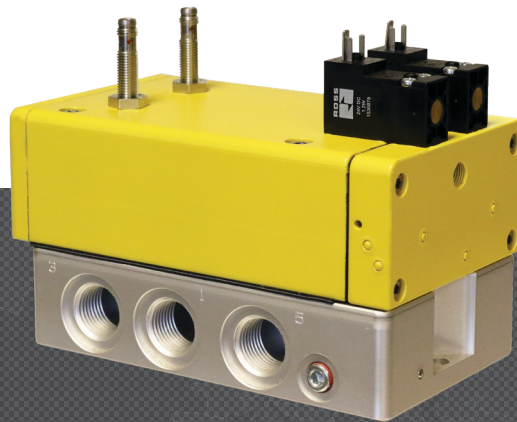




# SAFE RETURN DUAL PRESSURE RSe SERIES 5/2 DOUBLE VALVES

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## PRODUCT CATALOG

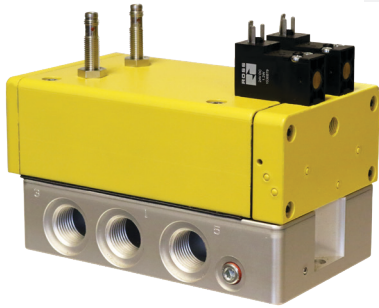


# Control Reliable 5/2 Double Valves RSe Series – for Safe Return Dual Pressure Applications

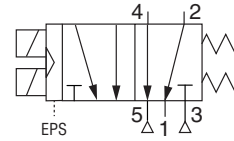
## Product Overview

### Safety Function

The RSe Series valve safety function is to return the cylinder/actuator to its home “safe” position whenever a fault occurs within the valve.



### Simplified Schematic



The 5/2 RSe Series valve can also be utilized for Safe Return Dual Pressure Applications to control pressure in order to extend a cylinder with the supply pressure at port 3 and retract with the supply pressure at port 5. The fail-to-safe condition is also to retract. The safety function of the 5/2 RSe Series safe return dual pressure valve is to return the cylinder/actuator to its home “safe” position whenever a fault occurs within the valve by supplying pressure from port 5 to port 4 with port 2 being exhausted out of port 1 and the pressure supplied to port 3 is blocked. Using the RSe valve in a Safe Return Dual Pressure Application can reduce overall air consumption of a machine, and helps protect the environment. However, the RSe Series does this with the same level of control, up to Category 4, PL e, expected of the machine’s/system’s safety circuit.

The RSe Series valves are designed for external monitoring for safe, redundant operation of the valves. Such a monitoring system must be capable of inhibiting the operation of the valve. The RSe Series valves are constructed of redundant 5/2 spool type valves, and have an overall function of a single solenoid pilot-operated, spring return valve. Each single valve in the RSe Series is equipped with a PNP proximity sensor. Monitoring both of these sensors on each actuation and de-actuation of the RSe Series valve provides a diagnostic coverage of 99%. Monitoring of these sensors is to be done by an external monitoring system.

## VALVE FEATURES

<b>Redundant Control</b>	Redundant control can achieve Category 4, PL e, when used with proper safety controls
<b>External Monitoring</b>	Each single valve in the RSe Series is equipped with a PNP proximity sensor. Monitoring both of these sensors on each actuation and de-actuation of the RSe Series valve provides a diagnostic coverage up to 99%. Monitoring of these sensors is to be done by an external monitoring system.
<b>Spool Type Design</b>	Redundant spool type valve with two operating solenoids that must be operated simultaneously in order to actuate the valve. In addition each valve element has a single, proximity sensor that is wired as a PNP type sensor for position sensing.
<b>Valve Reset</b>	Automatic reset by de-energizing the solenoids
<b>Mounting</b>	Base mounted – with G or NPT pipe threads. Inlet and outlet ports on both sides provide for flexible piping (plugs for unused ports included). Captive valve-to-base mounting screws.
<b>Silencer</b>	Included
<b>SISTEMA Library</b>	Available for download at <a href="http://rosscontrols.com">rosscontrols.com</a>

*These valves are not designed for controlling clutch/brake mechanisms on mechanical power presses, see DM<sup>®</sup> Series D double valves for mechanical power press applications.*

## STANDARD SPECIFICATIONS

<b>GENERAL</b>	Function		Safe Return Dual Pressure
	Construction Design		5/2 Normally Closed Valve, Dual Spool and Sleeve
	Actuation		Electrical – Solenoid pilot operated with air assisted spring return. One solenoid per valve element (2 total) – both to be operated synchronously.
	Mounting	Type	Sub-Base
		Orientation	Any, preferably vertical
	Connection		Threaded; G, NPT
	Monitoring		Dynamic, cyclical, external with customer supplied equipment. Monitoring should check state of both valve position sensors with any and all changes in state of valve control signals.
	Minimum Operation Frequency		Once per month, to ensure proper function
Maximum Recommended Allowable Discordance Time		250 msec	
<b>OPERATING CONDITIONS</b>	Temperature	Ambient	40° to 120°F (4° to 50°C)
		Media	
	Flow Media		Compressed air according to ISO 8573-1 Class 7:4:4
	Pilot Supply		Internal or External
	Operating Pressure	With Internal Pilot Supply	43 to 145 psig (3 to 10 bar)
		With External Pilot Supply	0 to 145 psig (0 to 10 bar)
	Pressure Sensors (2 per valve)		PNP solid state
Pressure Sensors Current Consumption (each sensor)		<23mA (each without contacts)	
<b>ELECTRICAL DATA</b>	Solenoids		Version as per VDE 0580. Rated for continuous duty Electrical connection according to DIN EN 175301-803 Form C
	Operating Voltage		24 volts DC
	Power Consumption (each solenoid)		15 watts
	Enclosure Rating		DIN 400 50 IP 65
	Electrical Connection		DIN EN 175301-803 Form C
	Proximity Sensors (2 per valve)		PNP
	Current Consumption (each sensor)		<23mA
<b>CONSTRUCTION MATERIAL</b>	Valve Body		Cast Aluminum
	Poppet		Stainless Steel
	Seals		Buna-N
<b>SAFETY DATA</b>	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		Tested to DIN EN 60068-2-6

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

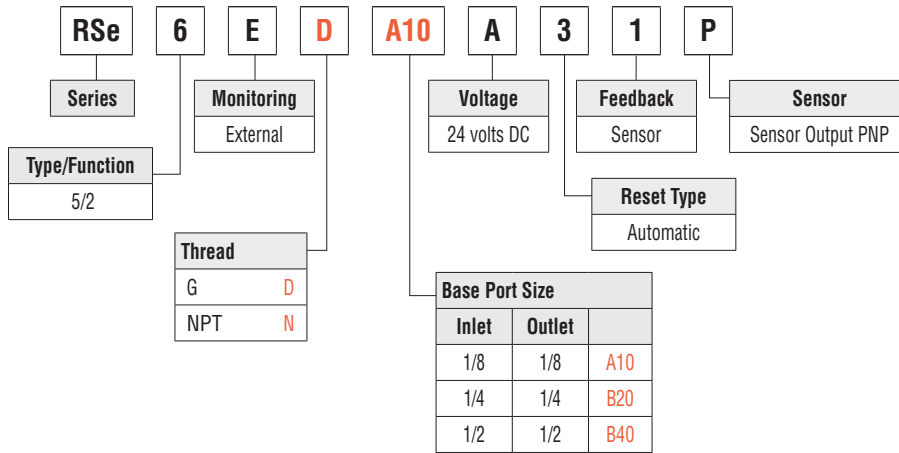
## PRODUCT CREDENTIALS

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

# Ordering Information

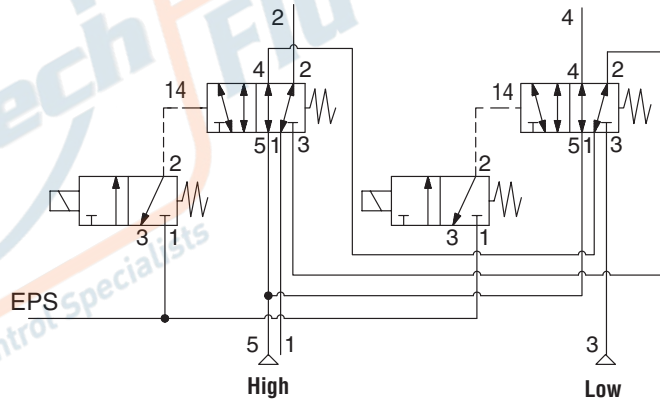
## MODEL NUMBER CONFIGURATOR

## 5-Way 2-Position Valves



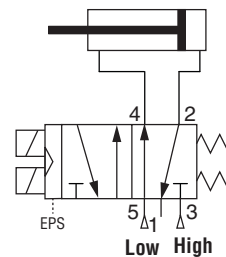
Port Size	C <sub>v</sub>				Weight lb (Kg)
	5-4	2-1	3-2	4-1	
1/8	0.82	0.87	0.57	0.65	2.9 (1.3)
1/4	1.09	1.14	0.78	0.84	3.7 (1.7)
1/2	3.83	3.48	2.00	1.76	6.6 (2.99)

### Valve Schematic



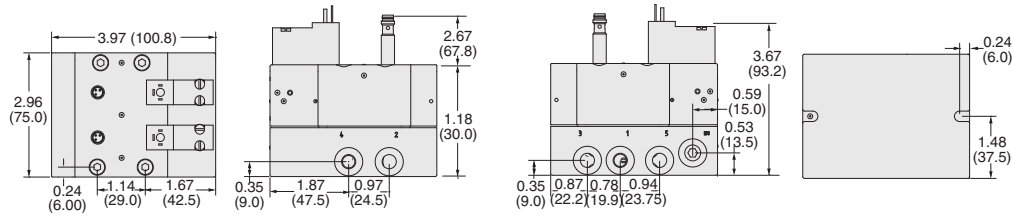
### Application Example

#### Typical Energy Saving Circuit

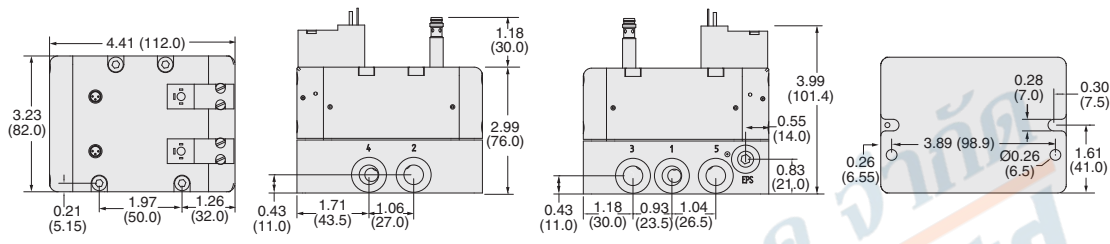


**DIMENSIONS** Inches (mm)

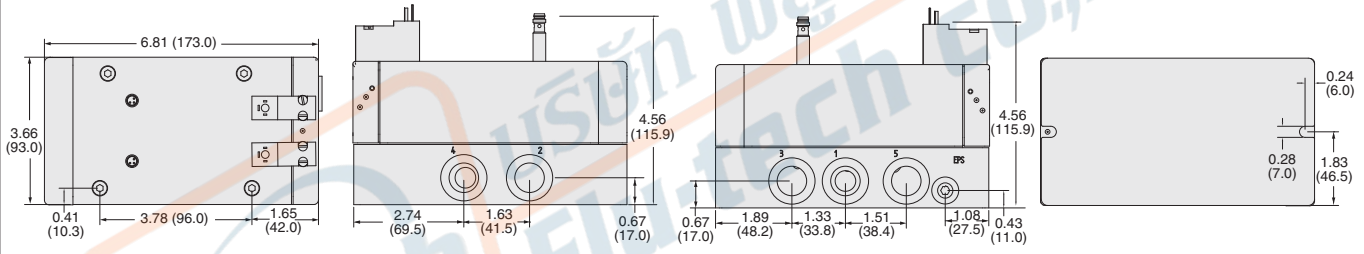
**Port Size 1/8**



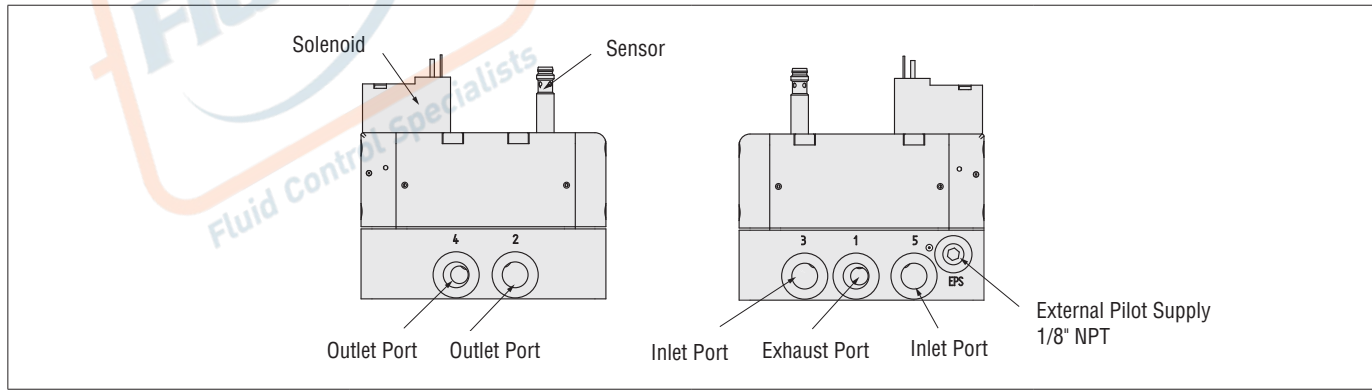
**Port Size 1/4**



**Port Size 1/2**



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



An integration Guide for RSe Series 3/2 valves is available from ROSS to provide information such as operation, monitoring, and integration into users control circuits, please visit [www.rosscontrols.com](http://www.rosscontrols.com).

**Integration Guide - 5/2 RSe Series Double Valves for Safe Return Dual Pressure Applications**

# Accessories & Options

## ENERGY RELEASE VERIFICATION

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

Redundant Pressure Switch Assembly	Verification Type	Installation Location	Connector Type	Model Number	Port Size	Factory Preset psi (bar)
	Electrical (Dual)	Downstream	DIN EN 175301-803 Form A	RC026-13	3/8 NPT	5 (0.3) falling

### Connectors Pinout

#### DIN EN 175301-803 Form A



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

## ELECTRICAL CONNECTORS

Pre-wired Connector Kits	Connection Type		Connector Type	Quantity	End 1	End 2	Length meters (feet)	Kit Number
								Without Light
	Solenoid & Sensor	Solenoid	DIN EN 175301-803 Form C	2	Connector	Flying leads	2 (6.5)	2657B77
		Sensor	M8	2				

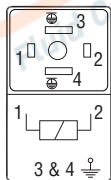
Pre-wired Connectors	Connection Type	Connector Type	Quantity	End 1	End 2	Length meters (feet)	Cord Diameter	Model Number	
								Without Light	Lighted Connector
								24 V DC	
Solenoid	DIN EN 175301-803 Form C	1	Connector	Flying leads	3 (10)	8-mm	2449K77	2450K77-W	
Sensor	M8	1	Connector	Flying leads	2 (6.5)	-	249L74	-	

Connectors (no cable)	Connection Type	Connector Type	Quantity	Model Number	
				Without Light	Lighted Connector
				24 V DC	
Solenoid	DIN EN 175301-803 Form C	1	2452K77	2453K77-W	

### Connectors Pinout

#### Solenoid

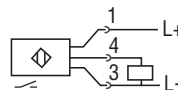
#### DIN EN 175301-803 Form C



- 1 - Brown
- 2 - Blue
- 3 - Green/Yellow (Ground)
- 4 - Green/Yellow (Ground)

#### Sensor

#### M8



- 1 - Common
- 2 - Normally Closed
- 3 - Not Used

## SILENCERS

Silencers	Port Size	Thread Type	Model Number		Flow Avg. C <sub>v</sub>	Pressure Range psig (bar)
			R Thread	NPT Thread		
			1/8	Male		
1/4	Male	D5500A2003	5500A2003	2.1		
1/2	Male	D5500A4003	5500A4003	4.7		