



PRODUCT INFORMATION

CLUTCH/BRAKE CONTROL DOUBLE VALVES WITH E-P MONITOR

SERPAR[®] 35 SERIES



ROSS CONTROLS

SERPAR® Double Valves

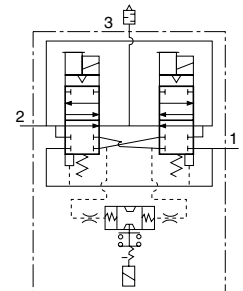
with Internal Monitoring and Solenoid Reset – E-P Monitor

Clutch/Brake Control

35 Series

Signal Type	Port Size	Basic Size	With Overrides		Without Overrides		C _v		Avg. Response Constants			Weight lb (kg)
			Valve Model Number#		Valve Model Number#		1-2	2-3	M	F		
			NPT Threads	G Threads	NPT Threads	G Threads				1-2	2-3	
Single Signal Input	1/2	8	3573A4141W	D3573A4141W	3573A4161W	D3573A4161W	3.5	8.5	15	0.70	0.30	11.8 (5.3)
	3/4	8	3573A5141W	D3573A5141W	3573A5161W	D3573A5161W	4	12	15	0.65	0.23	11.8 (5.3)
		12	3573A5151W	D3573A5151W	3573A5171W	D3573A5171W	8	15	15	0.65	0.23	15.5 (7.0)
	1	8	3573A6151W	D3573A6151W	3573A6171W	D3573A6171W	4	12	20	0.33	0.21	11.8 (5.3)
		12	3573A6161W	D3573A6161W	3573A6181W	D3573A6181W	8.5	19	20	0.28	0.21	15.5 (7.0)
	1¼	12	3573A7161W	D3573A7161W	3573A7181W	D3573A7181W	9	21	20	0.28	0.21	15.5 (7.0)
		30	3573A7151W	D3573A7151W	3573A7171W	D3573A7171W	20	42	25	0.19	0.07	35.0 (15.8)
	1½	30	3573A8161W	D3573A8161W	3573A8181W	D3573A8181W	21	43	25	0.18	0.07	35.0 (15.8)
	2	30	2 inch port size available on size 30 valves. Order model number 1999H77 flange kit separately.									
Dual Signal Input	1/2	8	3573A4341W	D3573A4341W	3753A4361W	D3753A4361W	3.5	8.5	15	0.70	0.30	11.8 (5.3)
	3/4	8	3573A5341W	D3573A5341W	3573A5361W	D3573A5361W	4	12	15	0.65	0.23	11.8 (5.3)
		12	3573A5351W	D3573A5351W	3573A5371W	D3573A5371W	8	15	15	0.65	0.23	15.5 (7.0)
	1	8	3573A6351W	D3573A6351W	3573A6371W	D3573A6371W	4	12	20	0.33	0.21	11.8 (5.3)
		12	3573A6361W	D3573A6361W	3573A6381W	D3573A6381W	8.5	19	20	0.28	0.21	15.5 (7.0)
	1¼	12	3573A7361W	D3573A7361W	3573A7381W	D3573A7381W	9	21	20	0.28	0.21	15.5 (7.0)
		30	3573A7351W	D3573A7351W	3573A7371W	D3573A7371W	20	42	25	0.19	0.07	35.0 (15.8)
	1½	30	3573A8361W	D3573A8361W	3573A8381W	D3573A8381W	21	43	25	0.18	0.07	35.0 (15.8)
	2	30	2 inch port size available on size 30 valves. Order model number 1999H77 flange kit separately.									
# Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 3573A4141Z. For other voltages consult ROSS.												

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B2

OPTIONS

Piping Flange Kits

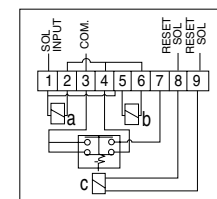
Each kit includes two threaded (NPT) flanges and the required seals and mounting bolts.

Port Size	Basic Size	Kit Number
1/2	8	661K77
3/4	8	662K77
	12	664K77
1	8	663K77
	12	665K77
1 1/4	12	666K77
	30	667K77
1 1/2	30	668K77

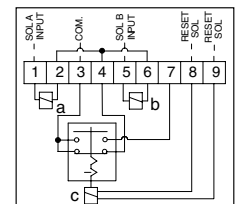
During lock-out: Terminals 3 and 7 are connected which allows a panel light, bell, or other electrical device to be wired through terminals 7 and 3 to serve as a lockout indicator.

Valve Response Time

The constants above, designated M and F, can be used to determine the amount of time required to fill or exhaust a volume of any size using the formula on the right:



Single Input Wiring Diagram



Dual Input Wiring Diagram

Vlv. Resp. Time (msec) = M + F * V
M = avg. time for parts movement
F = msec. per cubic inch of volume
V = volume in cubic inches

Valve Without Piping Flanges

Port Size	Basic Size	Single Signal Input				Dual Signal Input			
		With Overrides		Without Overrides		With Overrides		Without Overrides	
		Valve Model Number#	Valve Model Number#	Valve Model Number#	Valve Model Number#	Valve Model Number#	Valve Model Number#	Valve Model Number#	Valve Model Number#
1/2, 3/4, 1	8	3573A4201W	D3573A4201W	3573A4221W	D3573A4221W	3573A4301W	D3573A4301W	3573A4321W	D3573A4321W
3/4, 1, 1 1/4	12	3573A5201W	D3573A5201W	3573A5221W	D3573A5221W	3573A5301W	D3573A5301W	3573A5321W	D3573A5321W
1 1/4, 1 1/2	30	3573A7201W	D3573A7201W	3573A7221W	D3573A7221W	3573A7301W	D3573A7301W	3573A7321W	D3573A7321W

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 3573A4201Z. For other voltages consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Dual poppet	Flow Media	Filtered air
Mounting Type	In-line	Operating Pressure	30 to 125 psig (2.1 to 8.5 bar)
Solenoids	Two solenoids; Rated for continuous duty	E-P Reset Solenoid	Rated for intermittent duty Voltages: 24-48 or 100-120 volts AC or DC.
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Inlet Port	Models are available with the inlet port on either the right or the left side of the valve body
Power Consumption (each solenoid)	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Electrical Connection	Uses terminal strip connectors		
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		

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



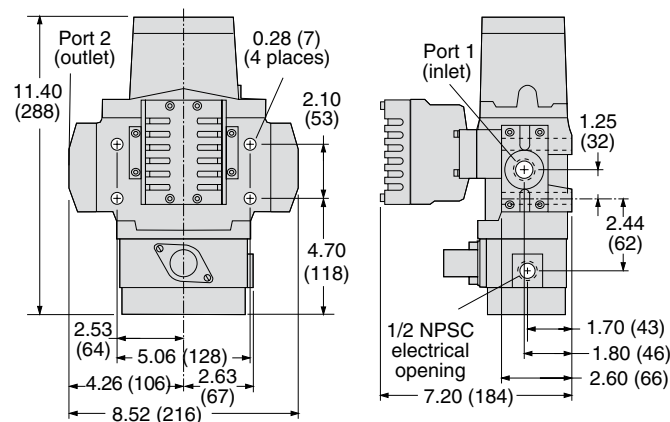
Online Version
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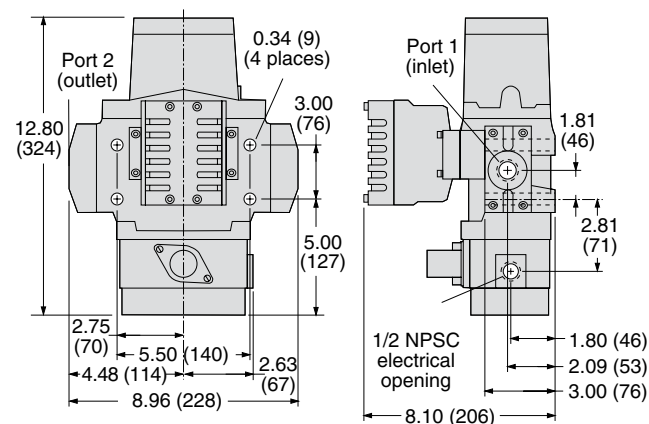
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Valve Dimensions – inches (mm)

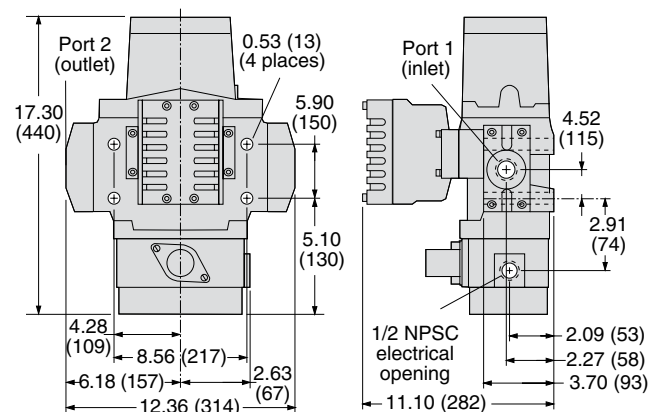
Basic Size 8



Basic Size 12



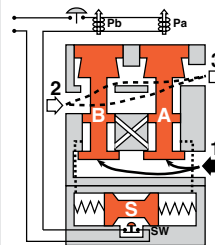
Basic Size 30



VALVE OPERATION

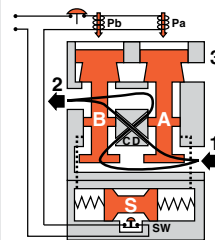
Conditions at Start:

Inlet 1 is closed to outlet 2 by both valve elements A and B. Outlet 2 is open to exhaust 3. Contacts of switch SW are closed. Monitoring pressure signals at both ends of spool S are exhausted.



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. Monitoring pressure signals go to each end of spool S and become equal to inlet pressure.

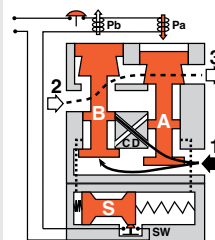


Completion of Normal Cycle:

Simultaneously de-energizing both solenoids returns the valve to the "Conditions at Start" described above.

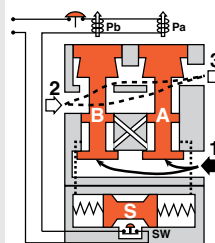
Detecting a Malfunction:

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 two percent of inlet pressure. Full monitoring air pressure from side A goes to the right end of spool S, and a reduced pressure goes to the left end. This pressure imbalance causes the spool to shift to the left. This trips switch SW, breaks the electrical circuit to the pilot solenoids, and allows valve element A to return to the closed position.



E-P Monitor Locked-out:

With both valve elements closed, monitoring air pressure is exhausted from both ends of spool S so that it returns to its normal position. The electrical circuit to the pilot solenoids remains broken by switch SW. To restore the electrical circuit and return the valve to normal operation, the reset solenoid (not shown) must be briefly energized to reset switch SW. *During and following reset, the pilot solenoids must be kept de-energized to prevent inadvertent and possibly dangerous cycling of the press. Prolonged energizing of the reset solenoid can cause burnout and nullify the reset function.*



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.

