



# SAFE RETURN DOUBLE VALVES CROSSMIRROR® 77 SERIES

## PRODUCT CATALOG





# Control Reliable CROSSMIRROR® Double Valves 77 Series

## Product Overview

### Safe Return Safety Function

This valve is constructed with precision, stainless steel spools as the main valve elements, and is designed to offer added safety to the operation of many pneumatically controlled machines such as small size pneumatic cylinder-operated presses, valve operators, and safety latches.

Solenoid Pilot Controlled	Pressure Controlled
	

### Solenoid Pilot Controlled

- » Status indication switch (ready-to-run) to inform machine controller of valve condition

### Pressure Controlled for 2-Hand Control Applications

- » Requires two inputs within 500 ms
- » Senses asynchronous inputs via status indicator switch
- » Asynchronous inputs result in a fault condition where pressure is applied to port 2
- » Status indication switch available to be integrated with electrical safety control system where equipped

The pressure controlled valve is a two hand pressure controlled 4-way double valve controlled by two separate pneumatic signals essentially providing “AND” gate control for the output ports. Both pilot signals must be provided within approximately 500 milliseconds of each other to actuate the valve.

Proper actuation shifts output pressure to port 4. If the valve is not actuated, not provided appropriate pneumatic signals within the discordance window or if the valve actuates abnormally, inlet pressure will only be passed to port 2 - cylinder retracted.









## VALVE FEATURES

Dynamic Monitoring	Self-contained dynamic monitoring system requires no additional valve monitoring controls
Valve Reset	Automatic reset upon de-actuation
Spool Type Design	Dual stainless steel spools construction
Status Indicator Option	Status indication switch (ready-to-run) to inform machine controller of valve condition The Pressure switch provides a signal when valve is in a faulted position
Mounting	Base mounted
SISTEMA Library	Available for download at <a href="http://rosscontrols.com">rosscontrols.com</a>

*Meets Standards EN13736 and ANSI B11.2, Safety requirements for Pneumatic Cylinder Presses and other hazardous pneumatic cylinder applications.*

*These valves are not designed for controlling clutch/brake mechanisms on mechanical power presses.*

## PRODUCT CREDENTIALS

Safety Category	DGUV (German Social Accident Insurance)	Declaration of Conformity			ISO Standard	CSA Certificate of Compliance
 	 	CE	UKCA	EAC	ISO 13849-1:2015	
						

# Specifications

STANDARD SPECIFICATIONS				
GENERAL	Function		4-way 5/2 Valve	
	Construction Design		Double Spool and Sleeve	
	Actuation		Electrical – Solenoid Pilot Controlled	
			Pneumatic – Pressure Controlled	
	Mounting	Type	Base	
		Orientation	Any, preferably vertical	
	Connection		Threaded; G, NPT	
Minimum Operation Frequency		Once per month, to ensure proper function		
OPERATING CONDITIONS	Temperature	Ambient	40° to 120°F (4° to 50°C)	
		Media	40° to 175°F (4° to 80°C)	
	Flow Media		Filtered air	
	Operating Pressure	Solenoid Pilot Controlled	40 to 150 psig (2.5 to 10.3 bar)	
			NOTE: Main solenoids must be off when performing reset procedure	
		Pressure Controlled	40 to 100 psig (2.7 to 7 bar)	
	Pilot Pressure		Must be equal to or greater than inlet pressure but should not exceed maximum inlet pressure	
ELECTRICAL DATA FOR PRESSURE SWITCH	Maximum Current/Voltage		4A, 250 volts AC	
			50 mA, 24 volts DC	
	Pressure Switch Rating		Rated in excess of 15 million cycles; electrical life of switch varies with conditions and voltage	
ELECTRICAL DATA FOR SOLENOID PILOT CONTROLLED VALVES	Solenoids	Operating Voltage		Power Consumption (each solenoid)
		24 volts DC		14 watts
		110-120 volts AC, 50/60 Hz		87 VA inrush, 30 VA holding
		230-240 volts AC, 50/60 Hz		
		Rated for continuous duty		
	Enclosure Rating		IP65, IEC 60529	
	Electrical Connection		DIN EN 175301-803 Form A Uses cord-grip connectors at solenoids	
CONSTRUCTION MATERIAL	Valve Body		Cast Aluminum	
	Poppet		Stainless Steel	
	Seals		Buna-N; Fluorocarbon	
SAFETY DATA	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.	
	Functional Safety Data	Category	CAT 4, PL e	
		B <sub>10D</sub>	20,000,000	
		PFH <sub>D</sub>	7.71x10 <sup>-9</sup>	
		MTTF <sub>D</sub>	301.9 (n <sub>op</sub> : 662400)	
	Vibration/Impact Resistance		Calculated to DIN EN 60068-2-6	

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

# Ordering Information

## SOLENOID PILOT CONTROLLED VALVES

## 4-Way 2-Position Valves

### VALVE AND BASE

#### With Status Indicator Switch

Port Sizes		Basic Size	Model Number #					
1	2, 4		G Thread			NPT Thread		
			24 V DC	110-120 V AC	230 V AC	24 V DC	110-120 V AC	230 V AC
1/2	3/8	2	YD7776A3411W	YD7776A3411Z	YD7776A3411Y	Y7776A3411W	Y7776A3411Z	Y7776A3411Y
3/4	1/2	4	YD7776A4421W	YD7776A4421Z	YD7776A4421Y	Y7776A4421W	Y7776A4421Z	Y7776A4421Y
	3/4	4	YD7776A5411W	YD7776A5411Z	YD7776A5411Y	Y7776A5411W	Y7776A5411Z	Y7776A5411Y
SAE 12	SAE 12	4	Straight Thread					
			24 V DC		110-120 V AC		230 V AC	
			YS7776A4H11W		YS7776A4H11Z		YS7776A4H11Y	

# Valve include status indicator switch with DIN EN 175301-803 type connection, for status indicator switch with M12 type connection consult ROSS.

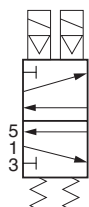
#### Without Status Indicator Switch

Port Sizes		Basic Size	Model Number					
1	2, 4		G Thread			NPT Thread		
			24 V DC	110-120 V AC	230 V AC	24 V DC	110-120 V AC	230 V AC
1/2	3/8	2	YD7776A3410W	YD7776A3410Z	YD7776A3410Y	Y7776A3410W	Y7776A3410Z	Y7776A3410Y
3/4	1/2	4	YD7776A4420W	YD7776A4420Z	YD7776A4420Y	Y7776A4420W	Y7776A4420Z	Y7776A4420Y
	3/4	4	YD7776A5410W	YD7776A5410Z	YD7776A5410Y	Y7776A5410W	Y7776A5410Z	Y7776A5410Y
SAE 12	SAE 12	4	Straight Thread					
			24 V DC		110-120 V AC		230 V AC	
			YS7776A4H10W		YS7776A4H10Z		YS7776A4H10Y	

Status Indicator Switch	Port Sizes		Basic Size	C <sub>v</sub>				Weight lb (kg)
	1	2, 4		1-2	1-4	2-3	4-5	
With	1/2	3/8	2	2.0	1.6	1.6	2.8	8.4 (3.8)
	3/4	1/2	4	3.2	3.4	2.7	7.2	11.2 (5.1)
		3/4						
Without	SAE 12	SAE 12	4	3.2	3.4	2.7	7.2	10.2 (4.6)
	1/2	3/8						
	3/4	1/2						

#### Simplified Schematics

##### Solenoid Pilot Controlled



## SOLENOID PILOT CONTROLLED VALVES

## 4-Way 2-Position Valves

### VALVE ONLY

With Status Indicator Switch	Port Sizes		Basic Size	Model Number #		
	1	2, 4		24 V DC	110-120 V AC	230 V AC
	1/2	3/8	2	Y7776A3401W	Y7776A3401Z	Y7776A3401Y
	3/4	1/2	4	Y7776A4401W	Y7776A4401Z	Y7776A4401Y
		3/4				
	SAE 12	SAE 12				

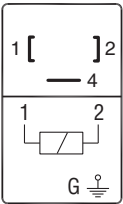
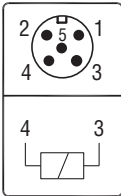
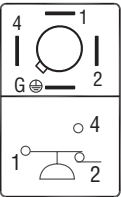
# Valve include status indicator switch with DIN EN type connection, for status indicator switch with M12 type connection consult ROSS.

Without Status Indicator Switch	Port Sizes		Basic Size	Model Number		
	1	2, 4		24 V DC	110-120 V AC	230 V AC
	1/2	3/8	2	Y7776A3400W	Y7776A3400Z	Y7776A3400Y
	3/4	1/2	4	Y7776A4400W	Y7776A4400Z	Y7776A4400Y
		3/4				
	SAE 12	SAE 12				

### BASE ONLY

Port Sizes		Basic Size	Model Number	
1	2, 4		G Thread	NPT Thread
1/2	3/8	2	YD996C91	Y996C91
3/4	1/2	4	YD1049C91	Y1049C91
	3/4	4	YD1153C91	Y1153C91
SAE 12	SAE 12	4	Straight Thread	
			Y1159G1	

### Solenoid & Pressure Switch Pinouts

DIN EN 175301-803 Form A		M12	
Solenoid		<p>1 - Positive 2 - Negative 4 - Ground</p>	
			
ROSS Connector			
Pressure Switch		<p>1 - Common 2 - Normally Closed 4 - Normally Open G - Ground</p>	

# Valve Operation

## SOLENOID PILOT CONTROLLED VALVES

## 4-Way 2-Position Valves

### Normal Operation

After installation the valve is operated by energizing both solenoid pilots (S1 and S2) simultaneously. This causes both main valve elements to be actuated so that air from inlet port 1 flows to outlet port 4. Air downstream of port 2 is exhausted through port 3.

When the solenoid pilots are de-energizing, both valve elements are de-actuated, and air then flows from inlet port 1 to outlet port 2. Air downstream of port 4 is exhausted through port 5.

### Safety Function

If the two main valve elements are not actuated or de-actuated synchronously, within 500 ms, the valve defaults so that outlet port 2 receives full inlet pressure, and outlet port 4 is exhausted through port 5. If this abnormal operation is the result of a temporary circumstance, the valve will be ready to resume normal operation as soon as both pilot signal ports have been de-energized and both main valve elements have returned to their normal ready-to-run position. Applying the electrical signal to both solenoids simultaneously will resume normal operation.

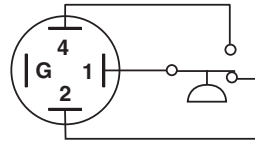
If the cause of the abnormal operation is still present, the valve will either remain in the default position (pressure on port 2 and not port 4) or will again go into this position on the next actuation attempt. The source of the abnormality must be investigated and corrected before further operation.

### Pressure Switch

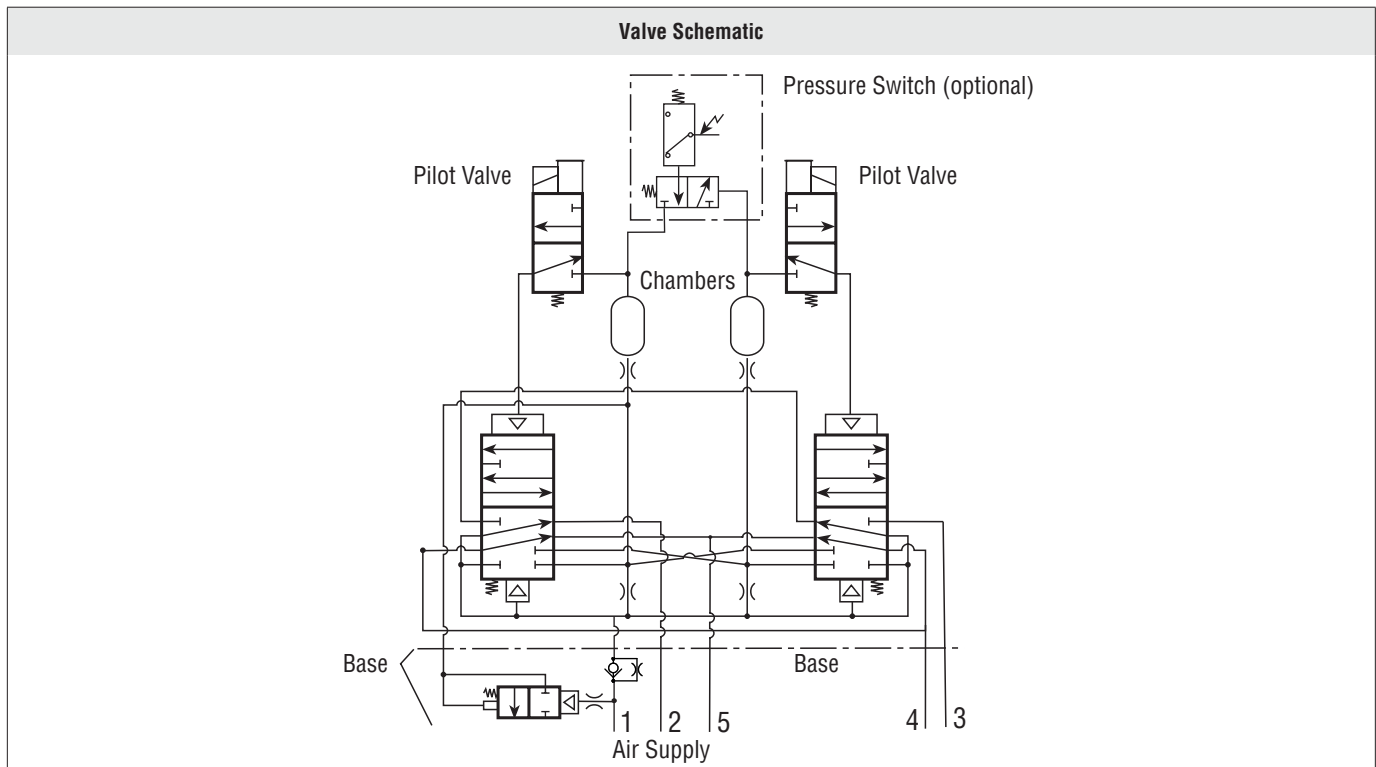
Valves with model numbers ending in the number 1 have a pressure switch to provide user feedback when movement of the main valve elements was asynchronous.

Terminals 1 and 4 are connected when air pressure is present and the valve is "Ready-to-Run". If an abnormal operation has occurred or pressure is removed from the valve inlet, terminals 1 and 2 are connected.

Note: DC voltage pressure switches do not have a ground terminal.



**Pin 1:** Common  
**Pin 2:** Normally Closed  
**Pin G:** Not used  
**Pin 4:** Normally Open



*These valves are not designed for controlling clutch/brake mechanisms on mechanical power presses.*

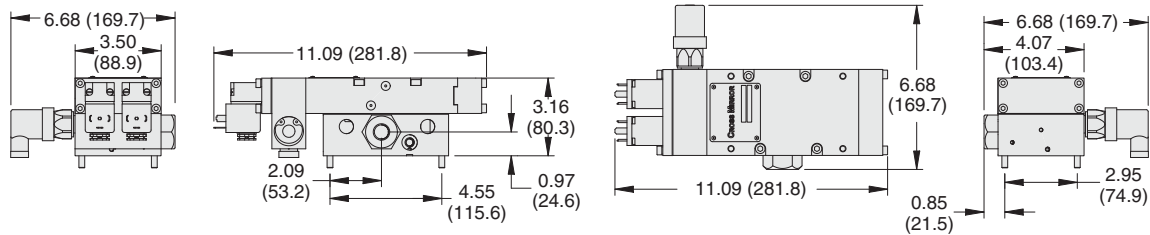
## Solenoid Pilot Controlled Valves – Valve and Base Assembly with Remote Reset

### DIMENSIONS

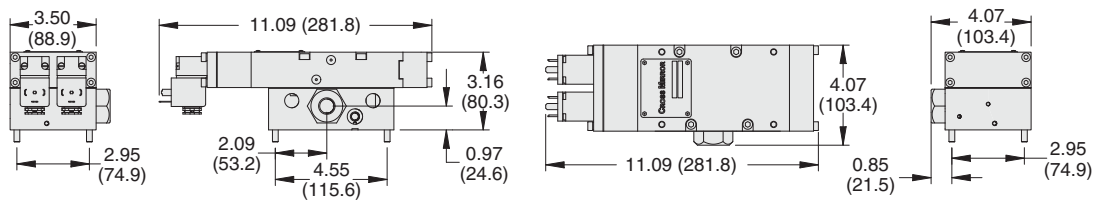
Inches (mm)

#### Basic Size 2

##### with Status Indicator Switch

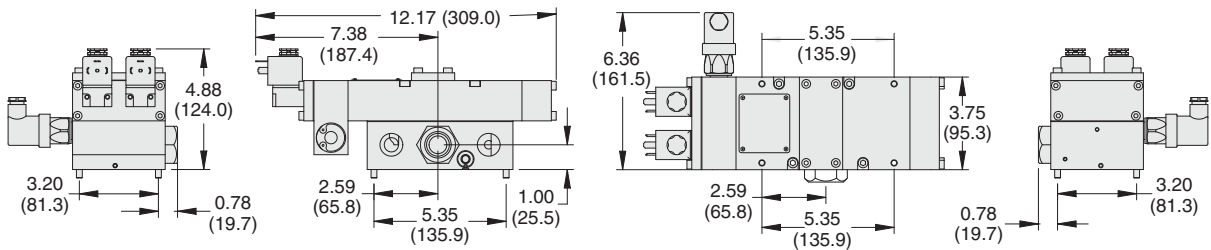


##### without Status Indicator Switch

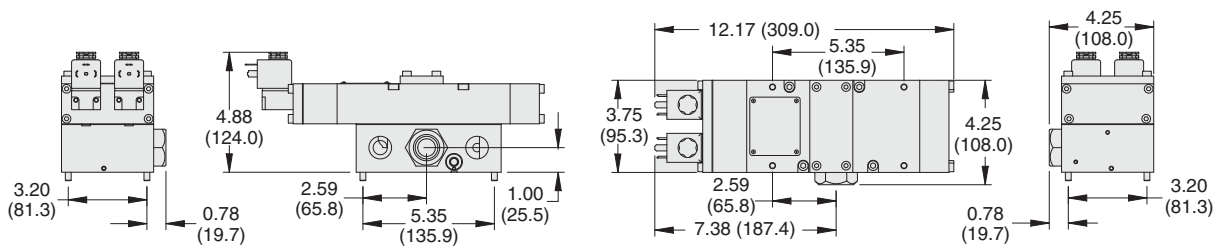


#### Basic Size 4

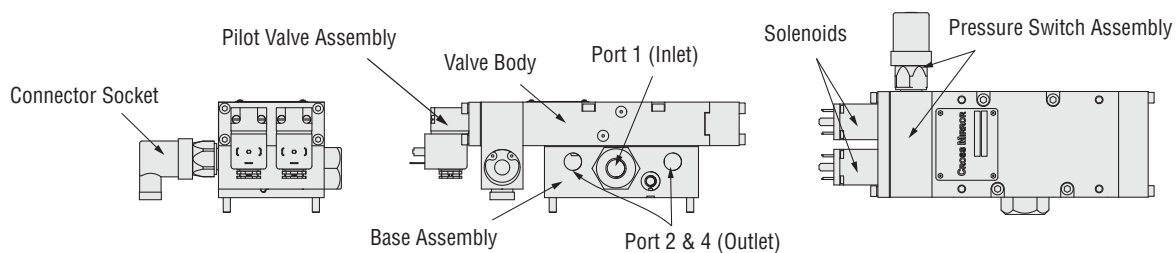
##### with Status Indicator Switch



##### without Status Indicator Switch



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# Ordering Information

## PRESSURE CONTROLLED VALVES

## 4-Way 2-Position Valves

### VALVES AND BASE

#### With Status Indicator Switch

Port Sizes		Basic Size	Model Number #					
1	2, 4		G Thread			NPT Thread		
			24 V DC	110-120 V AC	230 V AC	24 V DC	110-120 V AC	230 V AC
1/2	3/8	2	YD7786A3411W	YD7786A3411Z	YD7786A3411Y	Y7786A3411W	Y7786A3411Z	Y7786A3411Y
3/4	1/2	4	YD7786A4421W	YD7786A4421Z	YD7786A4421Y	Y7786A4421W	Y7786A4421Z	Y7786A4421Y
	3/4	4	YD7786A5411W	YD7786A5411Z	YD7786A5411Y	Y7786A5411W	Y7786A5411Z	Y7786A5411Y
SAE 12	SAE 12	4	Straight Thread					
			24 V DC		110-120 V AC		230 V AC	
			YS7786A4H11W		YS7786A4H11Z		YS7786A4H11Y	
# Valve include status indicator switch with DIN EN type connection, for status indicator switch with M12 type connection consult ROSS.								

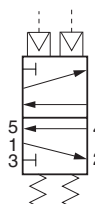
#### Without Status Indicator Switch

Port Sizes		Basic Size	Model Number	
1	2, 4		G Thread	NPT Thread
1/2	3/8	2	YD7786A3410	Y7786A3410
3/4	1/2	4	YD7786A4420	Y7786A4420
	3/4	4	YD7786A5410	Y7786A5410
SAE 12	SAE 12	4	Straight Thread	
			YS7786A4H10	

Status Indicator Switch	Port Sizes		Basic Size	C <sub>v</sub>				Weight lb (kg)
	1	2, 4		1-2	1-4	2-3	4-5	
With	1/2	3/8	2	2.0	1.6	1.6	2.8	8.4 (3.8)
	3/4	1/2	4	3.2	3.4	2.7	7.2	11.6 (5.3)
	3/4	3/4						
	SAE 12	SAE 12						
Without	1/2	3/8	2	2.0	1.6	1.6	2.8	7.6 (3.4)
	3/4	1/2	4	3.2	3.4	2.7	7.2	10.6 (4.8)
	3/4	3/4						
	SAE 12	SAE 12						

### Simplified Schematics

#### Pressure Controlled





## PRESSURE CONTROLLED VALVES

## 4-Way 2-Position Valves

### VALVE ONLY

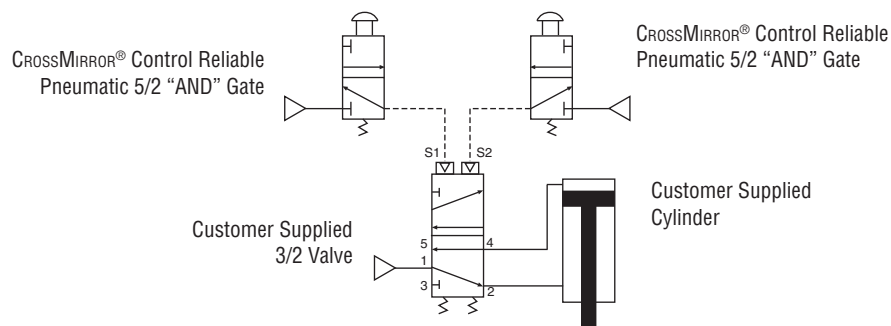
With Status Indicator Switch	Port Sizes		Basic Size	Model Number #		
	1	2, 4		24 V DC	110-120 V AC	230 V AC
	1/2	3/8	2	Y7786A3401W	Y7786A3401Z	Y7786A3401Y
	3/4	1/2	4	Y7786A4401W	Y7786A4401Z	Y7786A4401Y
		3/4	4	Y7786A54401W	Y7786A54401Z	Y7786A54401Y
	SAE 12	SAE 12	4	Y7786A4401W	Y7786A4401Z	Y7786A4401Y
# Valve include status indicator switch with DIN EN type connection, for status indicator switch with M12 type connection consult ROSS.						

Without Status Indicator Switch	Port Sizes		Basic Size	Model Number
	1	2, 4		
	1/2	3/8	2	Y7786A3400
	3/4	1/2	4	Y7786A4400
		3/4	4	
	SAE 12	SAE 12	4	

### BASE ONLY

Port Sizes		Basic Size	Model Number	
1	2, 4		G Thread	NPT Thread
1/2	3/8	2	YD996C91	Y996C91
3/4	1/2	4	YD1049C91	Y1049C91
	3/4	4	YD1153C91	Y1153C91
SAE 12	SAE 12	4	Straight Thread	
			Y1159G91	

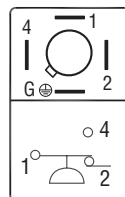
### Typical 2-Hand-Anti-Tie-Down Application



### Pressure Switch Pinout

#### ROSS Connector

Pressure Switch



- 1 - Common
- 2 - Normally Closed
- 4 - Normally Open
- G - Ground

# Valve Operation

PRESSURE CONTROLLED VALVES

4-Way 2-Position Valves

### Normal Operation

After installation the valve is operated by pressurizing both pilot supply ports (S1 and S2) simultaneously. This causes both main valve elements to be actuated so that air from inlet port 1 flows to outlet port 4. Air downstream of port 2 is exhausted through port 3.

When the pilot supply ports are de-pressurized, both valve elements are de-actuated, and air then flows from inlet port 1 to outlet port 2. Air downstream of port 4 is exhausted through port 5.

### Safety Function

If the two main valve elements are not actuated or de-actuated synchronously, within 500 ms, the valve defaults so that outlet port 2 receives full inlet pressure, and outlet port 4 is exhausted through port 5. If this abnormal operation is the result of a temporary circumstance, the valve will be ready to resume normal operation as soon as both pilot signal ports have been de-pressurized and both main valve elements have returned to their normal ready-to-run position. Applying pressure to both signal ports simultaneously will resume normal operation.

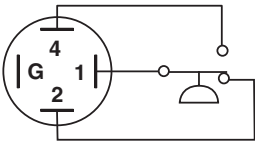
If the cause of the abnormal operation is still present, the valve will either remain in the default position (pressure on port 2 and not port 4) or will again go into this position on the next actuation attempt. The source of the abnormality must be investigated and corrected before further operation.

### Pressure Switch

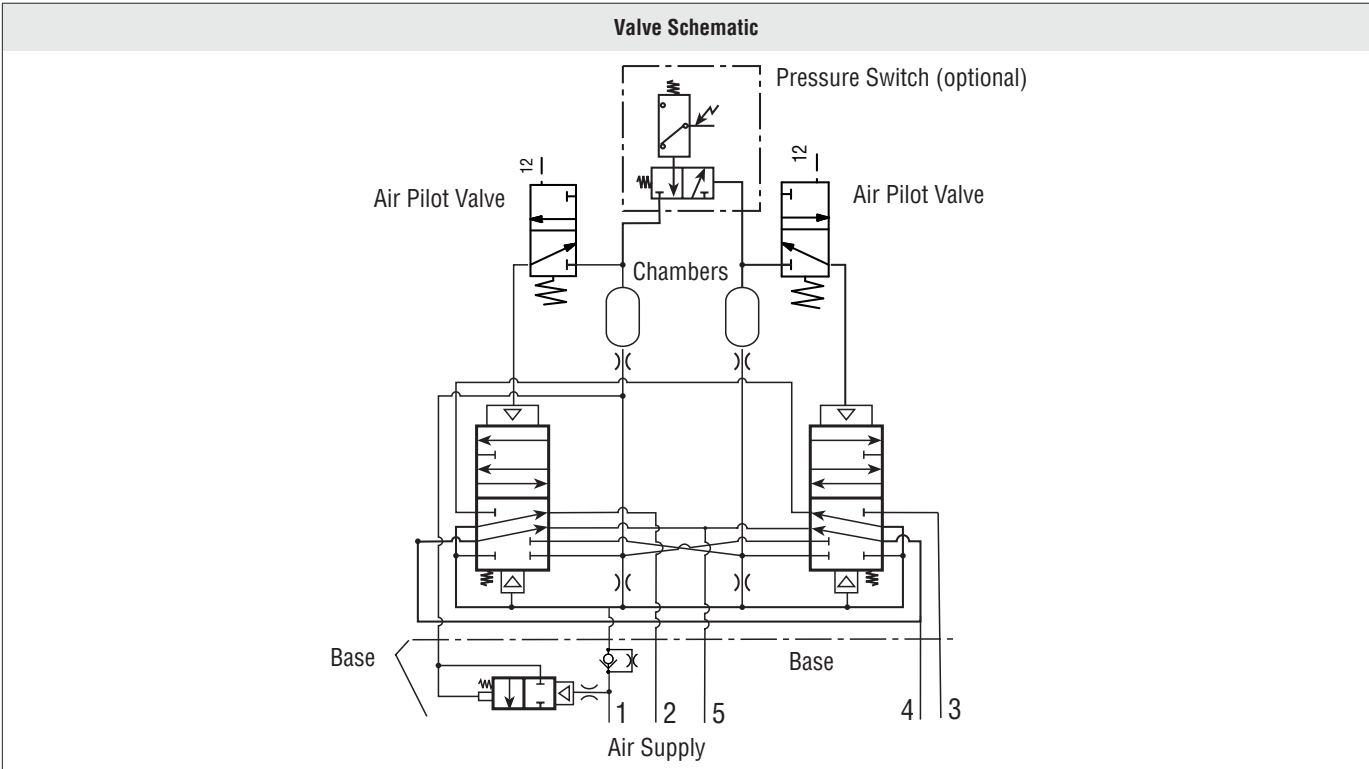
Valves with model numbers ending in the number 1 have a pressure switch to provide user feedback when movement of the main valve elements was asynchronous.

Terminals 1 and 4 are connected when air pressure is present and the valve is “Ready-to-Run”. If an abnormal operation has occurred or pressure is removed from the valve inlet, terminals 1 and 2 are connected.

Note: DC voltage pressure switches do not have a ground terminal.



- Pin 1: Common
- Pin 2: Normally Closed
- Pin G: Not used
- Pin 4 : Normally Open



These valves are not designed for controlling clutch/brake mechanisms on mechanical power presses.

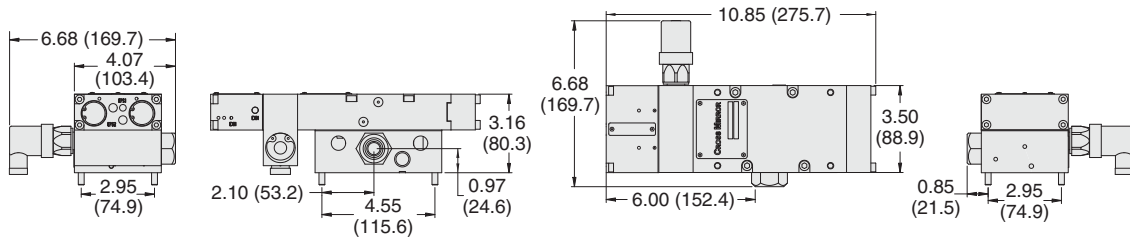
## Pressure Controlled Valves – Valve and Base Assembly with Remote Reset

### DIMENSIONS

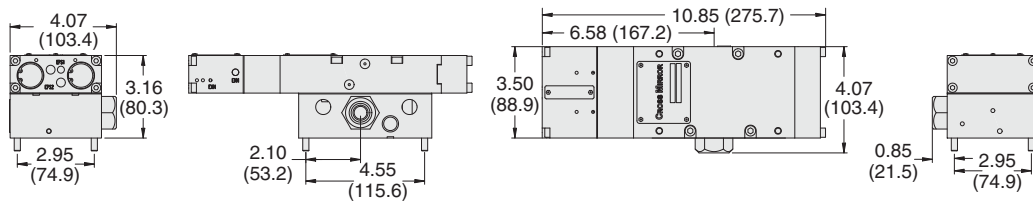
Inches (mm)

#### Basic Size 2

##### with Status Indicator Switch

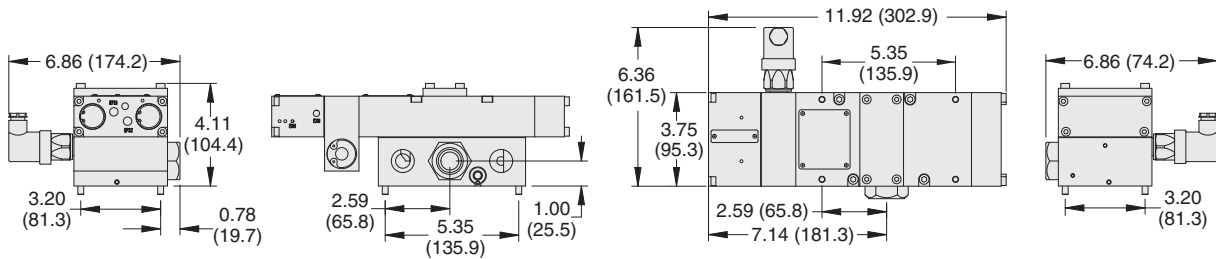


##### without Status Indicator Switch

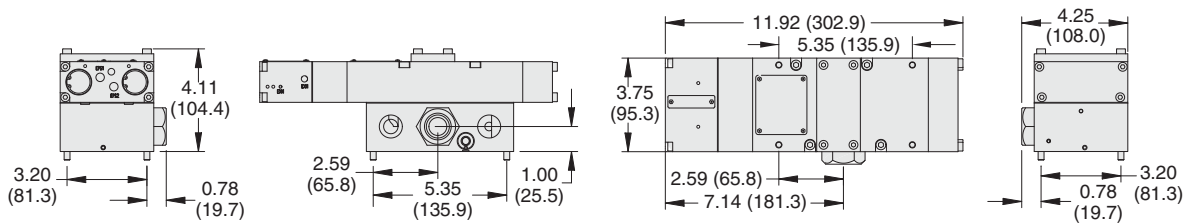


#### Basic Size 4

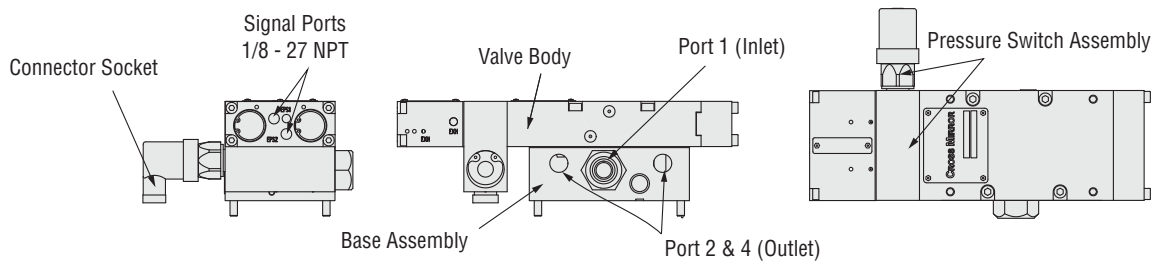
##### with Status Indicator Switch

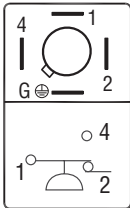


##### without Status Indicator Switch



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ELECTRICAL STATUS INDICATION							
Pressure Switches for Status Indicator	Installation Location	Indicator Type	Voltage Type	Connector Type	Model Number	Port Thread	Factory Preset psi (bar)
	Pressure Sensing Port	Mechanical Pressure Switch	AC	ROSS Connector	518E30	1/8 NPT	22 (1.5) falling
			DC	ROSS Connector	798E30		
Connector Pinout							
ROSS Connector							
<div><div></div><div><div>1 - Common</div><div>2 - Normally Closed</div><div>4 - Normally Open</div><div>G - Ground</div></div></div>							

## PREWIRED ELECTRICAL CONNECTORS

Prewired Connector Kits	Cable					Kit Number			
	End 1	End 2	Connection	Quantity Included	Length meters (feet)	Without Light	Lighted Connector		
	Connector	Cord					24 V DC	120 V AC	230 V AC
	DIN EN 175301-803 Form A	Flying leads	Solenoid	2	5 (16.4)	2243H77	2268H77-W	2268H77-Z	2268H77-Y
				2	10 (32.8)	2244H77	2269H77-W	2269H77-Z	2269H77-Y
	M12 5-pin Female	Flying leads	Solenoid	2	5 (16.4)	2245H77	—	—	—
				2	10 (32.8)	2246H77	—	—	—

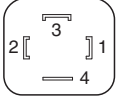
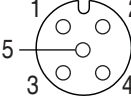

  

Pre-wired Connectors	Cable		Connection	Length meters (feet)	Cable Diameter	Quantity Included	Kit Number			
	End 1	End 2					Without Light	Lighted Connector		
	Connector	Cord						24 V DC	120 V AC	230 V AC
	DIN EN 175301-803 Form A	Flying leads	Solenoid	2 (6.5)	6-mm	1	721K77	720K77-W	720K77-Z	720K77-Y
					10-mm	1	371K77	383K77-W	383K77-Z	383K77-Y

## ELECTRICAL CONNECTORS

Connectors	Connector					Model Number			
	Type	Connection	Fitting Connection	Quantity Included	Cord Diameter mm	Without Light	Lighted Connector		
	DIN EN 175301-803 Form A	Solenoid	Cable grip	1	8 to 10		24 V DC	120 V AC	230 V AC
			1/2" NPT conduit	1	—	723K77	724K77-W	724K77-Z	724K77-Y
	ROSS Connector	Status Indicator	Cable grip	1	8 to 10	522E30	—	—	—

### Connector Pinouts

Solenoid		Status Indicator
DIN EN 175301-803	M12	ROSS Connector
 <p>1 - Black 2 - Black 4 - Green/Yellow (Ground)</p>	 <p>3 - Blue 4 - Black</p>	 <p>1 - Common 2 - Normally Closed 4 - Normally Open G - Ground</p>



EXHAUST SILENCERS						
Silencers	Port Size	Thread Type	Model Number		Flow Avg. C <sub>v</sub>	Pressure Range psig (bar)
			BSPT (R/Rp) Thread	NPT Thread		
	3/8	Male	D5500A3003	5500A3003	4.3	0-290 (0-20) maximum
	1/2	Male	D5500A4003	5500A4003	4.7	
	3/4	Male	D5500A5013	5500A5013	5.1	
			D5500A5003	5500A5003	12	

# CAUTIONS, WARNINGS And STANDARD WARRANTY



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

## PRE-INSTALLATION or SERVICE

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

### WARNINGS:

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

## FILTRATION and LUBRICATION

1. Dirt, scale, moisture, etc., are present in virtually every air system. Although some valves are more tolerant of these contaminants than others, best performance will be realized if a filter is installed to clean the air supply, thus preventing contaminants from interfering with the proper performance of the equipment. The ROSS Group recommends a filter with a 5-micron rating for normal applications.
2. All standard ROSS Group filters and lubricators with polycarbonate plastic bowls are designed for compressed air applications only. Use the metal bowl guard, where provided, to minimize danger from high pressure fragmentation in the event of bowl failure. Do not expose these products to certain fluids, such as alcohol or liquefied petroleum gas, as they can cause bowls to rupture, creating a combustible condition and hazardous leakage. Immediately replace crazed, cracked, or deteriorated bowls.
3. Only use lubricants which are compatible with materials used in the valves and other components in the system. Normally, compatible lubricants are petroleum base oils with oxidation inhibitors, an aniline point between 180°F (82°C) and 220°F (104°C), and an ISO 32, or lighter, viscosity. Avoid oils with

phosphate type additives which can harm polyurethane components, potentially leading to valve failure which risks personal injury, and/or damage to property.

### WARNINGS:

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

## AVOID INTAKE/EXHAUST RESTRICTION

1. Do not restrict air flow in the supply line. To do so could reduce the pressure of the supply air below minimum requirements for the valve and thereby causing erratic action.
2. Do not restrict a valve's exhaust port as this can adversely affect its operation. Exhaust silencers must be resistant to clogging and must have flow capacities at least as great as the exhaust capacities of the valves. Contamination of the silencer can result in reduced flow and increased back pressure.

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

## SAFETY APPLICATIONS

1. Mechanical Power Presses and other potentially hazardous machinery using a pneumatically controlled clutch and brake mechanism must use a press control double valve with a monitoring device. A double valve without a self-contained monitoring device should be used only in conjunction with a control system which assures monitoring of the valve. All double valve installations involving hazardous applications should incorporate a monitoring system which inhibits further operation of the valve and machine in the event of a failure within the valve mechanism.
2. Safe Exhaust (dump) valves without a self-contained monitoring device should be used only in conjunction with a control system which assures monitoring of the valve. All Safe Exhaust valve installations should incorporate a monitoring system which inhibits further operation of the valve and machine in the event of a failure within the valve mechanism.
3. Per specifications and regulations, the ROSS L-O-X® and L-O-X® with EEZ-ON®, N06 and N16 Series operation products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

### WARNINGS:

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

## STANDARD WARRANTY

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

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### 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 fluid power components for the first time and those designing complex systems.*

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

*If you need products or specifications not shown in this catalog, please visit ROSS' website, contact ROSS or your ROSS distributor. The ROSS Support Team will be happy to assist you in selecting the best product for your application.*

*For a current list of countries and local distributors, visit ROSS' at [www.rosscontrols.com](http://www.rosscontrols.com).*