



SAFE EXHAUST 3/2 DOUBLE VALVES RSe SERIES

PRODUCT CATALOG

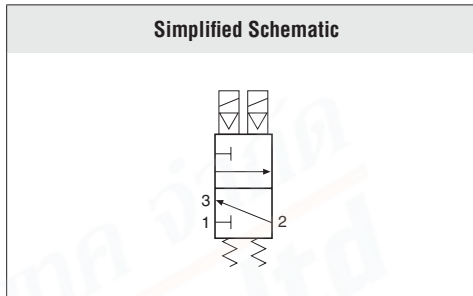


3/2 Control Reliable Double Valves RSe Series

Product Overview

Safe Exhaust Safety Function

The RSe Series valve safety function is to shut off supply or pneumatic energy and to exhaust any pneumatic energy from downstream of the valve.



The 3/2 RSe Series valve is designed to supply air to a zone or entire machine/system until signaled to shut off and exhaust residual downstream pneumatic energy from the machine. Thus, reducing the hazards associated with the presence of residual energy during employee access and/or minor servicing. The safety function of the 3/2 RSe Series valve is to shut off supply of pneumatic energy and to exhaust any pneumatic energy from downstream of the valve. Note: The 3/2 RSe Series valve cannot exhaust pneumatic energy from downstream of obstructions such as check valves and closed center function valves.

The RSe Series valves are designed for external monitoring for safe, redundant operation of the valves. The RSe Series valves are constructed of redundant, 3/2 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

Redundant Control	Redundant control can achieve Category 4, PL e, when used with proper safety controls
External Monitoring	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.
Spool Type Design	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.
Valve Reset	Automatic reset by de-energizing the solenoids
Mounting	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.
Silencer	Included
SISTEMA Library	Available for download at rosscontrols.com

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

STANDARD SPECIFICATIONS			
GENERAL	Function		Safe Exhaust
	Construction Design		3/2 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	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	
OPERATING CONDITIONS	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)
	External Pilot Supply		Must be equal to or greater than inlet pressure
Pressure Sensors (2 per valve)		PNP solid state	
Pressure Sensors Current Consumption (each sensor)		<23mA (each without contacts)	
ELECTRICAL DATA	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
	Current Consumption (each sensor)		<23mA
CONSTRUCTION MATERIAL	Valve Body		Cast Aluminum
	Poppet		Stainless Steel
	Seals		Buna-N
SAFETY DATA	Functional Safety Data	Category	CAT 4, PL e
		B _{10D}	20,000,000
		PFH _D	7.71x10 ⁻⁹
	MTTF _D	301.9 (n _{op} : 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.

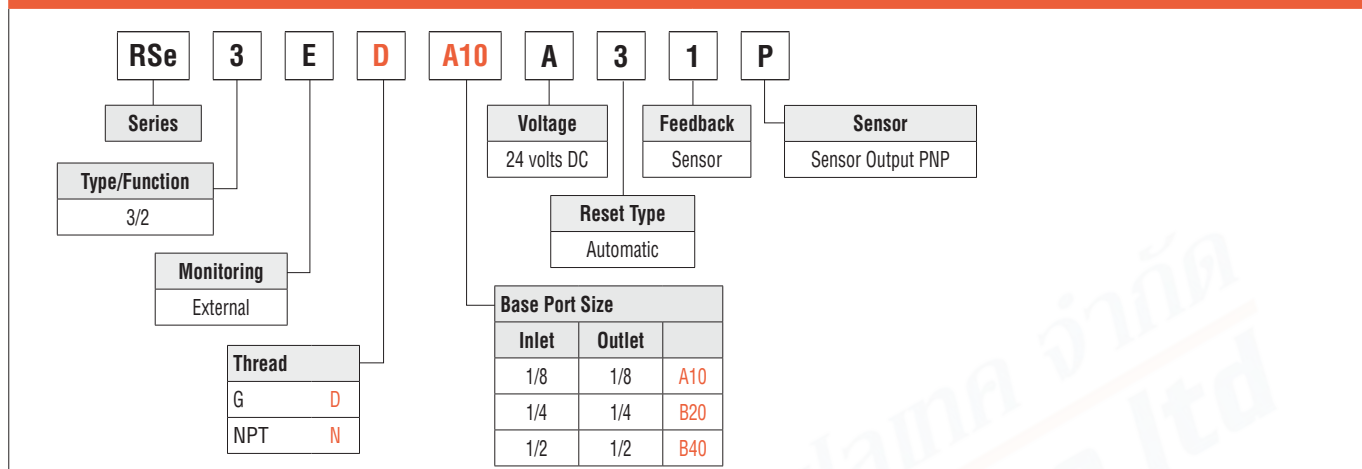
PRODUCT CREDENTIALS						
Safety Category	DGUV (German Social Accident Insurance)	CE Conformity Declaration	EAC Conformity Declaration	ISO Standard	CSA Certificate of Compliance	CRN Certification
				ISO 13849-1:2015		Available for appropriately tested valves



Ordering Information

MODEL NUMBER CONFIGURATOR

3-Way 2-Position Valves

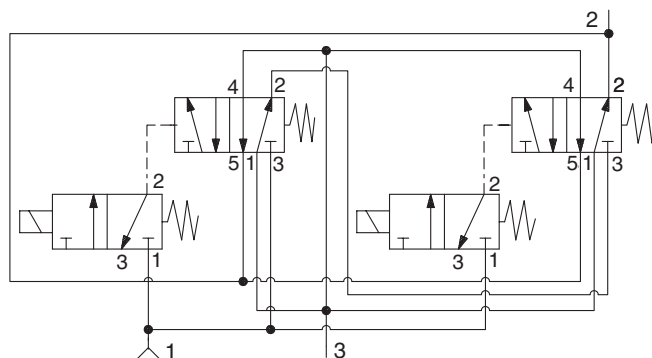


Port Size	Flow C _v		Weight lb (Kg)
	1-2	2-3	
1/8	0.63	1.03	2.9 (1.3)
1/4	0.85	1.75	3.7 (1.7)
1/2	1.96	5.27	6.6 (3.0)

Exhaust Time – Normal and Faulted Conditions (s)

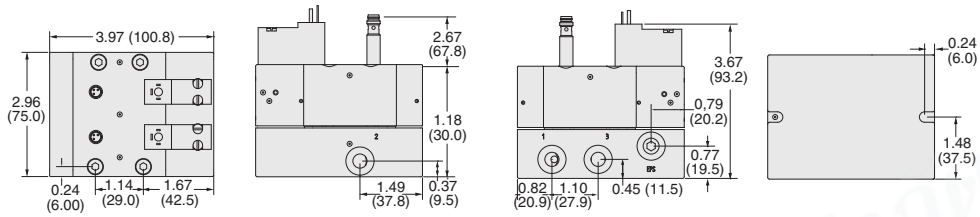
Volume (L)	Normal or Faulted	Port Size 1/8						Port Size 1/4						Port Size 1/2					
		Operating Pressure						Operating Pressure						Operating Pressure					
		3 bar		6 bar		10 bar		3 bar		6 bar		10 bar		3 bar		6 bar		10 bar	
		to 1.0 bar	to 0.5 bar	to 1.0 bar	to 0.5 bar	to 1.0 bar	to 0.5 bar	to 1.0 bar	to 0.5 bar	to 1.0 bar	to 0.5 bar	to 1.0 bar	to 0.5 bar	to 1.0 bar	to 0.5 bar	to 1.0 bar	to 0.5 bar	to 1.0 bar	to 0.5 bar
2	N	0.206	0.292	0.391	0.497	0.554	0.647	0.159	0.222	0.299	0.364	0.400	0.463	0.163	0.184	0.242	0.270	0.331	0.356
	F	0.233	0.342	0.428	0.540	0.610	0.721	0.190	0.257	0.340	0.424	0.458	0.539	0.169	0.198	0.252	0.283	0.347	0.377
10	N	0.892	1.280	1.761	2.272	2.498	2.912	0.589	0.894	1.202	1.512	1.706	2.001	0.373	0.470	0.538	0.676	0.788	0.906
	F	1.002	1.535	1.895	2.436	2.759	3.285	0.722	1.038	1.390	1.816	1.959	2.345	0.389	0.531	0.582	0.735	0.832	0.972
20	N	1.750	2.516	3.474	4.490	4.927	5.744	1.127	1.733	2.331	2.947	3.339	3.924	0.635	0.826	0.907	1.183	1.359	1.594
	F	1.963	3.027	3.728	4.806	5.445	6.490	1.388	2.015	2.702	3.555	3.836	4.603	0.664	0.947	0.994	1.300	1.437	1.715
40	N	3.465	4.988	6.901	8.927	9.785	11.408	2.202	3.411	4.590	5.816	6.604	7.769	1.159	1.539	1.646	2.198	2.502	2.969
	F	3.885	6.010	7.396	9.546	10.817	12.900	2.719	3.968	5.326	7.033	7.589	9.118	1.213	1.781	1.818	2.429	2.648	3.201
150	N	12.898	18.581	25.746	33.327	36.508	42.557	8.116	12.642	17.011	21.600	24.561	28.918	4.041	5.459	5.711	7.778	8.785	10.531
	F	14.458	22.419	27.566	35.614	40.361	48.155	10.041	14.712	19.758	26.162	28.230	33.952	4.234	6.364	6.351	8.640	9.309	11.373

Valve Schematic

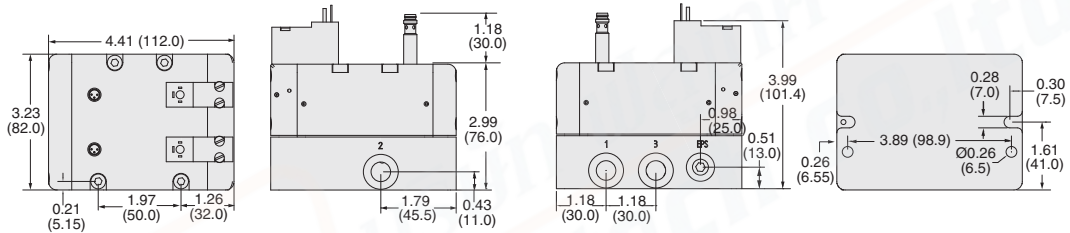


DIMENSIONS Inches (mm)

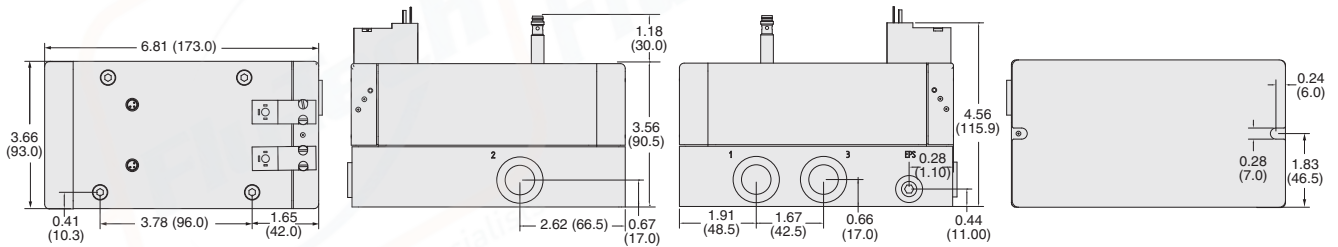
Port Size 1/8



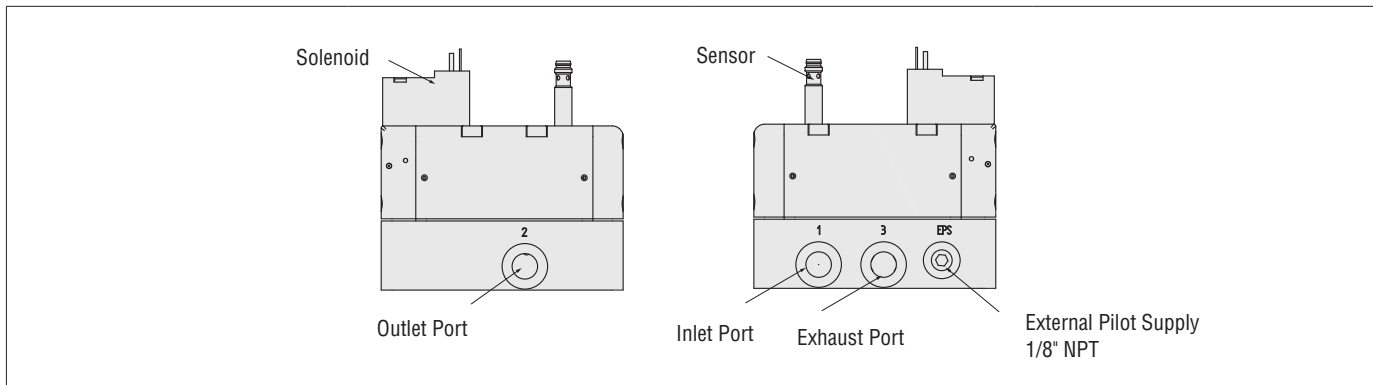
Port Size 1/4



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.



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.

Integration Guide - 3/2 RSe Series Safe Exhaust Double Valves

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 Kit	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				

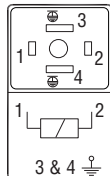
Pre-wired Connectors	Connection Type	Connector Type	Quantity	End 1	End 2	Length meters (feet)	Cord Diameter	Model Number	
								Without Light	Lighted Connector
								24 V DC	
Solenoid	DIN EN 175301-803 Form C	1	Connector	Flying leads	3 (10)	8-mm	2449K77	2450K77-W	
Sensor	M8	1	Connector	Flying leads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

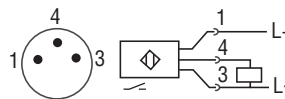
DIN EN 175301-803 Form C



- 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 _v	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		