



# PRODUCT INFORMATION

## DIRECTIONAL CONTROL VALVES

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### 27 SERIES



**ROSS CONTROLS**

## DIRECTIONAL CONTROL POPPET 27 SERIES VALVES – KEY FEATURES

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

**Valve models for external pilot supply available, consult ROSS.**

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



**For ATEX certified valves order placement, consult ROSS.**



D2

D

VALVE TYPE/SERIES	DESCRIPTION		AVAILABLE INLET PORT SIZES														FUNCTIONS									Page	
	Spool & Sleeve	Poppet	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	2	2½	2/2	3/2	3/4	4/2	5/2 Single	5/2 Double	5/3 Closed Center	5/3 Open Center	5/3 Pressure Center	Max Flow (Cv)	Solenoid Control	Direct Solenoid Control	Pressure Control		
27																						72				D2.3 - D2.5	
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27 Series with Pressure Booster Adaptor																											
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27 Series with Timed Sequence Adaptor																											
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																						34				D2.9	
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27 Series with Timed In/Out Sequence Adaptor																											
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27 Series with Timed-In/Out Sequence & Timed Sequence Extension Adaptors																											
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27 Series Pressure Controlled with Inlet Port Controlled Timed-In Sequence Adaptor																											
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27 Series Pressure Controlled with Inlet Port Controlled Timed-In Sequence & Timed Sequence Extension Adaptors																											
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Options & Accessories																											D2.23



# Directional Control Valves

## Solenoid Pilot Controlled

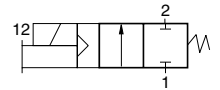
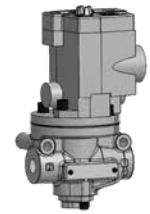
27 Series

### 2-Way 2-Position Valves, Spring Return

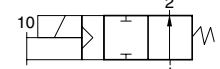
Port Size	Body Size	Normally Closed		Normally Open		C <sub>v</sub>		Average Response Constants**			Weight lb (kg)
		Valve Model Number#		Valve Model Number#		NC	NO	M	F		
		NPT Threads	G Threads	NPT Threads	G Threads				NC	NO	
1/4	3/8	2771B2001W	D2771B2001W	2772B2001W	D2772B2001W	2.3	2.3	10	0.91	0.91	2.5 (1.2)
3/8	3/8	2771B3001W	D2771B3001W	2772B3001W	D2772B3001W	3.8	3.3	10	0.70	0.76	2.5 (1.2)
1/2	3/8	2771B4011W	D2771B4011W	2772B4011W	D2772B4011W	4.0	3.5	10	0.64	0.72	2.5 (1.2)
1/2	3/4	2771B4001W	D2771B4001W	2772B4001W	D2772B4001W	7.7	6.5	14	0.37	0.43	3.3 (1.5)
3/4	3/4	2771B5001W	D2771B5001W	2772B5001W	D2772B5001W	9.0	7.3	14	0.34	0.39	3.3 (1.5)
1	3/4	2771B6011W	D2771B6011W	2772B6011W	D2772B6011W	9.0	7.9	14	0.34	0.37	3.3 (1.5)
1	1¼	2771B6001W	D2771B6001W	2772B6001W	D2772B6001W	24	21	26	0.17	0.17	7.0 (3.2)
1¼	1¼	2771B7001W	D2771B7001W	2772B7001W	D2772B7001W	29	20	26	0.15	0.19	7.0 (3.2)
1½	1¼	2771B8011W	D2771B8011W	2772B8011W	D2772B8011W	29	21	26	0.15	0.18	7.0 (3.2)
1½	2	2771B8001W	D2771B8001W	2772B8001W	D2772B8001W	49	49	41	0.09	0.09	15.5 (6.9)
2	2	2771B9001W	D2771B9001W	2772B9001W	D2772B9001W	57	57	41	0.07	0.07	15.5 (6.9)
2½	2	2771B9011W	D2771B9011W	2772B9011W	D2772B9011W	64	72	41	0.07	0.06	15.5 (6.9)

# Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 2771B2001Z. For other voltages, consult ROSS.

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



Normally Closed

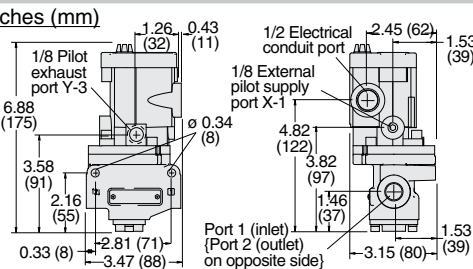


Normally Open

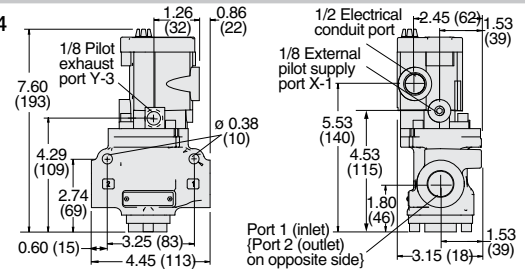
D2

#### Valve Dimensions – inches (mm)

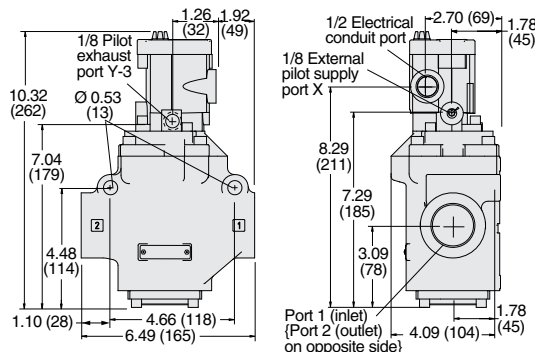
##### Body Size 3/8



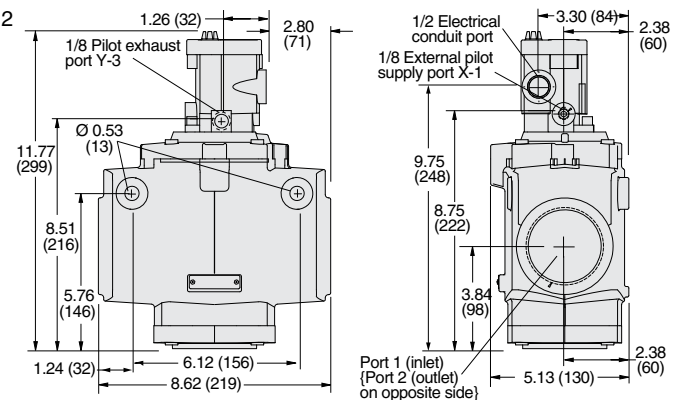
##### Body Size 3/4



##### Body Size 1 1/4



##### Body Size 2



D

Options: Indicator Light Kits, Manual Override Kits; refer to page D2.23.

#### 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)
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	Valve Body	Cast Aluminum
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Poppet	Acetal and Stainless Steel
Power Consumption	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	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	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.
Pilot Supply	Internal or External		



Valves with EN (DIN) connector available, consult ROSS.  
For ATEX certified valves, consult ROSS. For FM, CSA approved Explosion-Proof valves, see section F.



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



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D2.3



# Directional Control Valves

## Solenoid Pilot Controlled

27 Series

### 3-Way 2-Position Valves, Spring Return

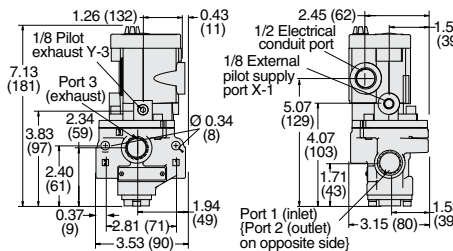
Port Size		Body Size	Normally Closed		Normally Open		C <sub>v</sub>				Average Response Constants**				Weight lb (kg)	
			Valve Model Number*		Valve Model Number*		NC		NO		M	F				
1, 2	3		NPT Threads		G Threads		NPT Threads		G Threads			1-2	2-3	1-2		2-3
1/4	1/2	3/8	2773B2001W	D2773B2001W	2774B2001W	D2774B2001W	2.5	3.1	2.3	2.7	10	0.90	0.80	0.99	0.88	2.5 (1.2)
3/8	1/2	3/8	2773B3001W	D2773B3001W	2774B3001W	D2774B3001W	3.6	5.3	2.8	3.2	10	0.70	0.50	0.90	0.77	2.5 (1.2)
1/2	1/2	3/8	2773B4011W	D2773B4011W	2774B4011W	D2774B4011W	3.3	5.3	2.8	3.2	10	0.75	0.50	0.90	0.76	2.5 (1.2)
1/2	1	3/4	2773B4001W	D2773B4001W	2774B4001W	D2774B4001W	6.3	9.2	6.3	8.0	11	0.43	0.27	0.46	0.60	3.3 (1.5)
3/4	1	3/4	2773B5001W	D2773B5001W	2774B5001W	D2774B5001W	7.7	11	6.9	7.4	11	0.36	0.26	0.45	0.60	3.3 (1.5)
1	1	3/4	2773B6011W	D2773B6011W	2774B6011W	D2774B6011W	8	12	6.8	7.5	11	0.34	0.25	0.40	0.59	3.3 (1.5)
1	1½	1¼	2773B6001W	D2773B6001W	2774B6001W	D2774B6001W	23	34	17	24	28	0.17	0.14	0.20	0.17	7.0 (3.2)
1¼	1½	1¼	2773B7001W	D2773B7001W	2774B7001W	D2774B7001W	30	32	19	24	28	0.15	0.15	0.19	0.17	7.0 (3.2)
1½	1½	1¼	2773B8011W	D2773B8011W	2774B8011W	D2774B8011W	30	31	19	23	28	0.15	0.15	0.19	0.16	7.0 (3.2)
1½	2½	2	2773B8001W	D2773B8001W	2774B8001W	D2774B8001W	68	70	57	59	76	0.05	0.04	0.07	0.04	16.5 (7.4)
2	2½	2	2773B9001W	D2773B9001W	2774B9001W	D2774B9001W	70	70	58	61	76	0.05	0.04	0.05	0.04	16.5 (7.4)
2½	2½	2	2773B9011W	D2773B9011W	2774B9011W	D2774B9011W	70	71	54	55	76	0.05	0.04	0.50	0.04	16.5 (7.4)

# Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 2773B2001Z. For other voltages, consult ROSS.

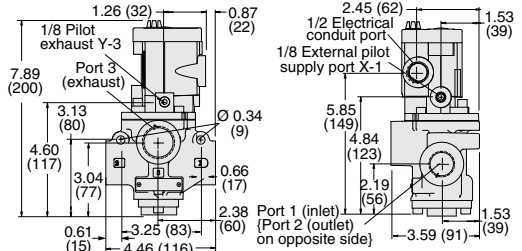
\*\* Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.



Body Size 3/8

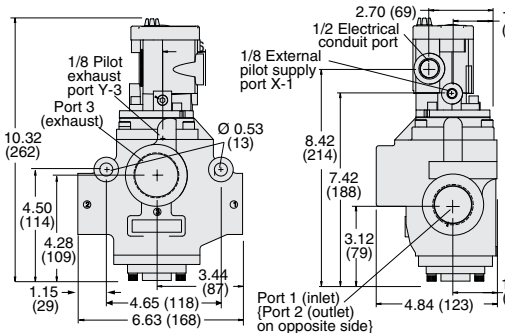


Body Size 3/4

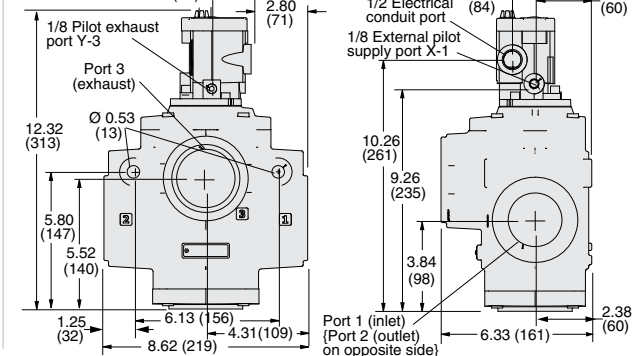


Valve Dimensions – inches (mm)

Body Size 1¼



Body Size 2



Options: Indicator Light Kits, Manual Override Kits; refer to page D2.23. Silencers ordered separately, refer to page D2.23.

### STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	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)
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	Valve Body: Cast Aluminum	
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Poppet: Acetal and Stainless Steel	
Power Consumption	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	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	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.	
Pilot Supply	Internal or External		



Valves with EN (DIN) connector available, consult ROSS.  
For ATEX certified valves, consult ROSS. For FM, CSA approved Explosion-Proof valves, see section F.

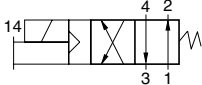


**IMPORTANT NOTE:** Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

# Directional Control Valves

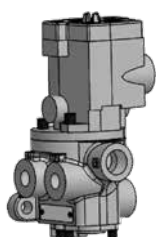
## Solenoid Pilot Controlled

27 Series

4-Way 2-Position Valves, Spring Return											
Port Size		Body Size	Valve Model Number#		C <sub>v</sub>		Average Response Constants**			Weight lb (kg)	
1, 2, 4	3		NPT Threads	G Threads	1-2, 1-4	4-3, 2-3	M	F			
1/4	1/2	3/8	2776B2001W	D2776B2001W	2.1	2.9	10	0.92	0.92	3.0 (1.4)	
3/8	1/2	3/8	2776B3001W	D2776B3001W	2.9	4.2	10	0.90	0.90	3.0 (1.4)	
1/2	1/2	3/8	2776B4011W	D2776B4011W	3.1	7.3	10	0.89	0.73	3.0 (1.4)	
1/2	1	3/4	2776B4001W	D2776B4001W	5.6	8.1	26	0.50	0.66	5.3 (2.4)	
3/4	1	3/4	2776B5001W	D2776B5001W	7.0	9.3	26	0.36	0.55	5.3 (2.4)	
1	1	3/4	2776B6011W	D2776B6011W	7.8	10	26	0.35	0.50	5.3 (2.4)	
1	1 1/2	1 1/4	2776B6001W	D2776B6001W	19	26	79	0.17	0.22	11.3 (5.1)	
1 1/4	1 1/2	1 1/4	2776B7001W	D2776B7001W	21	27	79	0.16	0.18	11.3 (5.1)	
1 1/2	1 1/2	1 1/4	2776B8011W	D2776B8011W	22	27	79	0.15	0.15	11.3 (5.1)	

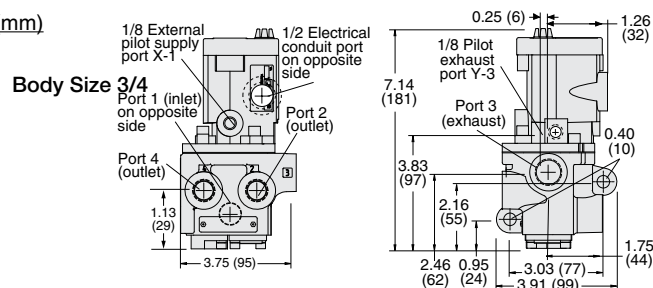
# Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 2776B2001Z. For other voltages, consult ROSS.

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

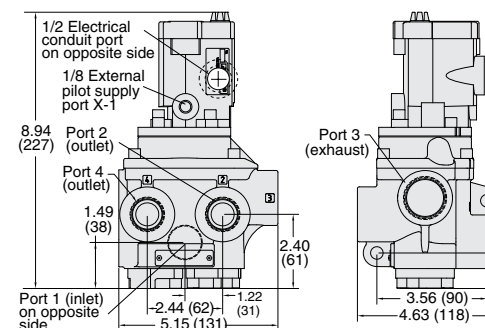


### Valve Dimensions – inches (mm)

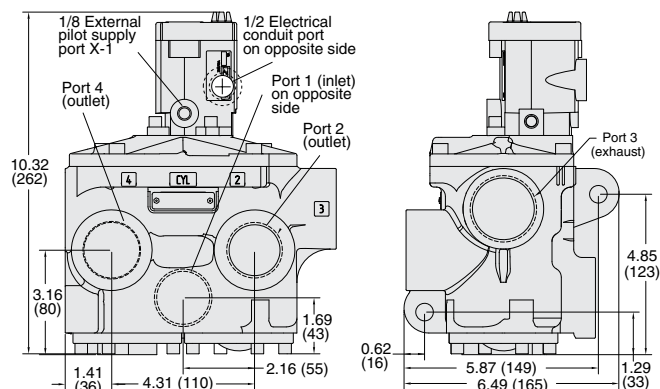
Body Size 3/8



Body Size 3/4



Body Size 1 1/4



Options: Indicator Light Kits, Manual Override Kits; refer to page D2.23. Silencers ordered separately, refer to page D2.23.

### 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	Valve Body: Cast Aluminum	
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Poppet: Acetal and Stainless Steel	
Power Consumption	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	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	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.	
Pilot Supply	Internal or External		



Valves with EN (DIN) connector available, consult ROSS.  
For ATEX certified valves, consult ROSS. For FM, CSA approved Explosion-Proof valves, see section F.



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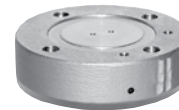
Online Version  
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# Directional Control Valves – Solenoid Pilot Controlled with Pressure Booster Adaptor

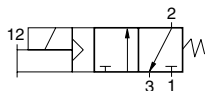
27 Series

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



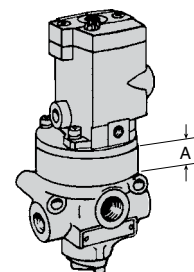
## 3-Way 2-Position Valves, Spring Return

Port Size		Body Size	Normally Closed		C <sub>v</sub>		Dimension A inches (mm)	Weight lb (kg)
			Valve Model Number#					
1, 2	3		NPT Threads	G Threads	1-2	2-3		
1/4	1/2	3/8	2773B2009W	D2773B2009W	2.5	3.1	0.75 (19)	2.5 (1.2)
3/8	1/2	3/8	2773B3009W	D2773B3009W	3.6	5.3	0.75 (19)	2.5 (1.2)
1/2	1/2	3/8	2773B4019W	D2773B4019W	3.3	5.3	0.75 (19)	2.5 (1.2)
1/2	1	3/4	2773B4009W	D2773B4009W	6.3	9.2	0.75 (19)	3.3 (1.5)
3/4	1	3/4	2773B5009W	D2773B5009W	7.7	11	0.75 (19)	3.3 (1.5)
1	1	3/4	2773B6019W	D2773B6019W	8	12	0.75 (19)	3.3 (1.5)
1	1½	1¼	2773B6009W	D2773B6009W	23	34	1.25 (32)	7.0 (3.2)
1¼	1½	1¼	2773B7009W	D2773B7009W	30	32	1.25 (32)	7.0 (3.2)
1½	1½	1¼	2773B8019W	D2773B8019W	30	31	1.25 (32)	7.0 (3.2)



# Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 2773B2009Z. For other voltages, consult ROSS.

Detailed dimensions, see corresponding valves models pages.



Options: Indicator Light Kits, Manual Override Kits; refer to page D2.23. Silencers ordered separately, refer to page D2.23.

## 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	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Manual Override	Flush; rubber, non-locking
Power Consumption	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 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.
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		
Flow Media	Filtered air		
Pilot Supply	Internal or External		



Valves with EN (DIN) connector available, consult ROSS.  
For ATEX certified valves, consult ROSS. For FM, CSA approved Explosion-Proof valves, see section F.



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

# Directional Control Valves – Solenoid Pilot Controlled with Air Index Adaptor

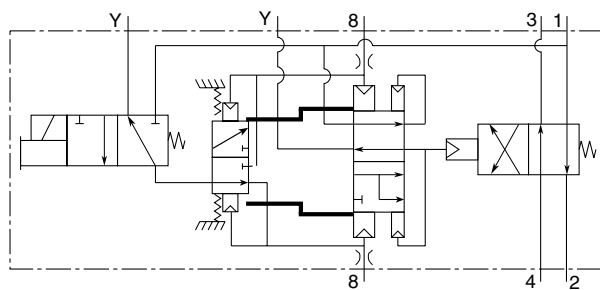
27 Series

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



## 4-Way 2-Position Valves, Spring Return

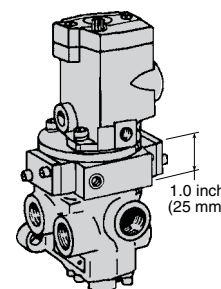
Port Size		Body Size	Valve Model Number#		C <sub>v</sub>		Weight lb (kg)
1, 2, 4	3		NPT Threads	G Threads	1-2, 1-4	4-3, 2-3	
1/4	1/2	3/8	2776B2008W	D2776B2008W	2.1	2.9	3.0 (1.4)
3/8	1/2	3/8	2776B3008W	D2776B3008W	2.9	4.2	3.0 (1.4)
1/2	1/2	3/8	2776B4018W	D2776B4018W	3.1	7.3	3.0 (1.4)
1/2	1	3/4	2776B4008W	D2776B4008W	5.6	8.1	5.3 (2.4)
3/4	1	3/4	2776B5008W	D2776B5008W	7.0	9.3	5.3 (2.4)
1	1	3/4	2776B6018W	D2776B6018W	7.8	10	5.3 (2.4)
1	1½	1¼	2776B6008W	D2776B6008W	19	26	11.3 (5.1)
1¼	1½	1¼	2776B7008W	D2776B7008W	21	27	11.3 (5.1)
1½	1½	1¼	2776B8018W	D2776B8018W	22	27	11.3 (5.1)



# **Voltage:** W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 2776B2008X. For other voltages, consult ROSS.

Body Size 3/4

Detailed dimensions, see corresponding valves models pages.



**Options:** Indicator Light Kits, Manual Override Kits; refer to page D2.23. Silencers ordered separately, refer to page D2.23.

## STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	40 to 150 psig (2.8 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	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Manual Override	Flush; rubber, non-locking
Power Consumption	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 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.
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		
Flow Media	Filtered air		
Pilot Supply	Internal or External		



Valves with EN (DIN) connector available, consult ROSS.  
For ATEX certified valves, consult ROSS. For FM, CSA approved Explosion-Proof valves, see section F.



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D2.7

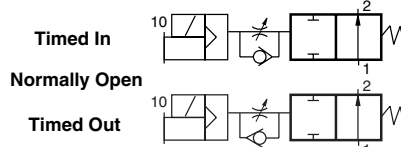
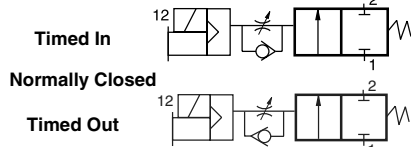
# Directional Control Valves – Solenoid Pilot Controlled with Timed Sequence Adaptor

27 Series



## 2-Way 2-Position Valves, Spring Return

Port Size	Body Size	Normally Closed		Normally Open		C <sub>v</sub>		Weight lb (kg)
		Valve Model Number*#		Valve Model Number*#		NC	NO	
		Timed In	Timed Out	Timed In	Timed Out			
1, 2								
1/4	3/8	2771B2004W	2771B2005W	2772B2004W	2772B2005W	2.3	2.3	3.5 (1.6)
3/8	3/8	2771B3004W	2771B3005W	2772B3004W	2772B3005W	3.8	3.3	3.5 (1.6)
1/2	3/8	2771B4014W	2771B4015W	2772B4014W	2772B4015W	4.0	3.5	3.5 (1.6)
1/2	3/4	2771B4004W	2771B4005W	2772B4004W	2772B4005W	7.7	6.5	4.3 (2.0)
3/4	3/4	2771B5004W	2771B5005W	2772B5004W	2772B5005W	9.0	7.3	4.3 (2.0)
1	3/4	2771B6014W	2771B6015W	2772B6014W	2772B6015W	9.0	7.9	4.3 (2.0)
1	1¼	2771B6004W	2771B6005W	2772B6004W	2772B6005W	24	21	9.0 (4.1)
1¼	1¼	2771B7004W	2771B7005W	2772B7004W	2772B7005W	29	20	9.0 (4.1)
1½	1¼	2771B8014W	2771B8015W	2772B8014W	2772B8015W	29	21	9.0 (4.1)



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

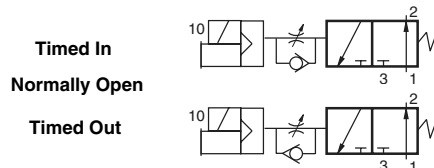
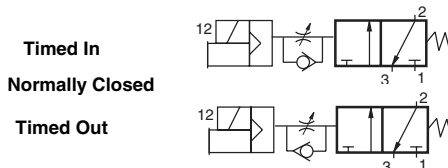
### OPERATION

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

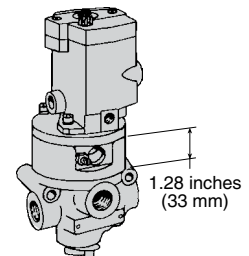
**Timed Out Adaptor:** Solenoid energized; valve immediately actuated. Solenoid de-energized; after preset delay valve is deactuated.

## 3-Way 2-Position Valves, Spring Return

Port Size		Body Size	Normally Closed		Normally Open		C <sub>v</sub>				Weight lb (kg)
			Valve Model Number*#		Valve Model Number*#		NC		NO		
1, 2	3		Timed In	Timed Out	Timed In	Timed Out	1-2	2-3	1-2	2-3	
1/4	1/2	3/8	2773B2004W	2773B2005W	2774B2004W	2774B2005W	2.5	3.1	2.3	2.7	3.5 (1.6)
3/8	1/2	3/8	2773B3004W	2773B3005W	2774B3004W	2774B3005W	3.6	5.3	2.8	3.2	3.5 (1.6)
1/2	1/2	3/8	2773B4014W	2773B4015W	2774B4014W	2774B4015W	3.3	5.3	2.8	3.2	3.5 (1.6)
1/2	1	3/4	2773B4004W	2773B4005W	2774B4004W	2774B4005W	6.3	9.2	6.3	8.0	4.3 (2.0)
3/4	1	3/4	2773B5004W	2773B5005W	2774B5004W	2774B5005W	7.7	11	6.9	7.4	4.3 (2.0)
1	1	3/4	2773B6014W	2773B6015W	2774B6014W	2774B6015W	8	12	6.8	7.5	4.3 (2.0)
1	1½	1¼	2773B6004W	2773B6005W	2774B6004W	2774B6005W	23	34	17	24	9.0 (4.1)
1¼	1½	1¼	2773B7004W	2773B7005W	2774B7004W	2774B7005W	30	32	19	24	9.0 (4.1)
1½	1½	1¼	2773B8014W	2773B8015W	2774B8014W	2774B8015W	30	31	19	23	9.0 (4.1)



Detailed dimensions, see corresponding valves models pages.



\* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2771B2004Z.

# Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 2771B2004Z. For other voltages, consult ROSS.

Options: Indicator Light Kits, Manual Override Kits; refer to page D2.23. Silencers ordered separately, refer to page D2.23.

### 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	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Manual Override	Flush; rubber, non-locking
Power Consumption	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	Time Delay Interval	2/2 Valves: Up to 30 seconds. 3/2 Valves: Up to 3 seconds.
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 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		



Valves with EN (DIN) connector available, consult ROSS.  
For ATEX certified valves, consult ROSS. For FM, CSA approved Explosion-Proof valves, see section F.



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



# Directional Control Valves – Solenoid Pilot Controlled with Timed Sequence & Timed Sequence Extension Adaptors

27 Series

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



3-Way 2-Position Valves, Spring Return											
Port Size		Body Size	Normally Closed		Normally Open		C <sub>v</sub>				Weight lb (kg)
			Valve Model Number*#		Valve Model Number*#		NC		NO		
			Timed In	Timed Out	Timed In	Timed Out	1-2	2-3	1-2	2-3	
1/4	1/2	3/8	2773B2006W	2773B2007W	2774B2006W	2774B2007W	2.5	3.1	2.3	2.7	3.5 (1.6)
3/8	1/2	3/8	2773B3006W	2773B3007W	2774B3006W	2774B3007W	3.6	5.3	2.8	3.2	3.5 (1.6)
1/2	1/2	3/8	2773B4016W	2773B4017W	2774B4016W	2774B4017W	3.3	5.3	2.8	3.2	3.5 (1.6)
1/2	1	3/4	2773B4006W	2773B4007W	2774B4006W	2774B4007W	6.3	9.2	6.3	8.0	4.3 (2.0)
3/4	1	3/4	2773B5006W	2773B5007W	2774B5006W	2774B5007W	7.7	11	6.9	7.4	4.3 (2.0)
1	1	3/4	2773B6016W	2773B6017W	2774B6016W	2774B6017W	8	12	6.8	7.5	4.3 (2.0)
1	1½	1¼	2773B6006W	2773B6007W	2774B6006W	2774B6007W	23	34	17	24	9.0 (4.1)
1¼	1½	1¼	2773B7006W	2773B7007W	2774B7006W	2774B7007W	30	32	19	24	9.0 (4.1)
1½	1½	1¼	2773B8016W	2773B8017W	2774B8016W	2774B8017W	30	31	19	23	9.0 (4.1)

Timed In

Normally Closed

Timed Out

Timed In

Normally Open

Timed Out

D2

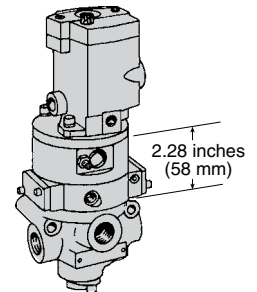
D

4-Way 2-Position Valves, Spring Return							
Port Size		Body Size	Valve Model Number*#		C <sub>v</sub>		Weight lb (kg)
			Timed In	Timed Out	1-2, 1-4	4-3, 2-3	
1/4	1/2	3/8	2776B2006W	2776B2007W	2.1	2.9	3.0 (1.4)
3/8	1/2	3/8	2776B3006W	2776B3007W	2.9	4.2	3.0 (1.4)
1/2	1/2	3/8	2776B4016W	2776B4017W	3.1	7.3	3.0 (1.4)
1/2	1	3/4	2776B4006W	2776B4007W	5.6	8.1	5.3 (2.4)
3/4	1	3/4	2776B5006W	2776B5007W	7.0	9.3	5.3 (2.4)
1	1	3/4	2776B6016W	2776B6017W	7.8	10	5.3 (2.4)
1	1½	1¼	2776B6006W	2776B6007W	19	26	11.3 (5.1)
1¼	1½	1¼	2776B7006W	2776B7007W	21	27	11.3 (5.1)
1½	1½	1¼	2776B8016Z	2776B8017Z	22	27	11.3 (5.1)

Timed In

Timed Out

Detailed dimensions, see corresponding valves models pages.



\* NPT port threads. For BSPP threads add a “D” prefix to the model number e.g., D2773B2006Z.

# Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 2773B2006Z. For other voltages, consult ROSS.

Options: Indicator Light Kits, Manual Override Kits; refer to page D2.23. Silencers ordered separately, refer to page D2.23.

## 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	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Manual Override	Flush; rubber, non-locking
Power Consumption	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	Adjustable Time Delay	Up to 30 seconds.
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 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		



Valves with EN (DIN) connector available, consult ROSS.  
For ATEX certified valves, consult ROSS. For FM, CSA approved Explosion-Proof valves, see section F.



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D2.9

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

# Directional Control Valves

## Direct Double Solenoid Controlled

27 Series

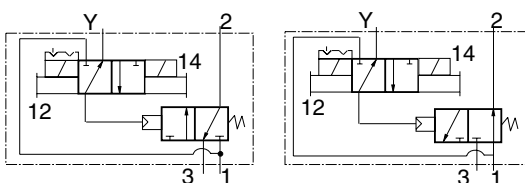
### 3-Way 2-Position Valves, Detented

Port Size		Body Size	Normally Closed		Normally Open		C <sub>v</sub>				Average Response Constants**				Weight lb (kg)	
			Valve Model Number#		Valve Model Number#		NC		NO		M	F				
1, 2	3		NPT Threads	G Threads	NPT Threads	G Threads	1-2	2-3	1-2	2-3		NC		NO		
			1-2	2-3	1-2	2-3						1-2	2-3	1-2		2-3
1/4	1/2	3/8	2773B2003W	D2773B2003W	2774B2003W	D2774B2003W	2.5	3.1	2.3	2.7	30	0.90	0.80	0.99	0.88	3.5 (1.6)
3/8	1/2	3/8	2773B3003W	D2773B3003W	2774B3003W	D2774B3003W	3.6	5.3	2.8	3.2	30	0.70	0.50	0.90	0.77	3.5 (1.6)
1/2	1/2	3/8	2773B4013W	D2773B4013W	2774B4013W	D2774B4013W	3.3	5.3	2.8	3.2	30	0.75	0.50	0.90	0.76	3.5 (1.6)
1/2	1	3/4	2773B4003W	D2773B4003W	2774B4003W	D2774B4003W	6.3	9.2	6.3	8.0	32	0.43	0.17	0.46	0.60	4.3 (1.9)
3/4	1	3/4	2773B5003W	D2773B5003W	2774B5003W	D2774B5003W	7.7	11	6.9	7.4	32	0.36	0.26	0.45	0.60	4.3 (1.9)
1	1	3/4	2773B6013W	D2773B6013W	2774B6013W	D2774B6013W	8	12	6.8	7.5	32	0.34	0.25	0.40	0.59	4.3 (1.9)
1	1½	1¼	2773B6003W	D2773B6003W	2774B6003W	D2774B6003W	23	34	17	24	52	0.17	0.14	0.20	0.17	8.0 (3.6)
1¼	1½	1¼	2773B7003W	D2773B7003W	2774B7003W	D2774B7003W	30	32	19	24	52	0.15	0.15	0.19	0.17	8.0 (3.6)
1½	1½	1¼	2773B8013W	D2773B8013W	2774B8013W	D2774B8013W	30	31	19	23	52	0.15	0.15	0.19	0.16	8.0 (3.6)

# Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 2773B2003Z. For other voltages, consult ROSS.

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

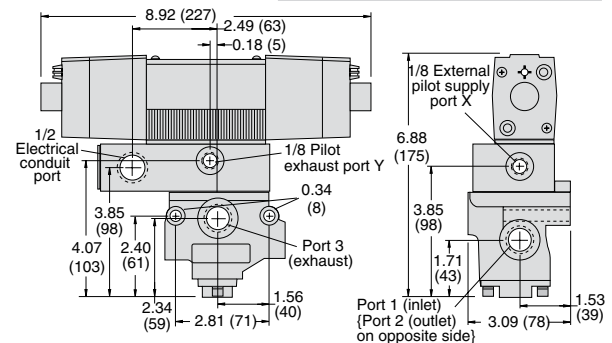
### Valve Dimensions – inches (mm)



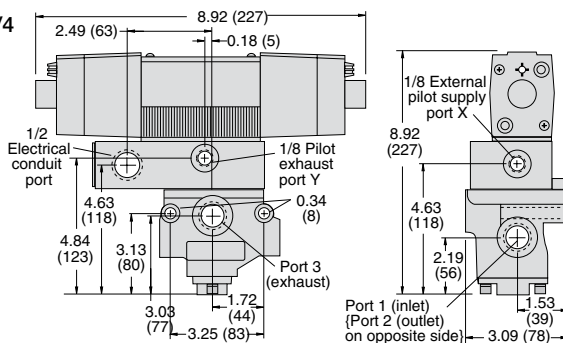
Normally Closed

Normally Open

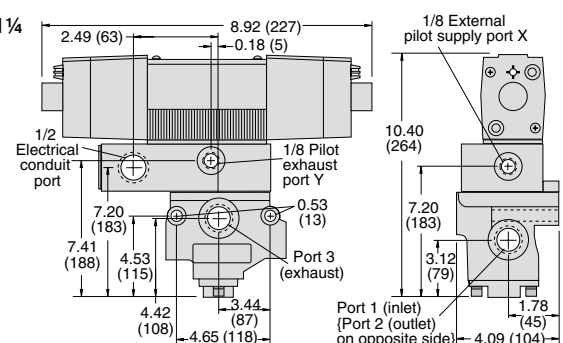
Body Size 3/8



Body Size 3/4



Body Size 1 1/4



Silencers ordered separately, refer to page D2.23.

### STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Pilot Supply	Internal or External
Mounting Type	In-line	Operating Pressure	15 to 150 psig (1 to 10 bar)
Solenoids	Rated for continuous duty		Pilot Supply - When external pilot supply, pressure must be equal to or greater than inlet pressure.
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 (each solenoid)	20 watts on DC; 190 VA inrush, 40 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)	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		



Valves with EN (DIN) connector available, consult ROSS.  
For ATEX certified valves, consult ROSS. For FM, CSA approved Explosion-Proof valves, see section F.

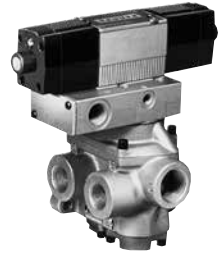


**IMPORTANT NOTE:** Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

# Directional Control Valves

## Direct Double Solenoid Controlled

27 Series



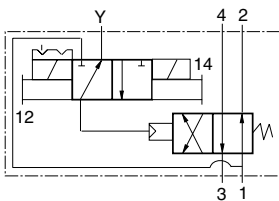
4-Way 2-Position Valves, Detented										
Port Size		Body Size	Valve Model Number#		C <sub>v</sub>		Average Response Constants**			Weight lb (kg)
1, 2, 4	3		NPT Threads	G Threads	1-2, 1-4	4-3, 2-3	M	1-2, 1-4	4-3, 2-3	
1/4	1/2	3/8	2776B2003W	D2776B2003W	2.1	2.9	30	0.92	0.92	4.0 (1.8)
3/8	1/2	3/8	2776B3003W	D2776B3003W	2.9	4.2	30	0.90	0.90	4.0 (1.8)
1/2	1/2	3/8	2776B4013W	D2776B4013W	3.1	4.3	30	0.89	0.73	4.0 (1.8)
1/2	1	3/4	2776B4003W	D2776B4003W	5.6	8.1	46	0.50	0.66	6.3 (2.8)
3/4	1	3/4	2776B5003W	D2776B5003W	7.0	9.3	46	0.36	0.55	6.3 (2.8)
1	1	3/4	2776B6013W	D2776B6013W	7.8	10	46	0.35	0.50	6.3 (2.8)
1	1½	1¼	2776B6003W	D2776B6003W	19	26	99	0.17	0.22	12.3 (5.5)
1¼	1½	1¼	2776B7003W	D2776B7003W	21	27	99	0.16	0.18	12.3 (5.5)
1½	1½	1¼	2776B8013W	D2776B8013W	22	27	99	0.15	0.15	12.3 (5.5)

# **Voltage:** W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 2776B2003Z. For other voltages, consult ROSS.

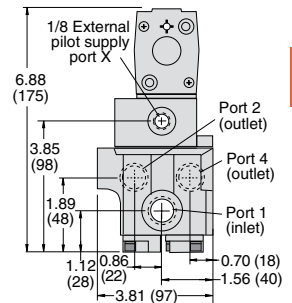
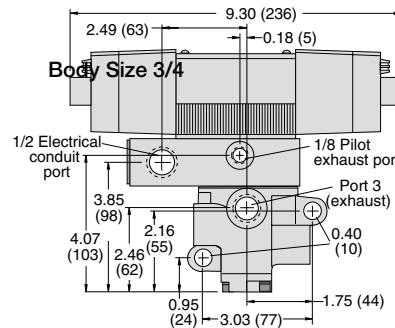
\*\* **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

D2

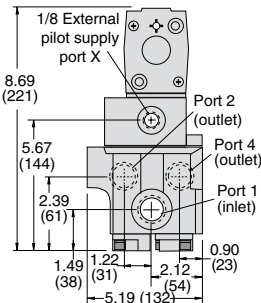
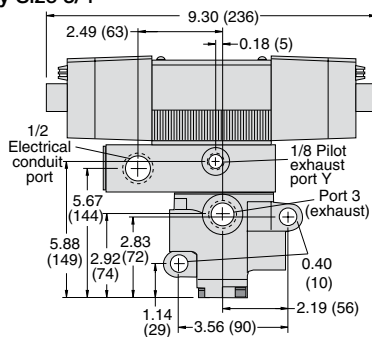
### Valve Dimensions – inches (mm)



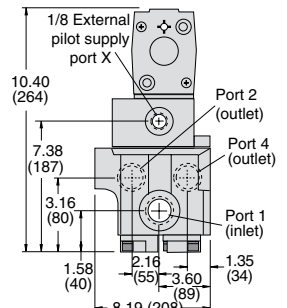
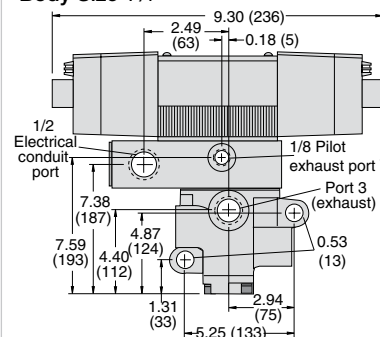
Body Size 3/8



Body Size 3/4



Body Size 1¼



Silencers ordered separately, refer to page D2.23.

### STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Pilot Supply	Internal or External
Mounting Type	In-line	Operating Pressure	15 to 150 psig (1 to 10 bar)
Solenoids	Rated for continuous duty		Pilot Supply - When external pilot supply, pressure must be equal to or greater than inlet pressure.
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 (each solenoid)	20 watts on DC; 190 VA inrush, 40 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)	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.	
Flow Media	Filtered air		



Valves with EN (DIN) connector available, consult ROSS.  
For ATEX certified valves, consult ROSS. For FM, CSA approved Explosion-Proof valves, see section F.





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D2.11

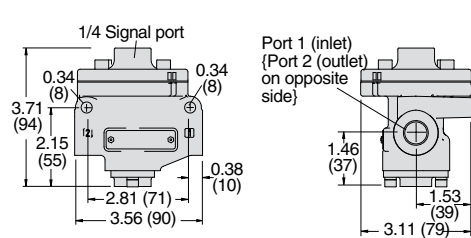
### 2-Way 2-Position Valves, Spring Return

Port Size	Body Size	Normally Closed		Normally Open		C <sub>v</sub>		Average Response Constants**			Weight lb (kg)	
		Valve Model Number		Valve Model Number		NC	NO	M	F			
		NPT Threads	G Threads	NPT Threads	G Threads				NC	NO		
1, 2												
1/4	3/8	2751A2001	D2751A2001	2752A2001	D2752A2001	2.3	2.3	10	0.91	0.91	1.3 (0.6)	 Normally Closed
3/8	3/8	2751A3001	D2751A3001	2752A3001	D2752A3001	3.8	3.3	10	0.70	0.76	1.3 (0.6)	
1/2	3/8	2751A4011	D2751A4011	2752A4011	D2752A4011	4.0	3.5	10	0.64	0.72	1.3 (0.6)	
1/2	3/4	2751A4001	D2751A4001	2752A4001	D2752A4001	7.7	6.5	14	0.37	0.43	2.0 (0.9)	
3/4	3/4	2751A5001	D2751A5001	2752A5001	D2752A5001	9.0	7.3	14	0.34	0.39	2.0 (0.9)	
1	3/4	2751A6011	D2751A6011	2752A6011	D2752A6011	9.0	7.9	14	0.34	0.37	2.0 (0.9)	 Normally Open
1	1¼	2751A6001	D2751A6001	2752A6001	D2752A6001	24	21	26	0.17	0.17	8.0 (3.6)	
1¼	1¼	2751A7001	D2751A7001	2752A7001	D2752A7001	29	20	26	0.15	0.19	8.0 (3.6)	
1½	1¼	2751A8011	D2751A8011	2752A8011	D2752A8011	29	21	26	0.15	0.18	8.0 (3.6)	
1½	2	2751A8001	D2751A8001	2752A8001	D2752A8001	49	49	41	0.09	0.09	14.3 (6.4)	
2	2	2751A9001	D2751A9001	2752A9001	D2752A9001	57	57	41	0.07	0.07	14.3 (6.4)	
2½	2	2751A9011	D2751A9011	2752A9011	D2752A9011	64	72	41	0.07	0.06	14.3 (6.4)	

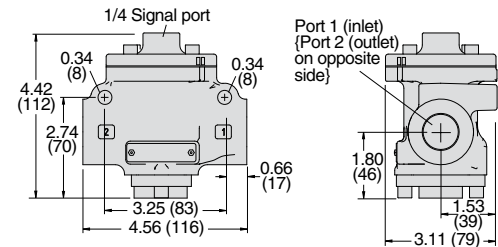
\*\* Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

#### Valve Dimensions – inches (mm)

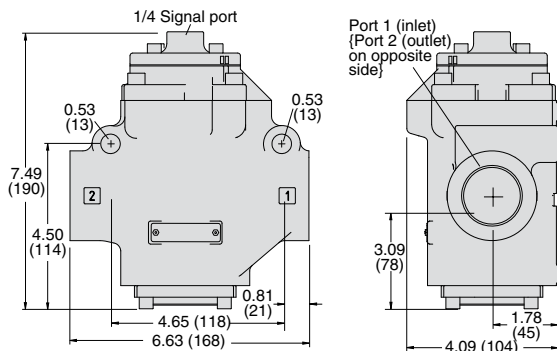
##### Body Size 3/8



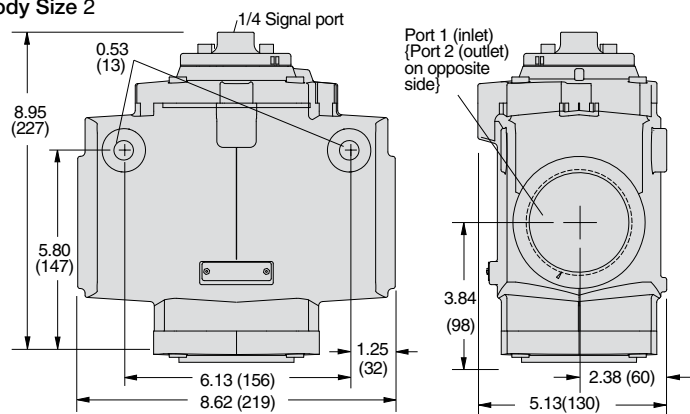
##### Body Size 3/4



##### Body Size 1 1/4



##### Body Size 2



Silencers ordered separately, refer to page D2.23.

#### STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Mounting Type	In-line	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	Ambient/Media: 40° to 175°F (4° to 80°C)		
Flow Media	Filtered air		
Pilot Supply	External		
Operating Pressure	Body Size 3/8 & 1 1/2: 15 to 150 psig (1 to 10 bar) Body Size 2: 30 to 150 psig (2 to 10 bar) Pilot Supply - Pilot supply pressure must be equal to or greater than inlet pressure.		



For ATEX certified valves, consult ROSS.

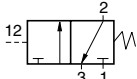
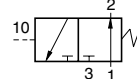
**IMPORTANT NOTE:** Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

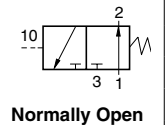
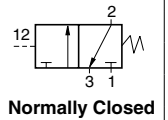


# Directional Control Valves

## Pressure Controlled

27 Series

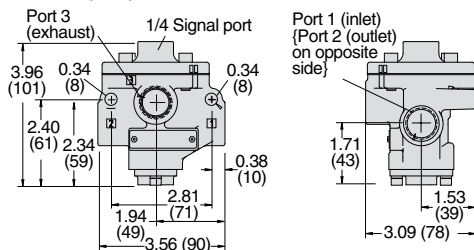
3-Way 2-Position Valves, Spring Return																	
Port Size		Body Size	Normally Closed		Normally Open		C <sub>v</sub>				Average Response Constants**				Weight lb (kg)		
			Valve Model Number		Valve Model Number		NC		NO		M	F					
1, 2	3		NPT Threads		G Threads		1-2		2-3			NC		NO			
												1-2	2-3	1-2			2-3
1/4	1/2	3/8	2753A2001	D2753A2001	2754A2001	D2754A2001	2.5	3.1	2.3	2.7	10	0.90	0.80	0.99	0.88	1.3 (0.6)	
3/8	1/2	3/8	2753A3001	D2753A3001	2754A3001	D2754A3001	3.6	5.3	2.8	3.2	10	0.70	0.50	0.90	0.77	1.3 (0.6)	
1/2	1/2	3/8	2753A4011	D2753A4011	2754A4011	D2754A4011	3.3	5.3	2.8	3.2	10	0.75	0.50	0.90	0.76	1.3 (0.6)	
1/2	1	3/4	2753A4001	D2753A4001	2754A4001	D2754A4001	6.3	9.2	6.3	8.0	12	0.43	0.17	0.46	0.60	2.0 (0.9)	
3/4	1	3/4	2753A5001	D2753A5001	2754A5001	D2754A5001	7.7	11	6.9	7.4	12	0.36	0.26	0.45	0.60	2.0 (0.9)	
1	1	3/4	2753A6011	D2753A6011	2754A6011	D2754A6011	8	12	6.8	7.5	12	0.34	0.25	0.40	0.59	2.0 (0.9)	
1	1½	1¼	2753A6001	D2753A6001	2754A6001	D2754A6001	23	34	17	24	32	0.17	0.14	0.20	0.17	6.0 (2.7)	
1¼	1½	1¼	2753A7001	D2753A7001	2754A7001	D2754A7001	30	32	19	24	32	0.15	0.15	0.19	0.17	6.0 (2.7)	
1½	1½	1¼	2753A8011	D2753A8011	2754A8011	D2754A8011	30	31	19	23	32	0.15	0.15	0.19	0.16	6.0 (2.7)	Normally Open
1½	2½	2	2753A8001	D2753A8001	2754A8001	D2754A8001	68	70	57	59	76	0.05	0.04	0.07	0.04	15.3 (6.9)	
2	2½	2	2753A9001	D2753A9001	2754A9001	D2754A9001	70	70	58	61	76	0.05	0.04	0.05	0.04	15.3 (6.9)	
2½	2½	2	2753A9011	D2753A9011	2754A9011	D2754A9011	70	71	54	55	76	0.05	0.04	0.05	0.04	15.3 (6.9)	
** 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.																	



D2

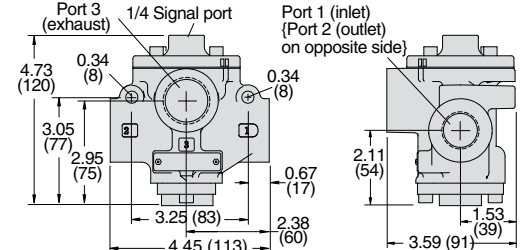
### Valve Dimensions – inches (mm)

#### Body Size 3/8

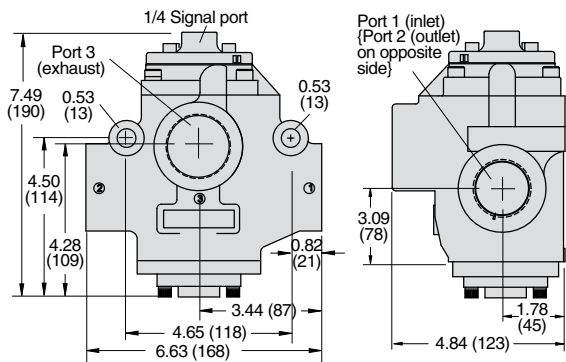


#### Body Size 3/4

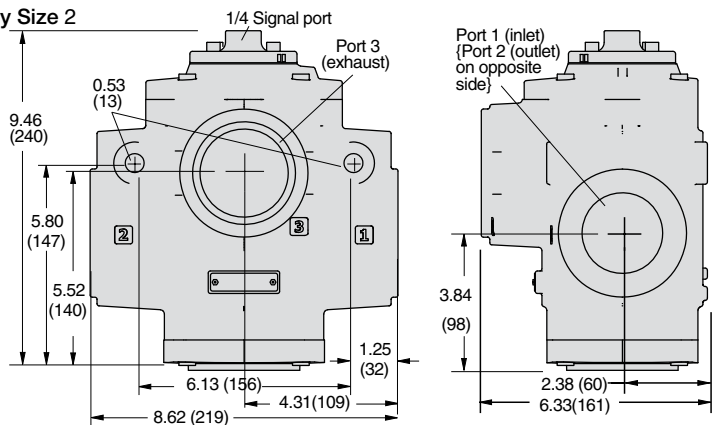
#### Body Size 3/4



#### Body Size 1 1/4



#### Body Size 2



Silencers ordered separately, refer to page D2.23.

### STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Valve Body: Cast Aluminum
Mounting Type	In-line	Poppet: Acetal and Stainless Steel
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	Seals: Buna-N
Flow Media	Filtered air	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.
Pilot Supply	External	
Operating Pressure	Body Size 3/8 & 1 1/2: 15 to 150 psig (1 to 10 bar) Body Size 2: 30 to 150 psig (2 to 10 bar) Pilot Supply - Pilot supply pressure must be equal to or greater than inlet pressure.	



For ATEX certified valves, consult ROSS.

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



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# Directional Control Valves

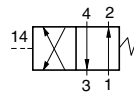
## Pressure Controlled

27 Series

### 4-Way 2-Position Valves, Spring Return

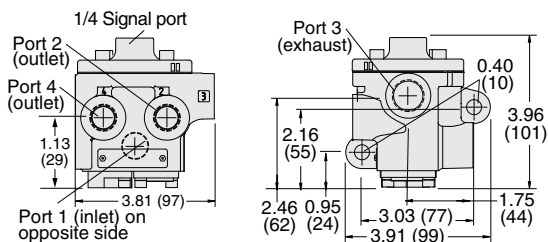
Port Size		Body Size	Valve Model Number		C <sub>v</sub>		Average Response Constants**			Weight lb (kg)
1, 2, 4	3		NPT Threads	G Threads	1-2, 1-4	4-3, 2-3	M	1-2, 1-4	4-3, 2-3	
1/4	1/2	3/8	2756A2001	D2756A2001	2.1	2.9	10	0.92	0.92	1.8 (0.8)
3/8	1/2	3/8	2756A3001	D2756A3001	2.9	4.2	10	0.90	0.90	1.8 (0.8)
1/2	1/2	3/8	2756A4011	D2756A4011	3.1	4.3	10	0.89	0.73	1.8 (0.8)
1/2	1	3/4	2756A4001	D2756A4001	5.6	8.1	26	0.50	0.66	4.3 (1.9)
3/4	1	3/4	2756A5001	D2756A5001	7.0	9.3	26	0.36	0.55	4.3 (1.9)
1	1	3/4	2756A6011	D2756A6011	7.8	10	26	0.35	0.50	4.3 (1.9)
1	1½	1¼	2756A6001	D2756A6001	19	26	79	0.22	0.22	10.3 (4.6)
1¼	1½	1¼	2756A7001	D2756A7001	21	27	79	0.18	0.18	10.3 (4.6)
1½	1½	1¼	2756A8011	D2756A8011	22	27	79	0.15	0.15	10.3 (4.6)

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

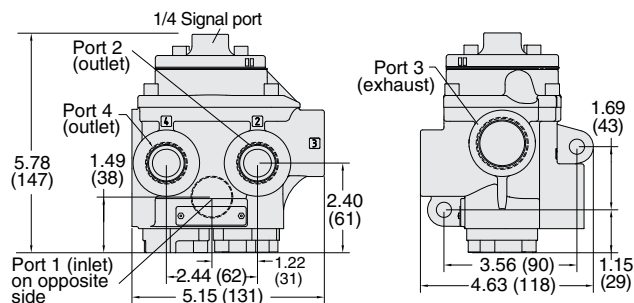


### Valve Dimensions – inches (mm)

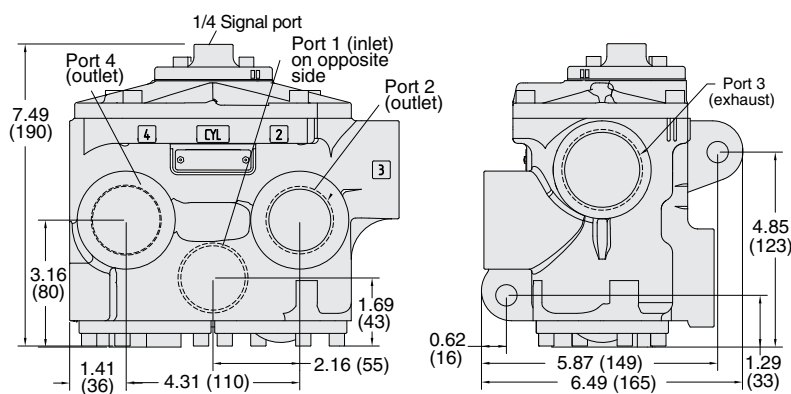
#### Body Size 3/8



#### Body Size 3/4



#### Body Size 1¼



Silencers ordered separately, refer to page D2.23.

### STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
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)		
Flow Media	Filtered air		
Pilot Supply	External		
Operating Pressure	15 to 150 psig (1 to 10 bar) Pilot Supply - Pilot supply pressure must be equal to or greater than inlet pressure.		



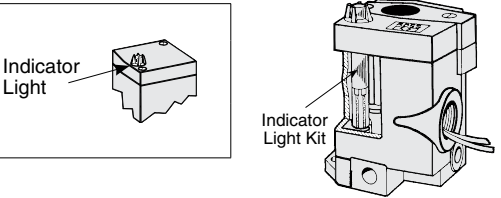
For ATEX certified valves, consult ROSS.

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

Indicator Light Kits

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

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



Manual Override Kits

Flush flexible manual overrides are standard on single solenoid models. Double solenoid models have flush metal-button overrides. Both types are non-locking. Each of the buttons in the override kits below is made of metal and is spring-returned. The locking type button, however, can be kept in the actuated position by turning the slot in the top of the button with a screwdriver.

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



Extended Button	
Locking Type	Kit Number
Non-Locking	791K87



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



Electrical Connector

Valves available with installed prewired connectors, consult ROSS.

System 8 Solenoid Pilot

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

Silencers

Port Size	Thread Type	Model Number		Avg. C <sub>v</sub>	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	R/Rp Threads		Width	Length	
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)
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 290 psig (0 to 20 bar) maximum.  
**Flow Media:** Filtered air.



Port size 1/4 thru 2



Port size 2½



# 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.

