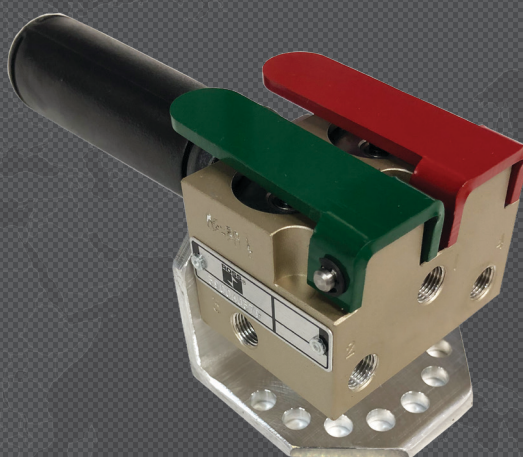
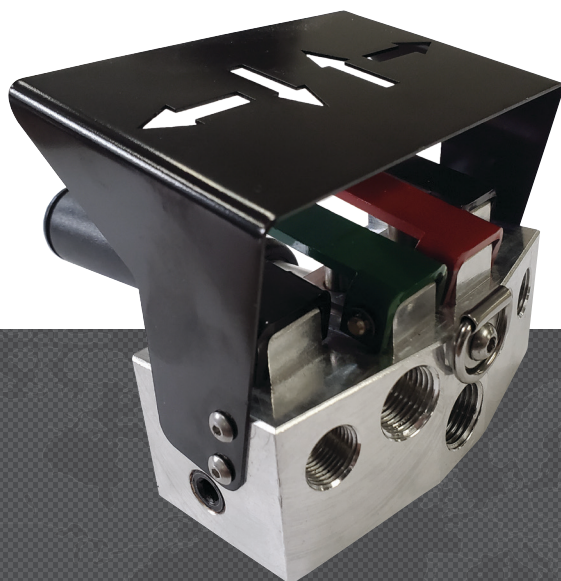




# PNEUMATIC PENDANT CONTROL VALVES

## PRODUCT CATALOG



# Product Information

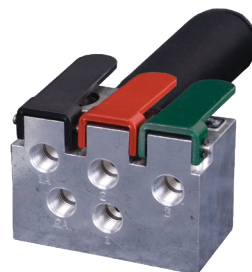
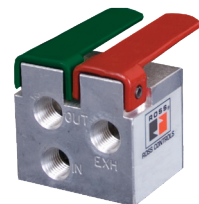
ROSS Pendant Control Valves are ergonomically designed for ease of use. The durable construction is designed to withstand the toughest environments. The high-flow capacity allows for speed of operation, while the variable stroke allows for optimized control by the operator.

## FEATURES

- Long Life • High-Flow • Variable Control • High Speed • Feathering Capabilities
- Dirt Tolerant • Poppet Design • Ergonomic Design

## APPLICATIONS

- Air Hoists • Air Motors • Articulating Arms • Air Winches • Cylinder Actuation • End Effectors (clamps)
- Remote Pilot Signal for another Valve • Air Balancers • Lift Assist • Vacuum Pick & Place



<b>Single 3/2</b>	The Single 3/2 pendant control valve may be used anywhere that requires manual pressure control or signaling. Some applications include small single acting cylinders, vacuum cup automation and other material handling devices. Pendant control valves are also used as an air pilot for a larger directional control valve. ROSS offers a wide range of Remote Air Pilot Directional Control Valves with porting 1/4" to 2 1/2".
<b>Dual 2/2</b>	The Dual 2/2 pendant control valve can be used in various material handling applications: Load Balancers, Lift Assists and Articulating Arms or anywhere a simple 2-way air signal is needed.
<b>Dual 3/2</b>	The Dual 3/2 pendant control valve can be used in various material handling applications: Air Hoists, Double Acting Cylinders, End Effectors (clamping/gripping) and vacuum cup automation. Bi-directional Air Motors can be controlled by the Dual 3/2 or used in a circuit with a larger directional control valve to run large Air Motors. ROSS offers a wide range of Remote Air Pilot Directional Control Valves with porting 1/4" to 2 1/2".
<b>Triple 3/2</b>	The Triple 3/2 pendant control allows the convenience of three separate signals and can be used in many of the above automation functions.
<b>Quad 3/2</b>	The Quad 3/2 pendant control is frequently used in Air Hoist with Air Trolley systems. It can also be used in many of the above applications with the convenience of four signals in one handle.
<b>ROSS/FLEX® Solutions</b>	To optimize your application, ROSS offers a rapid response engineering design approach to deliver products specific to your automation needs. If you need to combine various functions in one pendant control, contact ROSS.

## STANDARD SPECIFICATIONS

GENERAL	Actuation		Pneumatic: Manual lever(s)
	Function		Pendant control: 2-way (2/2) and 3-way (3/2)
	Construction Design		Poppet
	Mounting	Type	Line mounted
		Orientation	Hanging I-bolt and rigid dial mount
Connection		Threaded; NPT, G	
OPERATING CONDITIONS	Temperature	Ambient/Media	-40° to 175°F (-40° to 80°C)
			For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice. For temperatures below -40°F (-40°C), consult ROSS.
	Flow Media		Filtered air
	Operating Pressure		0 to 150 psig (0 to 10 bar)
	CONSTRUCTION MATERIAL	Valve Body	

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

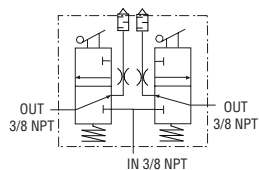
# Product Selection

## High Flow with Variable Control

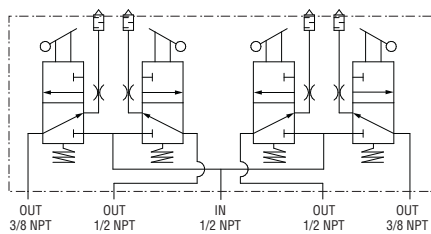
Valve Type	Port Size	# of Levers	# of Handles	Protective Cover	Model Number		C <sub>v</sub>
					NPT Threads	G Threads	
3/2	3/8	2-Lever	One	With	2025A3232	D2025A3232	2.0
				Without	2025A3231	D2025A3231	2.0
	1/2	4-Lever	One	With	2025A4432	D2025A4432	2.0
				Without	2025A4431	D2025A4431	2.0
	1/2	6-Lever	Two	Without	2025A4631	D2025A4631	2.0

### Valve Schematics

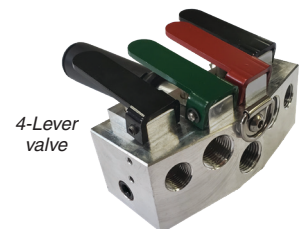
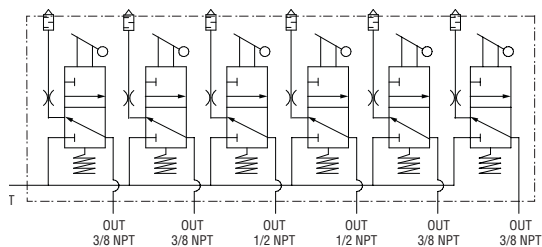
#### 2-Lever Valve



#### 4-Lever Valve



#### 6-Lever Valve



### Dimensions

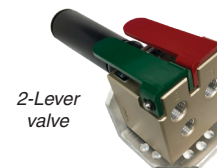
### Valve Technical Data

For additional information, and to assist you with piping and connectivity designs, our products are available in downloadable 2D and 3D CAD models in a wide range of formats at [www.rosscontrols.com](http://www.rosscontrols.com).

## Product Selection

### Rigid Dial Mount with Designed Control

Valve Type		Port Size	# of Levers	# of Handles	Model Number	$C_v$	
					NPT Threads	1-2	2-3
2/2	Dual High-Flow	1/4	Two	None	2025A2901	0.73	0.55
				One	3900A0378	0.73	0.55
3/2	Single	1/4	One	None	2025A2910	0.24	0.42
				One	3900A1023	0.24	0.42
	Dual	1/8	Two	None	2025A1900	0.24	0.42
				One	3900A0379	0.24	0.42
	Triple	1/4	Three	None	2025A2902	0.24	0.42
				One	3900A0407	0.24	0.42



### Rigid Dial Mount with Designed Control and Hand Lever

Valve Type		Port Size	# of Levers	# of Handles	Model Number	$C_v$	
					NPT Threads	1-2	2-3
3/2	Single	1/4	One	None	2025A2904	0.24	0.42
				One	3900A1111	0.24	0.42



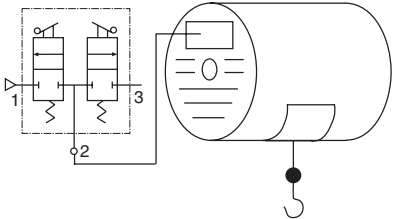
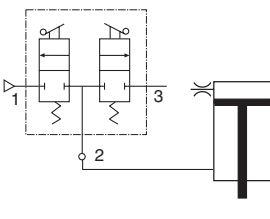
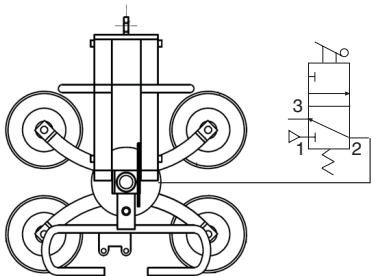
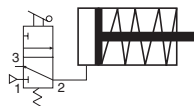
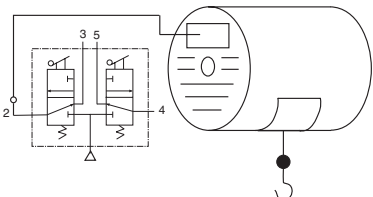
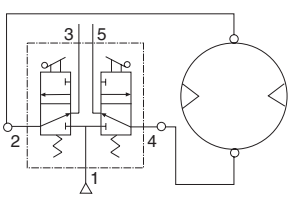
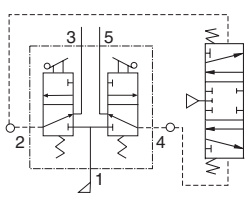
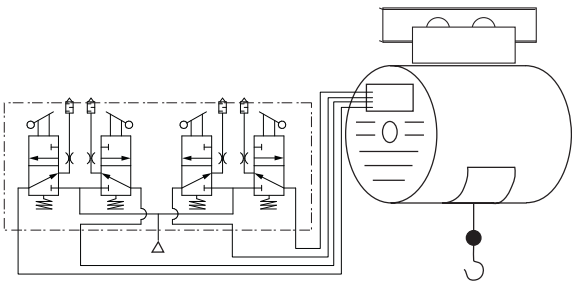
Valve Type	Valve Schematics		
2-way	2-Lever Valve		
3-way	1-Lever Valve	2-Lever Valve	3-Lever Valve

#### Dimensions

#### Valve Technical Data

For additional information, and to assist you with piping and connectivity designs, our products are available in downloadable 2D and 3D CAD models in a wide range of formats at [www.rosscontrols.com](http://www.rosscontrols.com).

# Application Examples

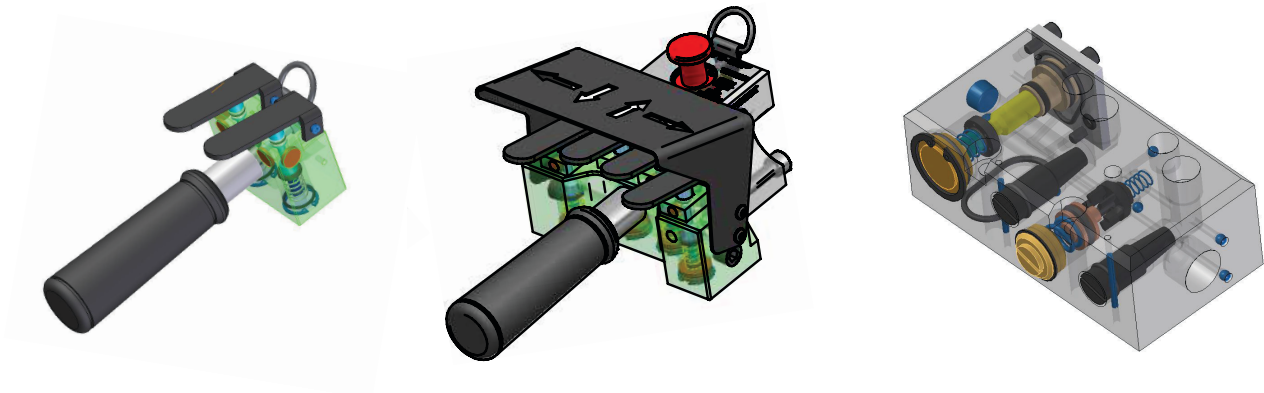
Application Examples		
Dual 2/2	Air Balancer	Articulating Arm (Lift Assist)
		
Single 3/2	Vacuum Cup Pick & Place	Single Acting Cylinder
		
Dual 3/2	Air Hoist	Bi-directional Air Motor
		
4-Lever 3/2	Pilot for Larger Valve	
		
4-Lever 3/2	Air Hoist with Trolley	
		

# Optimize your Application with ROSS/FLEX®

ROSS/FLEX® Engineering Design Services will match your Pendant Control needs.

Does your application need a slightly different Pendant Control Valve? Our rapid response engineers will work directly with your team to develop a specific solution for your needs. Using ROSS/FLEX® methodology allows new products to be developed in days and weeks, instead of months and years. Top companies worldwide rely on ROSS/FLEX® to quickly solve problems and improve productivity.

- » # of Levers
- » Lever Colors
- » 2-way, 3-way, 4-way Combinations
- » Specific Flows
- » Various Mounting
- » Port Sizes and Thread Types
- » Corrosion Protection Coatings
- » Brass, Stainless Steel or other Materials
- » E-Stop Options
- » Air Balancer Designs
- » Available for Private Label



Air Balancer Designs

Auxiliaries			
Energy Isolation L-O-X®	Flow Control	Remote Air Control Valves	Air Preparation FRL's



## 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.

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	manufactIS GmbH	Germany	Tel: +49 (0)2013-16843-0	www.manufactis.net

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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).*