ROSS®

Flu-Tech
Fluid Control Specialists

บริษัท ฟลูเทค จำกัด
Flu-tech co.,ltd

Soft-Start Valves
EEZ-ON® Series

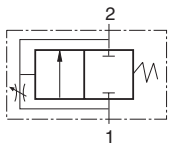
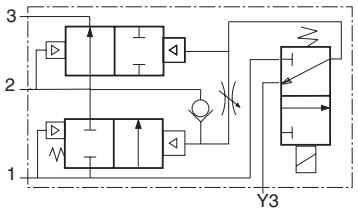
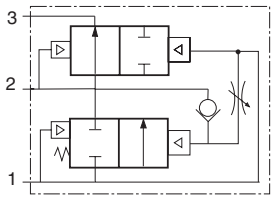
Product Catalog

ROSS™
a global family

Soft-Start EEZ-ON® Valves 27 Series
Product Overview

Soft-Start Safety Function

The EEZ-ON® valve is designed to allow a gradual buildup of downstream air pressure before opening to full air flow.

Valve Schematics		
2/2 Internal Pressure Controlled	3/2 Solenoid Pilot Controlled	3/2 Internal Pressure Controlled
		

This gradual pressure buildup allows cylinders and other work elements to move slowly and more safely into their normal working positions before full line pressure is applied.

The 3/2 valves have an exhaust port so that downstream air is exhausted when the valve is de-energized. At the same time, supply air is positively shut off so that a separate shut-off valve is not required.

2/2 Valves	3/2 Valves	
Internal Pressure Controlled	Solenoid Pilot Controlled	Internal Pressure Controlled
	 	 

VALVE FEATURES

Poppet Design	Dirt tolerant, wear compensating for quick response and high flow capacity
Soft-Start Function	Gradual re-application of pneumatic pressure prevents rapid equipment movement at startup
Pressure Buildup Control	An adjustable restriction within the EEZ-ON® valve determines the rate of downstream pressure buildup, and consequently the time delay for the full opening of the EEZ-ON® valve
Quick Energy Dump	Full size exhaust ports (equal to or larger than supply) provide rapid exhaust of downstream air and are threaded for silencers or remote exhaust lines
Manual Override	Flush flexible, non-locking manual overrides are standard on single solenoid models

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

Specifications

STANDARD SPECIFICATIONS

GENERAL	Function			Soft-Start
	Construction Design			2/2 and 3/2 Valve; Poppet
	Actuation			Electrical Pneumatic
	Mounting		Type	Inline
			Orientation	Any, preferably vertical
	Connection			Threaded; G, NPT
	Minimum Operation Frequency			Once per month, to ensure proper function
OPERATING CONDITIONS	Temperature	Solenoid Pilot Controlled	Ambient	40° to 120°F (4° to 50°C)
			Media	40° to 175°F (4° to 80°C)
		Internal Pressure Controlled	Ambient	40° to 175°F (4° to 80°C)
			Media	
	Flow Media			Filtered air
	Operating Pressure			15 to 150 psig (1 to 10 bar)
	External Pilot Supply (solenoid pilot controlled only)			Must be equal to or greater than inlet pressure
ELECTRICAL DATA FOR SOLENOID PILOT VALVES	Solenoids			AC or DC power; rated for continuous duty
	Operating Voltage			24 volts DC 110-120 volts AC, 50/60 Hz 230 volts AC, 50/60 Hz
	Power Consumption (each solenoid)			24 V DC – 14 watts 110-120 V AC, 230 V AC – 87 VA inrush, 30 VA holding
CONSTRUCTION MATERIAL	Valve Body			Cast Aluminum
	Poppet			Acetal and Stainless Steel
	Seals			Buna-N
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.		

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

PRODUCT CREDENTIALS

Safety Category	EAC Conformity Declaration	ISO Standard	CSA Certificate of Compliance	CRN Certification
Cat. 1 PL c SIL 2 Functional Safety	EAC	ISO 13849-1:2015	Solenid Pilot Valves	Available for appropriately tested valves

Ordering Information

INTERNAL PRESSURE CONTROLLED — 2-Way 2-Position Valves

Port Size	Body Size	Valve Model Number	
In-Out		G Thread	NPT Thread
1/4	3/8	D2781A2007	2781A2007
3/8	3/8	D2781A3007	2781A3007
1/2	3/8	D2781A4017	2781A4017
	3/4	D2781A4007	2781A4007
3/4	3/4	D2781A5007	2781A5007
1	3/4	D2781A6017	2781A6017
	1-1/4	D2781A6007	2781A6007
1-1/4	1-1/4	D2781A7007	2781A7007
1-1/2	1-1/4	D2781A8017	2781A8017

Port Size	Body Size	Flow C_v	Weight lb (kg)
1, 2		1-2	
1/4	3/8	2.3	1.5 (0.7)
3/8	3/8	3.8	
1/2	3/8	4.0	
	3/4	13	2.3 (1.0)
3/4	3/4	15	
1	3/4	16	
	1-1/4	24	6.0 (2.7)
1-1/4	1-1/4	29	
1-1/2	1-1/4	29	

Ordering Information

SOLENOID PILOT CONTROLLED — 3-Way 2-Position Valves

Port Size		Body Size	Valve Model Number					
			G Thread			NPT Thread		
In-Out	Exhaust		24 V DC	110-120 V AC	230 V AC	24 V DC	110-120 V AC	230 V AC
1/4	1/2	3/8	D2773B2037W	D2773B2037Z	D2773B2037Y	2773B2037W	2773B2037Z	2773B2037Y
3/8	1/2	3/8	D2773B3037W	D2773B3037Z	D2773B3037Y	2773B3037W	2773B3037Z	2773B3037Y
1/2	1/2	3/8	D2773B4047W	D2773B4047Z	D2773B4047Y	2773B4047W	2773B4047Z	2773B4047Y
	1	3/4	D2773B4037W	D2773B4037Z	D2773B4037Y	2773B4037W	2773B4037Z	2773B4037Y
3/4	1	3/4	D2773B5037W	D2773B5037Z	D2773B5037Y	2773B5037W	2773B5037Z	2773B5037Y
1	1	3/4	D2773B6047W	D2773B6047Z	D2773B6047Y	2773B6047W	2773B6047Z	2773B6047Y
	1-1/2	1-1/4	D2773A6037W	D2773A6037Z	D2773A6037Y	2773A6037W	2773A6037Z	2773A6037Y
1-1/4	1-1/2	1-1/4	D2773A7037W	D2773A7037Z	D2773A7037Y	2773A7037W	2773A7037Z	2773A7037Y
1-1/2	1-1/2	1-1/4	D2773A8047W	D2773A8047Z	D2773A8047Y	2773A8047W	2773A8047Z	2773A8047Y
For other voltages, consult ROSS.								

Port Size		Body Size	Flow C_v		Weight lb (kg)
1, 2	3		1-2	2-3	
1/4	1/2	3/8	2.5	3.1	4.5 (2.0)
3/8	1/2	3/8	3.6	5.3	
1/2	1/2	3/8	3.3	5.3	
	1	3/4	10	13	5.0 (2.3)
3/4	1	3/4	12	15	
1	1	3/4	12	16	
	1-1/2	1-1/4	23	34	8.8 (4.0)
1-1/4	1-1/2	1-1/4	30	32	
1-1/2	1-1/2	1-1/4	30	31	

Ordering Information

INTERNAL PRESSURE CONTROLLED — 3-Way 2-Position Valves

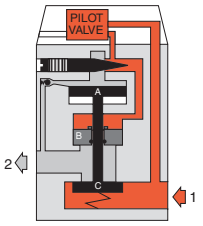
Port Size		Body Size	Valve Model Number	
In-Out	Exhaust		G Thread	NPT Thread
1/4	1/2	3/8	D2783C2037	2783C2037
3/8	1/2	3/8	D2783C3037	2783C3037
1/2	1/2	3/8	D2783C4047	2783C4047
	1	3/4	D2783C4037	2783C4037
3/4	1	3/4	D2783C5037	2783C5037
1	1	3/4	D2783C6047	2783C6047
	1-1/2	1-1/4	D2783B6037	2783B6037
1-1/4	1-1/2	1-1/4	D2783B7037	2783B7037
1-1/2	1-1/2	1-1/4	D2783B8047	2783B8047

Port Size		Body Size	Flow C_V		Weight lb (kg)
1, 2	3		1-2	2-3	
1/4	1/2	3/8	2.5	3.1	4.5 (2.0)
3/8	1/2	3/8	3.6	5.3	
1/2	1/2	3/8	3.3	5.3	
	1	3/4	10	13	5.0 (2.3)
3/4	1	3/4	12	15	
1	1	3/4	12	16	
	1-1/2	1-1/4	23	34	8.8 (4.0)
1-1/4	1-1/2	1-1/4	30	32	
1-1/2	1-1/2	1-1/4	30	31	

Solenoid Pilot Controlled Valves

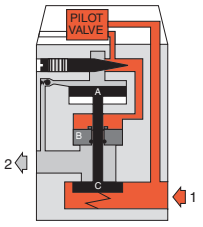
Pilot Not Energized

Pilot air is blocked by the pilot. Any downstream pressure forces piston B (which slides on the valve stem) upward. This opens the exhaust port and vents the downstream line.



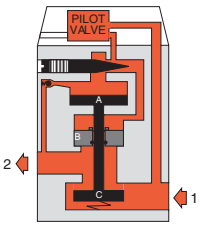
Pilot Energized

Pilot air forces piston B downward to close the exhaust port. Pilot air also flows past the adjusting needle, opens the ball check and begins slowly to pressurize the outlet line. At the same time, pressure is building up on piston A.



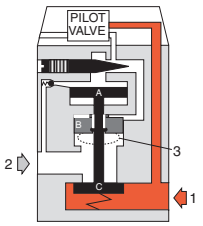
Full Pressure

When the pressure on piston A reaches approximately 50 percent of inlet pressure, it is forced downward and opens inlet poppet C. Full inlet pressure now flows freely to the outlet port.



Pilot De-energized

Air above pistons A and B is exhausted through the exhaust port of the pilot valve. Air above poppet C forces sliding piston B upward so that the main exhaust port is opened and the pressurized air is exhausted.

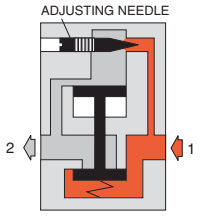


Valve Operation

Internal Pressure Controlled Valves

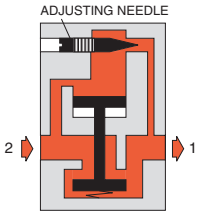
Air Pressure to Inlet

When air pressure is first applied to the inlet, air flow to the piston is restricted by the adjustable needle in the delay orifice. Downstream air pressure gradually builds up at a rate determined by the setting of the adjustable needle.



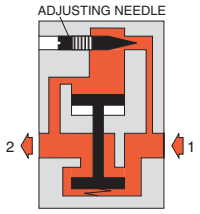
Inlet Pressure Removed

When inlet pressure is removed, the exhausting downstream air pressure keeps the inlet poppet open until the downstream pressure drops by approximately 90 percent. The remaining pressure is exhausted via the delay orifice.



Valve Opens to Full Flow

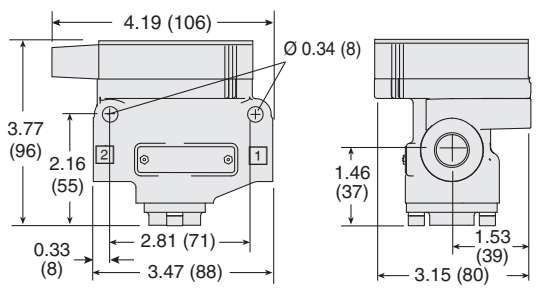
When downstream air pressure reaches approximately 40 to 60 percent of inlet pressure, the valve element shifts to the full open position and there is full air flow to the downstream components. This condition continues as long as inlet air pressure is present.



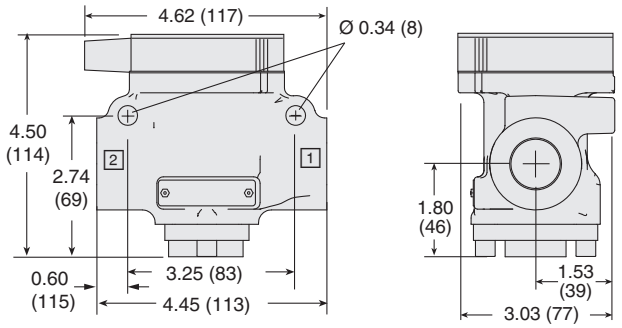
2/2-Way Pressure Controlled Valves

DIMENSIONS — Inches (mm)

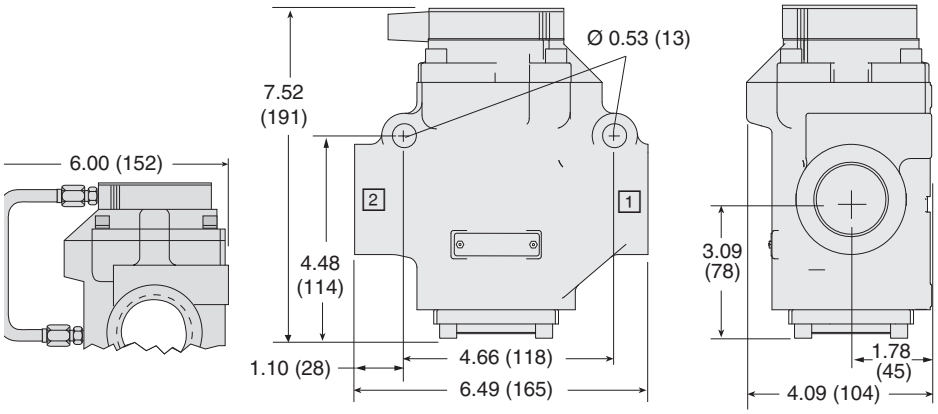
Body Size 3/8



Body Size 3/4



Body Size 1-1/4



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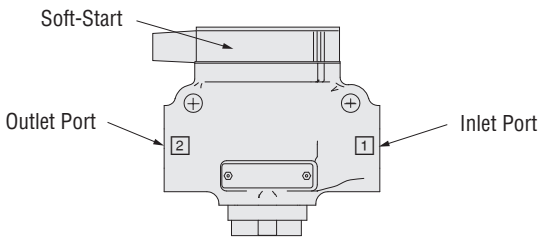
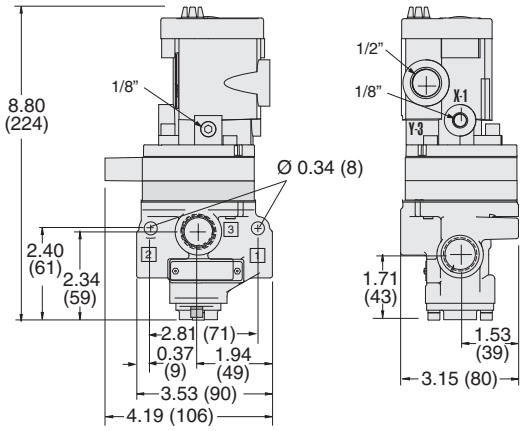


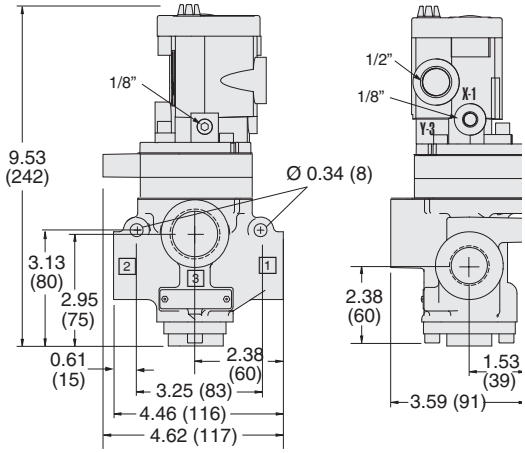
3/2-Way Solenoid Pilot Controlled Valves

DIMENSIONS — Inches (mm)

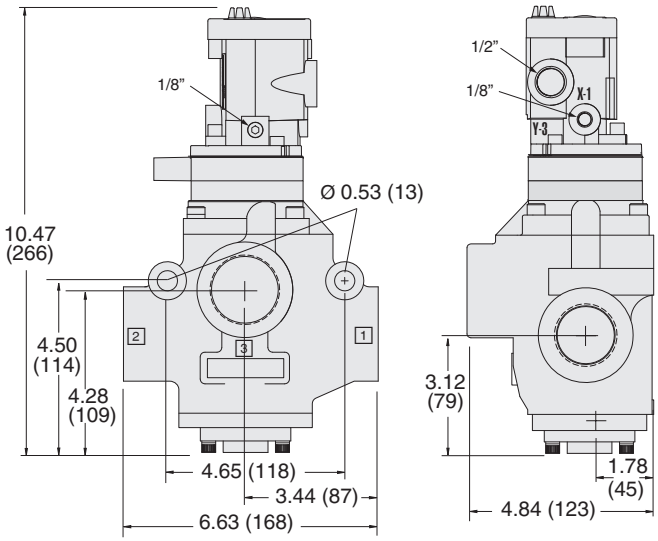
Body Size 3/8



Body Size 3/4



Body Size 1-1/4



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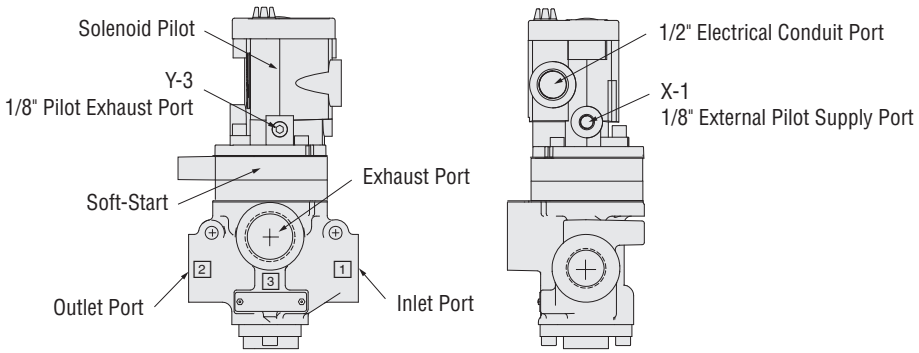
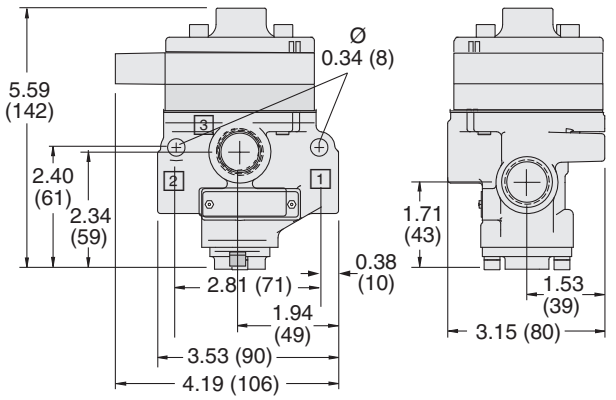


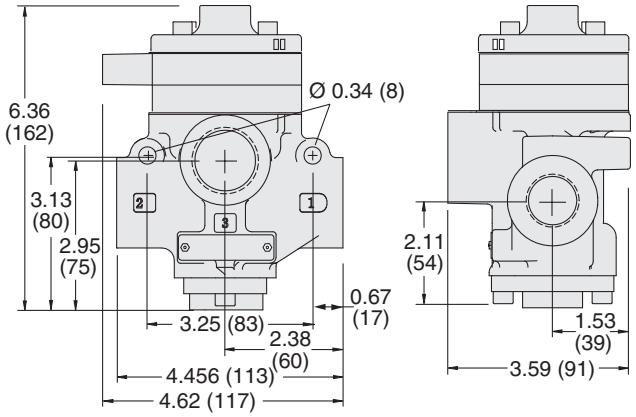
3/2-Way Pressure Controlled Valves

DIMENSIONS — Inches (mm)

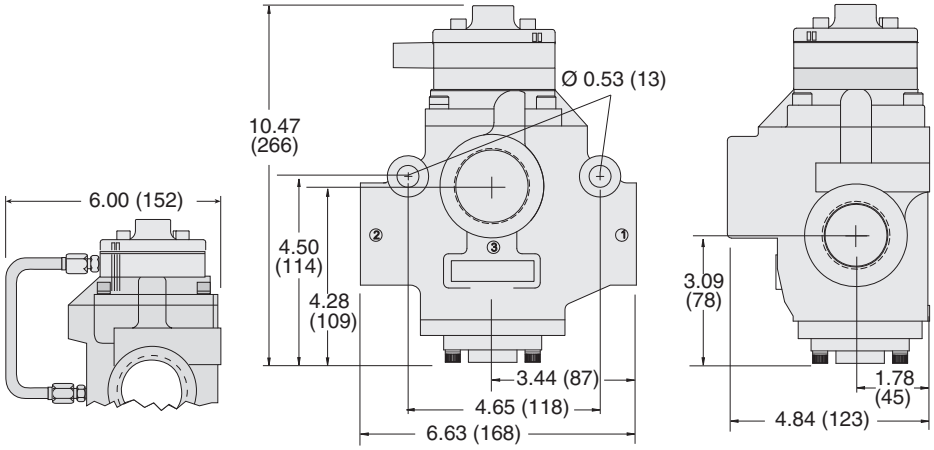
Body Size 3/8



Body Size 3/4



Body Size 1-1/4



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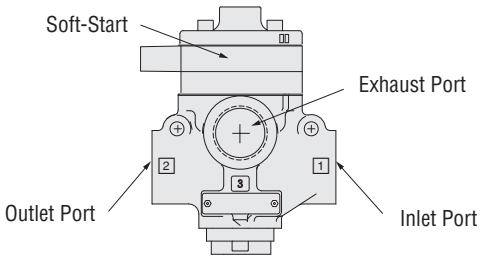


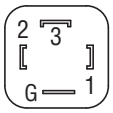
Accessories & Options

ENERGY RELEASE VERIFICATION

	Verification Type	Installation Location	Connector Type	Model Number	Port Thread	Factory Preset psi (bar)
Pressure Switch	Electrical	Downstream	DIN EN 175301-803 Form A	586A86	1/8 NPT	5 (0.3) falling

Connector Pinout

DIN EN 175301-803 Form A



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

SILENCERS

	Port Size	Thread Type	Model Number		Flow Avg. C_v	Pressure Range psig (bar)
			R/Rp Thread	NPT Thread		
Silencers	1/2	Male	D5500A4003	5500A4003	4.7	0-290 (0-20) maximum
	1	Male	D5500A6003	5500A6003	15	
	1-1/2	Female	D5500A8001	5500A8001	30	

SOLENOID PILOT OPTIONS

	Kit Number		
	24 V DC	110-120 V AC, 50-60 Hz	230 V AC, 50-60 Hz
Indicator Light Kits	862K87-W	862K87-Z	862K87-Y

	Flush Button		Extended Button		Extended Button with Palm	
	Locking Type	Kit Number	Locking Type	Kit Number	Locking Type	Kit Number
Manual Override Kits	Non-Locking	790K87	Non-Locking	791K87	Non-Locking	984H87
	Locking	792K87				
	Each of the buttons in the override kits 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.					