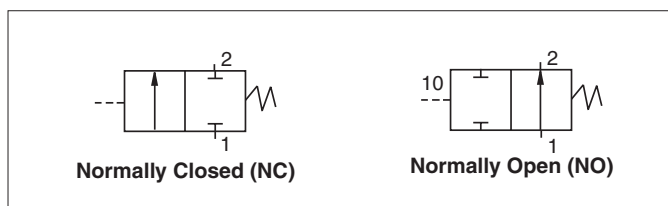
Single Pressure Controlled Valves for 20 Bar

27 Series

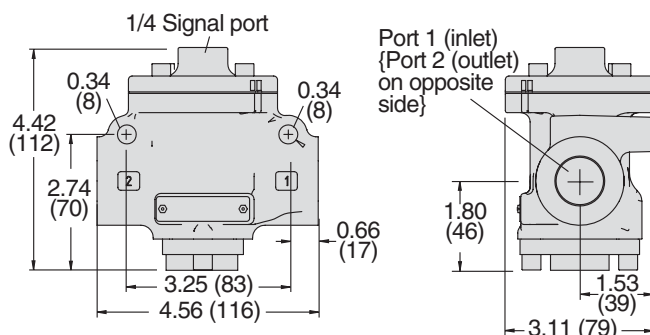
Valves on this page are Registered in Canada to the ASME B31.3, Process Piping Code – **CRN 0C1409.53469087YTN**.
Please see page 3, for the listing of jurisdictions where the product has been accepted and registered for use.

2-Way 2-Position Valves, Spring Return						
Port Size 1, 2	Body Size	Valve Model Number*		C _v		Weight lb (kg)
		Normally Closed (NC)	Normally Open (NO)	NC	NO	
3/4	3/4	T2751A5906	T2752A5900	9.0	7.3	2.0 (0.9)

* NPT port thread. For BSPP thread add a "D" prefix to the model number e.g., TD2751A5906.



Valve Dimensions – inches (mm)



Silencers ordered separately, refer to page 19.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	Maximum Design Proof Pressure: 300 psig (20 bar)
Mounting Type	In-line	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C) Maximum Design Proof Temperature: 175°F (80°C)	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Flow Media	Filtered air		
Pilot Supply	External		
Operating Pressure	15 to 300 psig (1 to 20 bar) Pilot Supply - When external pilot supply, pressure must be equal to or greater than inlet pressure.		

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



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Pressure Controlled Valves

27 Series

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Please see page 3, for the listing of jurisdictions where the product has been accepted and registered for use.

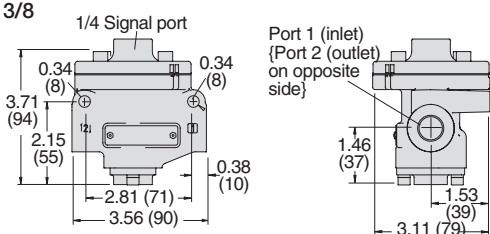
2-Way 2-Position Valves, Spring Return						
Port Size	Body Size	Valve Model Number*		C _v		Weight lb (kg)
		Normally Closed (NC)	Normally Open (NO)	NC	NO	
1/4	3/8	T2751A2001	T2752A2001	2.3	2.3	1.3 (0.6)
3/8	3/8	T2751A3001	T2752A3001	3.8	3.3	1.3 (0.6)
1/2	3/8	T2751A4011	T2752A4011	4.0	3.5	1.3 (0.6)
1/2	3/4	T2751A4001	T2752A4001	7.7	6.5	2.0 (0.9)
3/4	3/4	T2751A5001	T2752A5001	9.0	7.3	2.0 (0.9)
1	3/4	T2751A6011	T2752A6011	9.0	7.9	2.0 (0.9)
1	1 1/4	T2751A6001	T2752A6001	24	21	8.0 (3.6)
1 1/4	1 1/4	T2751A7001	T2752A7001	29	20	8.0 (3.6)
1 1/2	1 1/4	T2751A8011	T2752A8011	29	21	8.0 (3.6)
1 1/2	2	T2751A8001	T2752A8001	49	49	14.3 (6.4)
2	2	T2751A9001	T2752A9001	57	57	14.3 (6.4)
2 1/2	2	T2751A9011	T2752A9011	64	72	14.3 (6.4)

* NPT port thread. For BSPP thread add a "D" prefix to the model number e.g., TD2751A2001.

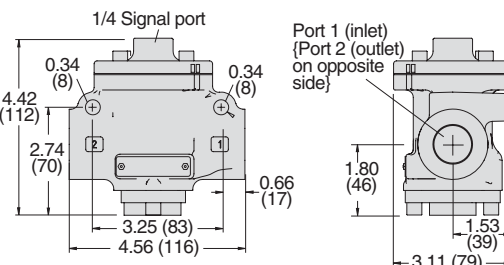


Valve Dimensions – inches (mm)

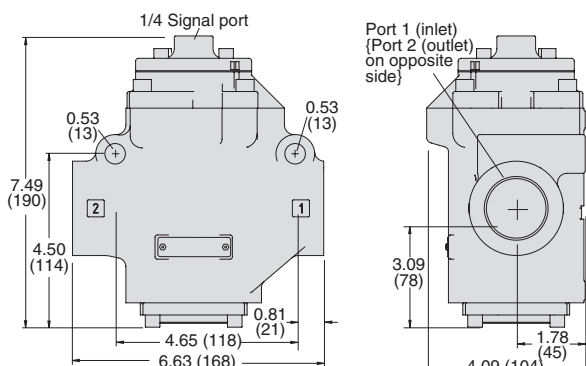
Body Size 3/8



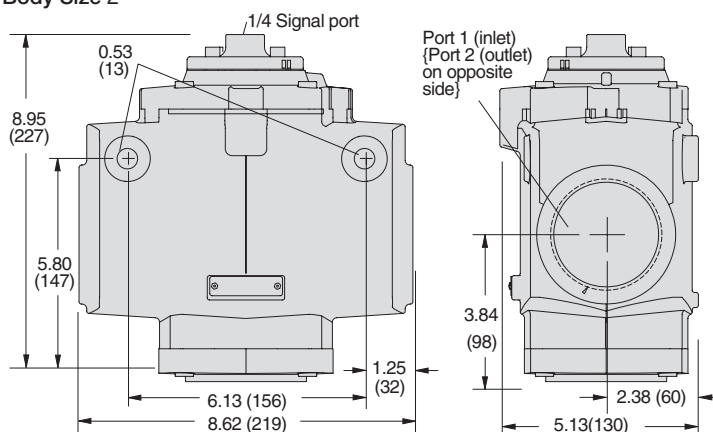
Body Size 3/4



Body Size 1 1/4



Body Size 2



Silencers ordered separately, refer to page 19.

STANDARD SPECIFICATIONS (for valves on this page):

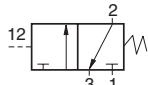
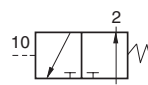
Construction Design	Poppet	Operating Pressure	Maximum Design Proof Pressure: 150 psig (10 bar)
Mounting Type	In-line	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C) Maximum Design Proof Temperature: 175°F (80°C)	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Flow Media	Filtered air		
Pilot Supply	External		
Operating Pressure	Body Size 3/8 & 1 1/4: 15 to 150 psig (1 to 10 bar) Body Size 2: 30 to 150 psig (2 to 10 bar) Pilot Supply - When external pilot supply, pressure must be equal to or greater than inlet pressure.		

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

Pressure Controlled Valves

27 Series

Valves on this page are Registered in Canada to the ASME B31.3, Process Piping Code – **CRN 0C1409.53469087YTN**.
Please see page 3, for the listing of jurisdictions where the product has been accepted and registered for use.

3-Way 2-Position Valves, Spring Return										
Port Size		Body Size	Valve Model Number*		C _v				Weight lb (kg)	
					NC		NO			
1, 2	3		Normally Closed	Normally Open	1-2	2-3	1-2	2-3		
1/4	1/2	3/8	T2753A2001	T2754A2001	2.5	3.1	2.3	2.7	1.3 (0.6)	
3/8	1/2	3/8	T2753A3001	T2754A3001	3.6	5.3	2.8	3.2	1.3 (0.6)	
1/2	1/2	3/8	T2753A4011	T2754A4011	3.3	5.3	2.8	3.2	1.3 (0.6)	Normally Closed
1/2	1	3/4	T2753A4001	T2754A4001	6.3	9.2	6.3	8.0	2.0 (0.9)	
3/4	1	3/4	T2753A5001	T2754A5001	7.7	11	6.9	7.4	2.0 (0.9)	
1	1	3/4	T2753A6011	T2754A6011	8	12	6.8	7.5	2.0 (0.9)	
1	1½	1¼	T2753A6001	T2754A6001	23	34	17	24	6.0 (2.7)	Normally Open
1¼	1½	1¼	T2753A7001	T2754A7001	30	32	19	24	6.0 (2.7)	
1½	1½	1¼	T2753A8011	T2754A8011	30	31	19	23	6.0 (2.7)	
1½	2½	2	T2753A8001	T2754A8001	68	70	57	59	15.3 (6.9)	
2	2½	2	T2753A9001	T2754A9001	70	70	58	61	15.3 (6.9)	
2½	2½	2	T2753A9011	T2754A9011	70	71	54	55	15.3 (6.9)	

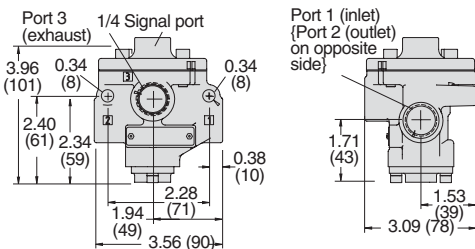
* NPT port thread. For BSPP thread add a “D” prefix to the model number e.g., TD2753A2001.



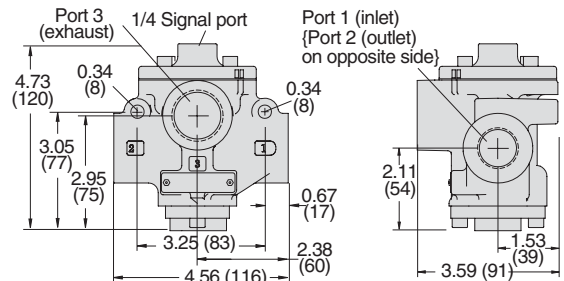
* NPT port thread. For BSP thread add a "D" prefix to the model number e.g., TD2753A2001.

Valve Dimensions – inches (mm)

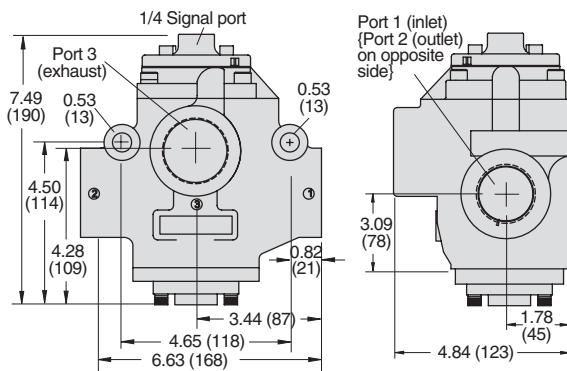
Body Size 3/8



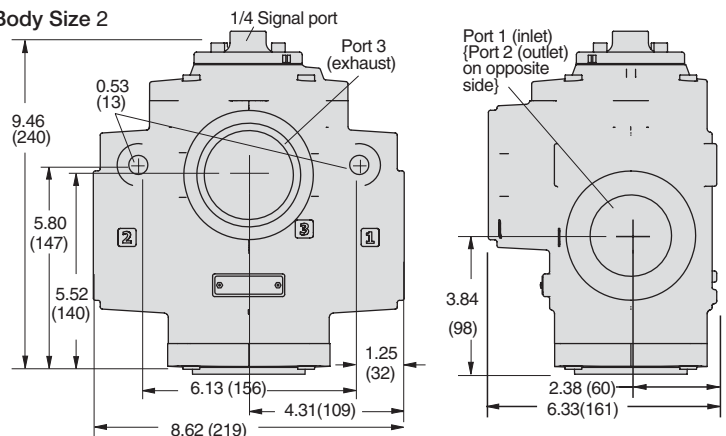
Body Size 3/4



Body Size 1 1/4



Body Size 2



Silencers ordered separately, refer to page 19.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	Maximum Design Proof Pressure: 150 psig (10 bar)
Mounting Type	In-line	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C) Maximum Design Proof Temperature: 175°F (80°C)	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Flow Media	Filtered air		
Pilot Supply	External		
Operating Pressure	Body Size 3/8 & 1 1/4: 15 to 150 psig (1 to 10 bar) Body Size 2: 30 to 150 psig (2 to 10 bar) Pilot Supply - When external pilot supply, pressure must be equal to or greater than inlet pressure.		

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

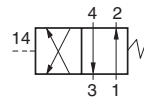


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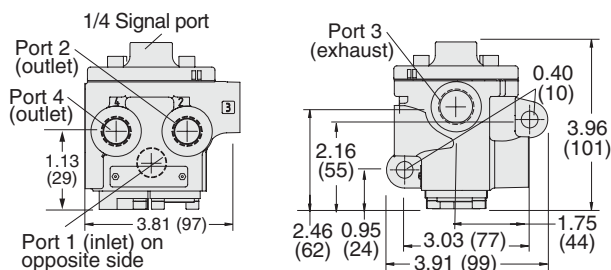
4-Way 2-Position Valves, Spring Return

Port Size		Body Size	Valve Model Number		C _v		Weight lb (kg)
			NPT Thread	BSPP Thread	1-2, 1-4	4-3, 2-3	
1/4	1/2	3/8	T2756A2001	TD2756A2001	2.1	2.9	1.8 (0.8)
3/8	1/2	3/8	T2756A3001	TD2756A3001	2.9	4.2	1.8 (0.8)
1/2	1/2	3/8	T2756A4011	TD2756A4011	3.1	4.3	1.8 (0.8)
1/2	1	3/4	T2756A4001	TD2756A4001	5.6	8.1	4.3 (1.9)
3/4	1	3/4	T2756A5001	TD2756A5001	7.0	9.3	4.3 (1.9)
1	1	3/4	T2756A6011	TD2756A6011	7.8	10	4.3 (1.9)
1	1½	1¼	T2756A6001	TD2756A6001	19	26	10.3 (4.6)
1¼	1½	1¼	T2756A7001	TD2756A7001	21	27	10.3 (4.6)
1½	1½	1¼	T2756A8011	TD2756A8011	22	27	10.3 (4.6)

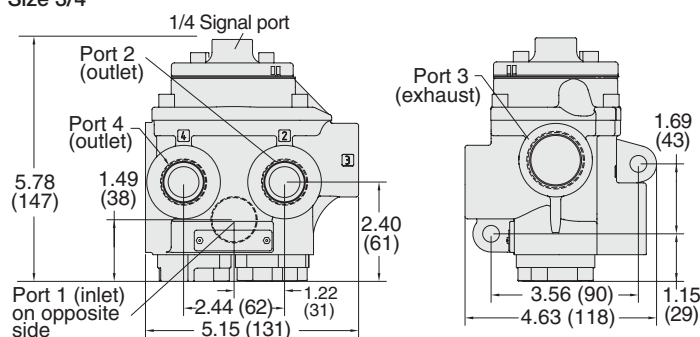


Valve Dimensions – inches (mm)

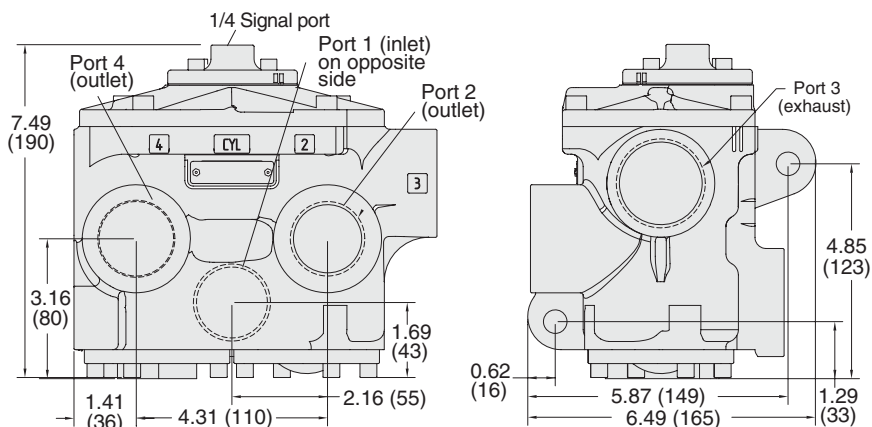
Body Size 3/8



Body Size 3/4



Body Size 1¼



Silencers ordered separately, refer to page 19.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	Maximum Design Proof Pressure: 150 psig (10 bar)
Mounting Type	In-line	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C) Maximum Design Proof Temperature: 175°F (80°C)	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Flow Media	Filtered air		
Pilot Supply	External		
Operating Pressure	Body Size 3/8 & 1¼: 15 to 150 psig (1 to 10 bar) Pilot Supply - When external pilot supply, pressure must be equal to or greater than inlet pressure.		

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

DIRECTIONAL CONTROL POPPET VALVES

21 SERIES

HIGH TEMPERATURE AND LOW TEMPERATURE APPLICATIONS

POPPET 21 SERIES VALVES – KEY FEATURES

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

High Temperature Service:

Fluorocarbon seals are used to ensure high temperature stability.

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

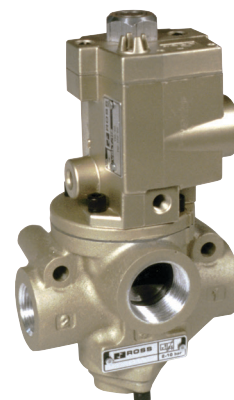
Media Temperature: 0° to 300°F (-17° to 150°C).

Low Temperature Service:

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

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

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



*Valves for external pilot supply are available. Registered in Ontario to the ASME B31.3, Process Piping Code – **CRN 0C1409.5ADD4**, for ordering information consult ROSS.*

*Valves in this section are Registered in Canada (British Columbia, Saskatchewan, Manitoba, Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward Island, Newfoundland, Northwest Territories, Yukon Territory, Nunavut, to the ASME B31.3, Process Piping Code – **CRN 0C1409.53469087YTN**.*

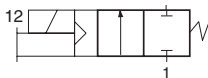
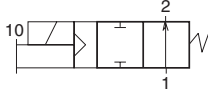
VALVE SERIES	DESCRIPTION		AVAILABLE INLET PORT SIZES										FUNCTIONS									Page	
	Spool & Sleeve	Poppet	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	2	2½	2/2	3/2	3/4	4/2	5/2 Single	5/2 Double	Max Flow (Cv)	Solenoid Control	Direct Solenoid Control		Pressure Control
21																			40				11 - 18
Options & Accessories																						19	

Solenoid Pilot Controlled Valves

For High and Low Temperature Applications

21 Series

Valves on this page are Registered in Canada to the ASME B31.3, Process Piping Code – **CRN 0C1409.53469087YTN**.
Please see page 11, for the listing of jurisdictions where the product has been accepted and registered for use.

2-Way 2-Position Valves, Spring Return									
Port Size 1,2	Body Size	Valve Model Number**				Avg. C _v		Weight lb (kg)	 Normally Closed (NC)
		High Temperature		Low Temperature					
		Normally Closed	Normally Open	Normally Closed	Normally Open	NC	NO		
1/4	3/8	T2171B2001W	T2172B2001W	T2171B2002W	T2172B2002W	2.3	2.3	3.0 (1.4)	 Normally Open (NO)
3/8	3/8	T2171B3001W	T2172B3001W	T2171B3002W	T2172B3002W	3.8	3.3	3.0 (1.4)	
1/2	3/8	T2171B4011W	T2172B4011W	T2171B4012W	T2172B4012W	4.0	3.5	3.0 (1.4)	
1/2	3/4	T2171B4001W	T2172B4001W	T2171B4002W	T2172B4002W	7.7	6.5	3.3 (1.5)	
3/4	3/4	T2171B5001W	T2172B5001W	T2171B5002W	T2172B5002W	9.0	7.3	3.3 (1.5)	
1	3/4	T2171B6011W	T2172B6011W	T2171B6012W	T2172B6012W	9.0	7.9	3.3 (1.5)	
1	1¼	T2171B6001W	T2172B6001W	T2171B6002W	T2172B6002W	24	21	7.5 (3.4)	
1¼	1¼	T2171B7001W	T2172B7001W	T2171B7002W	T2172B7002W	29	20	7.5 (3.4)	
1½	1¼	T2171B8011W	T2172B8011W	T2171B8012W	T2172B8012W	29	21	7.5 (3.4)	

* NPT port thread. For BSPP thread add a "D" prefix to the model number e.g., TD2171B2001W.

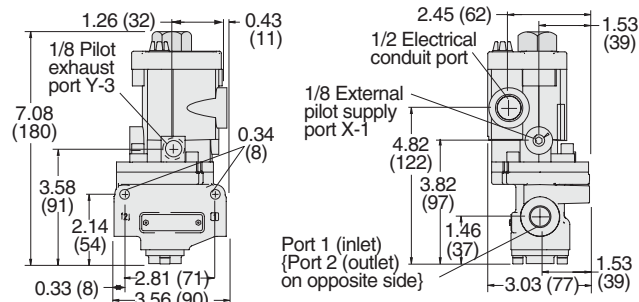
Voltage: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., T2171B2001Z. For other voltages, consult ROSS.

* NPT port thread. For BSP thread add a "D" prefix to the model number e.g., TD2171B2001W.

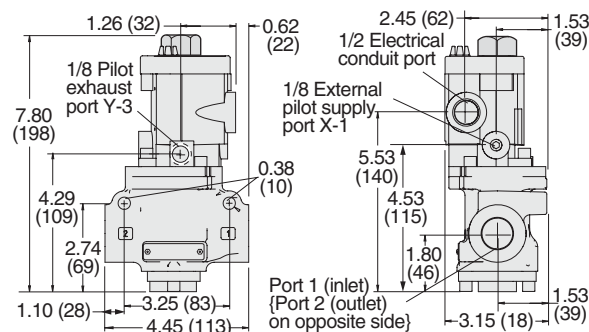
Voltage: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., T2171B2001Z. For other voltages, consult ROSS.

Valve Dimensions – inches (mm)

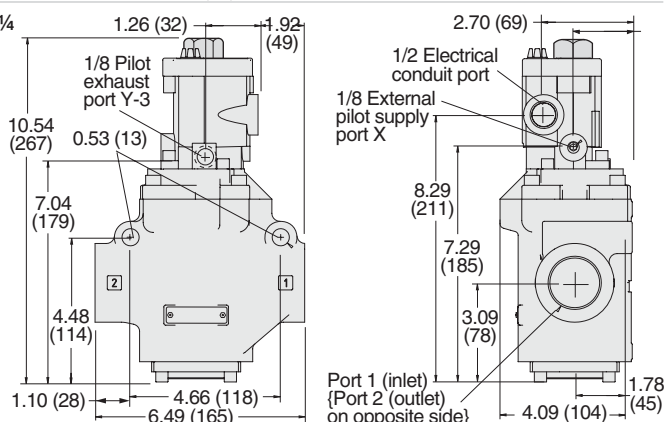
Body Size 3/8



Body Size 3/4



Body Size 1 1/4



Options: Indicator Light Kit, Manual Override Kits; refer to page 19.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	In-line	Pilot Supply	Internal or External
Solenoids	Rated for continuous duty	Operating Pressure	30 to 150 psig (2 to 10 bar)
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Pilot Supply - When external pilot supply, pressure must be equal to or greater than inlet pressure.	
Power Consumption	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	Maximum Design Proof Pressure: 150 psig (10 bar)	
Temperature - Ambient	High Temp: 0° to 250°F (-17 to 122°C) Low Temp: -40° to 120°F (-40° to 50°C)	Construction Material	Valve Body: Cast Aluminum Poppet: Aluminum and Stainless Steel Seals: Fluorocarbon
Temperature - Media	High Temp: 0° to 300°F (-17 to 150°C) Low Temp: -40° to 175°F (-40° to 80°C)	Manual Override	Non-locking metal button, standard
Temperature	For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Temperature	Maximum Design Proof Temperature: High Temp: 250°F (122°C) Low Temp: 120°F (50°C)		

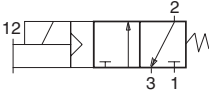
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Solenoid Pilot Controlled Valves

For High and Low Temperature Applications

21 Series

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3-Way 2-Position Valves, Spring Return												
Port Size		Body Size	Valve Model Number*#				C _v				Weight lb (kg)	
			High Temperature		Low Temperature		NC		NO			
1, 2	3		Normally Closed	Normally Open	Normally Closed	Normally Open	1-2	2-3	1-2	2-3		
1/4	1/2	3/8	T2173B2001W	T2174B2001W	T2173B2002W	T2174B2002W	2.4	3.4	2.0	2.1	3.0 (1.4)	
3/8	1/2	3/8	T2173B3001W	T2174B3001W	T2173B3002W	T2174B3002W	3.0	5.8	2.3	2.4	3.0 (1.4)	
1/2	1/2	3/8	T2173B4011W	T2174B4011W	T2173B4012W	T2174B4012W	3.0	5.2	2.9	2.8	3.0 (1.4)	
1/2	1	3/4	T2173B4001W	T2174B4001W	T2173B4002W	T2174B4002W	6.6	12	6.5	7.0	3.3 (1.5)	
3/4	1	3/4	T2173B5001W	T2174B5001W	T2173B5002W	T2174B5002W	7.8	13	7.5	7.5	3.3 (1.5)	
1	1	3/4	T2173B6011W	T2174B6011W	T2173B6012W	T2174B6012W	7.5	12	7.7	7.6	3.3 (1.5)	
1	1½	1¼	T2173B6001W	T2174B6001W	T2173B6002W	T2174B6002W	24	40	15	17	7.5 (3.4)	
1¼	1½	1¼	T2173B7001W	T2174B7001W	T2173B7002W	T2174B7002W	29	39	21	23	7.5 (3.4)	
1½	1½	1¼	T2173B8011W	T2174B8011W	T2173B8012W	T2174B8012W	30	38	22	23	7.5 (3.4)	

* NPT port thread. For BSPP thread add a “D” prefix to the model number e.g., TD2173B2001W.

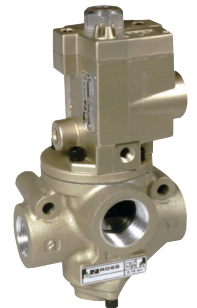
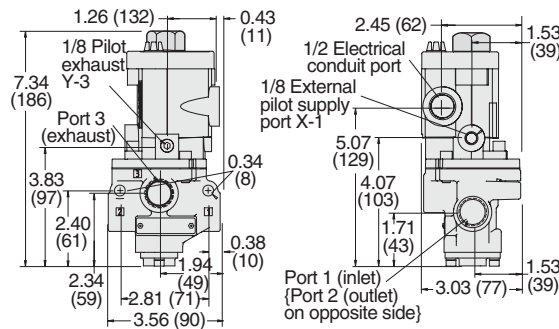
Voltage: “W” = 24 volts DC; “Z” = 110-120 volts AC, 50/60 Hz; e.g., T2173B2001Z. For other voltages, consult ROSS.

* NPT port thread. For BSP thread add a "D" prefix to the model number e.g., TD2173B2001W.

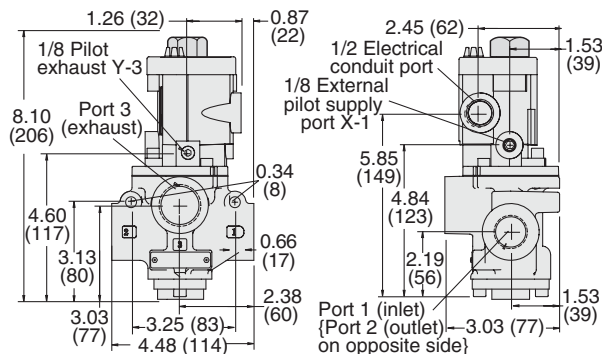
Voltage: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., T2173B2001Z. For other voltages, consult ROSS.

Valve Dimensions – inches (mm)

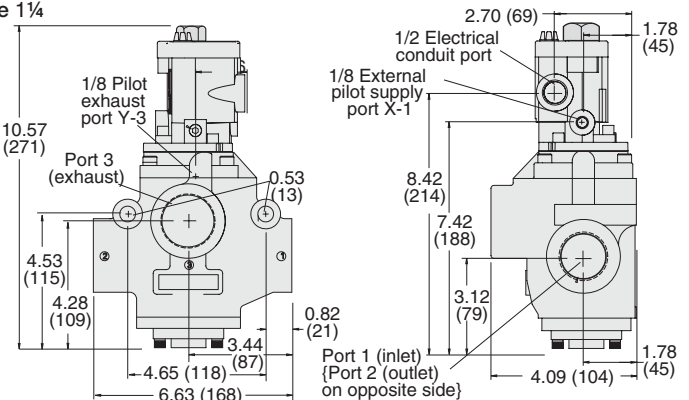
Body Size 3/8



Body Size 3/4



Body Size 1 1/4



Options: Indicator Light Kit, Manual Override Kits. Silencers ordered separately, refer to page 19.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	In-line	Pilot Supply	Internal or External
Solenoids	Rated for continuous duty	Operating Pressure	30 to 150 psig (2 to 10 bar)
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz		Pilot Supply - When external pilot supply, pressure must be equal to or greater than inlet pressure.
Power Consumption	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz		Maximum Design Proof Pressure: 150 psig (10 bar)
Temperature - Ambient	High Temp: 0° to 250°F (-17 to 122°C) Low Temp: -40° to 120°F (-40° to 50°C)	Construction Material	Valve Body: Cast Aluminum Poppet: Aluminum and Stainless Steel Seals: Fluorocarbon
Temperature - Media	High Temp: 0° to 300°F (-17 to 150°C) Low Temp: -40° to 175°F (-40° to 80°C)	Manual Override	Non-locking metal button, standard
Temperature	For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Temperature	Maximum Design Proof Temperature: High Temp: 250°F (122°C) Low Temp: 120°F (50°C)		

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



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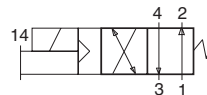
Solenoid Pilot Controlled Valves

For High and Low Temperature Applications

21 Series

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Please see page 11, for the listing of jurisdictions where the product has been accepted and registered for use.

4-Way 2-Position Valves, Spring Return							
Port Size 1, 2, 4	3	Body Size	Valve Model Number*		C _v		Weight lb (kg)
			High Temperature	Low Temperature	1-2, 1-4	4-3, 2-3	
1/4	1/2	3/8	T2176B2001W	T2176B2002W	2.1	2.2	3.0 (1.4)
3/8	1/2	3/8	T2176B3001W	T2176B3002W	2.5	3.1	3.0 (1.4)
1/2	1/2	3/8	T2176B4011W	T2176B4012W	2.9	3.8	3.0 (1.4)
1/2	1	3/4	T2176B4001W	T2176B4002W	5.7	6.5	5.8 (2.6)
3/4	1	3/4	T2176B5001W	T2176B5002W	7.1	8.7	5.8 (2.6)
1	1	3/4	T2176B6011W	T2176B6012W	7.7	10	5.8 (2.6)
1	1½	1¼	T2176B6001W	T2176B6002W	18	23	12.0 (5.4)
1½	1½	1¼	T2176B7001W	T2176B7002W	20	28	12.0 (5.4)
1½	1½	1¼	T2176B8011W	T2176B8012W	21	29	12.0 (5.4)

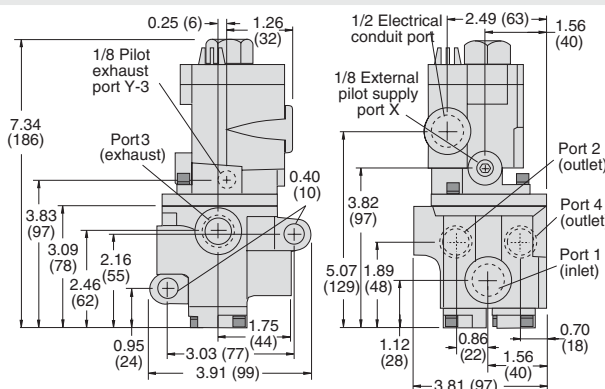


* NPT port thread. For BSPP thread add a "D" prefix to the model number e.g., TD2176B2001W.

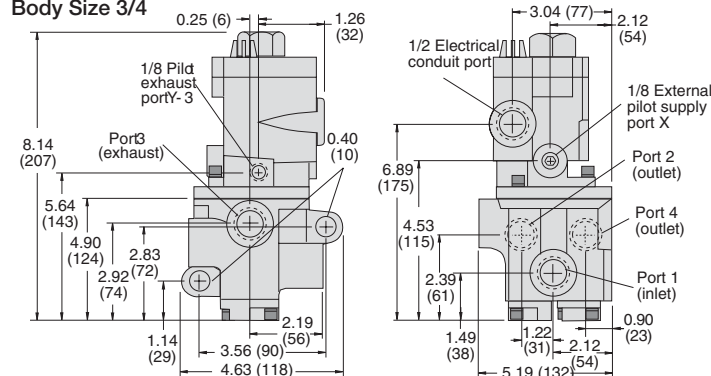
Voltage: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., T2176B2001Z. For other voltages, consult ROSS.

Valve Dimensions – inches (mm)

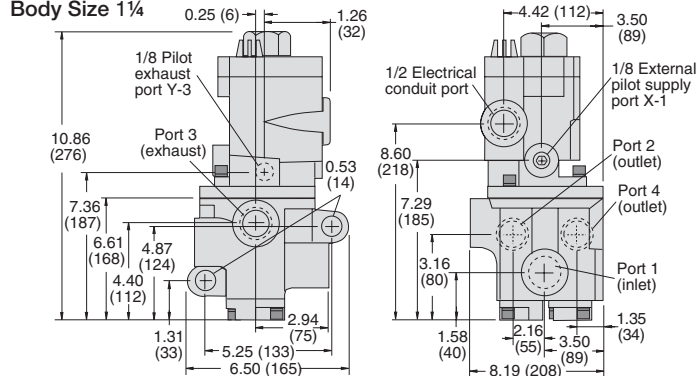
Body Size 3/8



Body Size 3/4



Body Size 1¼



Options: Indicator Light Kit, Manual Override Kits. Silencers ordered separately, refer to page 19.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	In-line	Pilot Supply	Internal or External
Solenoids	Rated for continuous duty	Operating Pressure	30 to 150 psig (2 to 10 bar)
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz		Pilot Supply - When external pilot supply, pressure must be equal to or greater than inlet pressure.
Power Consumption	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz		Maximum Design Proof Pressure: 150 psig (10 bar)
Temperature - Ambient	High Temp: 0° to 250°F (-17 to 122°C) Low Temp: -40° to 120°F (-40° to 50°C)	Construction Material	Valve Body: Cast Aluminum Poppet: Aluminum and Stainless Steel Seals: Fluorocarbon
Temperature - Media	High Temp: 0° to 300°F (-17 to 150°C) Low Temp: -40° to 175°F (-40° to 80°C)	Manual Override	Non-locking metal button, standard
Temperature	For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Temperature	Maximum Design Proof Temperature: High Temp: 250°F (122°C) Low Temp: 120°F (50°C)		

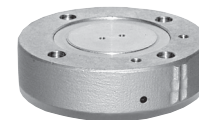
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Single Pressure Controlled Valves with Pressure Booster Adaptor

21 Series

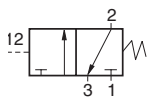
Valves on this page are Registered in Canada to the ASME B31.3, Process Piping Code – **CRN 0C1409.53469087YTN**.
Please see page 11, for the listing of jurisdictions where the product has been accepted and registered for use.

Pressure Booster Adaptor: Increases the actuating force on the valve piston. It should be used when the inlet pressure exceeds the available signal pressure, or when the signal pressure is less than 15 psig (1 bar). The valve's signal pressure is applied to a piston in the pressure booster adaptor that has a larger area than the piston in the valve. The force on the piston in the adaptor is thereby larger than that which could be produced by the piston in the valve. This larger force is applied to the valve's piston directly so that there is then sufficient force to shift the valve properly.



3-way PB Adaptor

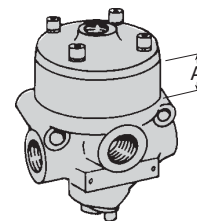
3-Way 2-Position Valves, Spring Return

Port Size		Body Size	Valve Model Number*	C _v		Dimension A inches (mm)	Weight lb (kg)	
				NC				
1, 2	3			Normally Closed (NC)	1-2			
3/8	1/2	3/8	T2153B3901	3.6	5.3	0.75 (19)	1.3 (0.6)	
3/4	1	3/4	T2153A5909	7.7	11	0.75 (19)	1.3 (0.6)	
1	1	3/4	T2153A6907	8	12	0.75 (19)	2.0 (0.9)	

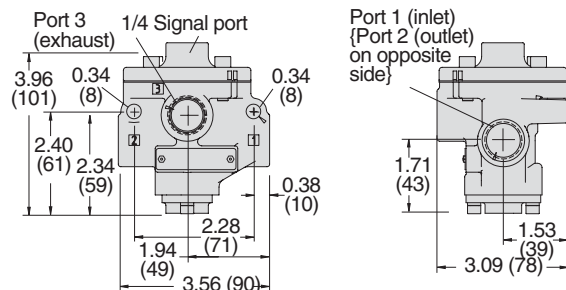
* NPT port thread. For BSPP thread add a "D" prefix to the model number e.g., **TD**2153B3901.

* NPT port thread. For BSPP thread add a "D" prefix to the model number e.g., TD2153B3901.

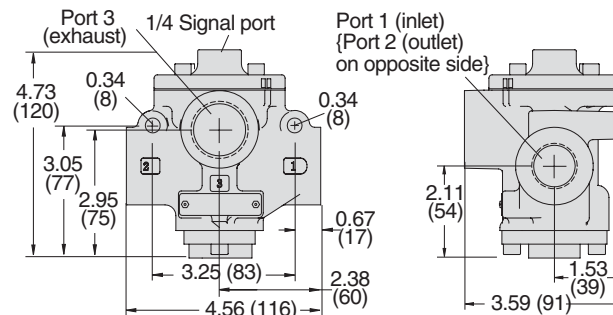
Valve Dimensions – inches (mm)



Body Size 3/8



Body Size 3/4



Silencers ordered separately, refer to page 19.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	30 to 150 psig (2 to 10 bar)
Mounting Type	In-line	Pilot Supply - When external pilot supply, pressure must be equal to or greater than inlet pressure.	
Temperature	Ambient/Media: High Temp: 0° to 300°F (-17 to 150°C) Low Temp: -40° to 175°F (-40° to 80°C)	Maximum Design Proof Pressure: 150 psig (10 bar)	
	For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.	Construction Material	Valve Body: Cast Aluminum Poppet: Aluminum and Stainless Steel Seals: Fluorocarbon
	Maximum Design Proof Temperature: High Temp: 250°F (122°C) Low Temp: 120°F (50°C)	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Flow Media	Filtered air		
Pilot Supply	External		

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



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Pressure Controlled Valves

For High and Low Temperature Applications

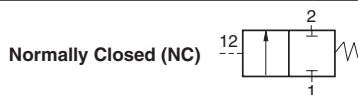
21 Series

Valves on this page are Registered in Canada to the ASME B31.3, Process Piping Code – **CRN 0C1409.53469087YTN**.
Please see page 11, for the listing of jurisdictions where the product has been accepted and registered for use.

2-Way 2-Position Valves, Spring Return

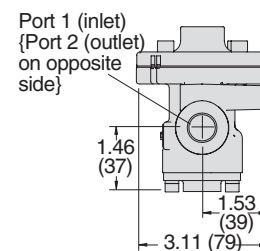
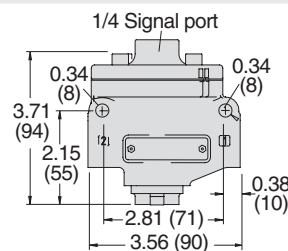
Port Size	Body Size	Valve Model Number*				Avg. C _v		Weight lb (kg)
		High Temperature		Low Temperature				
		Normally Closed	Normally Open	Normally Closed	Normally Open	NC	NO	
1/4	3/8	T2151B2001	T2152B2001	T2151B2002	T2152B2002	2.3	2.3	1.8 (0.8)
3/8	3/8	T2151B3001	T2152B3001	T2151B3002	T2152B3002	3.8	3.3	1.8 (0.8)
1/2	3/8	T2151B4011	T2152B4011	T2151B4012	T2152B4012	4.0	3.5	1.8 (0.8)
1/2	3/4	T2151B4001	T2152B4001	T2151B4002	T2152B4002	7.7	6.5	4.2 (2.0)
3/4	3/4	T2151B5001	T2152B5001	T2151B5002	T2152B5002	9.0	7.3	4.2 (2.0)
1	3/4	T2151B6011	T2152B6011	T2151B6012	T2152B6012	9.0	7.9	4.2 (2.0)
1	1¼	T2151B6001	T2152B6001	T2151B6002	T2152B6002	24	21	11.0 (5.0)
1¼	1¼	T2151B7001	T2152B7001	T2151B7002	T2152B7002	29	20	11.0 (5.0)
1½	1¼	T2151B8011	T2152B8011	T2151B8012	T2152B8012	29	21	11.0 (5.0)

* NPT port thread. For BSP thread add a "D" prefix to the model number e.g., TD2151B2001.

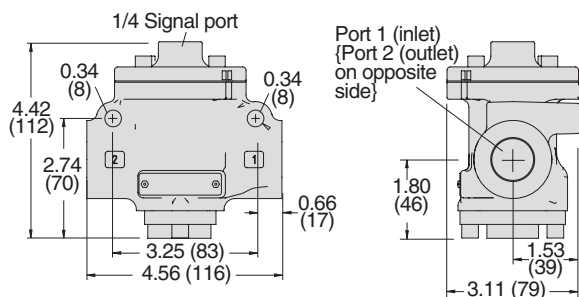


Valve Dimensions – inches (mm)

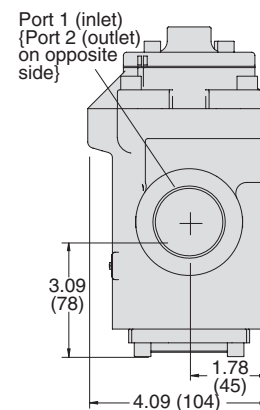
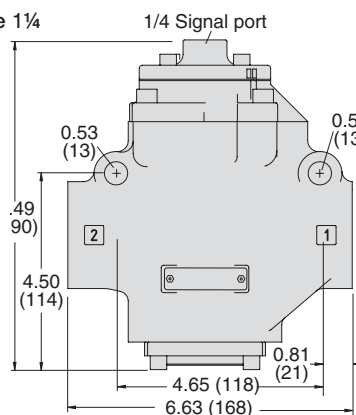
Body Size 3/8



Body Size 3/4



Body Size 1 1/4



Silencers ordered separately, refer to page 19.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	30 to 150 psig (2 to 10 bar)
Mounting Type	In-line	Pilot Supply - When external pilot supply, pressure must be equal to or greater than inlet pressure.	
Temperature	Ambient/Media: High Temp: 0° to 300°F (-17 to 150°C) Low Temp: -40° to 175°F (-40° to 80°C) For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.	Maximum Design Proof Pressure: 150 psig (10 bar)	
	Maximum Design Proof Temperature: High Temp: 300°F (150°C) Low Temp: 175°F (80°C)	Valve Body: Cast Aluminum Poppet: Aluminum and Stainless Steel Seals: Fluorocarbon	
		Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Flow Media	Filtered air		
Pilot Supply	External		

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

Pressure Controlled Valves

For High and Low Temperature Applications

21 Series

Valves on this page are Registered in Canada to the ASME B31.3, Process Piping Code – **CRN 0C1409.53469087YTN**.
Please see page 11, for the listing of jurisdictions where the product has been accepted and registered for use.

3-Way 2-Position Valves, Spring Return												
Port Size		Body Size	Valve Model Number*				C _v				Weight lb (kg)	
			High Temperature		Low Temperature		NC		NO			
			Normally Closed	Normally Open	Normally Closed	Normally Open	1-2	2-3	1-2	2-3		
1, 2	3											
1/4	1/2	3/8	T2153B2001	T2154B2001	T2153B2002	T2154B2002	2.4	3.4	2.0	2.1	1.8 (0.8)	
3/8	1/2	3/8	T2153B3001	T2154B3001	T2153B3002	T2154B3002	3.0	5.8	2.3	2.4	1.8 (0.8)	
1/2	1/2	3/8	T2153B4011	T2154B4011	T2153B4012	T2154B4012	3.0	5.2	2.9	2.8	1.8 (0.8)	
1/2	1	3/4	T2153B4001	T2154B4001	T2153B4002	T2154B4002	6.6	12	6.5	7.0	4.5 (2.1)	
3/4	1	3/4	T2153B5001	T2154B5001	T2153B5002	T2154B5002	7.8	13	7.5	7.5	4.5(2.1)	
1	1	3/4	T2153B6011	T2154B6011	T2153B6012	T2154B6012	7.5	12	7.7	7.6	4.5 (2.1)	
1	1½	1¼	T2153B6001	T2154B6001	T2153B6002	T2154B6002	24	40	15	17	11.0 (5.0)	
1¼	1½	1¼	T2153B7001	T2154B7001	T2153B7002	T2154B7002	29	39	21	23	11.0 (5.0)	
1½	1½	1¼	T2153B8011	T2154B8011	T2153B8012	T2154B8012	30	38	22	23	11.0 (5.0)	

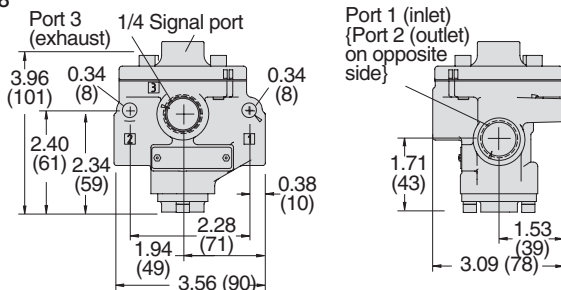
* NPT port thread. For BSPP thread add a "D" prefix to the model number e.g.,TD2153B2001.

Normally Closed

Normally Open

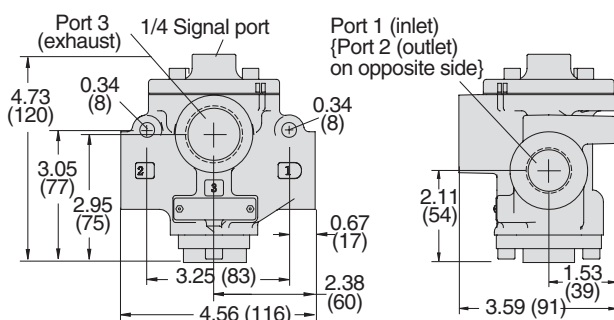


Body Size 3/8

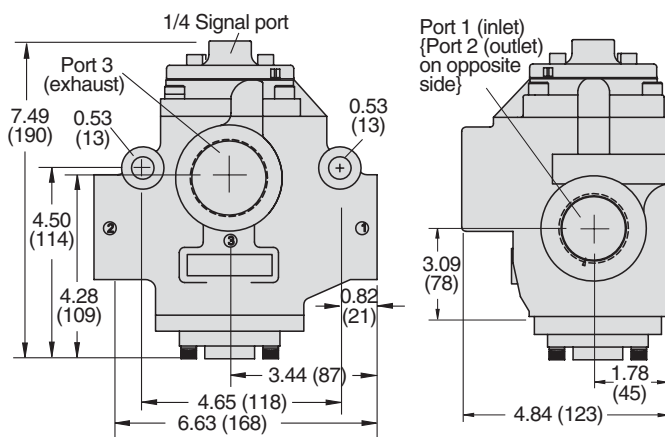


Valve Dimensions – inches (mm)

Body Size 3/4



Body Size 1¼



Silencers ordered separately, refer to page 19.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Pilot Supply	External
Mounting Type	In-line	Operating Pressure	30 to 150 psig (2 to 10 bar) Pilot Supply - When external pilot supply, pressure must be equal to or greater than inlet pressure. Maximum Design Proof Pressure: 150 psig (10 bar)
Temperature	Ambient/Media: High Temp: 0° to 300°F (-17 to 150°C) Low Temp: -40° to 175°F (-40° to 80°C) For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice. Maximum Design Proof Temperature: High Temp: 300°F (150°C) Low Temp: 175°F (80°C)	Construction Material	Valve Body: Cast Aluminum Poppet: Aluminum and Stainless Steel Seals: Fluorocarbon
Flow Media	Filtered air	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	

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



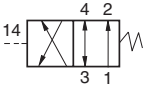
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Pressure Controlled Valves

For High and Low Temperature Applications

21 Series

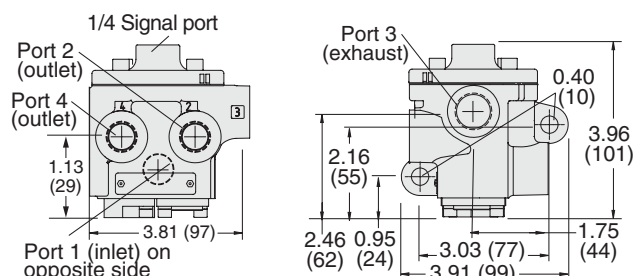
Valves on this page are Registered in Canada to the ASME B31.3, Process Piping Code – **CRN 0C1409.53469087YTN**.
Please see page 11, for the listing of jurisdictions where the product has been accepted and registered for use.

4-Way 2-Position Valves, Spring Return								
Port Size		Body Size	Valve Model Number*		C _v		Weight lb (kg)	
1, 2, 4	3		High Temperature	Low Temperature	1-2, 1-4	4-3, 2-3		
1/4	1/2	3/8	T2156B2001	T2156B2002	2.1	2.9	3.0 (1.4)	
3/8	1/2	3/8	T2156B3001	T2156B3002	2.9	4.2	3.0 (1.4)	
1/2	1/2	3/8	T2156B4011	T2156B4012	3.1	4.3	3.0 (1.4)	
1/2	1	3/4	T2156B4001	T2156B4002	5.6	8.1	5.8 (2.6)	
3/4	1	3/4	T2156B5001	T2156B5002	7.0	9.3	5.8 (2.6)	
1	1	3/4	T2156B6011	T2156B6012	7.8	10	5.8 (2.6)	
1	1½	1¼	T2156B6001	T2156B6002	19	26	12.0 (5.4)	
1¼	1½	1¼	T2156B7001	T2156B7002	21	27	12.0 (5.4)	
1½	1½	1¼	T2156B8011	T2156B8012	22	27	12.0 (5.4)	

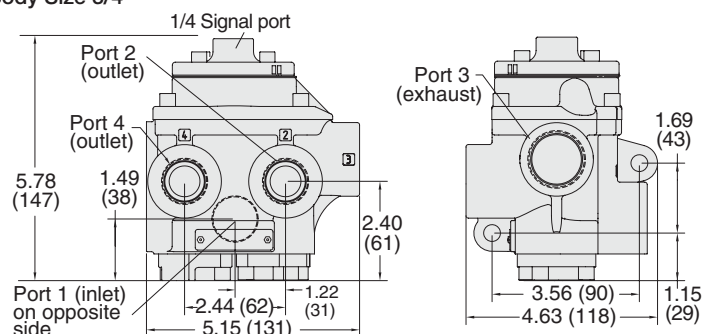
* NPT port thread. For BSPP thread add a "D" prefix to the model number e.g., TD2156B2001.

Valve Dimensions – inches (mm)

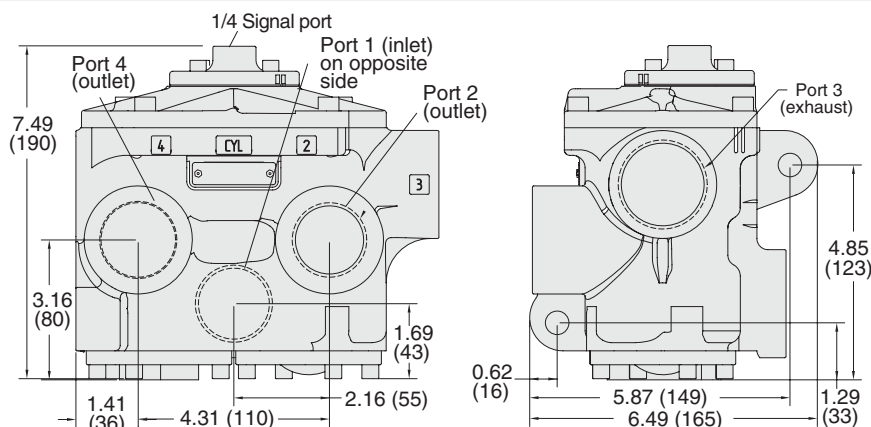
Body Size 3/8



Body Size 3/4



Body Size 1¼



Silencers ordered separately, refer to page 19.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Pilot Supply	External
Mounting Type	In-line	Operating Pressure	30 to 150 psig (2 to 10 bar) Pilot Supply - When external pilot supply, pressure must be equal to or greater than inlet pressure. Maximum Design Proof Pressure: 150 psig (10 bar)
Temperature	Ambient/Media: High Temp: 0° to 300°F (-17 to 150°C) Low Temp: -40° to 175°F (-40° to 80°C) For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice. Maximum Design Proof Temperature: High Temp: 300°F (150°C) Low Temp: 175°F (80°C)	Construction Material	Valve Body: Cast Aluminum Poppet: Aluminum and Stainless Steel Seals: Fluorocarbon
Flow Media	Filtered air	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	

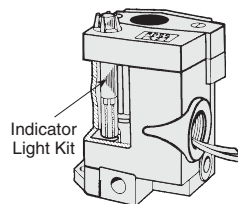
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Indicator Light Kits

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

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

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



Manual Override Kits

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

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

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

Extended Button		
Locking Type	Kit Number	
Non-Locking	791K87	
Locking	793K87	

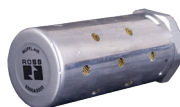
Extended Button with Palm		
Locking Type	Kit Number	
Non-Locking	984H87	
Locking	985H87	

Silencers

Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
		NPT Tread	BSPT Thread		Width	Length	
3/8	Male	5500A3003	D5500A3003	4.3	1.3 (32)	3.5 (88)	0.2 (0.1)
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)
1½	Female	5500A8001	D5500A8001	29.9	2.5 (64)	5.7 (144)	1.0 (0.5)
2½	Female	5500A9002	D5500A9002	103.7	4.0 (102)	5.7 (145)	2.9 (1.4)

Pressure Range: 0 to 150 psig (0 to 10 bar) maximum.
Flow Media: Filtered air.

Port size 1/4 thru 2



Port size 2½

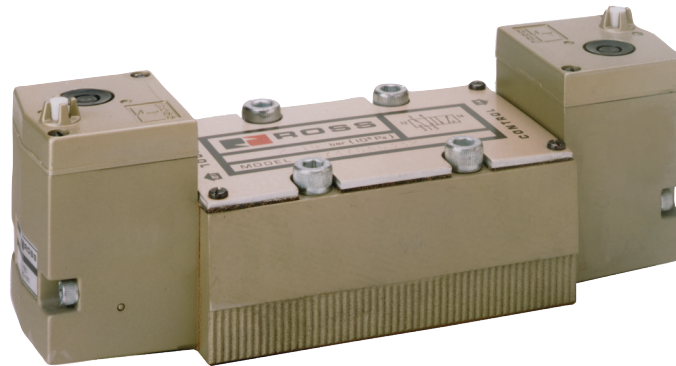


ANSI VALVES

W74 SERIES

ANSI SERIES VALVES – KEY FEATURES

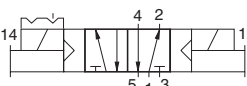
- Lube or non-lube service
- Manual overrides
- Interpose pressure regulators
- Single sub-base mounting
- W74 Series - Suitable for vacuum service (with external pilot supply)



Double Solenoid Pilot Controlled Valves

**ANSI
W74 Series**

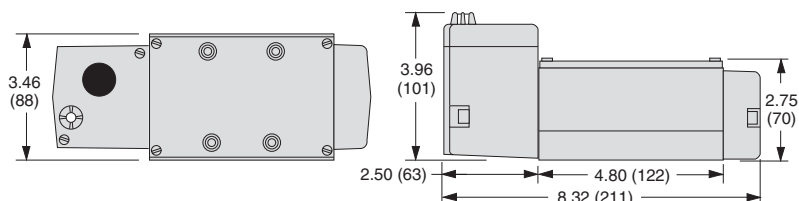
Valves on this page are Registered in Canada to the ASME B31.1, Power Piping Code – **CRN 0C484.5**.
Please see page 2, for the listing of jurisdictions where the product has been accepted and registered for use.

5-Way 2-Position Valves, Double Solenoid Pilot Controlled, Detented							
ANSI Size	Port Size	Valve Model Number ^{#*}	Avg. C _v	Average Response Constants ^{**}		Weight lb (kg)	
		Standard Temp.		M	F		
4	1/2 - 3/4	TW7476C4332W	4.2	27	0.6	1.0	5.0 (2.3)

#Voltage: W=24 VDC; Z=100-110/50, 100-130/60 VAC/Hz, e.g., W7476B2332Z. For other voltages, consult ROSS.
*** Sub-bases ordered separately, see below.**
**** Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.



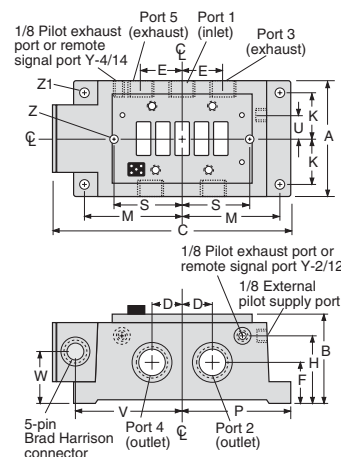
Valve Dimensions – inches (mm)



Sub-Bases – Side Ported

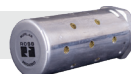
ANSI Size	Outlet Port	Model Number [*]	Avg. C _v
		NPT Thread	
4	3/4	T740F91	4.2

^{*}No indicator lights in the base.



Sub-Base Dimensions inches (mm)	
A	3.36 (85)
B	2.64 (67)
C	7.21 (183)
D	0.75 (19)
E	1.50 (38)
F	1.23 (31)
H	2.21 (56)
P	2.86 (73)
S	2.36 (60)
U	0.83 (21)
V	3.07 (78)
W	1.23 (31)
Z	0.30 (7)

Accessories



Silencers							
Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
		NPT Thread	BSPT Thread		Width	Length	
3/4	Male	5500A5013	D5500A5013	5.1	1.3 (32)	3.6 (92)	0.2 (0.1)

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

Manual Override Kits

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

Extended Button		
Locking Type	Kit Number	
Non-Locking	791K87	

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

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Pilot Supply	Internal or External
Mounting Type	Base		Vacuum to 150 psig (10 bar)
Solenoids	Rated for continuous duty	Operating Pressure	Pilot Supply - Internal or External: Minimum 30 psig (2 bar) When external pilot supply, pressure must be equal to or greater than inlet pressure.
Voltage	24 volts DC; 110/50, 110-120/60 volts AC/Hz	Indicator Light	Included for ANSI Size 4, 10 & 20 only; one per solenoid
Power Consumption (each solenoid)	ANSI Size 1: 5 watts on DC; 10 VA inrush, 24 VA holding on 50 or 60 Hz ANSI Size 2.5, 4, 10 & 20: 14 watts on DC; 87 VA inrush, 55 VA holding on 50 or 60 Hz	Construction Material	Valve Body: Cast Aluminum Poppet: Rubber Coated Aluminum & Stainless Steel Seals: Buna-N
Temperature	Ambient: 40° to 120°F (4 to 50°C) Media: 40° to 175°F (4° to 80°C)	Manual Override	Flush; Rubber, non-locking
Flow Media	Filtered air		

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



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VALVES FOR AIR FLOW CONTROL

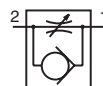
19 SERIES



Valves on this page are Registered in Canada to the ASME B31.3, Process Piping Code – **CRN 0C9483.C**.

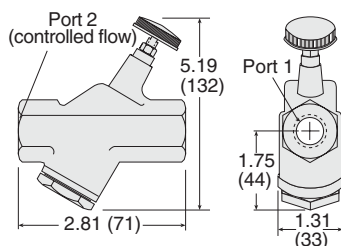
Flow Control Valves, High Capacity

Port Size	Body Size	Valve Model Number*		Avg. C _v (Fully Open)	Weight lb (kg)
		NPT Thread	BSPP Thread		
1/4	3/8	T1968B2007	TD1968B2007	2.3	0.5 (0.2)
3/8	3/8	T1968B3007	TD1968B3007	2.6	0.5 (0.2)
1/2	3/8	T1968B4017	TD1968B4017	2.6	0.5 (0.2)
1/2	3/4	T1968B4007	TD1968B4007	7.5	0.8 (0.4)
3/4	3/4	T1968B5007	TD1968B5007	8.3	0.8 (0.4)
1	3/4	T1968B6017	TD1968B6017	8.3	0.8 (0.4)
1	1¼	T1968B6007	TD1968B6007	17	2.2 (1.0)
1¼	1¼	T1968B7007	TD1968B7007	22	2.2 (1.0)
1½	1¼	T1968B8017	TD1968B8017	22	2.2 (1.0)
1½	2	T1968B8007	TD1968B8007	50	4.3 (1.9)
2	2	T1968B9007	TD1968B9007	50	4.3 (1.9)
2½	2	T1968B9017	TD1968B9017	50	4.3 (1.9)

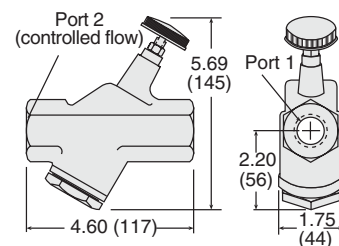


Valve Dimensions – inches (mm)

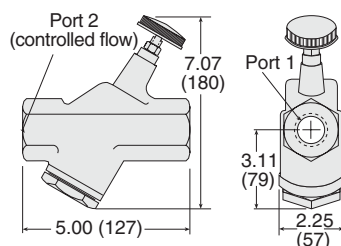
Body Size 3/8



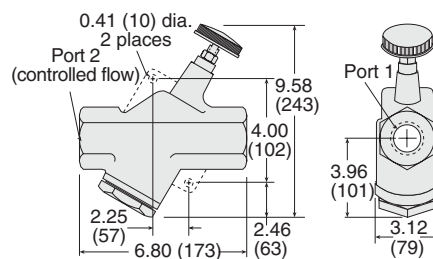
Body Size 3/4



Body Size 1¼



Body Size 2



Operation: To increase flow: Turn adjustment screw out.
To decrease flow: Turn adjustment screw in.
Flow Adjustment: From 0 to Maximum Flow.

Numbers of Slot/Knob Turns: Port sizes 1/4 and 3/8: 14.
Port sizes 1/2, 3/4: 12.
Port sizes 1, 1¼: 24.
Port sizes 1½, 2½: 24.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	Line	Operating Pressure	5 to 150 psig (0.3 to 10 bar)
Temperature	Ambient/Media: -40° to 175°F (-40° to 80°C) For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice. For temperatures below -40°F (-40°C), consult ROSS.	Maximum Design Proof Pressure:	150 psig (10 bar)
	Maximum Design Proof Temperature: 175°F (80°C)	Construction Material	Valve Body: Cast Aluminum

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

ENERGY ISOLATION LOCKOUT & SOFT START

15 & 27 SERIES

L-O-X® & EEZ-ON®



MANUAL LOCKOUT L-O-X® VALVES – KEY FEATURES

- Fluorocarbon slipper seals for easy shifting, even after long periods of inactivity
- Easily identified by yellow body with red handle
- Integrated sensing port for pressure verification
- Lockable only in the OFF position
- Has a full size exhaust port (equal to or larger than supply)
- Simple push/pull of the large handle provides positive direct manual operation

MANUAL LOCKOUT L-O-X® VALVES WITH SOFT START EEZ-ON® – KEY FEATURES

- Easily identified by blue handle
- Gradual re-application of pneumatic pressure prevents rapid equipment movement at startup
- Lockable only in the OFF position
- Has a full size exhaust port (equal to or larger than supply)
- Positive action (2 positions only)
- Simple push/pull of the large blue handle provides positive direct manual operation
- Integrated sensing port for pressure verification

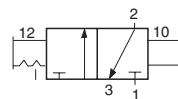
VALVE TYPE	VALVE SERIES	AVAILABLE PORT SIZES											FUNCTIONS					Page
		1/4	3/8	1/2	3/4	1	1¼	1½	2	2½	3			Max Flow (Cv)	Solenoid Control	Pressure Control		
												2/2	3/2					
Manual Lockout L-O-X® Valves																		
Classic	15													19.25			25	
High Capacity	L-O-X®													40.38			26	
Stainless Steel	15													39			27	
Piloted Valves with Manual Lockout L-O-X® Control																		
														70			28	
														70			29	
Soft Start EEZ-ON® Valves																		
	27													30			30	
	27																31	

Manual Lockout L-O-X® Valves, Classic

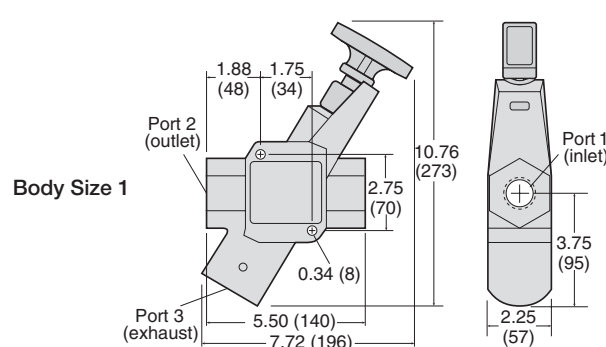
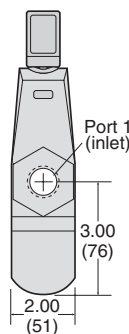
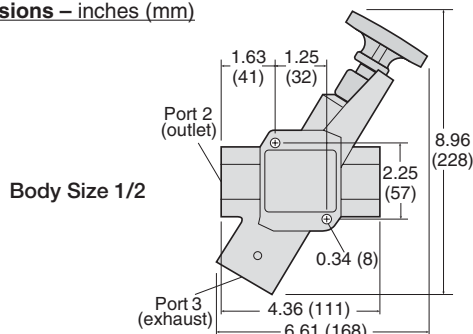
15 Series

Valves on this page are Registered in Canada to the ASME B31.3, Process Piping Code – **CRN 0C9406.C**.

3-Way 2-Position Valve							
Port Size		Body Size	Valve Model Number		C _v		Weight lb (kg)
1, 2	3		NPT Thread	BSPP Thread	1-2	2-3	
3/8	3/4	1/2	TY1523C3002	TYD1523C3002	4.74	3.57	1.5 (0.7)
1/2	3/4	1/2	TY1523C4002	TYD1523C4002	7.10	4.00	1.5 (0.7)
3/4	3/4	1/2	TY1523C5012	TYD1523C5012	8.26	4.10	1.5 (0.7)
3/4	1 1/4	1	TY1523C5002	TYD1523C5002	13.12	8.98	2.5 (1.1)
1	1 1/4	1	TY1523C6002	TYD1523C6002	16.56	9.52	2.5 (1.1)
1 1/4	1 1/4	1	TY1523C7012	TY1523C7012	19.25	9.74	2.5 (1.1)

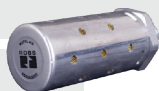


Valve Dimensions – inches (mm)



ACCESSORIES & OPTIONS

Silencers



Port Size	Thread Type	Model Number*	Avg. C _v
3/4	Male - NPT	5500A5003	11.5
3/4	Male - BSPT	D5500A5003	11.5
1 1/4	Male - NPT	5500A7013	16.4
1 1/4	Male - BSPT	D5500A7013	16.4

Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.

Multiple Lock-out Device

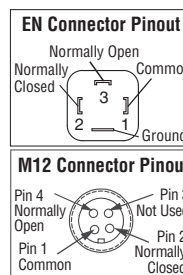
Model Number	356A30
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Pressure Switches

Connection Type	Model Number*	Port Thread
DIN 43650 Form A	586A86	1/8 NPT
M12 Micro-DC	1153A30	1/8 NPT

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).



Pop-Up Indicator

Model Number**	988A30
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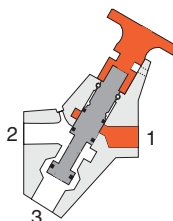
** 1/8 NPT port thread.



VALVE OPERATION

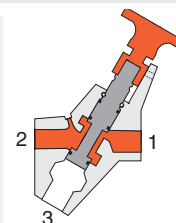
Valved Closed

With a short push of the red handle inward, the flow of supply air is blocked and downstream air is exhausted via the exhaust port at the bottom of the valve. The L-O-X® valve should be padlocked in this position to prevent the handle from being pulled outward inadvertently where potential for human injury exists or while servicing machinery.



Valve Open

When the red handle is pulled out, supply air flows freely from inlet to outlet and flow to exhaust is blocked. A detent keeps the handle in the open position. The handle is not designed to be locked in this position, thereby providing for ready shut-off when necessary.



If a system requires gradual buildup of downstream pressure, see manual L-O-X® valves with EEZ-ON® operation.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool	Operating Pressure	0 to 300 psig (0 to 20.7 bar)
Mounting Type	In-line	Maximum Design Proof Pressure	300 psig (20.7 bar)
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C) Maximum Design Proof Temperature: 200°F (93°C)	Construction Material	Valve Body: Cast Aluminum Spool: 316 Stainless Steel Seals: Fluorocarbon
Fluid Media	Filtered air		

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

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



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Manual Lockout L-O-X® Valves, High Capacity

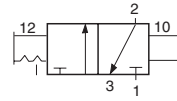
15 Series

Valves on this page are Registered in Canada to the ASME B31.3, Process Piping Code – **CRN 0C9406.C.**

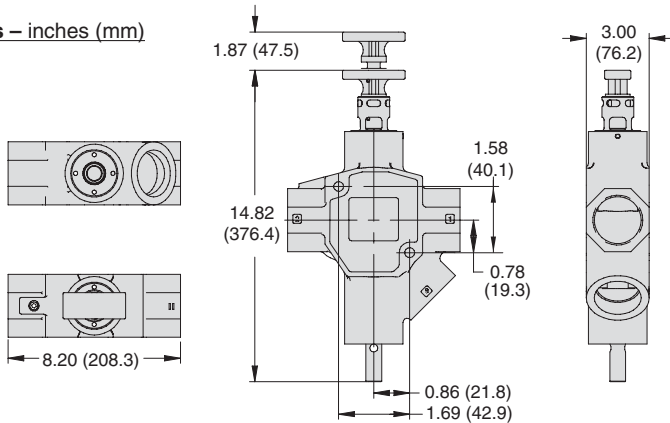
F1

3-Way 2-Position Valve

Port Size		Valve Model Number*		C _v		Weight lb (kg)
1, 2	3	NPT Thread	BSPP Thread	1-2	2-3	
1½	2	TY1523C8002	TYD1523C8002	35.53	50.98	8.3 (3.7)
2	2	TY1523C9012	TYD1523C9012	40.38	52.23	8.3 (3.7)



Valve Dimensions – inches (mm)



Valves can be padlocked in two locations, at the handle or at the end of the spool.

ACCESSORIES & OPTIONS

Silencers



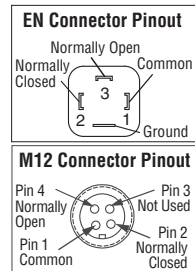
Port Size	Thread Type	Model Number	Avg. C _v
2	Female - NPT	5500B9001	34.2
2	Female - BSPT	D5500B9001	34.2

Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.

Pressure Switches

Connection Type	Model Number*	Port Thread
DIN 43650 Form A	586A86	1/8 NPT
M12 Micro-DC	1153A30	1/8 NPT

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).



Multiple Lock-out Device

Model Number	356A30
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Pop-Up Indicator

Model Number**	988A30
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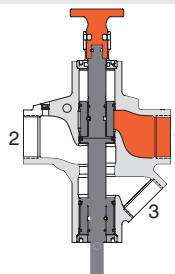
** 1/8 NPT port thread.



VALVE OPERATION

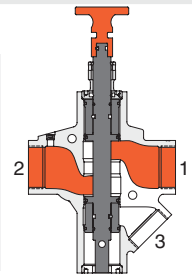
Valved Closed

With a short push of the red handle inward, the flow of supply air is blocked and downstream air is exhausted via the exhaust port while servicing or maintaining machinery. Padlock the L-O-X® valve in this position to prevent the handle from being pulled outward inadvertently to avoid potential for human injury while servicing machinery.



Valve Open

When the red handle is pulled out, supply air flows freely from inlet to outlet and flow to exhaust is blocked. A detent keeps the handle in the open position. The handle is not designed to be locked in this position, thereby providing for ready shut-off when necessary.



If a system requires gradual buildup of downstream pressure, see manual L-O-X® valves with EEZ-ON® operation.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool	Operating Pressure	0 to 300 psig (0 to 20.7 bar)
Mounting Type	In-line		Maximum Design Proof Pressure: 300 psig (20.7 bar)
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	Lock Hole	Diameter: 0.27 inch (7.0 mm)
	Maximum Design Proof Temperature: 200°F (94°C)		Length of Hole: 0.43 inch (10.9 mm)
Fluid Media	Filtered air	Construction Material	Valve Body: Cast Aluminum Spool: 316 Stainless Steel Seals: Fluorocarbon

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

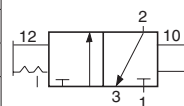
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Manual Lockout L-O-X® Valves, Stainless Steel

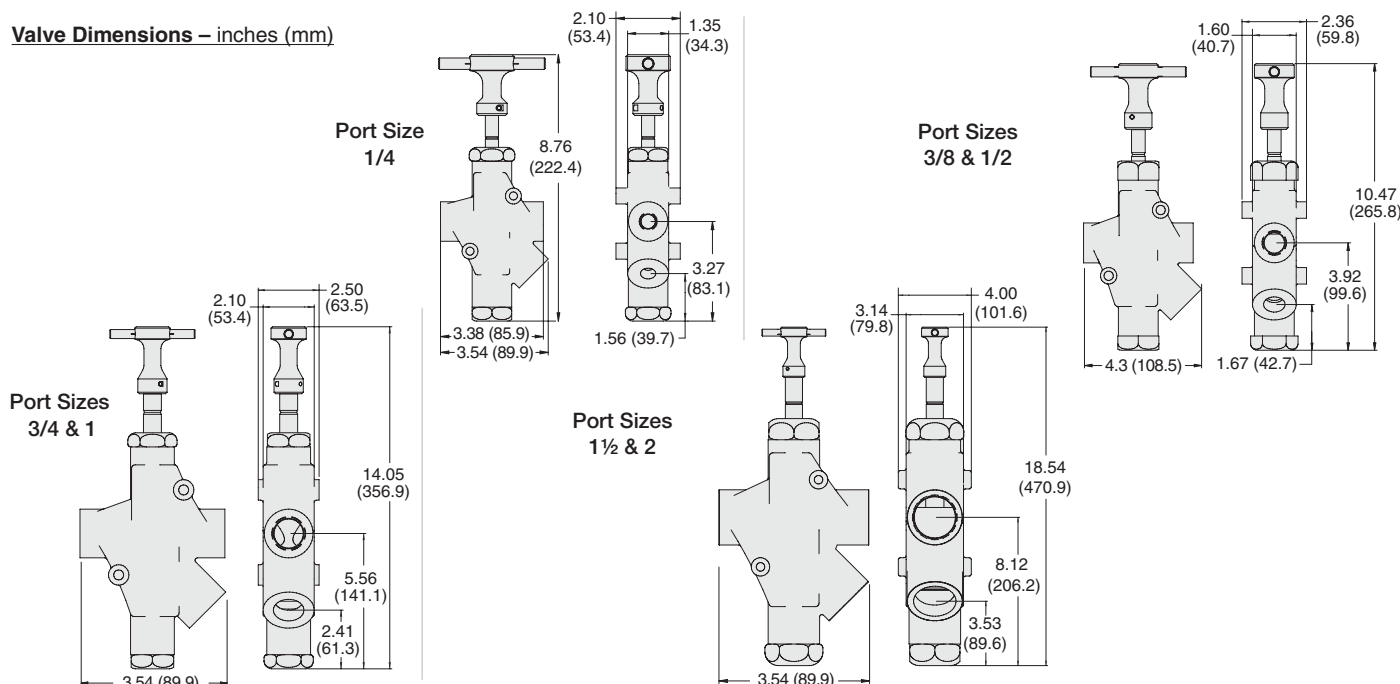
15 Series

Valves on this page are Registered in Canada (British Columbia, Saskatchewan, Manitoba, Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward Island, Newfoundland, Northwest Territories, Yukon Territory, Nunavut, to the ASME B31.3, Process Piping Code – **CRN 0C154670.54639870YTN**.

3-Way 2-Position Valve						
Port Size		Valve Model Number*		C _v		Weight
1, 2	3	NPT Thread	BSPP Thread	1-2	2-3	lb (kg)
1/4	1/4	T1523B2004	TD1523B2004	2.14	2.08	3.75 (1.70)
3/8	1/2	T1523B3004	TD1523B3004	5.79	6.24	6.0 (2.72)
1/2	1/2	T1523B4004	TD1523B4004	5.79	6.24	6.0 (2.72)
3/4	1	T1523B5004	TD1523B5004	14.30	17.00	13.0 (5.89)
1	1	T1523B6004	TD1523B6004	14.30	17.00	13.0 (5.89)
1½	2	T1523B8004	TD1523B8004	39.00	45.00	35.0 (15.87)
2	2	T1523B9004	TD1523B9004	39.00	45.00	35.0 (15.87)



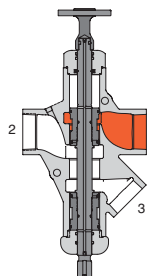
Valve Dimensions – inches (mm)



VALVE OPERATION

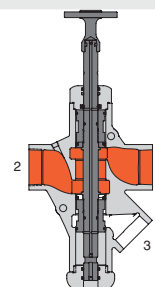
Valve Closed

With a push of the handle inward, the flow of supply air is blocked and downstream air is exhausted via the exhaust port while servicing or maintaining machinery. Padlock the L-O-X® valve in this position to prevent the handle from being pulled outward inadvertently to avoid potential for human injury while servicing machinery.



Valve Open

When the handle is pulled out, supply air flows freely from inlet to outlet and flow to exhaust is blocked. A detent keeps the handle in the open position. The handle is not designed to be locked in this position, thereby providing for ready shut-off when necessary.



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool	Lock Hole	Diameter: Port Sizes 1/4 thru 2: 0.34 inch (8.64 mm)
Mounting Type	In-line		Length of Hole: Port Size 1/4: 0.44 in (11.17 mm). Port Size 1/2: 0.47 in (11.93 mm). Port Size 1 and 2: 0.55 inch (13.97 mm).
Temperature	Ambient/Media: 30° to 175°F (-1° to 80°C) <i>Note: For lower temperature ratings, consult ROSS.</i> Maximum Design Proof Temperature: 200°F (94°C)	Construction Material	Valve Body: 316 Stainless Steel
Fluid Media	Filtered air		Spool: 316 Stainless Steel
Operating Pressure	0 to 300 psig (0 to 20.7 bar) Maximum Design Proof Pressure: 300 psig (20.7 bar)		Seals: Fluorocarbon

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

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



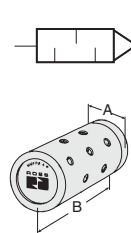
www.rosscontrols.com

Stainless Steel Silencers

- Port sizes 1/4 thru 1 have all stainless steel construction
- Port size 2 have standard construction consisting of nickel plated bodies and stainless internals
- Supplied with a standard pipe thread fitting for attaching directly to the exhaust ports of air-operated equipment

Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
		NPT Thread	BSPT Thread		A	B	
1/4	Male	5500B2004	D5500B2004	1.44	0.56 (14.2)	1.75 (44.5)	0.05 (0.23)
1/2	Male	5500B4004	D5500B4004	3.01	0.87 (22.1)	2.75 (69.7)	0.25 (0.11)
1	Male	5500B6004	D5500B6004	10.41	1.31 (33.3)	3.87 (98.3)	0.45 (0.20)
2	Male	5500B9004	D5500B9004	28.11	2.37 (60.2)	5.50 (139.7)	1.5 (0.68)

Pressure Range: 0 to 150 psig (0 to 10 bar) maximum.
Flow Media: Filtered air; 5 micron recommended.

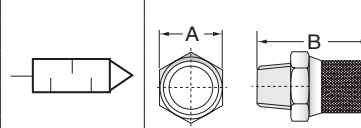



Silencers for Stainless Steel L-O-X® Air Entry Combinations

- 316 Stainless Steel sintered element silencers used to protect ports open to the atmosphere.

Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)	
		NPT Thread	BSPT Thread		A	B
1/4	Male	5500A2005	D5500A2005	1.44	0.67 (17)	1.50 (38)
1/2	Male	5500A4005	D5500A4005	3.01	0.94 (24)	2.17 (55)
1	Male	5500A6005	D5500A6005	10.41	1.41 (36)	2.95 (75)

Pressure Range: 0 to 174 psig (0 to 12 bar) maximum.
Flow Media: Filtered air; 5 micron recommended.
Seals: Nitrile.

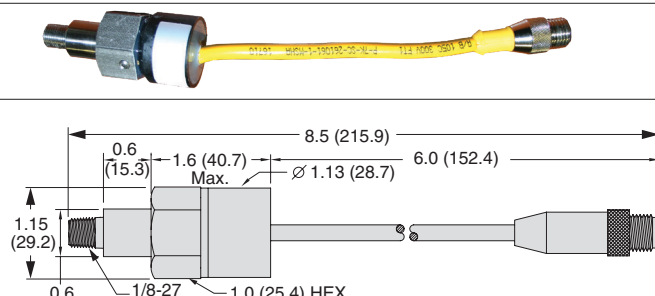



Stainless Steel Pressure Switch

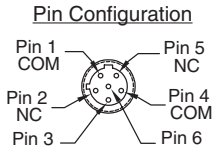
- 316 Stainless Steel Body
- Nitrile Seals
- DPDT (Double-Pole Double-Throw Switch)
- Factory preset 5 psi (falling)

Inlet Port Size	Model Number	Weight lb (kg)
1/8	1162A30	0.23 (.01)

NPT port threads.



Pin Configuration



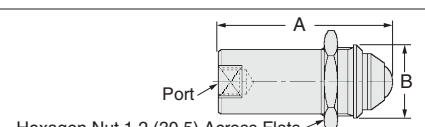
1 Red/White Circuit 1
 4 Red/Yellow Circuit 2
 2 All Red
 3 Green
 5 Red/Black
 6 Red/Blue

Stainless Steel Visual Indicator

- 316 Stainless Steel Body, internals and Springs
- Nitrile Seals
- Visual Indicator piston, Acetal
- Visual Indicator assembly, Acetal with acrylic lens

Inlet Port Size	Model Number	Dimensions inches (mm)		Weight lb (kg)
		A	B	
1/8	1155H30	2.33 (59.3)	1.00 (25.4)	0.22 (0.1)

NPT port threads.



Port
 Hexagon Nut 1.2 (30.5) Across Flats

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

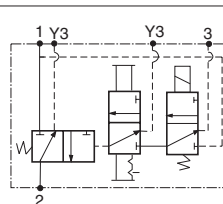
Piloted Valves with Manual Lockout L-O-X® Control

27 Series

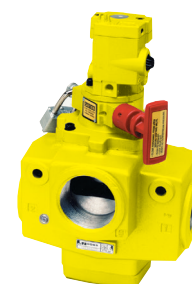
The following valve products are Registered in Ontario to the ASME B31.3, Process Piping Code – **CRN 0C13861.5**.

3-Way 2-Position Valve, Solenoid Pilot Controlled							
Port Size		Body Size	Valve Model Number#		C _v		Weight lb (kg)
1, 2	3		NPT Thread	BSPP Thread	1-2	2-3	
1½	2½	2	TY2773A8072W	TYD2773A8072W	68	70	17.5 (7.9)
2	2½	2	TY2773A9072W	TYD2773A9072W	70	70	17.5 (7.9)
2½	2½	2	TY2773A9082W	TYD2773A9082W	70	71	17.5 (7.9)

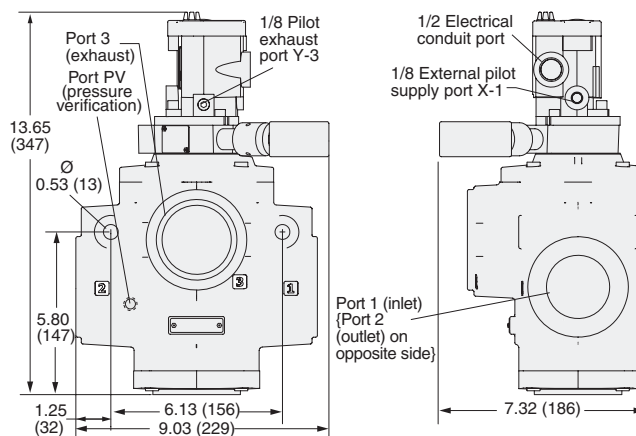
Voltage: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., TY2773A2072Z. For other voltages, consult ROSS.



**Cat. 1
PL b**



Valve Dimensions – inches (mm)



ACCESSORIES & OPTIONS

Silencers



Port Size	Thread Type	Model Number		Avg. C _v
		NPT Thread	BSPT Thread	
2½	Female	5500A9002	D5500A9002	103.7

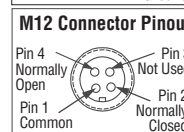
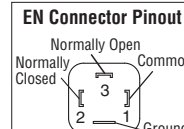
Pressure Range: 0 to 150 psig (0 to 10 bar) maximum.
Flow Media: Filtered air.

Pressure Switches



Connection Type	Model Number*	Port Thread
DIN 43650 Form A	586A86	1/8 NPT
M12 Micro-DC	1153A30	1/8 NPT

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).



Indicator Light Kit

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

Pop-Up Indicator



Model Number**	988A30
** 1/8 NPT port thread.	

Multiple Lock-out Device

Model Number	356A30
--------------	--------



VALVE OPERATION, see page 30.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	In-line	Operating Pressure	Body Size 3/8 & 1½: 15 to 150 psig (1 to 10 bar) Body Size 2: 30 to 150 psig (2 to 10 bar) Maximum Design Proof Pressure: 300 psig (20.7 bar)
Solenoids	AC or DC power; Rated for continuous duty	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N; Fluorocarbon
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance with IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Power Consumption (each solenoid)	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz		
Temperature	Ambient: 40° to 120°F (4 to 50°C) Media: 40° to 175°F (4° to 80°C)		
Temperature	Maximum Design Proof Temperature: 200°F (94°C)		

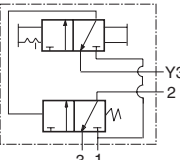
NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

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

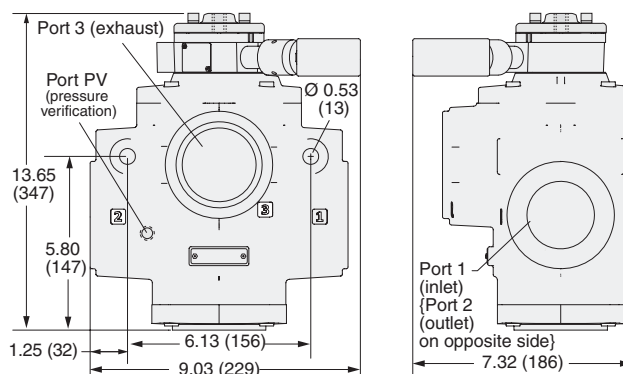


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The following valve products are Registered in Ontario to the ASME B31.3, Process Piping Code – **CRN 0C13861.5**.

3-Way 2-Position Valve, Internal Pressure Controlled								
Port Size		Body Size	Valve Model Number#		C _v		Weight lb (kg)	
1, 2	3		NPT Thread	BSPP Thread	1-2	2-3		
1½	2½	2	TY2783A8006	TYD2783A8006	68	70	15.3 (6.9)	
2	2½	2	TY2783A9006	TYD2783A9006	70	70	15.3 (6.9)	
2½	2½	2	TY2783A9016	TYD2783A9016	70	71	15.3 (6.9)	

Valve Dimensions – inches (mm)



ACCESSORIES & OPTIONS

Silencers



Port Size	Thread Type	Model Number		Avg. C _v
		NPT Thread	BSPT Thread	
2½	Female	5500A9002	D5500A9002	103.7

Pressure Range: 0 to 150 psig (0 to 10 bar) maximum.
Flow Media: Filtered air.

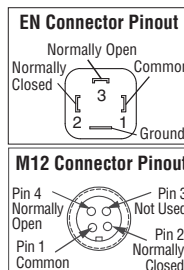
Pop-Up Indicator

Model Number**	988A30
** 1/8 NPT port thread.	

Pressure Switches

Connection Type	Model Number*	Port Thread
DIN 43650 Form A	586A86	1/8 NPT
M12 Micro-DC	1153A30	1/8 NPT

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).



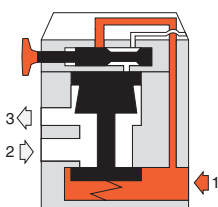
Multiple Lock-out Device

Model Number	356A30
--------------	--------

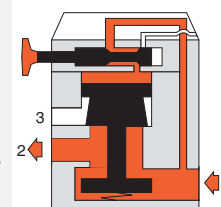


VALVE OPERATION

Valve Closed With a short push of the red handle inward the flow of supply air is blocked and downstream air is exhausted via the exhaust port. Air pressure on the inlet and exhaust poppets produces a large closing force. The L-O-X® valve should be padlocked in this position to prevent the handle from being pulled outward inadvertently when potential for human injury exists or servicing machinery.



Valve Open With the red handle pulled out, pilot air flows to the top of the actuating piston, causing it to open the inlet poppet. Supply air then flows freely from inlet to outlet, and the exhaust port is blocked. A detent keeps the L-O-X® handle in the open position. The handle is designed not to be locked in the open position, thereby allowing for quick shut-off when necessary.



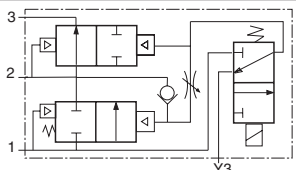
STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	30 to 150 psig (2 to 10 bar)
Mounting Type	In-line	Maximum Design Proof Pressure	150 psig (10 bar)
Temperature	Ambient: 40° to 120°F (4 to 50°C)	Valve Body	Cast Aluminum
	Media: 40° to 175°F (4° to 80°C)	Poppet	Acetal and Stainless Steel
Temperature	Maximum Design Proof Temperature: 200°F (94°C)	Seals	Buna-N; Fluorocarbon
Flow Media	Filtered air	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

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

Valves on this page are Registered in Canada to the ASME B31.3, Process Piping Code – **CRN 0C13850.54639087YTN**. Please see page 3, for the listing of jurisdictions where the product has been accepted and registered for use.

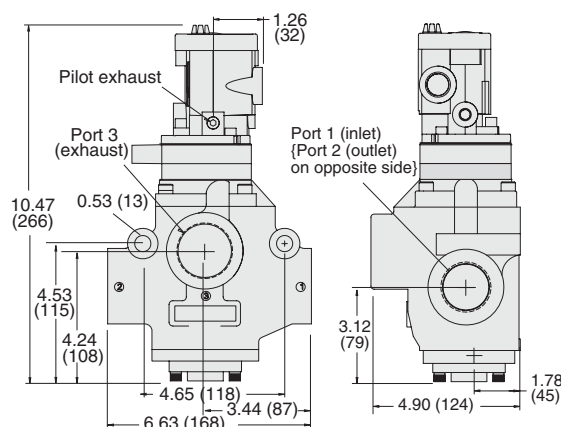
3-Way 2-Position Valve, Solenoid Pilot Controlled									
Port Size		Body Size	Valve Model Number#		C _v		Weight lb (kg)		
1, 2	3		NPT Thread	BSPP Thread	1-2	2-3			
1	1½	1¼	T2773A6037W	TD2773A6037W	23.0	34.0	8.8 (4.0)		
1¼	1½	1¼	T2773A7037W	TD2773A7037W	30.0	32.0	8.8 (4.0)		
1½	1½	1¼	T2773A8047W	TD2773A8047W	30.0	31.0	8.8 (4.0)		

Voltage: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., T2773B2037W. For other voltages, consult ROSS.

**Cat. 1
PL b**



Valve Dimensions – inches (mm)

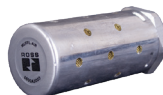


ACCESSORIES & OPTIONS

Silencers

Port Size	Thread Type	Model Number*		Avg. C _v
		NPT Thread	BSPT Thread	
1½	Female	5500A8001	D5500A8001	29.9

Pressure Range: 0 to 150 psig (0 to 10 bar) maximum.
Flow Media: Filtered air.



Indicator Light Kit

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

Manual Overrides

FLUSH BUTTON			EXTENDED BUTTON			EXTENDED BUTTON with PALM		
Locking Type	Kit Number		Locking Type	Kit Number		Locking Type	Kit Number	
Locking	792K87		Non-Locking	791K87		Non-Locking	984H87	

VALVE OPERATION, see page 32.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	In-line	Operating Pressure	15 to 150 psig (1 to 10 bar)
Solenoids	AC or DC power; Rated for continuous duty	Maximum Design Proof Pressure:	150 psig (10 bar)
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Valve Body:	Cast Aluminum
Power Consumption (each solenoid)	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	Construction Material	Poppet: Acetal and Stainless Steel Seals: Buna-N; Fluorocarbon
Temperature	Ambient: 40° to 120°F (4 to 50°C) Media: 40° to 175°F (4° to 80°C)	Safety Integrity Level (SIL) -	Certified by TÜV Rheinland in accordance with IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.
Temperature	Maximum Design Proof Temperature: 200°F (94°C)		

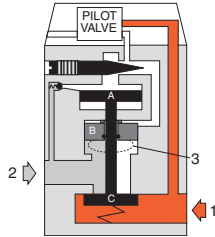
NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

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

VALVE OPERATION (for valves on page 31)

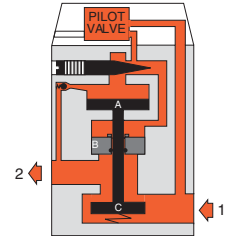
Pilot Not Energized

Pilot air is blocked by the pilot. Any downstream pressure forces piston B (which slides on the valve stem) upward. This opens the exhaust port and vents the downstream line.



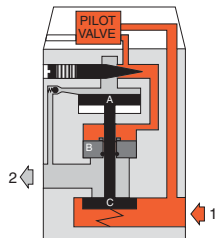
Full Pressure

When the pressure on piston A reaches approximately 50 percent of inlet pressure, it is forced downward and opens inlet poppet C. Full inlet pressure now flows freely to the outlet port.



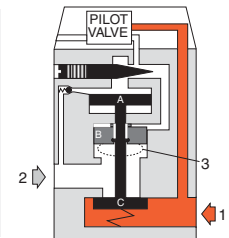
Pilot Energized

Pilot air forces piston B downward to close the exhaust port. Pilot air also flows past the adjusting needle, opens the ball check and begins slowly to pressurize the outlet line. At the same time, pressure is building up on piston A.



Pilot De-energized

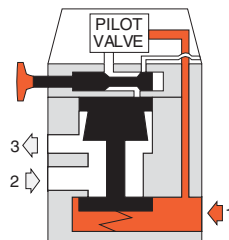
Air above pistons A and B is exhausted through the exhaust port of the pilot valve. Air above poppet C forces sliding piston B upward so that the main exhaust port is opened and the pressurized air is exhausted.



VALVE OPERATION (for valves on page C1.7)

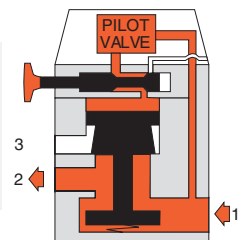
Pilot De-energized

With the solenoid pilot de-energized (regardless of the position of the L-O-X® handle) the inlet poppet remains closed. The outlet port is connected to the exhaust port so that pressure in the downstream lines is vented to atmosphere.



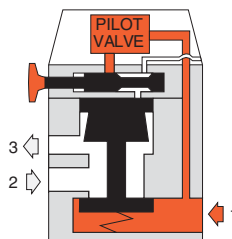
Pilot Energized

With the solenoid pilot energized and the L-O-X® control in the open position, air can flow from inlet to outlet port. The exhaust port is closed.



L-O-X® Valve Closed

With the handle pushed inward, the L-O-X® control is closed, and air to the valve piston is cut off. This allows the inlet poppet to be closed by its spring and the pressure of the inlet air. The outlet is connected to exhaust so downstream pressure is vented.



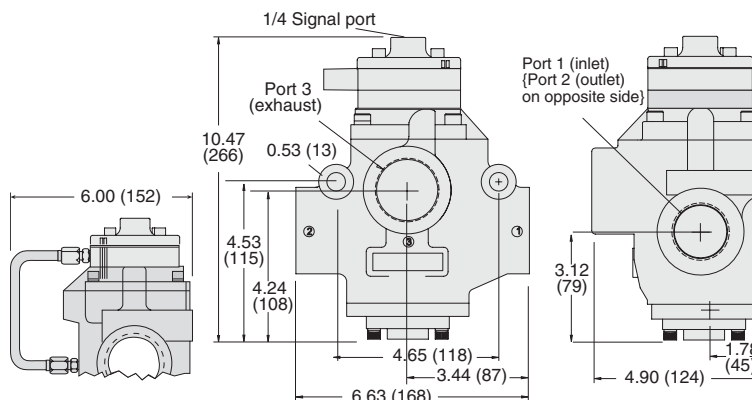
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Valves on this page are Registered in Canada to the ASME B31.3, Process Piping Code – **CRN 0C13850.54639087YTN**. Please see page 3, for the listing of jurisdictions where the product has been accepted and registered for use.

3-Way 2-Position Valve, Pressure Controlled							
Port Size		Body Size	Valve Model Number#		C _v		Weight lb (kg)
1, 2	3		NPT Thread	BSPP Thread	1-2	2-3	
1	1½	1¼	T2783B6037	TD2783B6037	23.0	34.0	8.8 (4.0)
1¼	1½	1¼	T2783B7037	TD2783B7037	30.0	32.0	8.8 (4.0)
1½	1½	1¼	T2783B8047	TD2783B8047	30.0	31.0	8.8 (4.0)

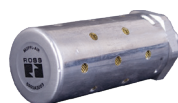


Valve Dimensions – inches (mm)



ACCESSORIES & OPTIONS

Silencers



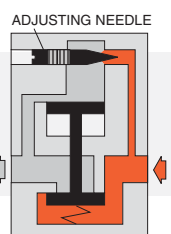
Port Size	Thread Type	Model Number*		Avg. C _v
		NPT Thread	BSPT Thread	
1½	Female	5500A8001	D5500A8001	29.9

Pressure Range: 0 to 150 psig (0 to 10 bar) maximum.
Flow Media: Filtered air.

VALVE OPERATION

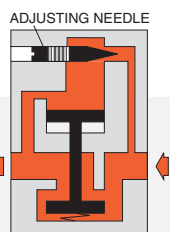
Air Pressure to Inlet

When air pressure is first applied to the inlet, air flow to the piston is restricted by the adjustable needle in the delay orifice. Downstream air pressure gradually builds up at a rate determined by the setting of the adjustable needle.



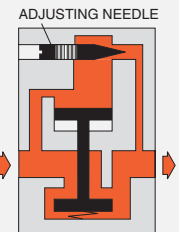
Valve Opens to Full Flow

When downstream air pressure reaches approximately 40 to 60 percent of inlet pressure, the valve element shifts to the full open position and there is full air flow to the downstream components. This condition continues as long as inlet air pressure is present.



Inlet Pressure Removed

When inlet pressure is removed, the exhausting downstream air pressure keeps the inlet poppet open until the downstream pressure drops by approximately 90 percent. The remaining pressure is exhausted via the delay orifice.



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N; Fluorocarbon
Mounting Type	In-line	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance with IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C) Maximum Design Proof Temperature: 200°F (94°C)		
Flow Media	Filtered air		
Operating Pressure	15 to 150 psig (1 to 10 bar) Maximum Design Proof Pressure: 150 psig (10 bar)		

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

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

SAFE EXHAUST MONITORED VALVES

M35, DM²® SERIES C

CONTROL RELIABLE



CONTROL RELIABLE DOUBLE VALVES DM SERIES – KEY FEATURES

- Rapid response time to minimize stopping time
- Status Indicator switch for valve condition (ready to run) feedback
- Highly contaminant tolerant poppet construction
- Explosion proof solenoid pilot available, for more information consult ROSS

This valves are not designed for controlling clutch/brake mechanisms on mechanical power presses, see DM²® series D valves for mechanical power press applications.

DM²® Series C Double Valves are Registered in Canada (Saskatchewan, Manitoba, Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward Island, Newfoundland, Northwest Territories, Yukon Territory, Nunavut, to the ASME B31.3, Power Piping Code – CRN 0C13864.54639087YTN.

VALVE TYPE/SERIES	Category	AVAILABLE PORT SIZES						MAX. FLOW Cv						RESET			Page
		1/4	3/8	1/2	3/4	1	1½	Port Size						Integrated Soft Start	Remote	Solenoid	
								1/4	3/8	1/2	3/4	1	1½				
M35	4										7.57						35 - 37
DM ² ® C	4									10	13	20	64				38 - 41

Control Reliable Double Valves for External Monitoring

Safe Exhaust M35 Series

The following valve products are Registered in Ontario, Alberta, Quebec, & Saskatchewan to the ASME B31.3, Power Piping Code – **CRN 0C20480.5236**.

3/2 Double Valve with or without EEZ-ON® (Soft Start) Module

Choose your options (in red) to configure your valve model number.

TM35	S	40	G	A	E	X	AA	G	A
Series	Soft Start Function	Thread	Monitoring					Pressure Gauge	Revision Level
	With Soft Start S	BSP G	External					With Gauge G	
	No Soft Start X	NPT N	Communication					No Gauge X	
		Voltage	None						
		24 volts DC							
Pin Configuration Combination*									
Solenoid		Sensor							
D		B		DB					

Port Size			Exhaust Type	
Inlet	Outlet	Exhaust		
3/4	3/4	–	Built-in Silencer	50
3/4	3/4	1	Threaded Exhaust Flange*	56

* Silencer not included but recommended, see accessories.

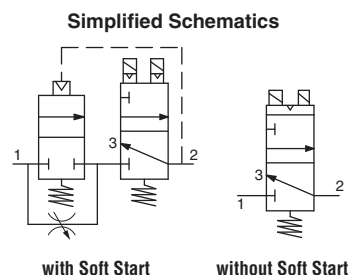
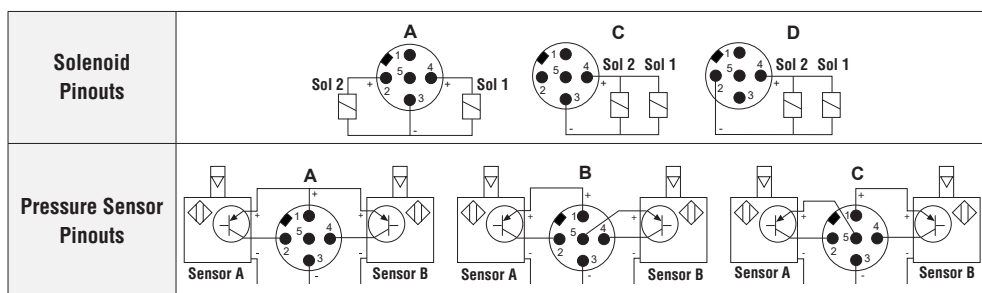


Model with
EEZ-ON®
(Soft Start)



Model without
EEZ-ON®
(Soft Start)

Port Size	Basic Size	Soft Start	Valve with Built-in Silencer			Valve with Threaded Exhaust Flange		
			C _v		Weight lb (Kg)	C _v		Weight lb (Kg)
			1-2	2-3		1-2	2-3	
3/4	8	With	4.1	7.5	6.5 (2.9)	4.1	7.57	6.6 (3.0)
3/4	8	Without	4.3	7.5	4.2 (1.9)	4.3	7.57	4.3 (2.0)



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Redundant, 3/2 Normally Closed, Dual Poppet	Operating Pressure	30 to 150 psig (2 to 10 bar)
Actuation	Solenoid pilot operated with air assisted spring return. One solenoid per valve element (2 total) – both to be operated synchronously.	Maximum Design Proof Pressure	150 psig (10 bar)
Mounting	Type: In-line mounted - modular/threaded Orientation: Any, preferably vertical	Pressure Sensors (2 per valve)	PNP solid state
Solenoids	According to VDE 0580; Rated for continuous duty	Pressure Sensors Current Consumption (each sensor)	<23mA (each without contacts)
Voltage	24 volts DC	Pressure Switch (Status Indicator) Rating	Contacts - 5 amps at 250 volts AC, or 5 amps at 30 volts DC
Power Consumption (each solenoid)	1.2 watts	Monitoring	Dynamic, cyclical, external with customer supplied equipment. Monitoring should check state of both valve pressure sensors with any and all changes in state of valve control signals.
Enclosure Rating	According to DIN 400 50 IP 65	Minimum Operation Frequency	Once per month, to ensure proper function
Electrical Connection	Two 5-pin M12 connectors	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C) Maximum Design Proof Temperature: 175°F (80°C)	Pending Functional Safety Data: Category 4, PL e; B10D: 20,000,000; SIL 3, IEC 61508:2010; MTTFD= B10D/(0.1xn _{op}), (n _{op} =number of annual operation cycles) Certifications: CE Marked for applicable directives, DGVU, CSA/UL.	
Flow Media	Compressed air according to ISO 8573-1 Class 7:4:4		

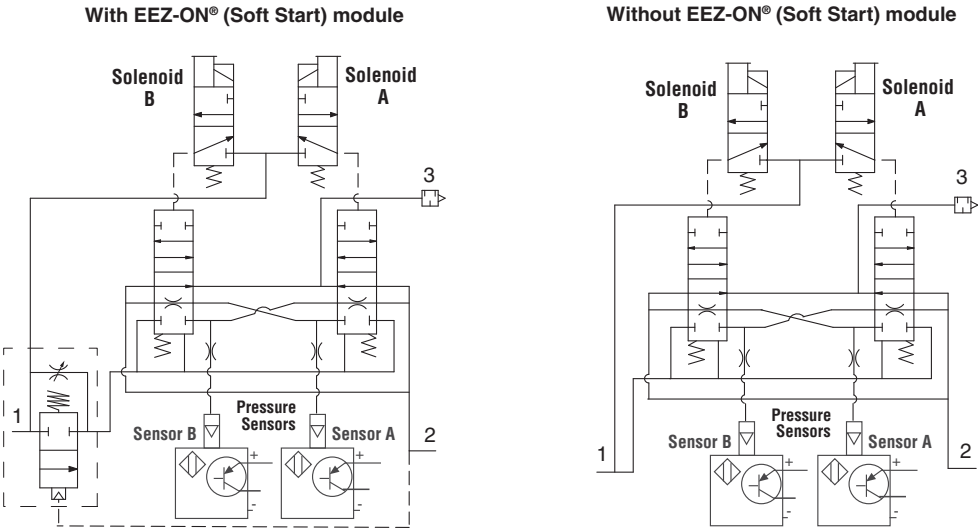
These valves are not designed for controlling clutch/brake mechanisms on mechanical power presses, see DM® Series D double valves for mechanical power press applications.

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



www.rosscontrols.com

Valves Schematics

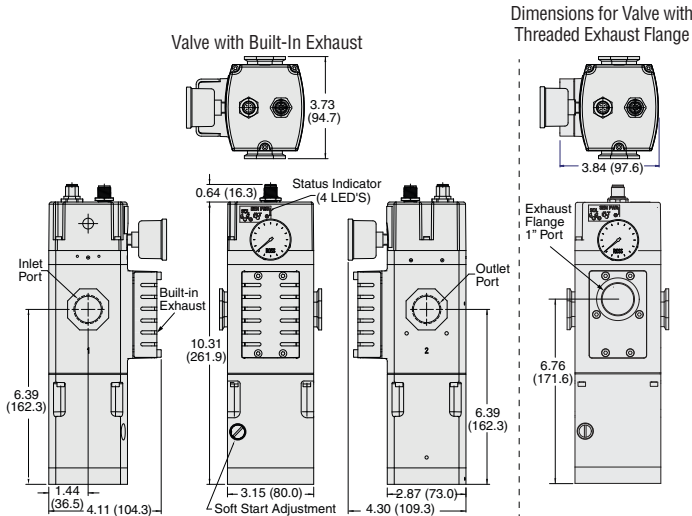


An Integration Guide for the M35 Series valves is available from ROSS to provide information such as operation, monitoring, and integration into users control circuits, please follow link to access the **M35 Series Valves Integration Guide**.

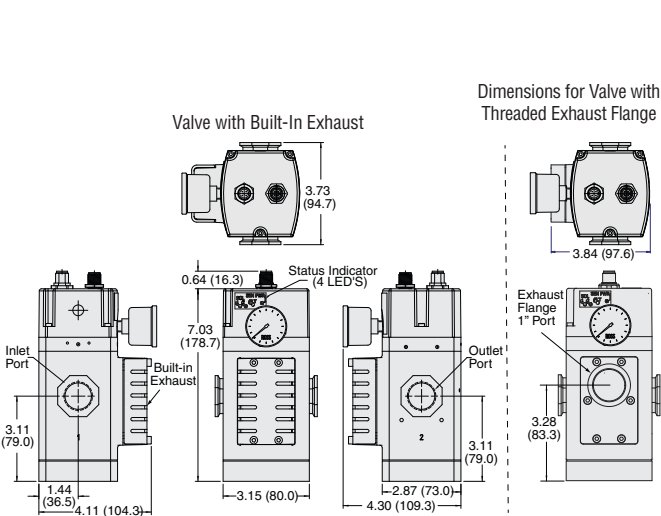
Exhaust Time – Normal and Faulted Conditions (s)													
Volume ft³ (L)	Normal or Faulted	Valve with Built-in Silencer						Valve with Threaded Exhaust Flange					
		Operating Pressure psig (bar)						Operating Pressure psig (bar)					
		30 (2)		90 (6)		145 (10)		30 (2)		90 (6)		145 (10)	
		to 15 (1)	to 7 (0.5)	to 15 (1)	to 7 (0.5)	to 15 (1)	to 7 (0.5)	to 15 (1)	to 7 (0.5)	to 15 (1)	to 7 (0.5)	to 15 (1)	to 7 (0.5)
0.071 (2)	N	0.055	0.071	0.094	0.112	0.120	0.135	0.052	0.070	0.093	0.113	0.123	0.142
	F	0.072	0.098	0.147	0.183	0.200	0.247	0.065	0.091	0.137	0.175	0.203	0.272
0.35 (10)	N	0.131	0.208	0.317	0.393	0.424	0.507	0.120	0.191	0.308	0.409	0.437	0.520
	F	0.185	0.301	0.533	0.710	0.789	1.024	0.163	0.300	0.503	0.697	0.805	1.048
0.71 (20)	N	0.226	0.379	0.597	0.746	0.804	0.971	0.204	0.342	0.577	0.779	0.829	0.992
	F	0.326	0.555	1.016	1.368	1.526	1.997	0.285	0.562	0.961	1.349	1.558	2.017
1.41 (40)	N	0.416	0.721	1.155	1.451	1.564	1.899	0.373	0.645	1.115	1.519	1.615	1.937
	F	0.608	1.063	1.983	2.685	3.000	3.941	0.530	1.086	1.878	2.655	3.064	3.957
5.30 (150)	N	1.462	2.604	4.227	5.326	5.743	7.006	1.301	2.310	4.071	5.588	5.934	7.130
	F	2.160	3.855	7.298	9.929	11.107	14.635	1.874	3.968	6.919	9.834	11.345	14.622

Valve Dimensions – inches (mm)

Models with optional EEZ-ON® (soft start) module

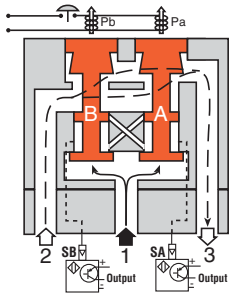


Models without EEZ-ON® (soft start) module



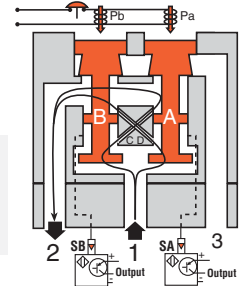
Control Reliable Double Valves for External Monitoring

M35 Series Valve Operation & Options



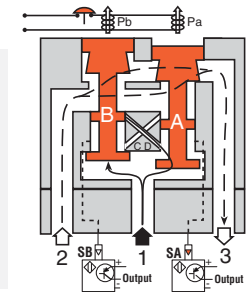
Conditions at Start: Inlet 1 is closed to outlet 2 by both valve elements A and B. Outlet 2 is open to exhaust 3. Pressure signals at both sensors SA and SB are exhausted. Sensors outputs SA and SB are ON.

Normal Operation: Simultaneously energizing both solenoids actuates both pilots and causes valve elements A and B to shift. Inlet 1 is then connected to outlet 2 via crossflow passages C and D. Exhaust 3 is closed. Sensing pressure signals go to each pressure sensor and become equal to inlet pressure. Sensors outputs SA and SB are OFF.



Completion of Normal Cycle: Simultaneously de-energizing both solenoids returns the valve to the “Conditions at Start” described at left.

Detecting a Malfunction: A malfunction in the system or the valve itself could cause one valve element to be open and the other closed. Air then flows past the inlet poppet on valve element A, into crossflow passage D, but is substantially blocked by the spool portion of element B. The large size of the open exhaust passage past element B keeps the pressure at the outlet port below 2 % of inlet pressure. Full sensing air pressure from side A goes to sensor SA, and a reduced pressure goes to sensor SB. This full pressure signal causes sensor outputs SA to turn OFF. Sensor outputs SB, with a reduced pressure signal, does not turn OFF. An external monitoring system can detect the malfunction by monitoring the condition of the sensors SA and SB. The external monitoring system may then react accordingly by shutting down the power to the valve solenoids and any other components deemed necessary to stop the machine.

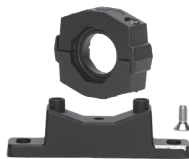


ACCESSORIES & OPTIONS

M35 Series valves have both modular receptacles for piping and female threaded ports inside receptacles, which allows either modular connection or direct piping. Mounting accessories listed below are used for modular connection to ROSS MD Series filter-regulator units.

Mounting Brackets & Clamp for Module Connections

Description	Model Number
Bracket and Screw	R-A118-103
Clamp	R-A118-105
Bracket, Screw, and Clamp	R-A118-105M



End Ports

Port Size	Type	Model Number	
		NPT Thread	BSPP Thread
1/2	Female	R-118-100-4	R-118-100-4W
	Male	R-118-109-4F	R-118-109-4FW
3/4	Female	R-118-100-6	R-118-100-6W
	Male	R-118-109-6F	R-118-109-6FW

Extra Port Blocks

Port Size	Model Number	
	NPT Thread	BSPP Thread
1/2	R-118-106-4	R-118-106-4W



Female End Port Male End Port Port Block

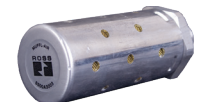
Pressure Gauge	Port Size	Model Number*	Pressure Range psig (bar)	Case Diameter inches (mm)
	1/8	5400A1002	0-160 (0-11)	1.5 (38)

* Center back mounting; male pipe threads.



Silencers for Threaded Exhaust Flange Option

Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)	
		NPT Thread	BSPP Thread		Length	Width
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)



Wiring Kits

Connector Type	Description	Kit Number	Number of Cables	Cord Length meters (feet)
M12 System Cables Connector - one end	Cords with female, 5-pin, straight, A-coded connector on one end and flying leads on the opposite end.	2644B77	2	5 (16.4)
M12 System Cables Connector - both ends	Cords with female, 5-pin, straight, A-coded connector on one end and male, 5-pin, straight, A-coded connector on the opposite end.	2645B77	2	5 (16.4)

Wire Colors

①	1 Brown
②	2 White
③	3 Blue
④	4 Black
⑤	5 Grey

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



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Control Reliable Double Valves with Dynamic Monitoring & Memory

DM²® Series C Safe Exhaust

Valves on this page are Registered in Canada (Saskatchewan, Manitoba, Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward Island, Newfoundland, Northwest Territories, Yukon Territory, Nunavut, to the ASME B31.3, Power Piping Code – **CRN 0C13864.54639087YTN**.

Basic Size 4, 8, 12 and 30

Dynamic Monitoring With Complete Memory: Memory, monitoring, and air flow control functions are simply integrated into two identical valve elements. Valves lock-out due to asynchronous movement of valve elements during actuation or de-actuation, resulting in a residual outlet pressure of less than 1% of supply.

An Action is Required for Reset – cannot be reset by removing and re-applying supply pressure. Reset can only be accomplished by the optional integrated electrical (solenoid) reset.

Basic 3/2 Normally Closed Valve Function: Dirt tolerant, wear compensating poppet design for quick response and high flow capacity. PTFE back-up rings on pistons to enhance valve endurance – operates with or without inline lubrication.

Status Indicator: Includes a pressure switch with both normally open (NO) and normally closed (NC) contacts to provide status feedback to the control system indicating whether the valve is in the lockout or ready-to-run condition.

Silencers: All models include high flow, clog resistant silencers.

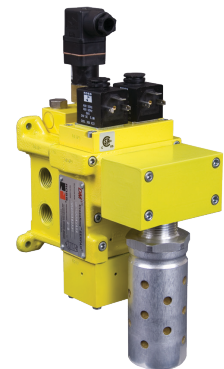
Mounting: Base mounted – with BSPP or NPT pipe threads. Inlet and outlet ports on both sides provide for flexible piping (plugs for unused ports included). Captive valve-to-base mounting screws.

Basic Size 12 and 30

Intermediate Pilots: Increases pilot air flow for fast valve response, making it possible to use the same size solenoids as valve sizes 2, 4 & 8, thereby reducing electrical power requirements for these larger valves.

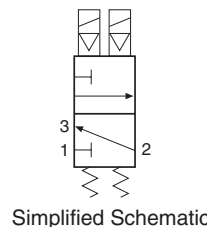


ISO
13849-1:2006
Cat 4 PL e



Thread	Series	Basic Size	Port Size	Port Size	Port Size	Solenoid Reset Type	Status Indicator
BSPP (G)	D		Inlet	Outlet			
NPT	N						
Valve Only (No Base)	X						
		4	1/2	1/2	B42		
			Valve Only (No Base)		B4X		
		8	3/4	3/4	A54		
			1	1	A55		
			Valve Only (No Base)		A5X		
		12	1	1	A66		
			Valve Only (No Base)		A6X		
		30	1-1/2	2	A88		
			Valve Only (No Base)		A8X		

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



Simplified Schematic

Basic Size	Inlet Port Size	Cv	Weight lb (Kg)
4	1/2	3.01 6.51	5.9 (2.6)
8	3/4	4.20 9.36	8.4 (3.7)
	1	4.32 9.36	8.4 (3.7)
12	1	8.68 17.31	15.3 (3.7)
30	1½	20.11 55.10	34.7 (15.1)

Valve and base assembly with status indicator.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Dual Poppet	Temperature	Maximum Design Proof Temperature: 200°F (94°C)
Mounting	Type: Base Orientation: Vertically with pilot solenoids on top	Flow Media	Filtered, lubricated or unlubricated (mineral oils according to DIN 51519, viscosity classes 32-46)
Solenoids	According to VDE 0580. Enclosure rating according to DIN 400 50 IP 65. Three solenoids, rated for continuous duty	Operating Pressure	30 to 120 psig (2.1 to 8.3 bar) Maximum Design Proof Pressure: 150 psig (10 bar)
Voltage/Power Consumption (each solenoid)	Basic Size 4, 12 & 30 Primary and Reset Solenoids: 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 Basic Size 8 Primary Solenoids: 15 watts on DC; 36 VA inrush and 24.6 VA holding on AC Reset Solenoids: 6.0 watts on DC; 15.8 VA inrush and 10.4 VA holding on AC	Pressure Switch (Status Indicator) Rating	Contacts - 5 amps at 250 volts AC, or 5 amps at 30 volts DC
Enclosure Rating	IP65, IEC 60529	Monitoring	Dynamically, cyclically, internally during each actuating and de-actuating movement. Monitoring function has memory and requires an overt act to reset unit after lockout
Electrical Connection	EN 175301-803 Form A, or M12	Minimum Operation Frequency	Once per month, to ensure proper function
Temperature	Ambient: 15° to 122°F (-10° to 50°C) Media: 40° to 175°F (4° to 80°C)	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
		Functional Safety Data:	Category 4, PL e; B10D: 20,000,000; PFHD: 7.71x10 ⁻⁹ ; MTTFD: 301.9 (n _{op} : 662400) Certifications: CE Marked for applicable directives, DGV Test, CSA/UL Vibration/Impact Resistance: Tested to BS EN 60068-2-27.

This valve is not designed for controlling clutch/brake mechanisms on mechanical power presses, see DM²® series D for mechanical power press applications.

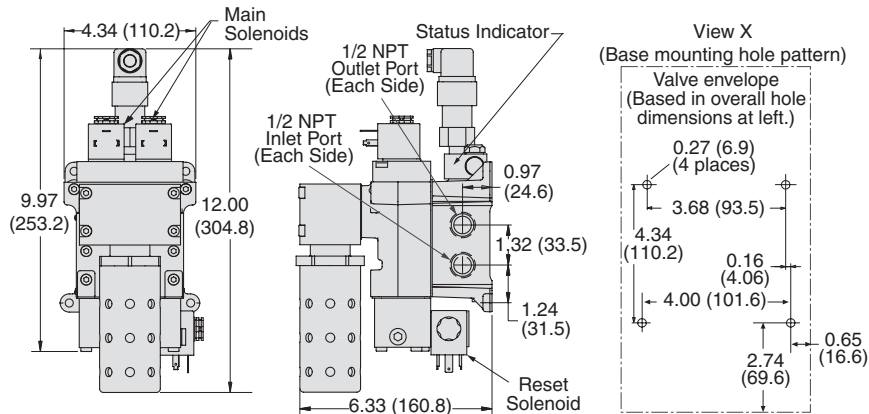
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Control Reliable Double Valves with Dynamic Monitoring & Memory

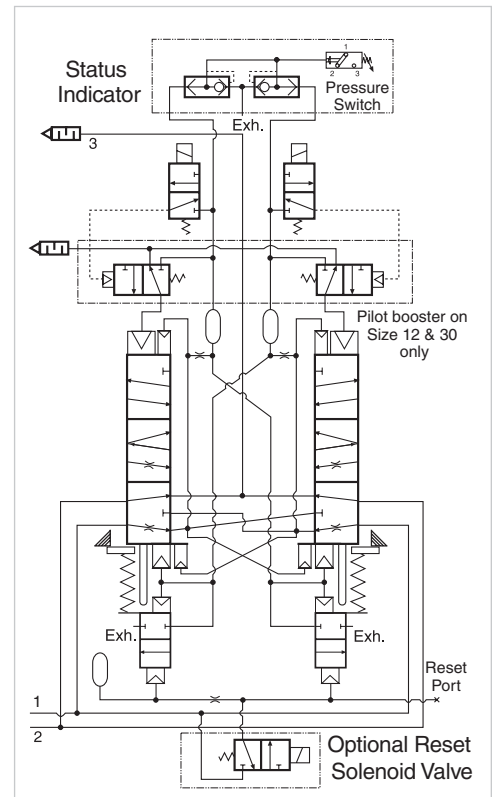
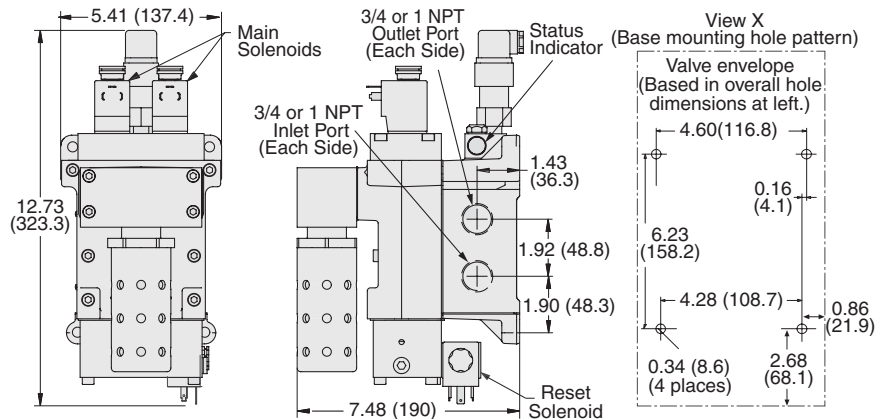
DM^{2®} Series C Valve Technical Data

Valve Dimensions – inches (mm)

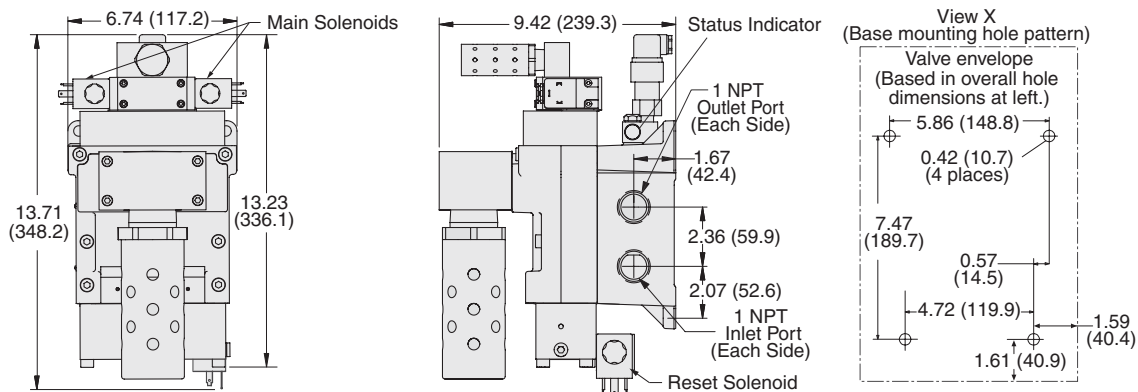
Basic Size 4



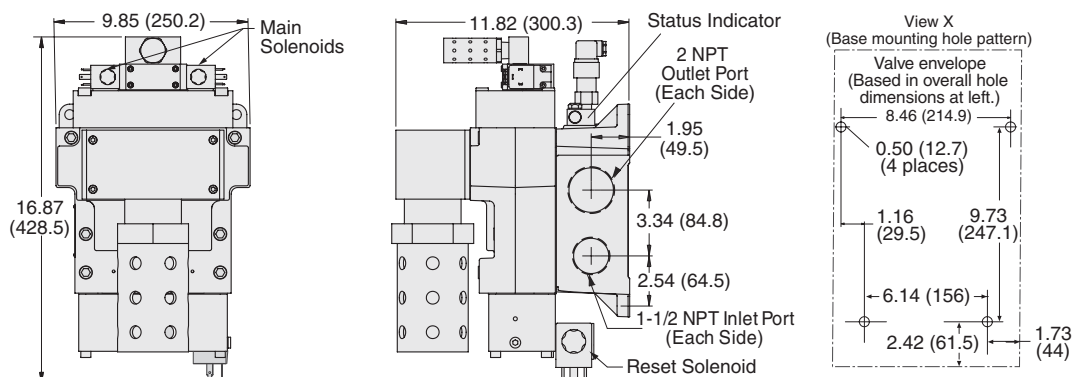
Basic Size 8



Basic Size 12



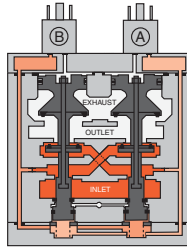
Basic Size 30



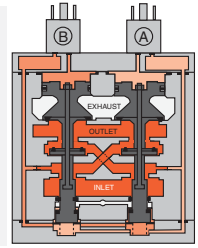
Control Reliable Double Valves with Dynamic Monitoring & Memory

DM²® Series C Valve Operation

Valve de-actuated (ready-to-run): The flow of inlet air pressure into the crossover passages is restricted by the size of the passage between the stem and the valve body opening. Flow is sufficient to quickly pressurize pilot supply/timing chambers A and B. The inlet poppets prevent air flow from crossover passages into the outlet chamber. Air pressure acting on the inlet poppets and return pistons securely hold the valve elements in the closed position. (Air passages shown out of position and reset adapter omitted for clarity.)

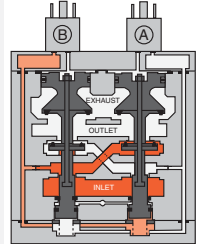


Valve actuated: Energizing the pilot valves simultaneously applies pressure to both pistons, forcing the internal parts to move to their actuated (open) position, where inlet air flow to crossover passages is fully open, inlet poppets are fully open and exhaust poppets are fully closed. The outlet is then quickly pressurized, and pressure in the inlet, crossovers, outlet, and timing chambers are quickly equalized. De-energizing the pilots quickly causes the valve elements to return to the ready-to-run position.

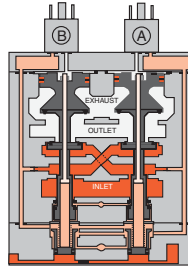


Valve locked-out: Whenever the valve elements operate in a sufficiently asynchronous manner, either on actuation or de-actuation, the valve will move to a locked-out position. In the locked-out position, one crossover and its related timing chamber will be exhausted, and the other crossover and its related timing chamber will be fully pressurized.

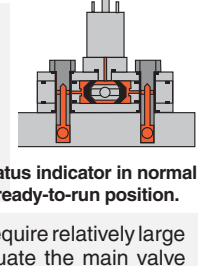
The valve element (side B) that is partially actuated has pilot air available to fully actuate it, but no air pressure on the return piston to fully de-actuate the valve element. Air pressure in the crossover acts on the differential of side B stem diameters creating a latching force. Side A is in a fully closed position, and has no pilot air available to actuate, but has full pressure on the inlet poppet and return piston to hold the element in the fully closed position. Inlet air flow on side A into its crossover is restricted, and flows through the open inlet poppet on side B, through the outlet into the exhaust port, and from the exhaust port to atmosphere. Residual pressure in the outlet is less than 1% of inlet pressure. The return springs are limited in travel, and can only return the valve elements to the intermediate (locked-out) position. Sufficient air pressure acting on the return pistons is needed to return the valve elements to a fully closed position.



Resetting the valve: The valve will remain in the locked-out position, even if the inlet air supply is removed and re-applied. A remote reset signal must be applied to reset the valve. Reset is accomplished by momentarily pressurizing the reset port. Actuation of the reset piston physically pushes the main valve elements to their closed position. Inlet air fully pressurizes the crossovers and holds the inlet poppets on seat. Actuation of the reset piston opens the reset poppet, thereby, immediately exhausting pilot supply air, thus, preventing valve operation during reset (Reset adapter added to illustration.). De-actuation of reset pistons causes the reset poppets to close and pilot supply to fully pressurize. Reset pressure can be applied by a remote 3/2 normally closed valve, or from an optional 3/2 normally closed solenoid mounted on the reset adapter. De-actuation of reset pistons causes the reset poppets to close and pilot supply to fully pressurize. Reset air pressure can be applied by a remote 3/2 normally closed valve, or from an optional 3/2 normally closed solenoid, or a manual push button mounted on the reset adapter.



Status Indicator: The status indicator pressure switch will actuate when the main valve is operating normally, and will de-actuate when the main valve is in the locked-out position or inlet pressure is removed. This device is not part of the valve lockout function, but, rather, only reports the status of the main valve.



Status indicator in normal ready-to-run position.

Basic Size 12 and 30 valves require relatively large pilots to actuate and de-actuate the main valve elements. In order to achieve extremely quick valve response for such large pilots, a 2-stage solenoid pilot system is incorporated into the design. This keeps the required electrical current to operate the pilots to a minimum.

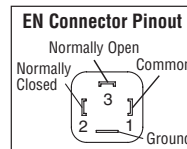
Basic Size 12 & 30 pilots

ACCESSORIES & OPTIONS

Electrical Connectors	Electrical Connector Form	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Electrical Connector Model Number		
					Without Light	Lighted Connector	
	DIN 43650 Form A	Prewired Connector (18 gauge)	2 (6½)	6-mm	721K77	720K77-W	720K77-Z
	DIN 43650 Form A	Prewired Connector (18 gauge)	2 (6½)	10-mm	371K77	383K77-W	383K77-Z
	DIN 43650 Form A	Connector for threaded conduit (1/2 inch electrical conduit fittings)	—	—	723K77	724K77-W	724K77-Z
	DIN 43650 Form A	Connector Only	—	—	937K87	936K87-W	936K87-Z

CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.

Pressure Switch for Status Indicator Energy Release Verification	Connection Type	Model Number	Port Thread
	EN 175301-803 Form A	51104A30	M10x1
	Factory preset, 22 psi (1.5) - falling May be installed on all valves with pressure sensing port.		



Redundant Downstream Feedback Switch	Model Number	Port Threads
	RC26-13	3/8 NPT

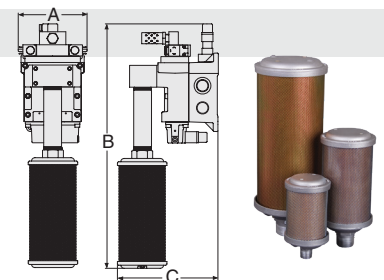
- May be installed downstream on all double valves
- Factory preset, 5 psi (0.3 bar) - falling
- Provides a redundant means to verify the release of downstream pressure to next obstruction

High-Flow, High Reduction Silencer Kits

Port Size	Kit Number*		Avg. C _v	Dimensions inches (mm)			
	NPT Thread	BSPT Thread		A	B (NPT)	B (BSPT)	C
4	2324H77	2329H77	800 (378)	4.34 (110.2)	19.06 (484.1)	21.40 (543.6)	7.27 (184.7)
8	2325H77	2339H77	800 (378)	5.41 (137.4)	21.18 (538.0)	23.52 (597.4)	8.41 (213.6)
12	2326H77	2330H77	2080 (982)	6.74 (117.2)	25.85 (656.6)	28.20 (716.3)	10.66 (270.8)
30	2327H77	2331H77	7200 (3398)	9.85 (250.2)	41.55 (1055.4)	41.55 (1055.4)	13.47 (342.1)

* Kits include all plumbing required for installation. **Pressure Range:** 125 psig (8.6 bar) maximum.

Designed to improve equipment performance and reduce the Exponentially Perceived Noise (EPNdB) in the 35–40 dB range.



Control Reliable Double Valves with Dynamic Monitoring & Memory

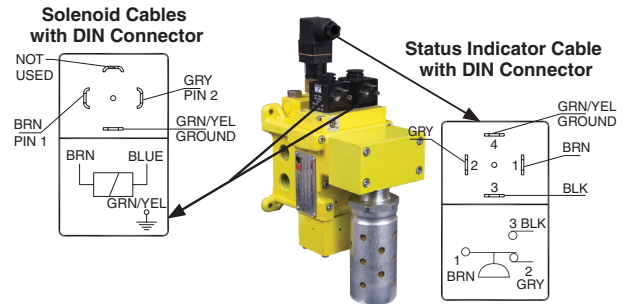
DM^{2®} Series C Preassembled Wiring Kits

Preassembled Wiring Kits

These kits include 1 cable for the status indicator, and 3 cables with connector plus a cord grip for each.

Connector without Light	Kit Number*		Solenoid Connector Type	Length meters (feet)
	24 Volts DC	120 Volts AC		
2283H77	2532H77-W	2532H77-Z	DIN 43650 Form A	5 (16.4)
2284H77	2533H77-W	2533H77-Z	DIN 43650 Form A	10 (32.8)

* Each cable has one connector. **Coil includes light.



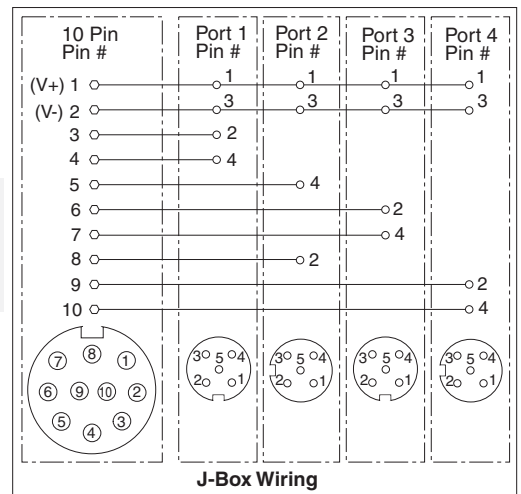
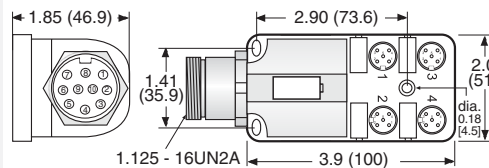
Wiring Kits with J-Box

Kit Number*	Connector Types	Length meters (feet)
2249H77	M12 - DIN	1 (3.3)

*24 volts DC only.



A J-Box is a junction box with a 10-pin MINI connector for connecting to the user's control system and (4) 5-pin M12 ports for connecting to the 3 solenoids and the status indicator on the DM^{2®} Series valve. The J-Box kits include the J-Box as described above and (4) 1-meter cables for connecting to the valve. These cables have a connector on each end. The status indicator cable and the (3) solenoid cables have an M12 connector on one end and a DIN connector on the other end (M12-DIN).



10 PIN MINI Cable

Kit Number	Length meters (feet)
2253H77	3.66 (12)
2254H77	6.1 (20)
2255H77	9.1 (30)
2256H77	15.2 (50)

These cables have a 10-pin MINI connector for connecting the J-Box kits above to the user's control system. Kits include one cable with connector and cord grip. Cable conductors are 18-gauge wire.

PIN #	PIN #
1 +24 volts DC	6 -
2 Common volts DC	7 Remote Reset
3 -	8 -
4 Solenoid A	9 Remote Valve Fault Light
5 Solenoid B	10 Remote System OK Light

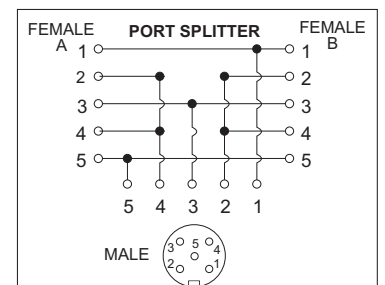
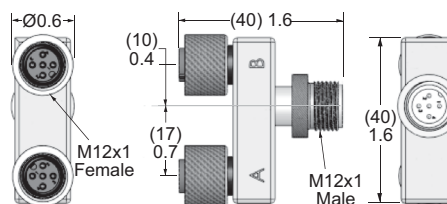
Wire Colors:	Wire Colors:
Orange	Orange w/Black
Blue	Red
White w/Black	Green/Yellow
Red w/Black	Black
Green w/Black	White



Outlet Port Pressure Monitoring Wiring Kit

Kit Number	Length meters (feet)
2251H77	1 (3.3)

Some customers prefer to monitor downstream pressure in addition to using the DM^{2®} or DM¹ Series valve. A convenient way to do this is to install a pressure switch in the extra outlet port that is provided on the valve. The Outlet Port Pressure Monitoring kit can be used with one of the J-Box kits above to split one of the M12 ports on the J-Box so that a pressure switch can be wired in as well. These kits consist of one port splitter (a Tee with three M12 connectors) and one M12-DIN cable (1 meter).



Pressure switch available separately, see valve options.

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



www.rosscontrols.com

DOUBLE VALVES FOR CLUTCH/BRAKE CONTROL

DM²® SERIES D

DM²® Monitoring:

The DM²® is a patented 3/2 normally closed valve (with an intermediate, lockout position) distinguished by SERPAR® Crossflow passages with poppet and spool valving on the main valve stems. This arrangement provides the valve's outstanding flow characteristics and an integrated monitoring capability with total memory. The valve provides dynamic monitoring and dynamic memory.

Dynamic Monitoring means that all monitoring components change state on every valve cycle. Should the valve elements cycle asynchronously, the valve will exhaust downstream air and lock-out, prohibiting further operation.

Dynamic Memory within a monitoring system indicates that when a valve lock-out occurs, the valve will retain the fault information regardless of air or electrical changes. The DM²® system can only be reset by a defined operation/procedure, and will not self-reset (turning the valve off and on) or reset when inlet air supply is removed and re-applied. Such automatic resetting would conceal potential hazards from the operator.



DM²® Series C Double Valves are Registered in Canada (British Columbia, Saskatchewan, Manitoba, Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward Island, Newfoundland, Northwest Territories, Yukon Territory, Nunavut, to the ASME B31.3, Process Piping Code – CRN 0C13864.54639087YTN.

VALVE SERIES					MAX. FLOW Cv								Page
	1/2	3/4	1	1½	Port Size						Remote	Solenoid	
					1/4	3/8	1/2	3/4	1	1½			
DM2® D					2.17	2.17	2.8	4.63	4.63 8.86	20.22			43 - 48

Control Reliable Double Valves DM²® Series D

with Dynamic
Monitoring & Memory

Valves on this page are Registered in Canada to the ASME B31.3, Power Piping Code – **CRN 0C13864.54639087YTN**.
Please see page 42, for the listing of jurisdictions where the product has been accepted and registered for use.

Self Monitored

Basic Size 4, 8, 12 and 30

Dynamic Monitoring with Memory: Memory, monitoring, and air flow control functions are simply integrated into two identical valve elements. Valves lock-out due to asynchronous movement of valve elements during actuation or de-actuation, resulting in a residual outlet pressure of less than 1% of supply. Overt action is required for reset – cannot be reset by removing and re-applying supply pressure. Reset can only be accomplished by remote air signal, optional electrical solenoid reset signal, or optional manual reset.

Basic 3/2 Normally Closed Valve Function: Dirt tolerant, wear compensating poppet design for quick response and high flow capacity. PTFE back-up rings on pistons to enhance valve endurance – operates with or without in-line lubrication.

Status Indicator (Optional): Includes a pressure switch with both normally open and normally closed contacts to provide status feedback to the press control system indicating whether the valve is in the lockout or ready-to-run condition. The Status Indicator can be ordered installed or purchased separately and added to any DM²® base.

Silencers: All models include high flow, clog resistant silencers.

Mounting: Base mounted – with BSPP or NPT pipe threads. Inlet and outlet ports on both sides provide for flexible piping (plugs for unused ports included). Captive valve-to-base mounting screws.

Basic Size 12 and 30

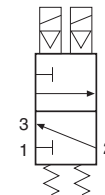
Intermediate Pilots: Increases pilot air flow for fast valve response, making it possible to use the same size solenoids as valve sizes 4 & 8, thereby reducing electrical power requirements for these larger valves.



HOW TO ORDER

Choose your options (in red) to configure your valve model number.

TDM2D		D	B42	A	1	1
Series						
Thread		Basic Size	Port Size		Reset Type	Status Indicator
BSPP (G)	D	4	Inlet	Outlet	Remote 1	Yes 1
NPT	N		1/2	1/2	Solenoid 2	No X
Valve Only (No Base)	X		1/2	3/4	Manual 4	
			Valve Only (No Base)			
		8	3/4	3/4		
			1	1		
			Valve Only (No Base)			
		12	1	1		
			Valve Only (No Base)			
			1	1-1/2		
		30	1-1/2	2		
			Valve Only (No Base)			



Simplified Schematic

Valve Basic Size	C _v		Weight# lb (Kg)
	1-2	2-3	
4	2.80	6.70	6.0 (2.8)
8	4.63	12.55	9.1 (4.2)
12	8.86	20.78	15.5 (7.1)
30	20.22	53.68	32.6 (14.8)

Valve and base assembly with status indicator and solenoid reset.

Connectors ordered separately, refer to page 48. For other options, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Dual poppet	Flow Media	Filtered, lubricated or unlubricated (mineral oils according to DIN 51519, viscosity classes 32-46)
Mounting	Type: Base Orientation: Preferably horizontally (valve on top of base) or vertically (with pilot solenoids on top)	Operating Pressure	30 to 120 psig (2.1 to 8.3 bar)
Solenoids	According to VDE 0580. Two solenoids, rated for continuous duty	Reset Pressure	For remote air reset option – must be equal to inlet pressure
Voltage	Basic Size 4, 12, 30: 24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz Basic Size 8: 24 volts DC; 110 volts AC, 50/60 Hz	Manual Pressure	Encapsulated, push button actuation
Power Consumption (each solenoid)	Basic Size 4, 12, 30: Primary and reset solenoids: 5.8 watts nominal on AC and DC; 6.5 watts maximum on AC and DC Basic Size 8: Primary solenoid: 15 watts on DC; 36 VA inrush and 24.6 VA holding on AC Reset solenoid: 6.0 watts on DC; 15.8 VA inrush and 10.4 VA holding on AC	Pressure Switch (Status Indicator) Rating	Contacts - 5 amps at 250 volts AC, or 5 amps at 30 volts DC
Enclosure Rating	DIN 40050, IP65, IEC 60529	Monitoring	Dynamically, cyclically, internally during each actuating and de-actuating movement. Monitoring function has memory and requires an overt act to reset unit after lockout.
Electrical Connection	Connector socket according to EN 175301-803 Form A	Operation Frequency	Minimum once per month, to ensure proper function
Temperature	Ambient: 15° to 120°F (-10° to 50°C) Media: 40° to 175°F (4° to 80°C) Maximum Design Proof Temperature: 200°F (94°C)	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
		Functional Safety Data: Category 4, PL e; B10D: 20,000,000; PFHD: 7.71x10 ⁻⁹ ; MTTFD: 301.9 (n _{op} : 662400). Certifications: CE Marked for applicable directives, DGV, CSA/UL, TSSA for appropriately tested valves Vibration/Impact Resistance: Tested to BS EN 60068-2-27.	

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



www.rosscontrols.com

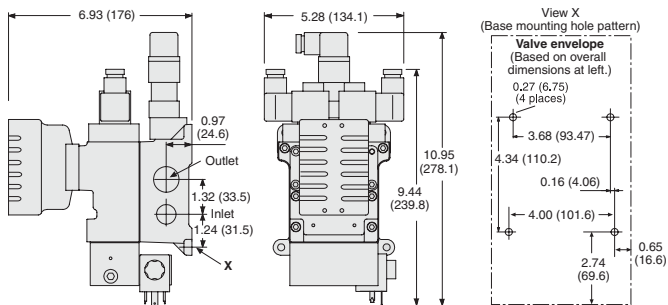
Control Reliable Double Valves

DM²® Series D

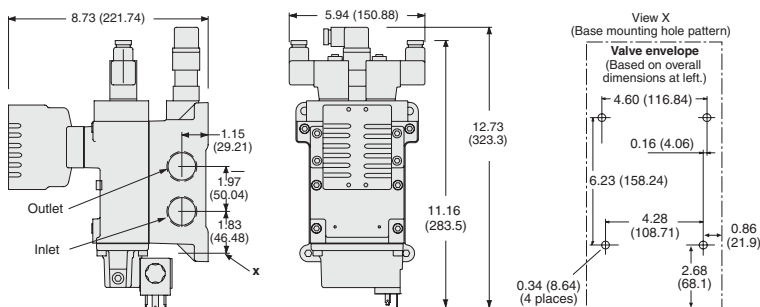
Valve Technical Data

Valve Dimensions – inches (mm)

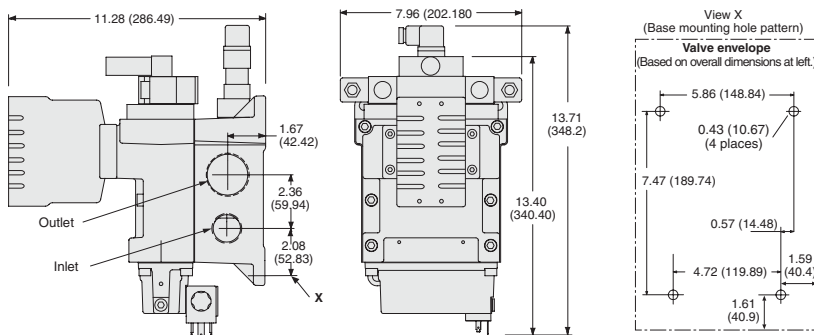
Basic Size 4



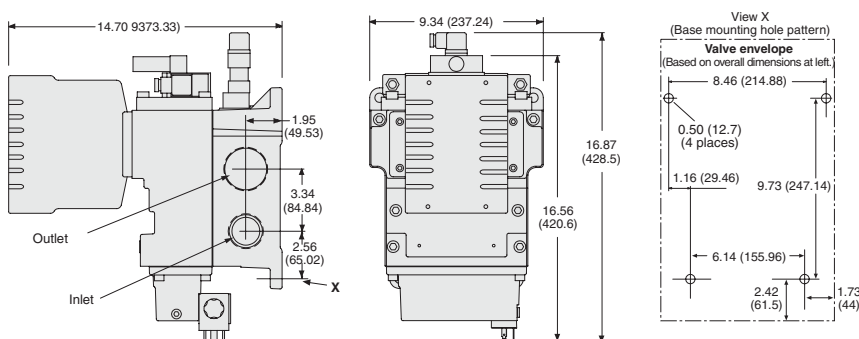
Basic Size 8



Basic Size 12



Basic Size 30



SUB-BASE MODEL NUMBERS and SUB-BASE SPECIFIC INFORMATION					
Valve Basic Size	Port Size		Sub-Base Model Number	Status Indicator	Weight lb (kg)
	Inlet	Outlet			
2	1/4	1/4	1872C91	No	1.7 (0.8)
2	1/4	1/4	1873C91	Yes	2.1 (1.0)
2	3/8	3/8	1874C91	No	1.7 (0.8)
2	3/8	3/8	1875C91	Yes	2.1 (1.0)
4	1/2	1/2	1697C91	No	1.7 (0.8)
4	1/2	1/2	1698C91	Yes	2.3 (1.1)
4	1/2	3/4	1699C91	No	1.7 (0.8)
4	1/2	3/4	1700C91	Yes	2.3 (1.1)
8	3/4	3/4	1701C91	No	3.6 (1.6)
8	3/4	3/4	1702C91	Yes	4.2 (1.9)
8	1	1	1703C91	No	3.6 (1.6)
8	1	1	1704C91	Yes	4.2 (1.9)
12	1	1	1705C91	No	6.2 (2.8)
12	1	1	1706C91	Yes	6.8 (3.1)
12	1	1½	1707C91	No	6.2 (2.8)
12	1	1½	1708C91	Yes	6.8 (3.1)
30	1½	2	1709C91	No	12.0 (5.4)
30	1½	2	1710C91	Yes	12.6 (5.7)

* NPT port threads. For BSP threads add a "D" prefix to the model number, e.g., D1872C91.

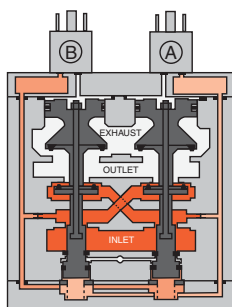
Control Reliable Double Valves

DM²® Series D

Valve Operation

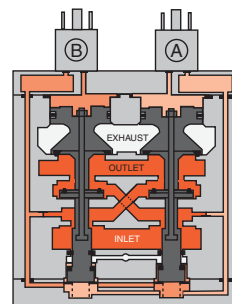
Valve De-actuated (ready-to-run):

The flow of inlet air pressure into the crossover passages is restricted by the size of the passage between the stem and the valve body opening. Flow is sufficient to quickly pressurize pilot supply/timing chambers A and B. The inlet poppets prevent air flow from crossover passages into the outlet chamber. Air pressure acting on the inlet poppets and return pistons securely hold the valve elements in the closed position. (Air passages shown out of position and reset adapter omitted for clarity.)



Valve Actuated:

Energizing the pilot valves simultaneously applies pressure to both pistons, forcing the internal parts to move to their actuated (open) position, where inlet air flow to crossover passages is fully open, inlet poppets are fully open and exhaust poppets are fully closed. The outlet is then quickly pressurized, and pressure in the inlet, crossovers, outlet, and timing chambers are quickly equalized. De-energizing the pilots quickly causes the valve elements to return to the ready-to-run position.

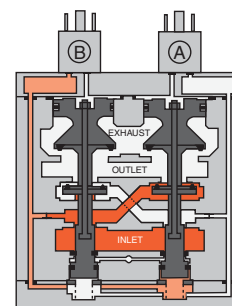


Valve Locked-out:

Whenever the valve elements operate in a sufficiently asynchronous manner, either on actuation or de-actuation, the valve will move to a locked-out position. In the locked-out position, one crossover and its related timing chamber will be exhausted, and the other crossover and its related timing chamber will be fully pressurized. The valve element (side B) that is partially actuated has pilot air available to fully actuate it, but no air pressure on the return piston to fully de-actuate the valve element. Air pressure in the crossover acts on the differential of side B stem diameters creating a latching force. Side A is in a fully closed position, and has no pilot air available to actuate, but has full pressure on the inlet poppet and return piston to hold the element in the fully closed position.

Inlet air flow on side A into its crossover is restricted, and flows through the open inlet poppet on side B, through the outlet into the exhaust port, and from the exhaust port to atmosphere. Residual pressure in the outlet is less than 1% of inlet pressure.

The return springs are limited in travel, and can only return the valve elements to the intermediate (locked-out) position. Sufficient air pressure acting on the return pistons is needed to return the valve elements to a fully closed position.



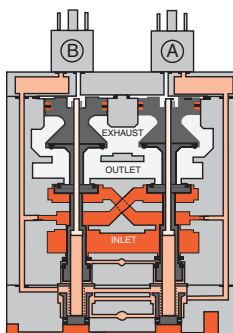
Resetting the Valve:

The valve will remain in the locked-out position, even if the inlet air supply is removed and re-applied. A remote reset signal (air or electric), or a manual push button actuation must be applied to reset the valve.

Reset is accomplished by momentarily pressurizing the reset port. Actuation of the reset piston physically pushes the main valve elements to their closed position. Inlet air fully pressurizes the crossovers and holds the inlet poppets on seat. Actuation of the reset piston opens the reset poppet, thereby, immediately exhausting pilot supply air, thus, preventing valve operation during reset. (Reset adapter added to illustration.)

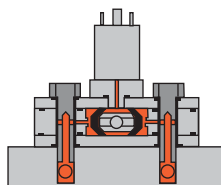
De-actuation of reset pistons causes the reset poppets to close and pilot supply to fully pressurize.

Reset air pressure can be applied by a remote 3/2 normally closed valve, or from an optional 3/2 normally closed solenoid, or a manual push button mounted on the reset adapter.



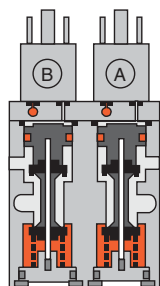
Status Indicator:

The status indicator pressure switch will actuate when the main valve is operating normally, and will de-actuate when the main valve is in the locked-out position or inlet pressure is removed. This device is not part of the valve lockout function, but, rather, only reports the status of the main valve.

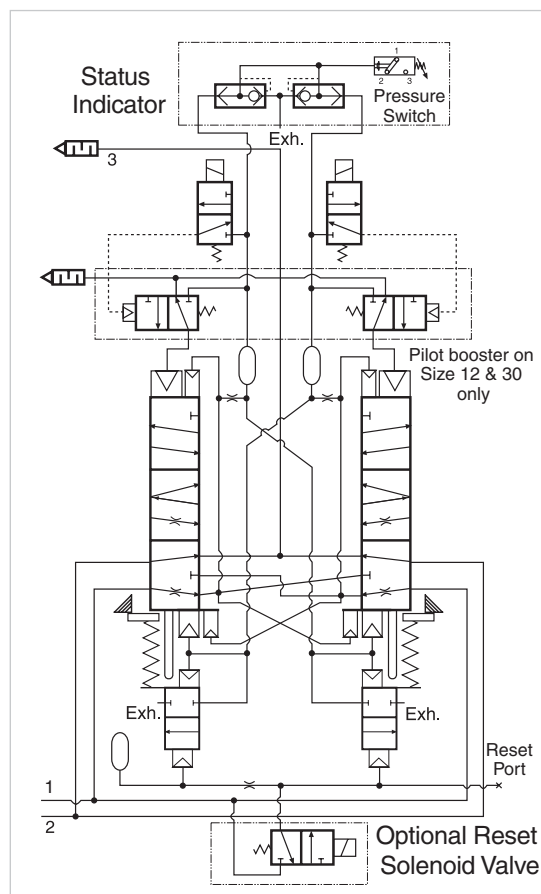


Status indicator (optional) in normal ready-to-run position.

Basic Size 12 and 30 valves require relatively large pilots to actuate and de-actuate the main valve elements. In order to achieve extremely quick valve response for such large pilots, a 2-stage solenoid pilot system is incorporated into the design. This keeps the required electrical current to operate the pilots to a minimum.



Basic Size 12 & 30 pilots



Schematic - Valve de-actuated

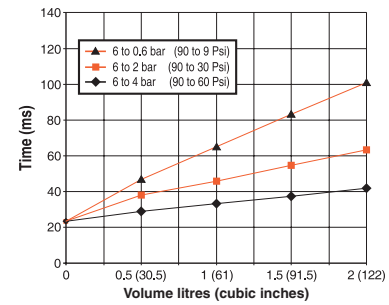
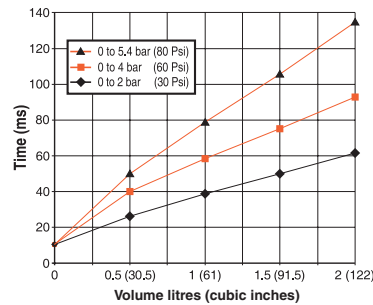
Control Reliable Double Valves

DM²® Series D

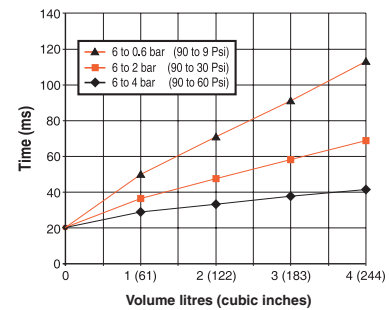
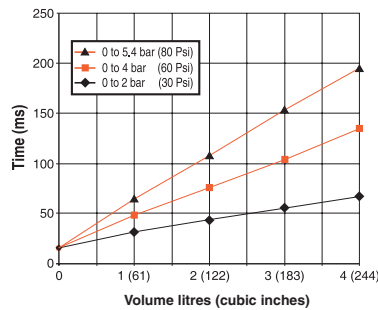
Valve Response Charts

The charts below represent the fill and exhaust times for each of the various sizes of DM²® Series D double valves. The “fill” times were measured while raising (filling) the pressure in a volume from 0 to 30, 60, & 80 psi (0 to 2.1, 4.1, & 5.5 bar) with a 90 psi (6.2 bar) inlet pressure. Conversely, the “exhaust” times were measured while lowering the pressure (exhausting) in a volume from 90 psi (6.2 bar) down to 90 to 60, 30, & 9 psi (4.1, 2.1, & 0.6 bar). **Exhausting tests performed with silencer installed.**

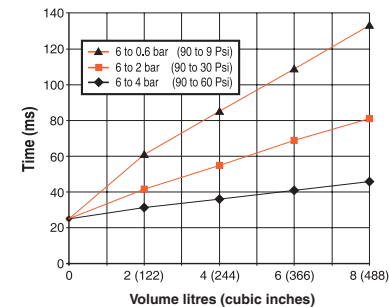
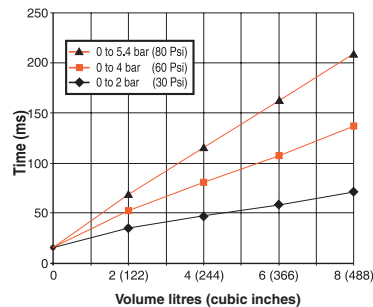
Basic Size 4



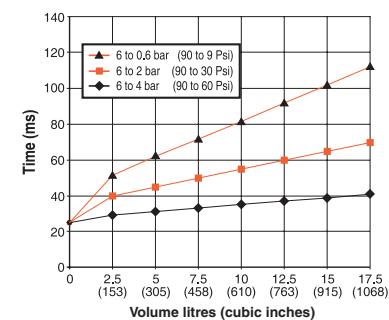
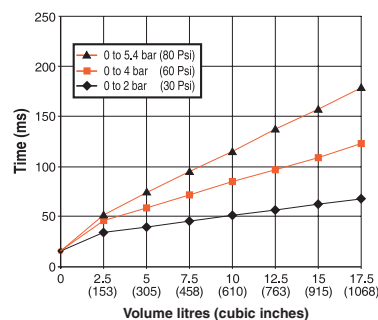
Basic Size 8



Basic Size 12



Basic Size 30



Control Reliable Double Valves with Dynamic Monitoring & Memory

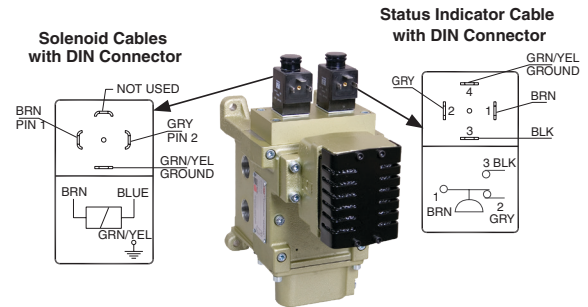
DM^{2®} Series D Preassembled Wiring Kits

Preassembled Wiring Kits

Connector without Light	Kit Number*		Solenoid Connector Type	Length meters (feet)
	24 Volts DC	120 Volts AC		
2283H77	2532H77-W	2532H77-Z	DIN 43650 Form A	5 (16.4)
2284H77	2533H77-W	2533H77-Z	DIN 43650 Form A	10 (32.8)

* Each cable has one connector. ** Coil includes light.

These kits include 1 cable for the status indicator, and 3 cables with connector plus a cord grip for each.



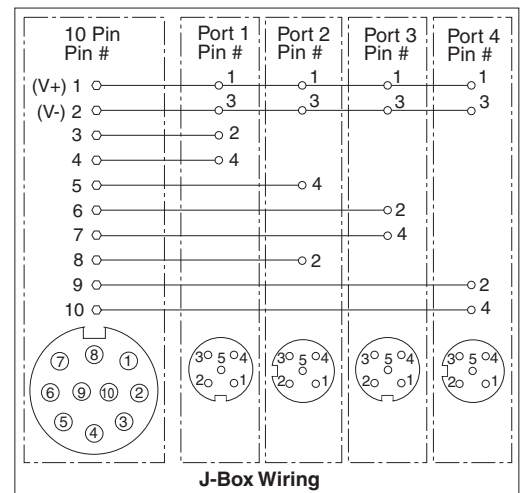
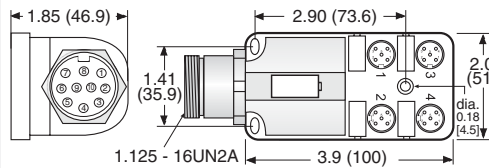
Wiring Kits with J-Box

Kit Number*	Connector Types	Length meters (feet)
2249H77	M12 - DIN	1 (3.3)

*24 volts DC only.



A J-Box is a junction box with a 10-pin MINI connector for connecting to the user's control system and (4) 5-pin M12 ports for connecting to the 3 solenoids and the status indicator on the DM^{2®} Series valve. The J-Box kits include the J-Box as described above and (4) 1-meter cables for connecting to the valve. These cables have a connector on each end. The status indicator cable and the (3) solenoid cables have an M12 connector on one end and a DIN connector on the other end (M12-DIN).



10 PIN MINI Cable

Kit Number	Length meters (feet)
2253H77	3.66 (12)
2254H77	6.1 (20)
2255H77	9.1 (30)
2256H77	15.2 (50)

These cables have a 10-pin MINI connector for connecting the J-Box kits above to the user's control system. Kits include one cable with connector and cord grip. Cable conductors are 18-gauge wire.

PIN #	PIN #
1 +24 volts DC	6 -
2 Common volts DC	7 Remote Reset
3 -	8 -
4 Solenoid A	9 Remote Valve Fault Light
5 Solenoid B	10 Remote System OK Light

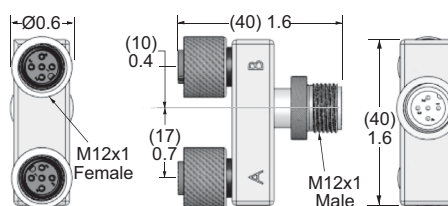
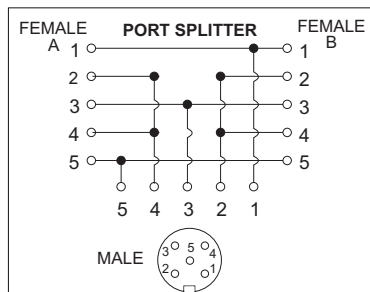
Wire Colors:	Wire Colors:
Orange	Orange w/Black
Blue	Red
White w/Black	Green/Yellow
Red w/Black	Black
Green w/Black	White



Outlet Port Pressure Monitoring Wiring Kit

Kit Number	Length meters (feet)
2251H77	1 (3.3)

Some customers prefer to monitor downstream pressure in addition to using the DM^{2®} or DM¹ Series valve. A convenient way to do this is to install a pressure switch in the extra outlet port that is provided on the valve. The Outlet Port Pressure Monitoring kit can be used with one of the J-Box kits above to split one of the M12 ports on the J-Box so that a pressure switch can be wired in as well. These kits consist of one port splitter (a Tee with three M12 connectors) and one M12-DIN cable (1 meter).



Pressure switch available separately, see valve options.

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

Electrical Connectors

Electrical Connector Form	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Electrical Connector Model Number		
				Without Light	Lighted Connector	
					24 Volts DC	120 Volts AC
DIN 43650 Form A	Prewired Connector (18 gauge)	2 (6½)	6-mm	721K77	720K77-W	720K77-Z
DIN 43650 Form A	Prewired Connector (18 gauge)	2 (6½)	10-mm	371K77	383K77-W	383K77-Z
DIN 43650 Form A	Connector for threaded conduit (1/2 inch electrical conduit fittings)	—	—	723K77	724K77-W	724K77-Z
DIN 43650 Form A	Connector Only	—	—	937K87	936K87-W	936K87-Z

CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.



Electrical Lockout Indicator



Status Indicator Assembly

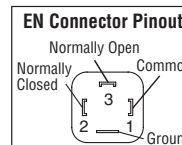
The Status Indicator pressure switch actuates when the valve is in a ready-to-run condition and de-actuates when the valve is in a lockout condition or when the inlet air pressure has been removed. Although, the valves can be purchased with this option already installed, the Status Indicator can be purchased separately.

Model Number

670B94

Pressure Switch for Status Indicator Energy Release Verification

Connection Type	Model Number	Port Thread
EN 175301-803 Form A	51104A30	M10x1
Factory preset, 22 psi (1.5) - falling		
May be installed on all valves with pressure sensing port.		

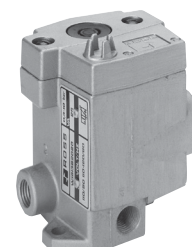


RESET VALVES for DOUBLE VALVES with REMOTE RESET

Valves with the remote reset option require a small 3/2 reset valve and the installation of a 1/8 inch air line from the reset valve to the reset port of the double valve. ROSS offers 3/2 normally closed valves with either manual or electric control that are suitable for this purpose.

Reset Valves		
Description	Model Number	
	NPT Thread	BSPP Thread
Flush Pushbutton: Green	1223B1FPG	D1223B1FPG
Mushroom Button: Green	1223B1MBG	D1223B1MBG
Direct Solenoid Control for Line Mounting #	1613B1020W	D1613B1020W
Direct Solenoid Control for Base Mounting #	W1413A1409W (Base: 516B91)	W1413A1409W (Base: D516B91)

Voltage: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 1613B1020Z.



Direct Solenoid Model
for Line Mounting

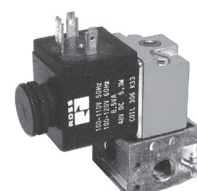
Flush
Pushbutton



Mushroom
Button



Direct Solenoid Mode
for Base Mounting



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

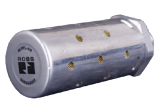
ACCESSORIES



SILENCERS

Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
		NPT Thread	BSPT Thread		A	B	
1/8	Male	5500A1003	D5500A1003	1.2	0.9 (21)	2.0 (51)	0.1 (0.1)
1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)
3/8	Male	5500A3013	D5500A3013	2.7	0.9 (21)	2.2 (55)	0.1 (0.1)
3/8	Male	5500A3003	D5500A3003	4.3	1.3 (32)	3.5 (88)	0.2 (0.1)
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)
3/4	Male	5500A5013	D5500A5013	5.1	1.3 (32)	3.6 (92)	0.2 (0.1)
3/4	Male	5500A5003	D5500A5003	11.5	2.0 (51)	5.3 (135)	0.6 (0.3)
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)
1¼	Male	5500A7013	D5500A7013	16.4	2.0 (51)	5.5 (140)	0.6 (0.3)
1¼	Female	5500A7001	D5500A7001	24.0	2.5 (64)	5.7 (144)	1.0 (0.5)
1½	Female	5500A8001	D5500A8001	29.9	2.5 (64)	5.7 (144)	1.0 (0.5)
2	Female	5500B9001	D5500B9001	34.2	3.0 (76)	6.6 (168)	1.5 (0.7)
2½	Female	5500A9002	D5500A9002	103.7	4.0 (102)	5.7 (145)	2.9 (1.4)



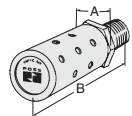


Port size
1/8 thru 2

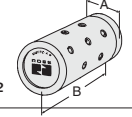


Port size 2½

Male Pipe Threads
For ports 1/8 through 1¼



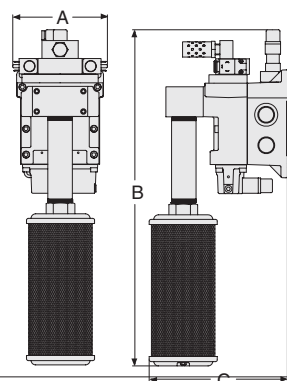
Female Pipe Threads
For ports 1¼ through 2½



Pressure Range: 0 to 150 psig (0 to 10 bar) maximum. **Flow Media:** Filtered air.

HIGH-FLOW, HIGH-REDUCTION SILENCERS for DM¹, DM^{2®} Series E & DM^{2®} Series C Double Valves

Valve Model	Basic Size	Thread Type	Kit Number*	Avg. C _v	Dimensions inches (mm)		
					A	B	C
DM Series C	4	NPT	2324H77	800 (378)	4.34 (110.2)	19.06 (484.1)	7.27 (184.7)
	8	NPT	2325H77	800 (378)	5.41 (137.4)	21.18 (538.0)	8.41 (213.6)
	12	NPT	2326H77	2080 (982)	6.74 (117.2)	25.85 (656.6)	10.66 (270.8)
	30	NPT	2327H77	7200 (3398)	9.85 (250.2)	41.55 (1055.4)	13.47 (342.1)
	4	BSPT	2329H77	800 (378)	4.34 (110.2)	21.40 (543.6)	7.27 (184.7)
	8	BSPT	2339H77	800 (378)	5.41 (137.4)	23.52 (597.4)	8.41 (213.6)
	12	BSPT	2330H77	2080 (982)	6.74 (117.2)	28.20 (716.3)	10.66 (270.8)
	30	BSPT	2331H77	7200 (3398)	9.85 (250.2)	41.55 (1055.4)	13.47 (342.1)





* Kits include all plumbing required for installation.

Pressure Range: 125 psig (8.6 bar) maximum.

PRESSURE GAUGES

Port Size	Model Number	Range psig (bar)	Case Diameter inches (mm)
1/8	5400A1002	0-160 (0-11)	1.7 (43)
1/4	5400A2010	0-60 (0-4)	2.2 (56)
1/4	5400A2011	0-200 (0-14)	2.2 (56)



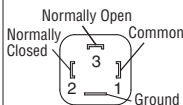
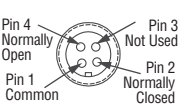

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

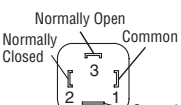
ELECTRICAL CONNECTORS

Electrical Connector Form	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Electrical Connector Model Number			
				Without Light	Lighted Connector		
					24 Volts DC	120 Volts AC	
DIN 43650 Form C	Prewired Connector	3 (10)	8-mm	2449K77	2450K77-W	2450K77-Z	
DIN 43650 Form C	Connector Only	—	—	2452K77	2453K77-W	2453K77-Z	
DIN 43650 Form A	Prewired Connector (18 gauge)	2 (6½)	6-mm	721K77	720K77-W	720K77-Z	
DIN 43650 Form A	Prewired Connector (18 gauge)	2 (6½)	10-mm	371K77	383K77-W	383K77-Z	
DIN 43650 Form A	Connector for threaded conduit (1/2 inch electrical conduit fittings)	—	—	723K77	724K77-W	724K77-Z	
DIN 43650 Form A	Connector Only	—	—	937K87	936K87-W	936K87-Z	
CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.							

CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.

PRESSURE SWITCHES For Verification Of DOWNSTREAM PRESSURE RELEASE

Pressure Switches (Electrical) for Energy Release Verification	Connection Type	Model Number	Port Thread	EN Connector Pinout  M12 Connector Pinout  
	EN 175301-803 Form A	586A86	1/8 NPT	
	M12	1153A30	1/8 NPT	
	Factory preset, 5 psi (0.3) - falling			
	May be installed on all valves with pressure sensing port. Provides means to verify the release of downstream pressure to next obstruction.			

Redundant Downstream Feedback Switch for Energy Release Verification	Connection Type	Model Number	Port Thread	EN Connector Pinout  
	EN 175301-803 Form A	RC026-13	3/8 NPT	
	Factory preset, 5 psi (0.3) - falling			
	May be installed downstream on all double valves. Provides a redundant means to verify the release of downstream pressure to next obstruction.			

STATUS INDICATOR

The Status Indicator pressure switch actuates when the valve is in a ready-to-run condition and de-actuates when the valve is in a lockout condition or when the inlet air pressure has been removed. Although, the valves can be purchased with this option already installed, the Status Indicator can be purchased separately.

Model Number	670B94
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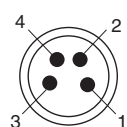
PRESSURE TRANSDUCER

Digital Pressure Transducer						
Model Number		Pressure Range psig (bar)	Description			
NPT Thread	BSPP (G) Thread		Electrical Output	Electrical Connection	Pressure Port Size*	Weight lb (Kg)
760B94	D760B94	0 (0) to 145 (10)	(1) PNP with (1) 4-20ma	M8, 4 Pin	1/8 NPT	0.099 (0.045)
* 1/8" NPT male						
For Digital Pressure Readout, Analog 4-20mA Output, and Transistor Switching Output.						



Sensor Pinout with Analog Output Wire Colors

- 1 Brown - 24 VDC
- 2 White - 4 to 20mA
- 3 Blue - 0 VDC
- 4 Black PNP Open Collector Output 1



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

Order Placement

For order placement, consult ROSS or your local ROSS distributor.

For a current list of countries and local distributors, visit ROSS' website at www.rosscontrols.com.

CAUTIONS, WARNINGS and STANDARD WARRANTY

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. Safety 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 safety 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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Full-Service Global Locations

There are ROSS Distributors Throughout the World

To meet your requirements across the globe, ROSS distributors are located throughout the world. Through ROSS or its distributors, guidance is available for the selection of ROSS products, both for those using pneumatic components for the first time and those designing complex pneumatic systems.

This catalog presents an overview of the ROSS products with a Canadian Registration Number (CRN).

Other literature is available for engineering, maintenance, and service requirements. If you need products or specifications not shown here, please contact ROSS or your ROSS distributor. They will be happy to assist you in selecting the best product for your application.

For a current list of countries and local distributors, visit ROSS' at www.rosscontrols.com.