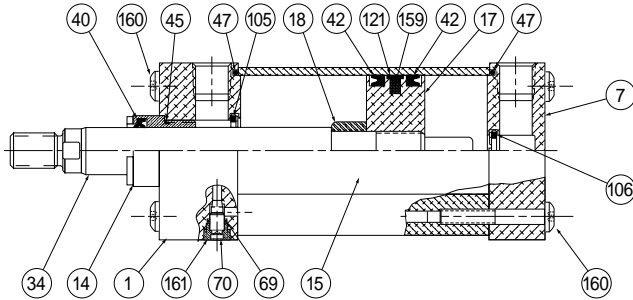
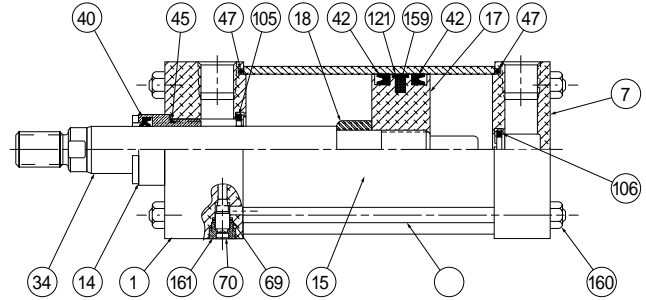


Econo-Ram II™ Series Air Cylinders

Parts Identification & Seal Kits



1 1/2" to 4" Bore Sizes



5" to 8" Bore Sizes

Symbol Number	Description
1	Head
7	Cap
14	Gland
15	Cylinder Body
17	Piston
18	Cushion Sleeve
19	Tie Rod
23	Tie Rod Nut
34	Piston Rod
40	Rod Wiper-Seal
42	Lip Seal-Piston

Symbol Number	Description
45	O-Ring-Head to Gland
47	O-Ring-End Seal
69	O-Ring-Needle Valve
70	Needle Valve
105	Cushion Check Seal-Head
106	Cushion Check Seal-Cap
121	Wear Strip
159	Magnetic Ring
160	Fastener-Tie Bolt
161	Needle Valve-Retainer

Bore Size	Rod Dia.	Rod Gland Cartridge Kit		Rod Seal Kit		Gland Wrench	Spanner Wrench	Gland to Head Torque
		Consisting of: 1 ea. symbol #14, 40, & 45		Consisting of: 1 ea. symbol # 40, & 45				
		NITRILE Seals	VITON Seals	NITRILE Seals	VITON Seals			
		Part No.	Part No.	Part No.	Part No.	Part No.	Part No.	Ft. Lbs.
1 1/4"	1/2"	B732-1152	B732-1153	B732-1154	B732-1155	0695900000	0116760000	35 - 40
1 1/2"	5/8"	B732-700	B732-730	B732-940	B732-740	0695900000	0116760000	40 - 45
2"	5/8"	B732-700	B732-730	B732-940	B732-740	0695900000	0116760000	40 - 45
	1"	B732-702	B732-731	B732-941	B732-741	0695910000	0116760000	45 - 50
2 1/2"	5/8"	B732-700	B732-730	B732-940	B732-740	0695900000	0116760000	40 - 45
	1"	B732-702	B732-731	B732-941	B732-741	0695910000	0116760000	45 - 50
3 1/4"	1"	B732-702	B732-731	B732-941	B732-741	0695910000	0116760000	45 - 50
	1 3/8"	B732-706	B732-732	B732-942	B732-742	0695920000	0117030000	75 - 80
4"	1"	B732-702	B732-731	B732-941	B732-741	0695910000	0116760000	45 - 50
	1 3/8"	B732-706	B732-732	B732-942	B732-742	0695920000	0117030000	75 - 80
5"	1"	B732-702	B732-731	B732-941	B732-741	0695910000	0116760000	45 - 50
	1 3/8"	B732-706	B732-732	B732-942	B732-742	0695920000	0117030000	75 - 80
6"	1 3/8"	B732-706	B732-732	B732-942	B732-742	0695920000	0117030000	75 - 80
	1 3/4"	B732-707	B732-733	B732-943	B732-743	0695930000	0116770000	90 - 95
8"	1 3/8"	B732-706	B732-732	B732-942	B732-742	0695920000	0117030000	75 - 80
	1 3/4"	B732-707	B732-733	B732-943	B732-743	0695930000	0116770000	90 - 95

Bore Size	Piston Seal Kit		SYMBOL #159 Magnetic Ring (if Required)	Cylinder Body End Seal Kit		Fastener Bolt/Tie Rod Torque Units	
	Consisting of: 2 each symbol # 42 & 47 plus 1 each symbol # 121. NOTE: (Order - Magnetic Ring symbol # 159 - separately if required)			Consisting of: 2 each symbol #47			
	NITRILE Seals	VITON Seals	(NITRILE ONLY)	NITRILE Seals	VITON Seals	U.S.A.	Metric
	Part No.	Part No.	Part No.	Part No.	Part No.		
1 1/4"	B732-1156	B732-1157	1475790032	B732-1158	B732-1159	32 + 4 inch lbs.	3.6 + 0.5 nm
1 1/2"	B732-750	B732-770	0865130151	B732-760	B732-780	32 + 4 inch lbs.	3.6 + 0.5 nm
2"	B732-751	B732-771	0865130200	B732-761	B732-781	72 + 10 inch lbs.	8 + 1 nm
2 1/2"	B732-752	B732-772	0865130250	B732-762	B732-782	72 + 10 inch lbs.	8 + 1 nm
3 1/4"	B732-753	B732-773	0865130325	B732-763	B732-783	216 + 12 inch lbs.	24 + 1.3 nm
4"	B732-754	B732-774	0865130400	B732-764	B732-784	216 + 12 inch lbs.	24 + 1.3 nm
5"	B732-755	B732-775	0865130500	B732-765	B732-785	30 + 1 ft. lbs.	41 + 1 nm
6"	B732-756	B732-776	0865130600	B732-766	B732-786	35 + 1 ft. lbs.	48 + 1 nm
8"	B732-757	B732-777	0865130800	B732-767	B732-787	80 + 1 ft. lbs.	109 + 6 nm

For additional information – call your local
Schrader Bellows Distributor.

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Econo-Ram II™ Series Air Cylinders

Switches

Series Econo-Ram II Switch Specifications

	Reed Switch Assembly	Solid State Switch Assembly	Reed Switch Assembly	Solid State Switch Assembly
Switching Logic	Normally open, SPST (Form A)	NPN or PNP	Operating Temperature	14° to 140°F (-10° to 60°C)
Supply Voltage Range	85 to 125 VAC or 5-30 VDC ¹	10-30 VDC	Storage Temperature	-4° to 140°F (-20° to 60°C)
On-State Voltage Drop	1.7 V Maximum	See Circuits Below	Enclosure Protection	Nema 6, IEC IP67
Current Output Range	—	Up to 100 mA at 12 VDC Up to 200 mA at 24 VDC	Lead Wire	2 conductor, 24 Gauge
Burden Current	—	7 mA at 12 VDC 16 mA at 24 VDC	Lead Wire Length	39 Inches, 1 Meter
Power Rating	10 Watts (Resistive) 5 Watts (Capacitive)		Color of Cable	Black
Switching Current Range	30 mA to 200 mA (Resistive) 30 mA to 100 mA (Capacitive)		Switching Response	300 Hz Maximum
Leakage Current	0	10µA	Shock Resistance	30g
LED Function	Red, Target Present	Red, Target Present	Vibration Resistance	10-55 Hz, 1.5 mm Double Amplitude
Minimum Current to Light LED	18 mA	1 mA		

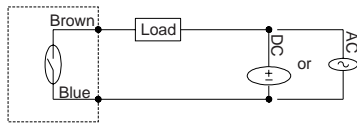
¹ Polarity is restricted to DC operation: (+) to Brown (White*) (-) to Blue (Black*)
If these connections are reversed the contacts will close, but the LED will not light.

*Note: For MT4 mounts, Tandem and Duplex cylinders, see Bulletin #SB0830-M2 for applicable switch part number.

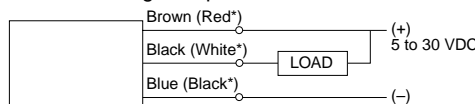
Circuits

Reed Switch L075250000
L074870000
Part No. L074860000

NOTE: Polarity must be observed for DC operation only.



NPN Sinking Output L075280000
L074880000
Part No. L074900000
Color of Cable Black
"On" State Voltage Drop 0.7V Maximum



PNP Sourcing Output L075310000
L074910000
Part No. L074920000
Color of Cable Gray
"On" State Voltage Drop 0.2V Maximum

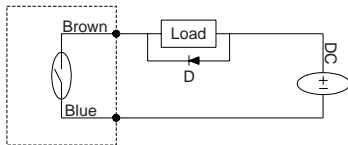


*Wire colors in parentheses pertain to switches manufactured before 10/15/93.

Circuit for Switching Contact Protection (Inductive Loads)

(Required for proper operation 24V DC)

Put Diode parallel to loads following polarity as shown below.



D: Diode: select a Diode with the breakdown voltage and current rating according to the load.

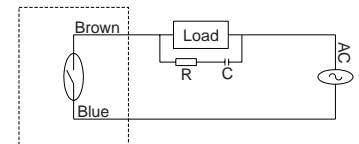
Typical Example—100 Volt, 1 Amp Diode
CR: Relay coil (under 0.5W coil rating)

(Recommended for longer life 125 VAC)

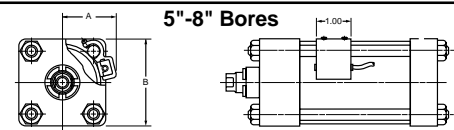
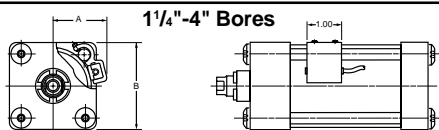
Put a resistor and capacitor in parallel with the load. Select the resistor and capacitor according to the load.

Typical Example:

CR: Relay coil (under 2W coil rating)
R: Resistor 1 KΩ – 5 KΩ, 1/4 W
C: Capacitor 0.1 µF, 600 V



Switch Mounting Data



Bore Size	Reed Switch Assembly	Solid State Switch Assembly		A	B	Piston Travel at Midstroke (Inches) (Switch On) (±.01)	Minimum Activation Distance from End of Stroke (Inches)	
		NPN Sinking	PNP Sourcing				Head	Cap
1 1/4	L075250000	L075280000	L075310000	1.30	1.93	.40	.06	.06
1 1/2	L074860000	L074880000	L074910000	1.46	2.12	.37	.06	.06
2	L074860000	L074880000	L074910000	1.68	2.57	.40	.12	.12
2 1/2	L074860000	L074880000	L074910000	1.90	2.99	.41	.07	.07
3 1/4	L074870000	L074900000	L074920000	2.24	3.73	.43	.13	.13
4	L074870000	L074900000	L074920000	2.55	4.37	.44	.11	.11
5	L074860000	L074880000	L074910000	2.88	5.25	.44	.06	.06
6	L074860000	L074880000	L074910000	3.25	6.12	.50	.06	.06
8	L074870000	L074900000	L074920000	4.06	8.00	.50	.06	.06

Caution

- Use an ammeter to test reed switch current. Testing devices such as incandescent light bulbs may subject the reed switch to high in-rush loads.
- NOTE: When checking an unpowered reed switch for continuity with a digital ohmmeter the resistance reading will change from infinity to a very large resistance (2 M ohm) when the switch is activated. This is due to the presence of a diode in the reed switch.
- Anti-magnetic shielding is recommended for reed switches exposed to high external RF or magnetic fields.
- The magnetic field strength of the piston magnet is designed to operate with our switches. Other manufacturers' switches or sensors may not operate correctly in conjunction with these magnets.
- Current capabilities are relative to operational temperatures.
- Use relay coils for reed switch contact protection.
- The operation of some 120 VAC PLC's (especially some older Allen-Bradley PLC's) can overload the reed switch. The switch may fail to release after the piston magnet has passed. This problem may be corrected by the placement of a 700 to 1K OHM resistor between the switch and the PLC input terminal. Consult the manufacturer of the PLC for appropriate circuit.
- Switches with long wire leads (greater than 15 feet) can cause capacitance build-up and sticking will result. Attach a resistor in series with the reed switch (the resistor should be installed as close as possible to the switch). The resistor should be selected such that R (ohms) >E/0.3.
- NOTE: On 5"-8" bores switch will not lay flush with cylinder body.

For additional information – call your local
Schrader Bellows Distributor.

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