Flow Control Valves

Product Catalog

ROSS®
a global family

Flow Control Valves 19 & 11 Series
Product Overview

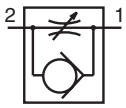
Flow Control Function

Flow control valves provide high air flow rates into a cylinder, and precisely controlled flow rates out of the cylinder. The adjustable flow can range from near zero to full flow.

Low-Profile		Heavy-Duty		Right-Angle	
with Slot Adjustment	with Knob Adjustment	High-Capacity	Low-Profile High-Capacity	with Slot Adjustment	with Knob Adjustment
					

Illustration examples.

Valve Schematic



Selecting flow control valves with sufficient flow capacity is important so that they do not become the limiting factor in the cylinder control system. Full flow capacity should match that of the control valve to keep cylinder motion smooth and predictable in both directions.

VALVE FEATURES

Poppet Design	Dirt-tolerant poppet design; available in alternate materials for extreme temperature applications
High Flow	High flow capacity in free-flow direction (port 1 to 2), same high flow available in reverse direction
Visible Indication	Low-Profile High-Capacity valves – Brass stem gives visible indication of flow rate in controlled direction (port 2 to 1)
Positive Locking	Low-Profile High-Capacity valves – Prevents change of adjustment knob due to vibration or tampering
Adjustable Flow	Knob hand or screwdriver slot adjustment to control flow

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Specifications

STANDARD SPECIFICATIONS

GENERAL	Function			2/2 Valve
	Construction Design			Poppet
	Actuation			Pneumatic
	Mounting	Type	Low-Profile	Inline
			High-Capacity	
			Low-Profile High-Capacity	
			Right-Angle	Screws directly into cylinder port
		Orientation	Low-Profile	Any, preferably vertical
			High-Capacity	Inline, Offset
			Low-Profile High-Capacity	
			Right-Angle	Inlet port can be swiveled 360° for optimum placement
	Connection		Threaded Port	NPT
				G
OPERATING CONDITIONS	Temperature	Low-Profile	Ambient	41° to 140°F (5° to 60°C)
			Media	
		High-Capacity Low-Profile High-Capacity	Ambient	-40° to 175°F (-40° to 80°C)
			Media	
			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.	
		Right-Angle	Ambient	40° to 175°F (4° to 80°C)
			Media	
	Flow Media			Filtered air
	Operating Pressure	Low-Profile	Supply Pressure	217 psi (15 bar)
			Maximum Pressure	150 psi (10 bar)
		High-Capacity		5 to 150 psig (0.3 to 10 bar)
		Low-Profile High-Capacity		
		Right-Angle		
CONSTRUCTION MATERIAL	Valve Body	Low-Profile		Cast Aluminum
		High-Capacity		
		Low-Profile High-Capacity		
		Right-Angle		Nickel-plated brass body, black anodized aluminum swivel
	Poppet			Acetal and Stainless Steel
	Spring	Right-Angle		Stainless Steel
	Seals			Buna-N

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

PRODUCT CREDENTIALS

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Ordering Information

FLOW CONTROL VALVES — 2-Way Valves

Valve Style		Body Size	Port Size	Valve Model Number	
			In-Out	NPT Thread	G Thread
Low-Profile	with Slot Adjustment	1/8	1/8	1968F1004	D1968F1004
		1/4	1/4	1968F2004	D1968F2004
	with Knob Adjustment	3/8	1/4	1968F2007	D1968F2007
			3/8	1968F3007	D1968F3007
			1/2	1968F4007	D1968F4007
High-Capacity		3/8	1/4	1968B2007	D1968B2007
			3/8	1968B3007	D1968B3007
			1/2	1968B4017	D1968B4017
		3/4	1/2	1968B4007	D1968B4007
			3/4	1968B5007	D1968B5007
			1	1968B6017	D1968B6017
		1-1/4	1	1968B6007	D1968B6007
			1-1/4	1968B7007	D1968B7007
			1-1/2	1968B8017	D1968B8017
		2	1-1/2	1968B8007	D1968B8007
			2	1968B9007	D1968B9007
			2-1/2	1968B9017	D1968B9017
Low-Profile High-Capacity		3/4	1/2	1968E4007	D1968E4007
			3/4	1968E5007	D1968E5007
		1-1/4	1	1968E6007	D1968E6007
			1-1/2	1968E7007	D1968E7007

Valve Style		Size		Flow C_v (Nl/min)	Weight ≈ lb (kg)
		Body	Port 1, 2	1-2	
Low-Profile	with Slot Adjustment	1/8	1/8	0.5 (490)	0.1 (0.1)
		1/4	1/4		
	with Knob Adjustment	3/8	1/4	2.3 (2300)	0.4 (0.2)
			3/8		
			1/2		
High-Capacity		3/8	1/4	2.3 (2300)	0.5 (0.2)
			3/8	2.6 (2600)	
			1/2		
		3/4	1/2	7.5 (7400)	0.8 (0.4)
			3/4	8.3 (8200)	
			1		
		1-1/4	1	17 (17000)	2.2 (1.0)
			1-1/4	22 (22000)	
			1-1/2	23 (22000)	
		2	1-1/2	50 (49000)	4.3 (1.9)
			2		
			2-1/2		
Low-Profile High-Capacity		3/4	1/2	7.5 (7400)	0.8 (0.4)
			3/4	8.3 (8200)	
		1-1/4	1	17 (17000)	2.1 (1.0)
			1-1/2	22 (22000)	

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RIGHT-ANGLE FLOW CONTROL VALVES — 2-Way Valves

Valve Style		Connection	Body Size	Port Size	Valve Model Number	
				In-Out	NPT Thread	G Thread
Right-Angle	with Slot Adjustment	Threaded Inlet	1/4	1/8	1968A1008	D1968A1008
				1/4	1968A2008	D1968A2008
			3/8	3/8	1968A3008	D1968A3008
				1/2	1968A4008	D1968A4008
		Tube Fitting	1/4	1/8	1968A1108 #	–
				1/4	1968A2108	–
			3/8	3/8	1968A3108	D1968A3108
				1/2	–	–
	with Knob Adjustment	Threaded Inlet	1/4	1/8	1968A1008	–
				1/4	1968A2018	–
			3/8	3/8	1968A3018	D1968A3018
				1/2	1968A4018	D1968A4018
		Tube Fitting	1/4	1/8	1968A1118 #	D1968A1118 #
				1/4	1968A2118	D1968A2118
			3/8	3/8	1968A3118	D1968A3118
				1/2	–	–

These models have 1/8 threaded outlet, but with 1/4 inlet tube fittings.

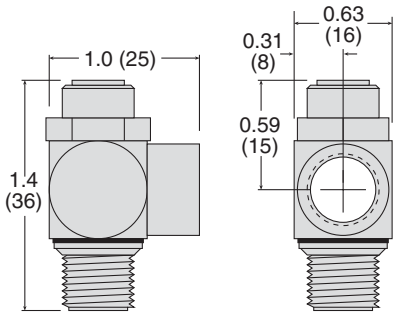
Valve Style		Connection	Size		Flow C_v (Nl/min)	Weight ≈ lb (kg)
			Body	Port 1, 2	1-2	
Right-Angle	with Slot Adjustment	Threaded Inlet	1/4	1/8	0.3 (300)	0.06 (0.03)
				1/4	0.6 (590)	0.12 (0.05)
			3/8	3/8	1.9 (1900)	0.20 (0.09)
				1/2	2.8 (2800)	0.34 (0.15)
		Tube Fitting	1/4	1/8	0.3 (300)	0.06 (0.03)
				1/4	0.6 (590)	0.12 (0.05)
			3/8	3/8	1.9 (1900)	0.20 (0.09)
				1/2	2.8 (2800)	0.34 (0.15)
	with Knob Adjustment	Threaded Inlet	1/4	1/8	0.3 (300)	0.08 (0.04)
				1/4	0.6 (590)	0.14 (0.06)
			3/8	3/8	1.9 (1900)	0.20 (0.09)
				1/2	2.8 (2800)	0.34 (0.15)
		Tube Fitting	1/4	1/8	0.3 (300)	0.08 (0.04)
				1/4	0.6 (590)	0.14 (0.06)
			3/8	3/8	1.9 (1900)	0.20 (0.09)
				1/2	2.8 (2800)	0.34 (0.15)

DIMENSIONS

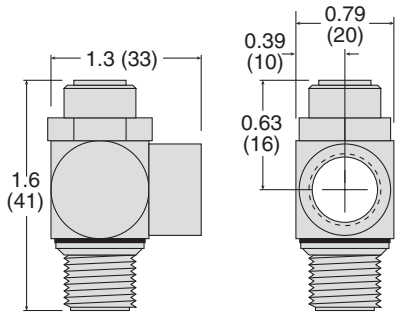
Inches (mm)

Right Angle

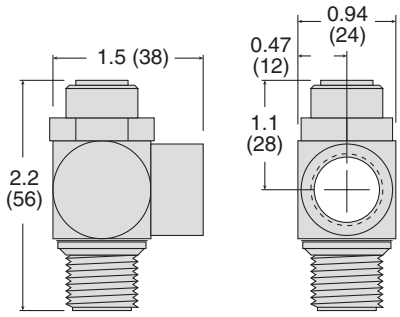
Body Size 1/8



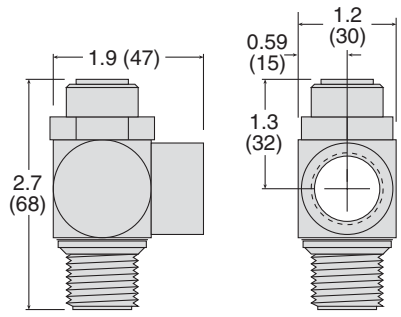
Body Size 1/4



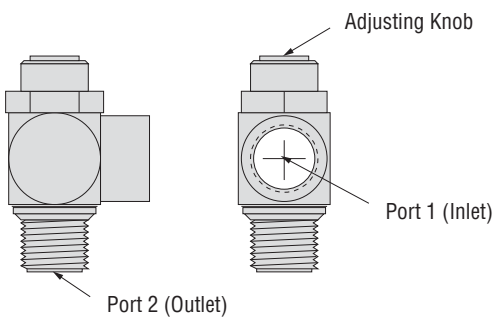
Body Size 3/8



Body Size 1/2



Downloadable CAD models available.



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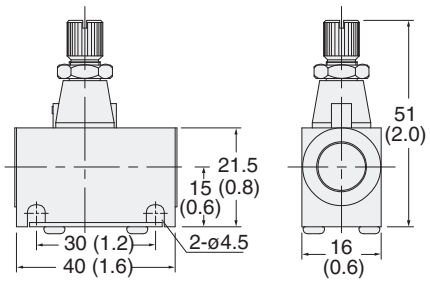
DIMENSIONS

Inches (mm)

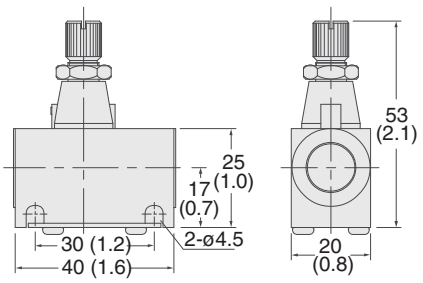
Low-Profile

with Slot Adjustment

Body Size 1/8

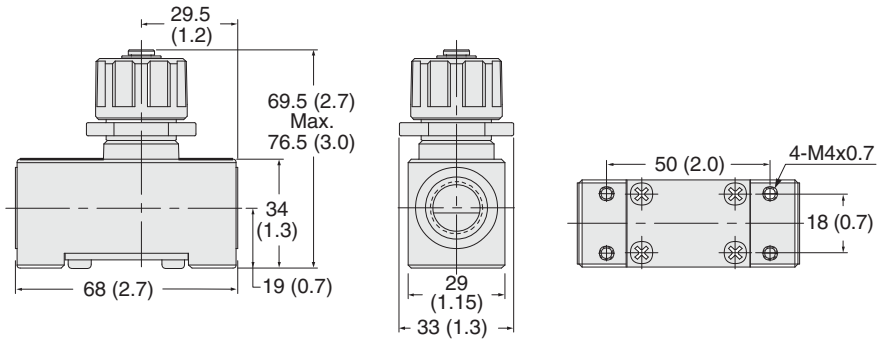


Body Size 1/4

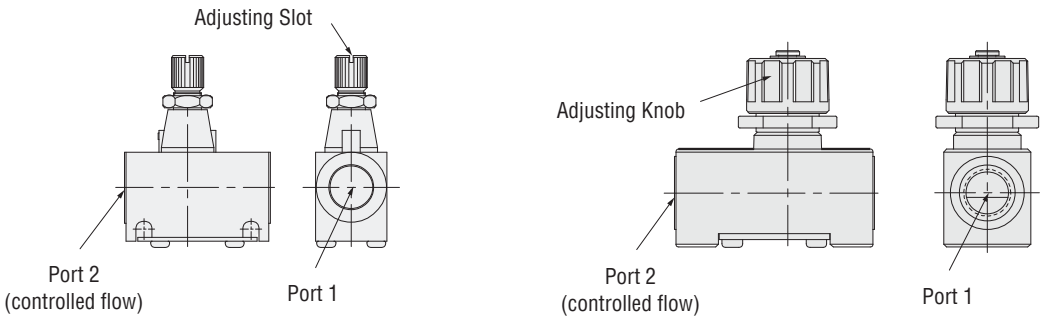


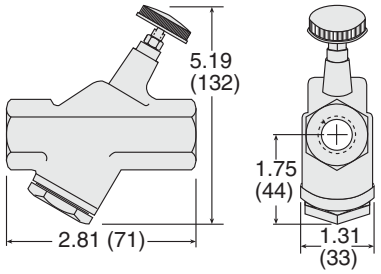
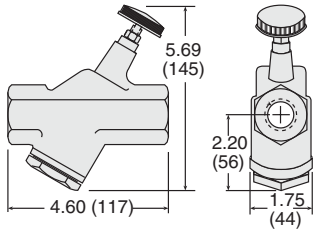
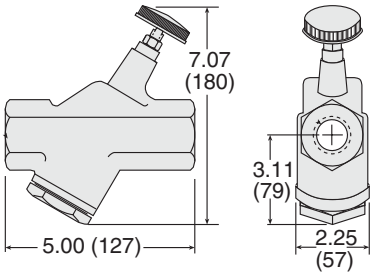
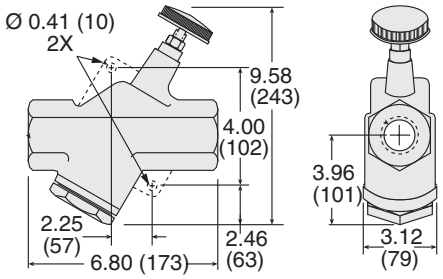
with Knob Adjustment

Body Size 3/8

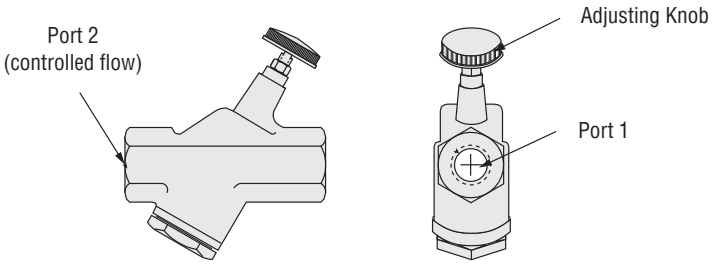


Downloadable CAD models available.



DIMENSIONS		Inches (mm)
High-Capacity	Body Size 3/8	Body Size 3/4
		
	Body Size 1-1/4	Body Size 2
		

Downloadable CAD models available.



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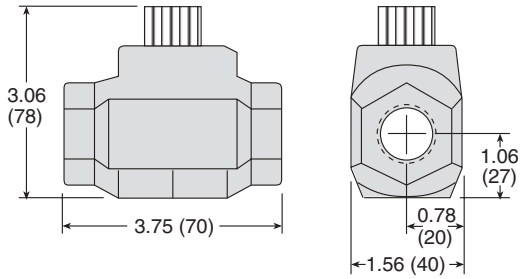
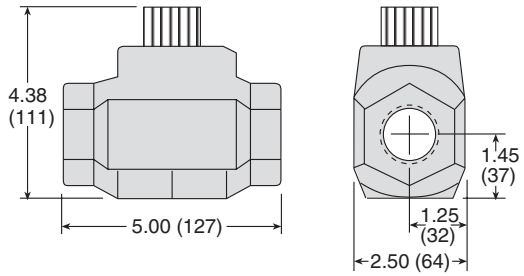
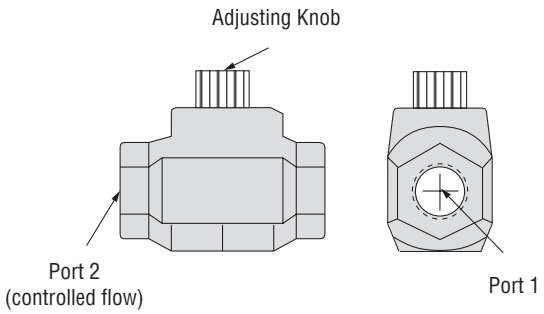
DIMENSIONS	Inches (mm)
Low-Profile High-Capacity	**Body Size 3/4**



Body Size 1-1/4



Downloadable CAD models available.



Notes

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CAUTIONS, WARNINGS And STANDARD WARRANTY

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

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 Global Family 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 Global Family 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 Global Family location.

4. Each ROSS Global Family Product should be used within its specification limits. In addition, use only ROSS Group components to repair ROSS Global FamilyProducts.

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 Global Family recommends a filter with a 5-micron rating for normal applications.

2. All standard ROSS Global Family 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 Global Family 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 Global Family's obligation under this warranty is limited to repair, replacement or refund of the purchase price paid for products which the ROSS Global Family 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 Global Family freight prepaid.

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