Electric Drives and Controls | Hydraulics | Linear Motion and Assembly Technologies | Pneumatics | Service

Rexroth
Bosch Group

Pneumatic Directional Valves
Industrial Type

The Drive & Control Company

Slide Valves - Ceram™

Single subbase or manifold mounting

ISO 5599/1 Sizes 1, 2, 3 & 4

Poppet Valves

MiniBlock 3-Wa

Series 830 3-Way

Rotair® Block 4-Way

Series 840 4-Way
(In-line or manifold)

Series 740 4-Way
(In-line or manifold)

Spool Valves

CD-7 4-Way

TaskMaster® 4-Way

PowerMaster® 4-Way

Many other pneumatic directional control valves are available—see the selection on our Directional Control Valve Features Chart on the inside back cover of this catalog. Catalogs can be downloaded from www.boschrexroth-us.com/brp or request a catalog on a specific product at pneumatics@boschrexroth-us.com.

Pneumatic Directional Control Valves Index

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Metric equivalent valves and other components are available on our on-line catalog at www.boschrexroth-us.com/brp

Ceram™ Valves, ISO 5599/1 Sizes 1-4

Index

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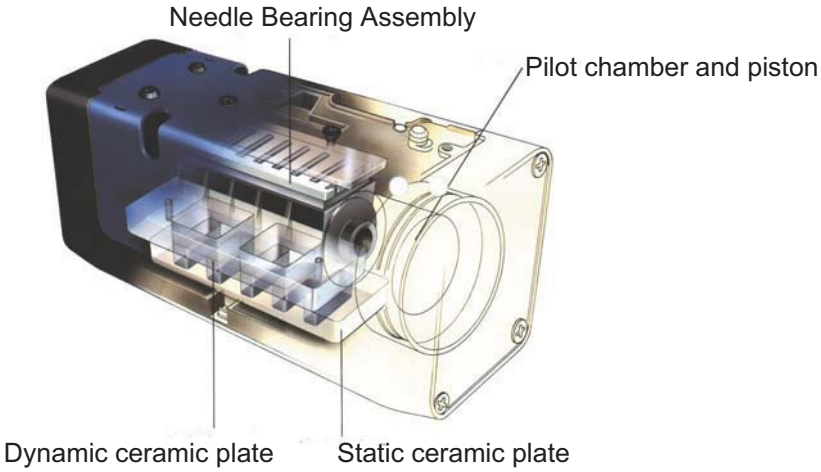


Ceram™ Valves, ISO 5599/1 Sizes 1-4

Specifications and features

Specified by industries that demand tough valves due to their harsh operating environment. Ceram™ valves are very prevalent in industries where ordinary valves just don't last. Industries such as: tire plants, foundries, paper mills, steel plants, concrete batch plants, sawmills, plywood and board plants, automotive assembly, glass manufacturers, rubber and plastics, sheet metal fabrication, etc.

Eliminate downtime–they don't stick

Normal air valves can stick or jam and cause start-up problems because of their inability to handle accumulations of dir, dust, oil or water in air lines. Not with the Ceram valve. There's no gap between the plates for dirt and oil to accumulate. The plates are finished so precise that they act like sliding magnets or jo blocks. Solenoid operators of the same voltage on standard valves are interchangeable between all sizes, reducing spare parts inventory and downtime.

They work great in normal applications too

Just because they are so popular in harsh environments, don't think they won't work great in a more normal application.

Ceram valves save air and money

The tight shut-off with Ceram valves eliminates costly loss of air that is common in other designs. Compressed air that you pay for.

Overcomes design limitations of other valves

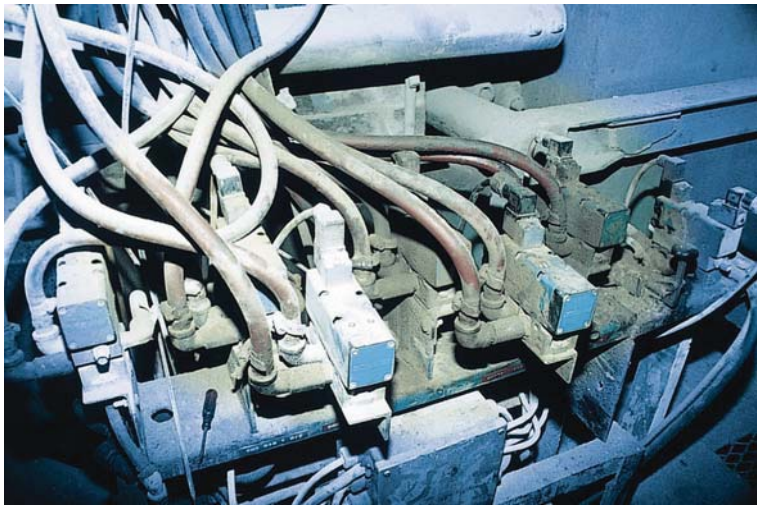
Lapped spool valves normally have a small gap between spool and sleeve that is prone to oil and dirt accumulation, resulting in sticking and the waste of air. Packed spool valves using elastomer seals are subject to deterioration and excessive wear when contamination and/or incompatible lubricants are present.

Extended life

Years of proven field service verifies an anticipated life of 150 million cycles even under adverse conditions.

World Standard ISO mounting

ISO 5599/1 mounting dimensions mean that wherever you send it, it's interchangeable with other ISO valves. Four basic valves sizes - ISO 1 through 4 with subbases or manifolds with NPT or ISO G (BSPP) ports.



Concrete batching plant application. Ceram valves withstand harsh conditions and dirty air without "sticking".

Valve Sizes/Specifications

Valve Size	Ports NPT, ISO G(BSPP)	C_v	S.C.F.M.*
Size 1	1/4", 3/8"	1.1	40 SCFM
Size 2	3/8", 1/2"	2.4	86 SCFM
Size 3	1/2", 3/4"	4.3	155 SCFM
Size 4	3/4",1"	7.5	269 SCFM

*Flow measured with 87 psi (6 bar) supply pressure and 14.5 psi (1 bar) pressure drop across the valve.

Summary of Specifications For Ceram Valves

TECHNICAL DATA:

Port Sizes: 1/4" - 3/8" ISO Size I, 3/8" - 1/2" ISO Size II
1/2" - 3/4" ISO Size III, 1" ISO Size IV

Working Pressure: 0 to 150 PSI (0 to 10.3 bar)
(Intrinsically Safe versions: Maximum internal pilot valve pressure is 115 PSI or 7.9 bar)
Vacuum applications: to 24" Hg

Pilot Pressure: SIZES I & II
29 PSI (2.0 bar) minimum, all 2 position valves
44 PSI (3.0 bar) minimum, all 3 position valves
150 PSI (10.3 bar) maximum
(Intrinsically Safe versions: Maximum external pilot pressure is 115 PSI or 7.9 bar)
SIZES III & IV
36 PSI (2.5 bar) minimum, all 2 position valve
44 PSI (3.0 bar) minimum, all 3 position valve
150 PSI(10.3 bar) maximum
(Intrinsically Safe versions: Maximum external pilot pressure is 115 PSI or 7.9 bar)

ISO I pictured

Flow:

Valve Size	I	II	III	IV
C_v	1.1	2.4	4.3	7.5
Nl/min	1100	2400	4300	7500

Temperature Range:
Solenoid Valves: +5°F to +150°F (-15°C to 66°C)
(-10°F or -12°C operation possible with low temperature solenoid operators. Available for 2-position double solenoid and air Spring return valves.)
Air Pilot Valves: -10°F to +175°F (-23°C to 79°C)

Media: Air, either Lubricated or Non-lubricated

Service Life: over 150 million Cycles with or without Line Lubrication

Material: Body - Die Cast Anodized Aluminum (Sizes II - IV)
Die Cast Zinc (Size I)
Valve Elements - Ceramic Slide Plates (Al_2O_3)

Combination Manual Override:
Explosion-proof models: Non-locking only
Other models: Locking & Non-Locking sizes I - IV (III and IV: Oct. '92 & later)
Non-Locking sizes III & IV (Prior to Oct. '92)

ELECTRICAL DATA:

ISO Valve Size	Standard Voltages (All coils are rated for continuous duty)	Power Consumption	
		Inrush	Holding
I and II (III and IV Oct. '92 and later)	24 VAC - 50/60 Hz 110 VAC - 50 Hz/120 VAC - 60 Hz 220 VAC - 50 Hz/240 VAC - 60 Hz	6.4 VA	3.7 VA
	12, 24 VDC	2.7 W	
III and IV (Prior to Oct. '92)	120, 240 VAC (50/60 Hz)	15.6 VA	9.4 VA
	12, 24 VDC	6.1 W	

Voltage Tolerance: +/- 10% (Except for Explosion proof and Intrinsically safe solenoids.)

All standard valves are rated for NEMA 4.

SOLENOID CONNECTORS AND SUBBASES:

Plug-in solenoid connectors conform to DIN standard #43650 and must be ordered separately. **Order one connector per solenoid.** Connector options Include strain relief and one-half inch (1/2") conduit. Both are available in Lighted and non-lighted versions. 1/2" conduit connector also available in Metallic version; see page 89.

Subbases, manifold and accessories are ordered separately.

FEATURES

- Ceramic plates guaranteed for life of valve
- Sliding ceramic plates form seal
- Operates with or without line lubrication
- Interchangeable with other ISO valves
- Expected service life exceeds 150 million cycles
- NEMA 4 Standard
- Sub-bases and manifolds available 1/4" thru 1" NPT ISO G1/8 to G1 piping
- Wide range of accessories, including sandwich speed controls and regulators
- Explosion-proof and intrinsically safe solenoids available.
- Brad Harrison® Connector Solenoids
- U.L. and C.S.A. approved solenoids

Model Code Identification

OPERATORS
"14" END "12" END

GX - 0X 00 X X - 0 XX XX

G	X	0	X	(SIZE)	00	X	(DESCRIPTION)	X	(Solenoid Arrangement)
4-Way, 5-Ported CERAM Valve	S or T	0	1	ISO 1	3rd and 4th digits are always zero	1	3 Position Valves, Exhaust Open Ctr. Ext. Pilot	0	None
	S	0	2	ISO 2		2	3 Position Valves, Closed Ctr. Ext. Pilot	1	Single Solenoid
		0	3	ISO 3		3	3 Position Valves, Exhaust Open Ctr. Int. Pilot	2	Double Solenoid
		0	4	ISO 4		4	3 Position Valves, Closed Ctr. Internal Pilot		
						5	2 Position Valves, Ext. Pilot		
						6	2 Position Valves, Int. Pilot		

VALVE OPERATORS

03	•	2 or 3 Position ANSI 3 pin MiniConnection 120 VAC 50/60 Hz
04	•	2 or 3 Position ANSI 4 pin MicroConnection 24 VDC
05	•	2 or 3 Position ANSI 5 pin MiniConnection 120 VAC 50/60
06	•	2 or 3 Position ANSI 3 pin MiniConnection 24 VDC
07	•	2 or 3 Position ANSI 5 pin Mini.Dbl.Sol/Sgl.Conn.120 VAC 50/60 Hz
08	•	2 or 3 Position ANSI 5 pin Mini.Dbl.Sol/Sgl.Conn.24 VDC
09	•	2 or 3 Position ANSI 4 pin Micro.Dbl.Sol/Sgl.Conn.24 VDC
10	•	2 or 3 Position ANSI 5 pin MiniConnection 24 VDC
11		2 Position Low Temp Operator 120 VAC 50/60 Hz
13		2 Position Low Temp Operator 24 VDC
14		2 Position 240 VAC 50/60 Hz Low Temp
15		2 or 3 Position 12 VAC 50/60 Hz
16		2 or 3 Position 480 VAC 50/60 Hz or 253 VDC
17		2 or 3 Position 36 VDC
18		2 or 3 Position 76 VDC
19		2 or 3 Position 125 VDC
20		2 or 3 Position 24 VDC 2.1 W (For Contact Bridge)
24		2 Position 120 VAC 50/60 Hz
26		3 Position with Centering Springs 120 VAC 50/60 Hz
27		2 Position 240 VAC 50/60 Hz
29		3 Position with Centering Springs 240 VAC 50/60 Hz
33		Air Pilot—2 Position Valves
35		Air Pilot with Centering Springs—3 Position Valves
36		2 Position 12 VDC
38		3 Position with Centering Springs 12 VDC
39		2 Position 24 VDC
40	†	Metal Spring Return
41		3 Position with Centering Springs 24 VDC
43		Explosion Proof 2 Position 120 VAC 50/60 Hz
46		Explosion Proof 2 Position 24 VDC
49		Explosion Proof 2 Position 240 VAC 50/60 Hz
51	†	Air Spring Return
53		Explosion Proof 3 Pos. w/ Centering Springs 120 VAC 50/60 Hz
56		Explosion Proof 3 Pos. w/ Centering Springs 24 VDC
59		Explosion Proof 3 Pos. w/ Centering Springs 240 VAC 50/60 Hz
61		2 Position 24 VAC 50/60 Hz
62		3 Position with Centering Springs 24 VAC 50/60 Hz
72		2 or 3 Position U.L. Approved 120 VAC 50/60 Hz
73		2 or 3 Position U.L. Approved 24 VDC
78		2 or 3 Position CSA Approved 120 VAC 50/60 Hz
79		2 or 3 Position CSA Approved 24 VDC
90		2 or 3 Position Factory Mutual Approved Intrinsically Safe 24 VDC

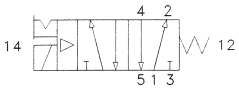
• ANSI Connection universally known as Brad Harrison®.

† Used on "12" end only.

NOTE: The previous version of the GS series was the GA series. The GS valves are direct functional and dimensional replacements for the previous GA series. Size I valves are now GT series, and are also direct functional and dimensional replacements. Also, there are various special CERAM valves which have old part numbers that begin with "P" (such as P –069431-00001). For identification of these numbers, consult the factory. Effective April 2008, part numbers begin with "R" and are 10 digits.

5 Port / 2 Position
Single Solenoid, Metal Spring Return
Subbase Mounted (ISO Standard 5599/1)

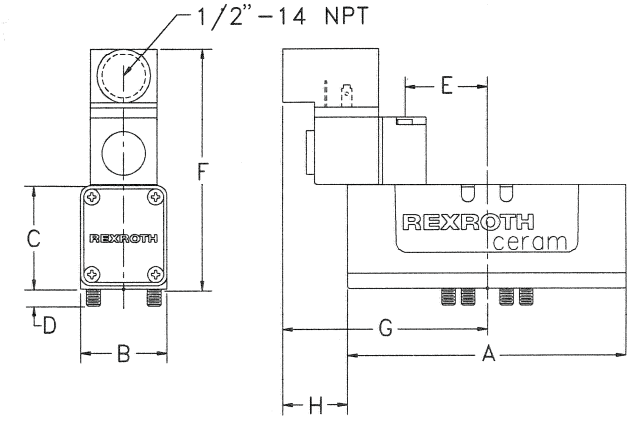
Combination Manual Override: Locking & Non-Locking
Sizes I-IV



Choose valve first, solenoid connector next (page 89), then matching subbase or manifold components.

ISO Size	Voltage	Valve Part Number*	Valve Model Number	Flow Cv (Nl/min)	Valve Weight lbs. (kg)	Single Subbase (Side Ported)	Port Size	Subbase Weight lbs. (kg)
1	110V-50Hz/120V-60Hz	R432006435	GT-010061-02440	1.1 (1100)	2.15 (0.98)	R432015524 R432015488	1/4"-18 3/8"-18	0.76 (0.34)
	220V-50Hz/240V-60Hz	R432006437	GT-010061-02740					
	12 VDC	R432006439	GT-010061-03640					
	24 VDC	R432006441	GT-010061-03940					
	24 VAC	R432006448	GT-010061-06140					
	without coil	R432002477	GT-010061-00040					
2	110V-50Hz/120V-60Hz	R432006124	GS-020061-02440	2.4 (2400)	3.70 (1.68)	R432015489 R432015307	3/8"-18 1/2"-14	1.25 (0.57)
	220V-50Hz/240V-60Hz	R432006126	GS-020061-02740					
	12 VDC	R432006128	GS-020061-03640					
	24 VDC	R432006130	GS-020061-03940					
	24 VAC	R432006136	GS-020061-06140					
	without coil	R432002447	GS-020061-00040					
3	110V-50Hz/120V-60Hz	R432006238	GS-030061-02440	4.3 (4300)	4.18 (1.90)	R432015308 R432015309	1/2"-14 3/4"-14	1.85 (0.84)
	220V-50Hz/240V-60Hz	R432006240	GS-030061-02740					
	12 VDC	R432006242	GS-030061-03640					
	24 VDC	R432006243	GS-030061-03940					
	24 VAC	R432030344	GS-030061-06140					
	without coil	R432002457	GS-030061-00040					
4	110V-50Hz/120V-60Hz	R432006321	GS-040061-02440	7.5 (7500)	4.61 (2.09)	R432015310	1"- 11-1/2	2.75 (1.25)
	220V-50Hz/240V-60Hz	R432006323	GS-040061-02740					
	12 VDC	R432006325	GS-040061-03640					
	24 VDC	R432006326	GS-040061-03940					
	24 VAC	R432030177	GS-040061-06140					
	without coil	R432002467	GS-040061-00040					

Note: All valves listed above come from the factory internally piloted. To order an externally piloted valve, change the 7th character in the model number (not counting dashes), from 6 to 5. For example, model GT-010061-02440 would become GT-010051-02440. For externally piloted valves less coil, see page 14.
*Consult factory for voltages not listed. See page 17 for Explosion Proof models.



Dimensions

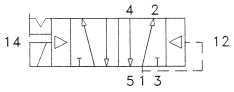
Note: solenoid connector shown for reference only.

Size	A		B		C		D	
	IN	mm	IN	mm	IN	mm	IN	mm
I	5.12	130.0	1.57	40.0	1.89	48.0	.31	8.0
II	5.82	147.8.	2.03	51.6	2.30	58.4	.39	10.0
III	7.54	191.5	2.71	68.9	2.59	65.8	.41	10.4
IV	8.62	218.9	3.09	78.5	2.89	73.4	.41	10.4

Size	E		F		G		H	
	IN	mm	IN	mm	IN	mm	IN	mm
I	1.52	38.5	4.53	115.1	3.48	88.5	1.20	30.5
II	1.57	40.0	4.90	124.5	3.54	90.0	.92	23.4
III	1.62	41.3	5.23	132.8	4.18	106.2	1.05	26.7
IV	1.62	41.3	5.32	135.1	6.65	169.0	.68	17.3

5 Port / 2 Position
Single Solenoid, Air Spring Return
Subbase Mounted (ISO Standard 5599/1)

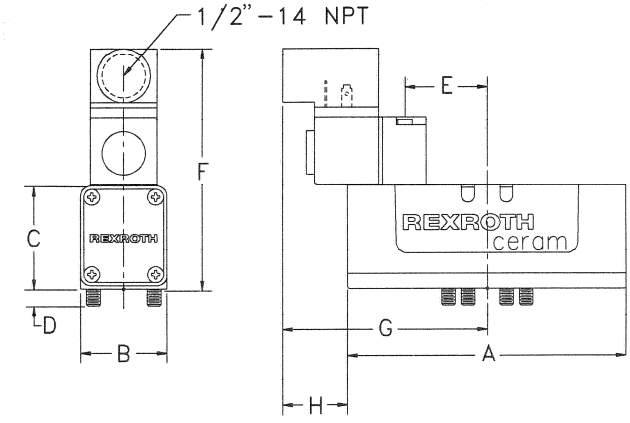
Combination Manual Override: Locking & Non-Locking
Sizes I-IV



Choose valve first, solenoid connector next (page 89), then matching subbase or manifold components.

ISO Size	Voltage	Valve Part Number*	Valve Model Number	Flow Cv (Nl/min)	Valve Weight lbs. (kg)	Single Subbase (Side Ported)	Port Size	Subbase Weight lbs. (kg)
1	110V-50Hz/120V-60Hz	R432006436	GT-010061-02451	1.1 (1100)	2.15 (0.98)	R432015524	1/4"-18	0.76 (0.34)
	220V-50Hz/240V-60Hz	R432006438	GT-010061-02751					
	12 VDC	R432006440	GT-010061-03651					
	24 VDC	R432006442	GT-010061-03951			R432015488	3/8"-18	
	24 VAC	R432006449	GT-010061-06151					
	without coil	R432002478	GT-010061-00051					
2	110V-50Hz/120V-60Hz	R432006125	GS-020061-02451	2.4 (2400)	3.70 (1.68)	R432015489	3/8"-18	1.25 (0.57)
	220V-50Hz/240V-60Hz	R432006127	GS-020061-02751					
	12 VDC	R432006129	GS-020061-03651					
	24 VDC	R432006131	GS-020061-03951			R432015307	1/2"-14	
	24 VAC	R432006137	GS-020061-06151					
	without coil	R432002448	GS-020061-00051					
3	110V-50Hz/120V-60Hz	R432006239	GS-030061-02451	4.3 (4300)	4.18 (1.90)	R432015308	1/2"-14	1.85 (0.84)
	220V-50Hz/240V-60Hz	R432006241	GS-030061-02751					
	12 VDC	R432030345	GS-030061-03651					
	24 VDC	R432006244	GS-030061-03951			R432015309	3/4"-14	
	24 VAC	R432030343	GS-030061-06151					
	without coil	R432002458	GS-030061-00051					
4	110V-50Hz/120V-60Hz	R432006322	GS-040061-02451	7.5 (7500)	4.61 (2.09)	R432015310	1"- 11-1/2	2.75 (1.25)
	220V-50Hz/240V-60Hz	R432006324	GS-040061-02751					
	12 VDC	R432030378	GS-040061-03651					
	24 VDC	R432006327	GS-040061-03951					
	24 VAC	R432030352	GS-040061-06151					
	without coil	R432002468	GS-040061-00051					

Note: All valves listed above come from the factory internally piloted. To order an externally piloted valve, change the 7th character in the model number (not counting dashes), from 6 to 5. For example, model GT-010061-02451 would become GT-010051-02451. For externally piloted valves less coil, see page 14.
*Consult factory for voltages not listed. See page 17 for Explosion Proof models.



Dimensions

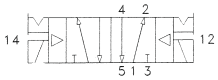
Note: solenoid connector shown for reference only.

Size	A		B		C		D	
	IN	mm	IN	mm	IN	mm	IN	mm
I	5.12	130.0	1.57	40.0	1.89	48.0	.31	8.0
II	5.82	147.8.	2.03	51.6	2.30	58.4	.39	10.0
III	7.54	191.5	2.71	68.9	2.59	65.8	.41	10.4
IV	8.62	218.9	3.09	78.5	2.89	73.4	.41	10.4

Size	E		F		G		H	
	IN	mm	IN	mm	IN	mm	IN	mm
I	1.52	38.5	4.53	115.1	3.48	88.5	1.20	30.5
II	1.57	40.0	4.90	124.5	3.54	90.0	.92	23.4
III	1.62	41.3	5.23	132.8	4.18	106.2	1.05	26.7
IV	1.62	41.3	5.32	135.1	6.65	169.0	.68	17.3

5 Port / 2 Position
Double Solenoid
Subbase Mounted (ISO Standard 5599/1)

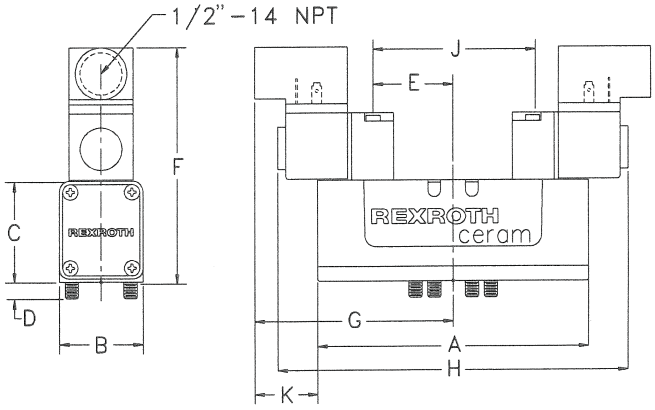
Combination Manual Override: Locking & Non-Locking
Sizes I-IV



Choose valve first, solenoid connector next (page 89), then matching subbase or manifold components.

ISO Size	Voltage	Valve Part Number*	Valve Model Number	Flow Cv (Nl/min)	Valve Weight lbs. (kg)	Single Subbase (Side Ported)	Port Size	Subbase Weight lbs. (kg)
1	110V-50Hz/120V-60Hz	R432006471	GT-010062-02424	1.1 (1100)	3.21 (1.46)	R432015524	1/4"-18	0.76 (0.34)
	220V-50Hz/240V-60Hz	R432006472	GT-010062-02727					
	12 VDC	R432006473	GT-010062-03636					
	24 VDC	R432006474	GT-010062-03939			R432015488	3/8"-18	
	24 VAC	R432006478	GT-010062-06161					
	without coil	R432002479	GT-010062-00000					
2	110V-50Hz/120V-60Hz	R432006156	GS-020062-02424	2.4 (2400)	4.75 (2.15)	R432015489	3/8"-18	1.25 (0.57)
	220V-50Hz/240V-60Hz	R432006157	GS-020062-02727					
	12 VDC	R432030350	GS-020062-03636					
	24 VDC	R432006158	GS-020062-03939			R432015307	1/2"-14	
	24 VAC	R432006162	GS-020062-06161					
	without coil	R432002449	GS-020062-00000					
3	110V-50Hz/120V-60Hz	R432006265	GS-030062-02424	4.3 (4300)	4.99 (2.26)	R432015308	1/2"-14	1.85 (0.84)
	220V-50Hz/240V-60Hz	R432006266	GS-030062-02727					
	12 VDC	R432030342	GS-030062-03636					
	24 VDC	R432006267	GS-030062-03939			R432015309	3/4"-14	
	24 VAC	R432030341	GS-030062-06161					
	without coil	R432002459	GS-030062-00000					
4	110V-50Hz/120V-60Hz	R432006339	GS-040062-02424	7.5 (7500)	5.42 (2.46)	R432015310	1"- 11-1/2	2.75 (1.25)
	220V-50Hz/240V-60Hz	R432006340	GS-040062-02727					
	12 VDC	R432030353	GS-040062-03636					
	24 VDC	R432006341	GS-040062-03939					
	24 VAC	R432030178	GS-040062-06161					
	without coil	R432002469	GS-040062-00000					

Note: All valves listed above come from the factory internally piloted. To order an externally piloted valve, change the 7th character in the model number (not counting dashes), from 6 to 5. For example, model GT-010062-02424 would become GT-010052-02424. For externally piloted valves less coils, see page 14.
*Consult factory for voltages not listed. See page 17 for Explosion Proof models.



Dimensions

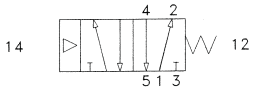
Note: solenoid connectors are shown for reference only.

Size	A		B		C		D		E	
	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
I	5.12	130.0	1.57	40.0	1.89	48.0	.31	8.0	1.52	38.5
II	5.82	147.8	2.03	51.6	2.30	58.4	.39	10.0	1.57	40.0
III	7.54	191.5	2.71	68.9	2.59	65.8	.41	10.4	1.62	41.3
IV	8.62	218.9	3.09	78.5	2.89	73.4	.41	10.4	1.62	41.3

Size	F		G		H		J		K	
	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
I	4.53	115.1	3.48	88.5	6.97	177.0	3.03	77.0	1.20	30.5
II	4.90	124.5	3.54	90.0	7.09	180.0	3.15	80.0	.92	23.4
III	5.23	132.8	4.18	106.2	8.36	212.3	3.25	82.6	1.05	26.7
IV	5.32	135.1	6.65	169.0	13.31	338.1	3.25	82.6	.68	17.3

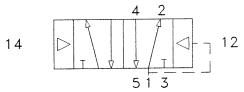
5 Port / 2 Position
Single Air Pilot/Metal Spring Return &
Single Air Pilot/Air Spring Return
(ISO Standard 5599/1)

Choose valve first, then matching subbase or manifold components.



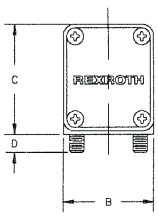
Single Air Pilot/Metal Spring Return

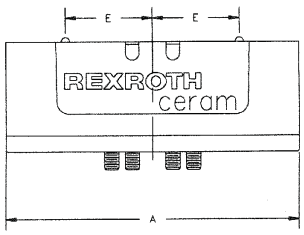
ISO Size	Valve Part Number*	Valve Model Number	Flow Cv (Nl/min)	Valve Weight lbs. (kg)	Single Subbase (Side Ported)	Port Size	Subbase Weight lbs. (kg)
1	R432006393	GT-010050-03340	1.1 (1100)	1.22 (0.55)	R432015524 R432015488	1/4"-18 3/8"-18	0.76 (0.34)
2	R432006085	GS-020050-03340	2.4 (2400)	2.77 (1.26)	R432015489 R432015307	3/8"-18 1/2"-14	1.25 (0.57)
3	R432006204	GS-030050-03340	4.3 (4300)	3.37 (1.53)	R432015308 R432015309	1/2"-14 3/4"-14	1.85 (0.84)
4	R432006297	GS-040050-03340	7.5 (7500)	3.80 (1.72)	R432015310	1"- 11-1/2	2.75 (1.25)



Single Air Pilot/Air Spring Return

ISO Size	Valve Part Number*	Valve Model Number	Flow Cv (Nl/min)	Valve Weight lbs. (kg)	Single Subbase (Side Ported)	Port Size	Subbase Weight lbs. (kg)
1	R432006394	GT-010050-03351	1.1 (1100)	1.22 (0.55)	R432015524 R432015488	1/4"-18 3/8"-18	0.76 (0.34)
2	R432006086	GS-020050-03351	2.4 (2400)	2.77 (1.26)	R432015489 R432015307	3/8"-18 1/2"-14	1.25 (0.57)
3	R432006205	GS-030050-03351	4.3 (4300)	3.37 (1.53)	R432015308 R432015309	1/2"-14 3/4"-14	1.85 (0.84)
4	R432006298	GS-040050-03351	7.5 (7500)	3.80 (1.72)	R432015310	1"- 11-1/2	2.75 (1.25)

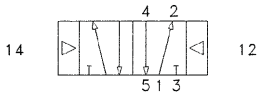




Dimensions

Size	A		B		C		D		E	
	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
I	5.12	130.0	1.57	40.0	1.89	48.0	.31	8.0	1.52	38.5
II	5.82	147.8	2.03	51.6	2.30	58.4	.39	10.0	1.57	40.0
III	7.54	191.5	2.71	68.9	2.59	65.8	.41	10.4	1.62	41.3
IV	8.62	218.9	3.09	78.5	2.89	73.4	.41	10.4	1.62	41.3

5 Port / 2 Position
Double Air Pilot/
Subbase Mounted (ISO Standard 5599/1)

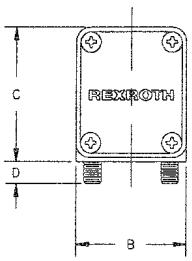


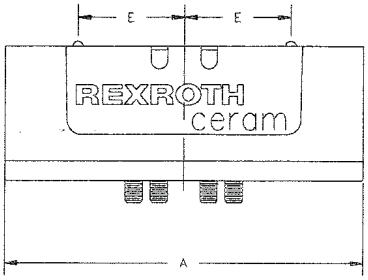
Choose valve first, then matching subbase or manifold components.

ISO Size	Valve Part Number*	Valve Model Number	Flow Cv (Nl/min)	Valve Weight lbs. (kg)	Single Subbase (Side Ported)	Port Size	Subbase Weight lbs. (kg)
1	R432006392	GT-010050-03333	1.1 (1100)	1.22 (0.55)	R432015524 R432015488	1/4"-18 3/8"-18	0.76 (0.34)
2	R432006084	GS-020050-03333	2.4 (2400)	2.77 (1.26)	R432015489 R432015307	3/8"-18 1/2"-14	1.25 (0.57)
3	R432006203	GS-030050-03333	4.3 (4300)	3.37 (1.53)	R432015308 R432015309	1/2"-14 3/4"-14	1.85 (0.84)
4	R432006296	GS-040050-03333	7.5 (7500)	3.80 (1.72)	R432015310	1"- 11-1/2	2.75 (1.25)

Dimensions

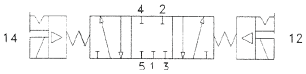
Size	A		B		C		D		E	
	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
I	5.12	130.0	1.57	40.0	1.89	48.0	.31	8.0	1.52	38.5
II	5.82	147.8	2.03	51.6	2.30	58.4	.39	10.0	1.57	40.0
III	7.54	191.5	2.71	68.9	2.59	65.8	.41	10.4	1.62	41.3
IV	8.62	218.9	3.09	78.5	2.89	73.4	.41	10.4	1.62	41.3





5 Port / 3 Position - Closed Center
Double Solenoid
Subbase Mounted (ISO Standard 5599/1)

Combination Manual Override: Locking & Non-Locking
Sizes I-IV

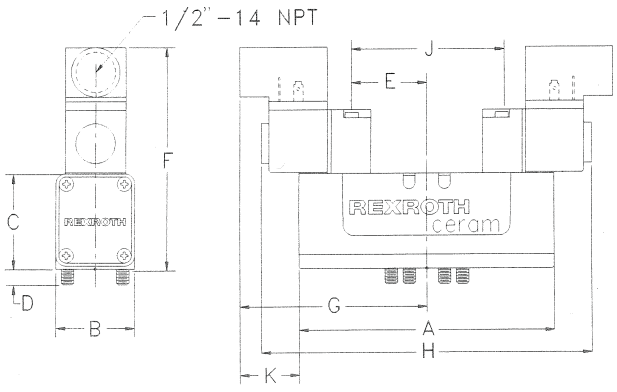


Choose valve first, solenoid connector next (page 89), then matching subbase or manifold components.

ISO Size	Voltage	Valve Part Number*	Valve Model Number	Flow Cv (Nl/min)	Valve Weight lbs. (kg)	Single Subbase (Side Ported)	Port Size	Subbase Weight lbs. (kg)
1	110V-50Hz/120V-60Hz	R432006382	GT-010042-02626	1.1 (1100)	3.21 (1.46)	R432015524 R432015488	1/4"-18 3/8"-18	0.76 (0.34)
	220V-50Hz/240V-60Hz	R432006383	GT-010042-02929					
	12 VDC	R432006384	GT-010042-03838					
	24 VDC	R432006385	GT-010042-04141					
	24 VAC	R432006388	GT-010042-06262					
	without coil	R432002473	GT-010042-00000					
2	110V-50Hz/120V-60Hz	R432006076	GS-020042-02626	2.4 (2400)	4.75 (2.15)	R432015489 R432015307	3/8"-18 1/2"-14	1.25 (0.57)
	220V-50Hz/240V-60Hz	R432006077	GS-020042-02929					
	12 VDC	R432006078	GS-020042-03838					
	24 VDC	R432006079	GS-020042-04141					
	24 VAC	R432006082	GS-020042-06262					
	without coil	R432002443	GS-020042-00000					
3	110V-50Hz/120V-60Hz	R432006196	GS-030042-02626	4.3 (4300)	4.99 (2.26)	R432015308 R432015309	1/2"-14 3/4"-14	1.85 (0.84)
	220V-50Hz/240V-60Hz	R432006197	GS-030042-02929					
	12 VDC	R432006198	GS-030042-03838					
	24 VDC	R432006199	GS-030042-04141					
	24 VAC	R432030346	GS-030042-06262					
	without coil	R432002453	GS-030042-00000					
4	110V-50Hz/120V-60Hz	R432006290	GS-040042-02626	7.5 (7500)	5.42 (2.46)	R432015310	1"- 11-1/2	2.75 (1.25)
	220V-50Hz/240V-60Hz	R432006291	GS-040042-02929					
	12 VDC	R432006292	GS-040042-03838					
	24 VDC	R432006293	GS-040042-04141					
	24 VAC	R432030338	GS-040042-06262					
	without coil	R432002463	GS-040042-00000					

Note: All valves listed above come from the factory internally piloted. To order an externally piloted valve, change the 7th character in the model number (not counting dashes), from 4 to 2. For example, model GT-010042-02626 would become GT-010022-02626. For externally piloted valves less coils, see page 14.
*Consult factory for voltages not listed. See page 17 for Explosion Proof models.

Dimensions



Note: solenoid connectors are shown for reference only.

Size	A		B		C		D		E	
	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
I	5.12	130.0	1.57	40.0	1.89	48.0	.31	8.0	1.52	38.5
II	5.82	147.8	2.03	51.6	2.30	58.4	.39	10.0	1.57	40.0
III	7.54	191.5	2.71	68.9	2.59	65.8	.41	10.4	1.62	41.3
IV	8.62	218.9	3.09	78.5	2.89	73.4	.41	10.4	1.62	41.3

Size	F		G		H		J		K	
	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
I	4.53	115.1	3.48	88.5	6.97	177.0	3.03	77.0	1.20	30.5
II	4.90	124.5	3.54	90.0	7.09	180.0	3.15	80.0	.92	23.4
III	5.23	132.8	4.18	106.2	8.36	212.3	3.25	82.6	1.05	26.7
IV	5.32	135.1	6.65	169.0	13.31	338.1	3.25	82.6	.68	17.3

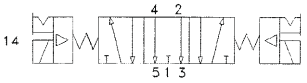
Ceram™ Valves, ISO 5599/1 Sizes 1-4

Double solenoid, 5/3, exhaust open center

Rexroth Bosch Group

5 Port / 3 Position - Exhaust Open Center
Double Solenoid
Subbase Mounted (ISO Standard 5599/1)

Combination Manual Override: Locking & Non-Locking
Sizes I-IV

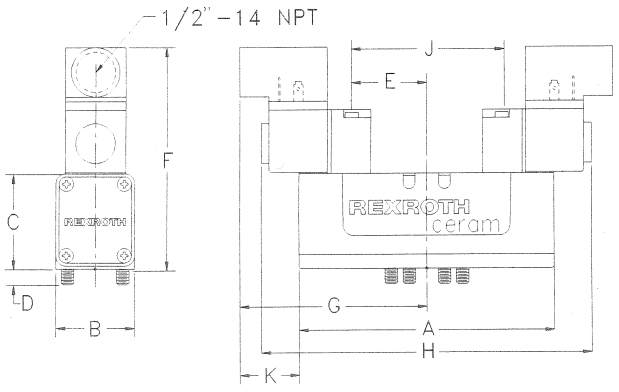


Choose valve first, solenoid connector next (page 89), then matching subbase or manifold components.

ISO Size	Voltage	Valve Part Number*	Valve Model Number	Flow Cv (Nl/min)	Valve Weight lbs. (kg)	Single Subbase (Side Ported)	Port Size	Subbase Weight lbs. (kg)
1	110V-50Hz/120V-60Hz	R432006365	GT-010032-02626	1.1 (1100)	3.21 (1.46)	R432015524	1/4"-18	0.76 (0.34)
	220V-50Hz/240V-60Hz	R432006366	GT-010032-02929					
	12 VDC	R432006367	GT-010032-03838					
	24 VDC	R432006368	GT-010032-04141			R432015488	3/8"-18	
	24 VAC	R432006371	GT-010032-06262					
	without coil	R432002472	GT-010032-00000					
2	110V-50Hz/120V-60Hz	R432006058	GS-020032-02626	2.4 (2400)	4.75 (2.15)	R432015489	3/8"-18	1.25 (0.57)
	220V-50Hz/240V-60Hz	R432006059	GS-020032-02929					
	12 VDC	R432030023	GS-020032-03838					
	24 VDC	R432006060	GS-020032-04141			R432015307	1/2"-14	
	24 VAC	R432006063	GS-020032-06262					
	without coil	R432002442	GS-020032-00000					
3	110V-50Hz/120V-60Hz	R432006184	GS-030032-02626	4.3 (4300)	4.99 (2.26)	R432015308	1/2"-14	1.85 (0.84)
	220V-50Hz/240V-60Hz	R432006185	GS-030032-02929					
	12 VDC	R432006186	GS-030032-03838					
	24 VDC	R432006187	GS-030032-04141			R432015309	3/4"-14	
	24 VAC	R432030359	GS-030032-06262					
	without coil	R432002452	GS-030032-00000					
4	110V-50Hz/120V-60Hz	R432006283	GS-040032-02626	7.5 (7500)	5.42 (2.46)	R432015310	1"- 11-1/2	2.75 (1.25)
	220V-50Hz/240V-60Hz	R432030340	GS-040032-02929					
	12 VDC	R432029042	GS-040032-03838					
	24 VDC	R432006284	GS-040032-04141					
	24 VAC	R432030339	GS-040032-06262					
	without coil	R432002462	GS-040032-00000					

Note: All valves listed above come from the factory internally piloted. To order an externally piloted valve, change the 7th character in the model number (not counting dashes), from 3 to 1. For example, model GT-010032-02626 would become GT-010012-02626. For externally piloted valves less coils, see page 14.
*Consult factory for voltages not listed. See page 17 for Explosion Proof models.

Dimensions



Note: solenoid connectors are shown for reference only.

Size	A		B		C		D		E	
	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
I	5.12	130.0	1.57	40.0	1.89	48.0	.31	8.0	1.52	38.5
II	5.82	147.8	2.03	51.6	2.30	58.4	.39	10.0	1.57	40.0
III	7.54	191.5	2.71	68.9	2.59	65.8	.41	10.4	1.62	41.3
IV	8.62	218.9	3.09	78.5	2.89	73.4	.41	10.4	1.62	41.3

Size	F		G		H		J		K	
	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
I	4.53	115.1	3.48	88.5	6.97	177.0	3.03	77.0	1.20	30.5
II	4.90	124.5	3.54	90.0	7.09	180.0	3.15	80.0	.92	23.4
III	5.23	132.8	4.18	106.2	8.36	212.3	3.25	82.6	1.05	26.7
IV	5.32	135.1	6.65	169.0	13.31	338.1	3.25	82.6	.68	17.3

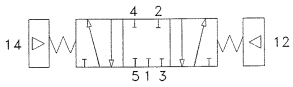
Ceram™ Valves, ISO 5599/1 Sizes 1-4

Double air pilot, 5/3, closed center and exhaust open center

5 Port / 3 Position
Double Air Pilot - Closed Center
Double Air Pilot - Exhaust Open Center
Subbase Mounted (ISO Standard 5599/1)

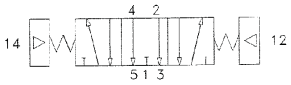
Choose valve first, then matching subbase or manifold components.

Double Air Pilot - Closed Center

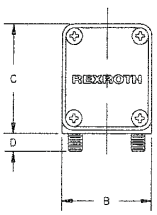


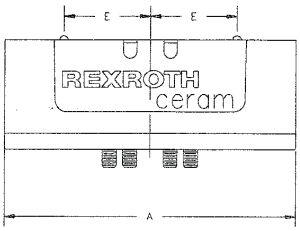
ISO Size	Valve Part Number*	Valve Model Number	Flow Cv (Nl/min)	Valve Weight lbs. (kg)	Single Subbase (Side Ported)	Port Size	Subbase Weight lbs. (kg)
1	R432006352	GT-010020-03535	1.1 (1100)	1.22 (0.55)	R432015524 R432015488	1/4"-18 3/8"-18	0.76 (0.34)
2	R432006047	GS-020020-03535	2.4 (2400)	2.77 (1.26)	R432015489 R432015307	3/8"-18 1/2"-14	1.25 (0.57)
3	R432006173	GS-030020-03535	4.3 (4300)	3.37 (1.53)	R432015308 R432015309	1/2"-14 3/4"-14	1.85 (0.84)
4	R432006276	GS-040020-03535	7.5 (7500)	3.80 (1.72)	R432015310	1"- 11-1/2	2.75 (1.25)

Double Air Pilot - Exhaust Open Center



ISO Size	Valve Part Number*	Valve Model Number	Flow Cv (Nl/min)	Valve Weight lbs. (kg)	Single Subbase (Side Ported)	Port Size	Subbase Weight lbs. (kg)
1	R432006345	GT-010010-03535	1.1 (1100)	1.22 (0.55)	R432015524 R432015488	1/4"-18 3/8"-18	0.76 (0.34)
2	R432006040	GS-020010-03535	2.4 (2400)	2.77 (1.26)	R432015489 R432015307	3/8"-18 1/2"-14	1.25 (0.57)
3	R432006167	GS-030010-03535	4.3 (4300)	3.37 (1.53)	R432015308 R432015309	1/2"-14 3/4"-14	1.85 (0.84)
4	R432006272	GS-040010-03535	7.5 (7500)	3.80 (1.72)	R432015310	1"- 11-1/2	2.75 (1.25)





Dimensions

Size	A		B		C		D		E	
	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
I	5.12	130.0	1.57	40.0	1.89	48.0	.31	8.0	1.52	38.5
II	5.82	147.8	2.03	51.6	2.30	58.4	.39	10.0	1.57	40.0
III	7.54	191.5	2.71	68.9	2.59	65.8	.41	10.4	1.62	41.3
IV	8.62	218.9	3.09	78.5	2.89	73.4	.41	10.4	1.62	41.3

Solenoid Operated Valves with U.L. Approved Operators

Available in 120VAC (suffix code 72 for 2 or 3 position valves) or 24VDC (suffix code 73 for 2 or 3-position valves).

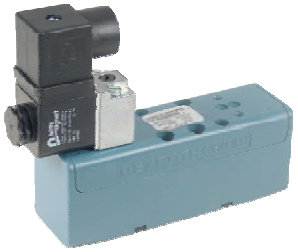
Ordering example:
Model code GT-010061-02440 is the model code for a standard valve with 120VAC operator. To get the model code for the same valve with a U.L. approved 120VAC operator, substitute 72 for the 24.
Reference Model Code Identification page for complete listing.

Valve is not supplied with DIN solenoid connector, must order separately, see Connectors page.

Part number associated with a model code begins with “R”, contact factory for cross reference.

NOTE: Dimensions are identical to standard solenoid valve.

Solenoid Operated Valves with CSA Approved Operators



Available in 120VAC (suffix code 78 for 2 or 3 position valves) or 24VDC (suffix code 79 for 2 or 3-position valves).

Ordering example:
Model code GT-010061-02440 is the model code for a standard valve with 120VAC operator. To get the model code for the same valve with a CSA approved 120VAC operator, substitute 78 for the 24.
Reference Model Code Identification page for complete listing.

Valve is supplied with 1/2” conduit solenoid connector.

Maximum internally piloted valve pressure is 145 psi. Pressures to 150 psi can be used when external pilot is utilized and limited to 145 psi.

Part number associated with a model code begins with “R”, contact factory for cross reference.

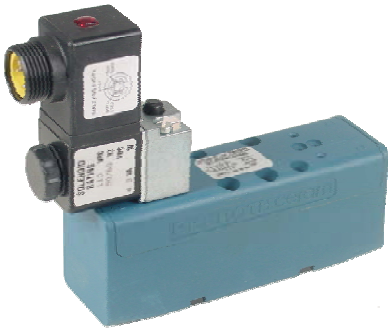
NOTE: Dimensions are identical to standard solenoid valve.

Externally Piloted Ceram Valve - without Coils

Part Number	Description	Part Number	Description
R432002470	SIZE 1 EP OC DS LESS COILS (GT-010012-00000)	R432002450	SIZE 3 EP OC DS LESS COILS (GS-030012-00000)
R432002471	SIZE 1 EP CC DS LESS COILS (GT-010022-00000)	R432002451	SIZE 3 EP CC DS LESS COILS (GS-030022-00000)
R432002474	SIZE 1 EP SS LESS COIL (GT-010051-00040)	R432002454	SIZE 3 EP SS LESS COIL (GS-030051-00040)
R432002475	SIZE 1 EP SS LESS COIL (GT-010051-00051)	R432002455	SIZE 3 EP SS LESS COIL (GS-030051-00051)
R432002476	SIZE 1 EP DS LESS COILS (GT-010052-00000)	R432002456	SIZE 3 EP DS LESS COILS (GS-030052-00000)
R432002440	SIZE 2 EP OC DS LESS COILS (GS-020012-00000)	R432002460	SIZE 4 EP OC DS LESS COILS (GS-040012-00000)
R432002441	SIZE 2 EP CC DS LESS COILS (GS-020022-00000)	R432002461	SIZE 4 EP CC DS LESS COILS (GS-040022-00000)
R432002444	SIZE 2 EP SS LESS COIL (GS-020051-00040)	R432002464	SIZE 4 EP SS LESS COIL (GS-040051-00040)
R432002445	SIZE 2 EP SS LESS COIL (GS-020051-00051)	R432002465	SIZE 4 EP SS LESS COIL (GS-040051-00051)
R432002446	SIZE 2 EP DS LESS COILS (GS-020052-00000)	R432002466	SIZE 4 EP DS LESS COILS (GS-040052-00000)

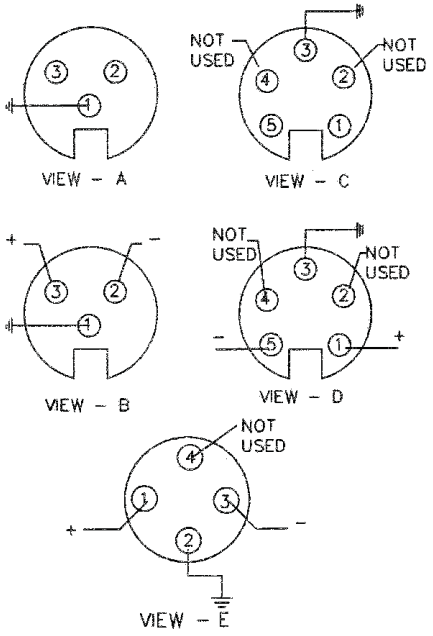
Solenoid Operated Valves with CSA Approved Operator Meeting ANSI B93.55 Electrical Connections (Brad Harrison® style): 3, 4 or 5 Pin Connections

Electrical Hook-up and Ordering Information*

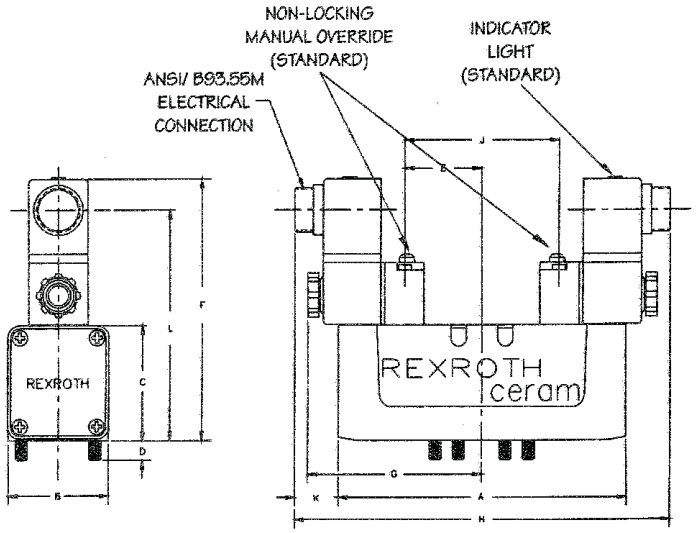


Ordering example:

To order a 120VAC single solenoid/metal spring return valve with ANSI B93.55 pin connection:
Substitute 03 for the 24 in the model code (GT-010061-02440 would become GT-010061-00340). Reference Model Code Identification page for complete listing. Part number associated with a model code begins with “R”, contact factory for



CONNECTOR INSERT



2 or 3 position valves*

VOLTAGE	CONNECTOR INSERT	PART NUMBER SUFFIX
120 VAC 50/60 Hz	VIEW A	03
24 VDC	VIEW B	06
120 VAC 50/60 Hz	VIEW C	05
24 VDC	VIEW D	10
24 VDC	VIEW E	04

*Electrical connector/cable must be ordered separately from the valve. One connector/cable assembly is required for each solenoid. See Connectors page for selection.

Dimensions

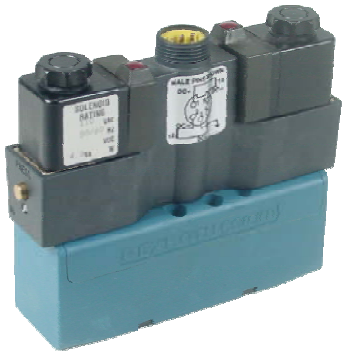
**Operator does not overhang body assembly.

	A		B		C		D		E	
Size	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
I	5.12	130.0	1.57	40.0	1.89	48.0	0.31	8.0	1.52	38.5
II	5.82	147.8	2.03	51.6	2.30	58.4	0.39	10.0	1.57	40.0
III	7.54	191.5	2.71	68.8	2.59	65.8	0.41	10.4	1.62	41.3
IV	8.62	218.9	3.09	78.5	2.89	73.4	0.41	10.4	1.62	41.3

	F		G		H		J		K	
Size	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
I	4.92	125.0	3.48	88.5	7.47	189.7	3.03	77.0	1.18	30.0
II	5.29	116.3	3.54	90.0	7.59	192.8	3.15	80.0	0.89	22.6
III	5.62	142.8	**	**	7.54	191.5	3.25	82.6	**	**
IV	5.71	145.0	**	**	**	**	3.25	82.6	**	**

Solenoid Operated Valves with CSA Approved Operator Meeting ANSI B93.55 Electrical Connections (Brad Harrison® style)

Single 4 or 5 Pin Connection for Double Solenoid Valves, 2 or 3 Position



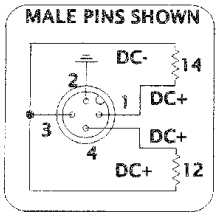
Ordering example:

To order a 120VAC double solenoid, 2 position size 1 valve with single ANSI B93.55 5-pin connection:
Substitute 07 for the 24 in the model code (GT-010061-02424 would become GT-010061-00707). Reference Model Code Identification page for complete listing. Part number associated with a model code begins with “R”, contact factory for cross reference.

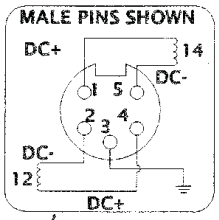
VOLTAGE	PART NUMBER SUFFIX	NUMBER OF PINS
120 VAC 50/60 Hz	07	5
24 VDC	08	5
24 VDC	09	4

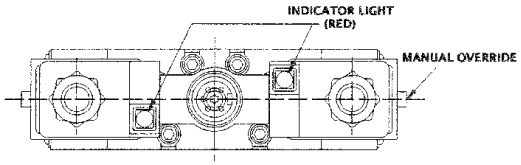
Pinout diagrams

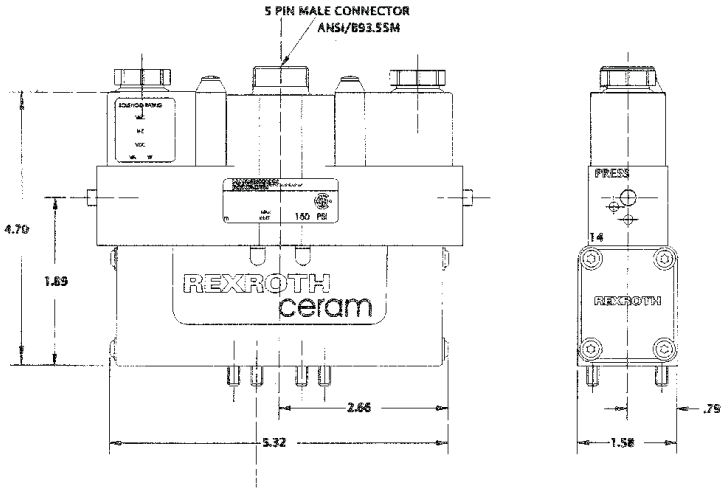
4 pin

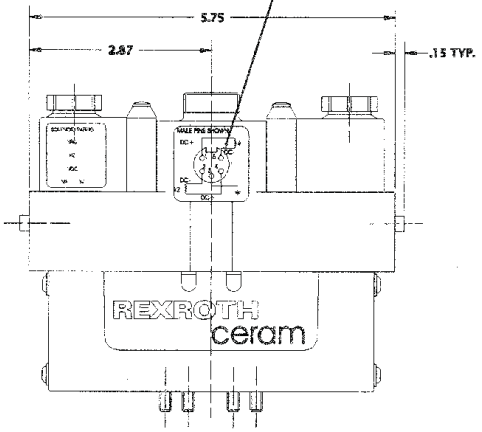


5 pin









Dimensions shown above are for Size I valve; for other sizes, add dimensions below to Size I valve body dimensions given above. Electrical portion of valve does not change regardless of valve size.

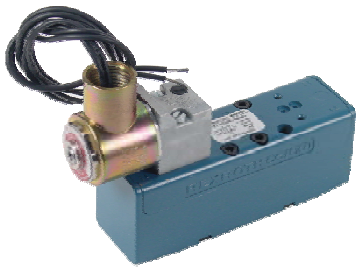
Dimension Adders (inches)

Size	Height	Width	Length
II	.41	.45	.50
III	.70	1.13	2.22
IV	1.00	1.51	3.30

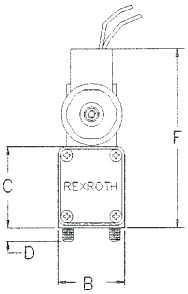
Explosion Proof Solenoid Valves for Hazardous Locations

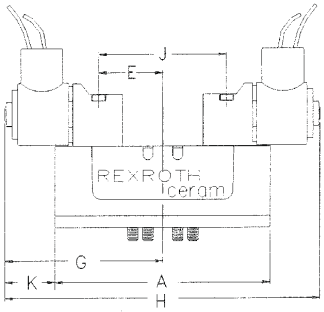
NEMA 7C & 7D & U.L.
Class I-Groups C & D-Explosion Proof
NEMA 8C & 8D & U.L.
Class I-Groups C & D-Explosion Proof
NEMA 9E, 9F & 9G & U.L.
Class II-Groups E, F, G-Explosion Proof

Explosion Proof valves do not require solenoid connectors, as they come standard with 1/2" conduit housing and 18 inch wire leads.



Reference Model Code Identification page for model code information. Part number associated with a model code begins with "R", contact factory for cross reference.





Dimensions

**Operator does not overhang body assembly.

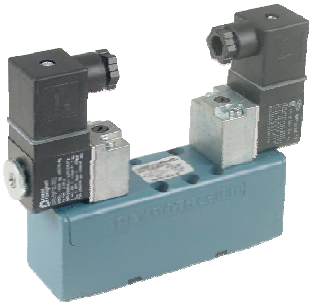
Size	A		B		C		D		E	
	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
I	5.12	130.0	1.57	40.0	1.89	48.0	.31	8.0	1.52	38.5
II	5.82	147.8	2.03	51.6	2.30	58.4	.39	10.0	1.57	40.0
III	7.54	191.5	2.71	68.9	2.59	65.8	.41	10.4	1.62	41.3
IV	8.62	218.9	3.09	78.5	2.89	73.4	.41	10.4	1.62	41.3

Size	F		G		H		J		K	
	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
I	4.17	105.9	3.75	95.3	7.50	190.5	3.03	77.0	1.19	30.2
II	4.58	116.3	3.80	96.5	7.61	193.3	3.15	80.0	.90	22.9
III	4.87	123.7	3.86	98.0	7.71	195.8	3.25	82.6	.09	2.29
IV	5.71	145.0	4.31	109.5	**	**	3.25	82.6	**	**

Intrinsically Safe Solenoid Valves for Hazardous Locations (CSA approved)

Classes I, II and III, DIV I
Groups A, B, C, D, E, F and G

For use in low voltage (24VDC) Intrinsically Safe applications.
NO OTHER VOLTAGE IS APPROVED.

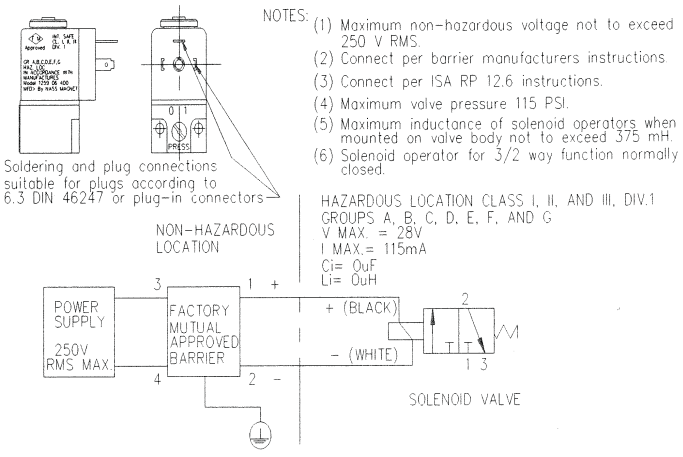


Comes standard with non-lighted DIN solenoid connector.

Must be connected to an FM approved Zener Diode Barrier.*

For dimensions, reference standard solenoid models.
Maximum internally piloted valve pressure is 115 psi. Pressures to 150 psi can be used when external pilot is utilized and pilot pressure is limited to 115 psi.
*FM Approved Barrier Manufacturer
Stahl Incorporated—Woburn, MA
Request Rexroth Application Memo Issue#35 and ADV-300.ISSV for Intrinsically Safe Valve information and Stahl Barrier part numbers.

Installation Information:



Ordering example:
Model GT-010061-03940 = standard valve, same valve with intrinsically safe operator would be GT-010061-9040.
Reference Model Code Identification page for complete listing. Part number associated with a model code begins with "R", contact factory for cross reference.

Rubber Seal Kits

Size	Description	Part No.	Old Part No.
Size I	Seal Kit, GT Series 2 Pos.	R432009099	P -029294-00000
Size I	Seal Kit, GT Series 3 Pos.	R432009100	P -029295-00000
*Size I	Seal Kit, GS Series	R432008630	P -026485-00001
*Size II	Seal Kit, GS Series	R432008631	P -026486-00002
*Size III	Seal Kit, GA/GS Series	R432015773	P -069691-00001
*Size IV	Seal Kit, GA/GS Series	R432015774	P -069692-00001
Size I	Seal Kit, GA Series	R432015771	P -069689-00000
Size II	Seal Kit, GA Series	R432015772	P -069690-00000

*Includes all user serviceable rubber parts normally required.

Recommended Valve Mounting Bolt Torque Values

Size	Max. ft.-lbs.
I	4
2	6
3 & 4	7

ATTENTION: DO NOT remove the static base. Special fixtures are required to reinstall plates to factory specifications. Roller bearings and ceramic plate stack are calibrated to obtain proper mechanical pre-loading. Therefore, field disassembly is not recommended for the plate/bearing assembly. The ceramic slide plates do not require maintenance under normal operating conditions and should not be removed from the valve - consult factory if plate maintenance is required. There are no seals for the static base/ceramic plate assembly contained in repair kits.

Solenoid Kits & Coils - Sizes I - IV (Oct. 1992 & later for Sizes III & IV)

Solenoid Kits*

Description	Part Number	Old Part No.
120VAC 50/60Hz	R432015466	P -068899-00000
240VAC 50/60Hz	R432015467	P -068899-00001
12 VDC	R432015468	P -068899-00003
24 VDC	R432015469	P -068899-00004
24VAC 50/60Hz	R432015470	P -068899-00005

*Includes coil and solenoid operator, but not connector.

Operator Only	R432008909	P -028197-00000

Coil Only

Description	Part Number	Old Part No.
110VAC/50Hz or 120VAC/60Hz	R432011985	P -048835-00001
220VAC/50Hz or 240VAC/60Hz	R432011986	P -048835-00002
12 VDC	R432011988	P -048835-00004
24 VDC	R432011989	P -048835-00005
24VAC 50/60Hz	R432011990	P -048835-00006

Operators & Coils - Sizes III & IV (Prior to Oct. 1992)**

Operator Only

Description	Part Number	Old Part No.
Operator Only (All voltages)	R432008909	P -028197-00000

Coil Only

Description	Part Number	Old Part No.
110VAC/50Hz or 120VAC/60Hz	R432015417	P -068794-00000
220VAC/50Hz or 240VAC/60Hz	R432015418	P -068794-00001
12 VDC	R432030367	P -068794-00003
24 VDC	R432015419	P -068794-00004

Miscellaneous Repair Parts & Kits

Sizes I & II

Description	Part Number	Old Part No.
Size I & II Quick Release Vlv. Kit (inc. 2 QRV assemblies)	R432008632	P -026487-00001
Size I & II Sol. Plunger Kit (inc. armature assembly)	R432015687	P -069541-00000
Size I & II Sol. Retainer Cap (old style plastic)¨	8994702802	H -899470-02802
Solenoid Nut Kit Size I-IV§	R432008975	P -028462-00000
Size I Return Spring	R432008995	P -028645-00000
Size II Return Spring	R434000717	
Size I Sol./Air Plt. Piston Kit (inc. piston, sleeve, seals & grease)	R432008560	P -026408-00000
Size II Sol./Air Plt. Piston Kit (inc. piston, sleeve, seals & grease)	R432008561	P -026409-00000
Size I Mntg. Bolt/Body Screw Kit-GT	R432002387	
Size I Mntg. Bolt/Body Screw Kit-GS	R432008784	P -027276-00000
Size II Mntg. Bolt & Body Screw Kit	R432008785	P -027277-00000
Size I & II 10-120 psi Adj.Knob Assy. Sandwich Reg.(fits old style units P68608,P26000,P68609;new style P29904,P68999,P29905,P68998)	R432010973	P -031282-00000
Size I & II Seal Rep. Kit for Sand. Reg.(fits all old style sgl. & dbl.)	R432009198	P -029922-00000
Size I & II Seal Rep. Kit for Sand. Reg.(fits all new style sgl. & dbl.)	R432009199	P -029923-00000

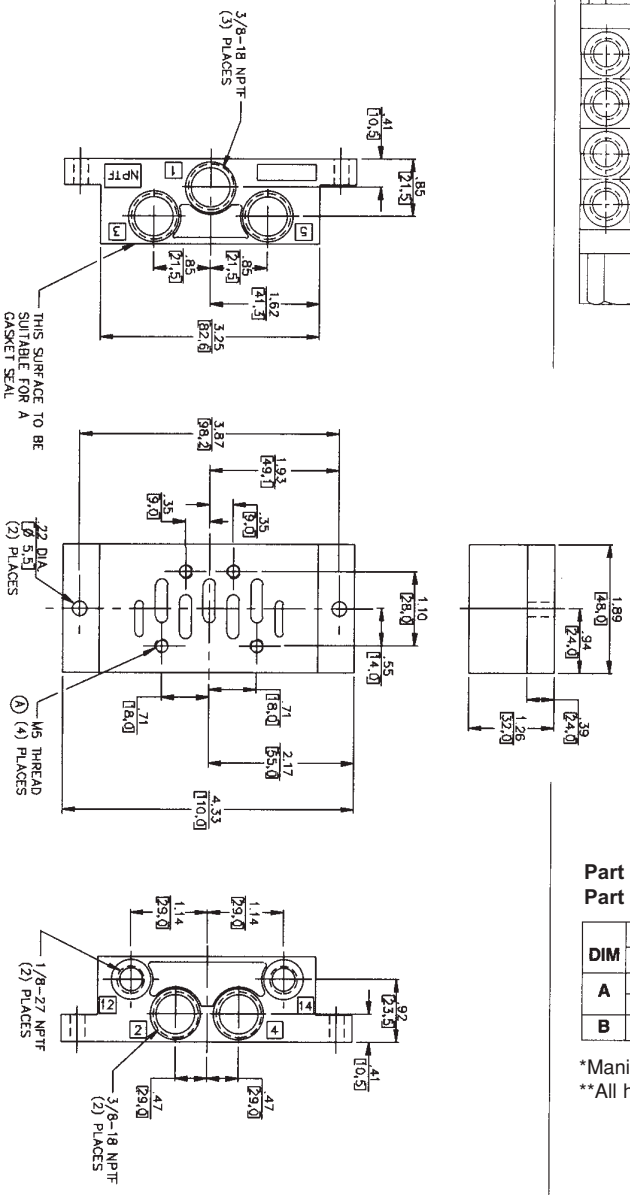
Sizes III & IV

Description	Part Number	Old Part No.
Size III & IV Quick Release Vlv.Kit (QRV assemblies for any valve)	R432008681	P -026684-00002
Size III & IV Sol. Plunger Kit (inc. armature assembly)¨	R432011919	P -048599-00000
Size III & IV Sol. Plunger Kit (inc. armature assembly)§	R432015687	P -069541-00000
Size III & IV Sol. Retainer Cap¨	R432030337	P -048613-00000
Solenoid Nut Kit Sizes I-IV§	R432008975	P -028462-00000
Size III Return Spring Kit	R432008887	P -028037-00000
Size IV Return Spring Kit	R432008888	P -028038-00000
Size III Sol./Air Plt. Piston Kit (inc. piston,seals,end cvr. gskt.,grease)	R432008658	P -026635-00000
Size IV Sol./Air Plt. Piston Kit (inc. piston,seals,end cvr. gskt.,grease)	R432008889	P -028039-00000
Size III Seal Rep. Kit for Sand. Reg.(fits all new style sgl. & dbl.)	R432009205	P -029951-00000
Size III Mntg. Bolt/Body Screw Kit	R432008799	P -027412-00000
Size IV Mntg. Bolt/Body Screw Kit	R432008800	P -027413-00000

¨Prior to October 1992.
§October 1992 and later.

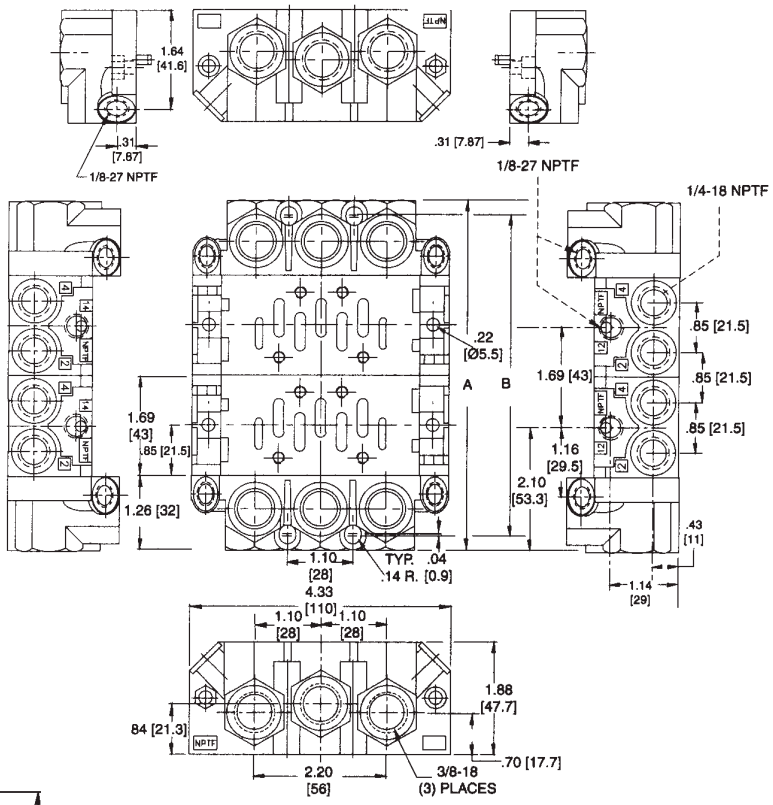
ISO SIZE 1 SUBBASES & MANIFOLDS

Single Subbase (side ported)
1/4" or 3/8" NPT ports



Part Number R432015524 - Port Size 1/4"
Part Number R432015488 - Port Size 3/8" (shown)

End Ported Manifold
1/4" NPT ports



Part Number R432015314* - Manifold Station Segment**
Part Number R432015316* - End Plates (Includes both ends)**

DIM	NUMBER OF VALVES													
	2		3		4		5		6		7		8	
A	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
	5.91	150.0	7.60	193.0	9.29	236.0	10.98	279.0	12.68	322.0	14.37	365.0	16.06	408.0
B	5.39	136.8	7.08	179.8	8.77	222.8	10.46	265.8	12.16	308.8	13.85	351.8	15.54	394.8

*Manifold gaskets included.
**All hardware is included.

R432012058 Silencer, 3/8" NPT

Note: See page 30 for factory assembled manifolds.

ISO SIZE 1 MANIFOLDS

END PORTED MANIFOLDS

STATION SEGMENT

Each station segment kit comes complete with pipe plugs (to block unused delivery ports), fastening hardware, and a gasket. The gasket is placed between each station segment. The standard sealing gasket (A GASKET, PART NUMBER - R432008985) included has windows open for ports 1,3, & 5.

END PLATE KITS

Consists of two end plates complete with pipe plugs (to block unused supply and exhaust ports), fastening hardware, and the standard sealing gasket (A GASKET, Part Number - R432008985)

EASY MANIFOLD ASSEMBLY

Use a 4 mm hex (Allen) wrench to assemble the manifolds. Nuts and bolts (included in each kit) are used to hold the manifolds together. An extra long 4 mm wrench can be used for longer manifolds for more rapid assembly.

DUAL MANIFOLD SUPPLY PRESSURE

Supply pressure can be supplied to both ends of the manifold by simply not installing the pipe plugs supplied with the end plate kit. This is generally considered normal practice if more than 3 valves are energized at the same time.

MANIFOLD WITH TWO DIFFERENT SUPPLY PRESSURES

Different supply pressures can be provided by placing blocking gasket B (1821015043) between two of the station segments to divide the two different pressures.

PLEASE CONSULT FACTORY WITH SPECIAL APPLICATIONS 1 AND 2 BELOW:

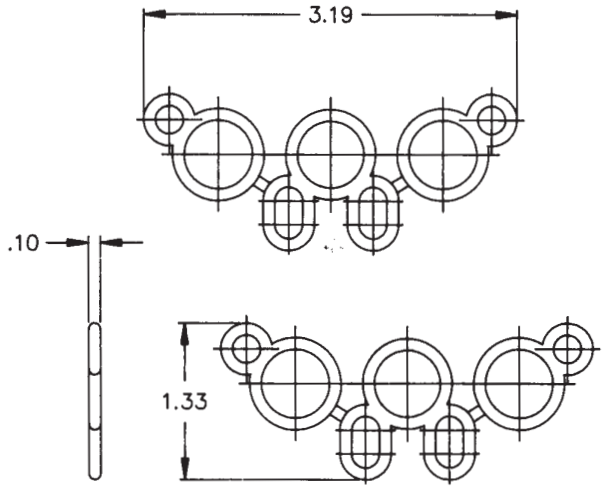
1) Manifold With Two Different Supply Pressures & Common Ext. Pilot

2) Manifold With Three Different Supply Pressures

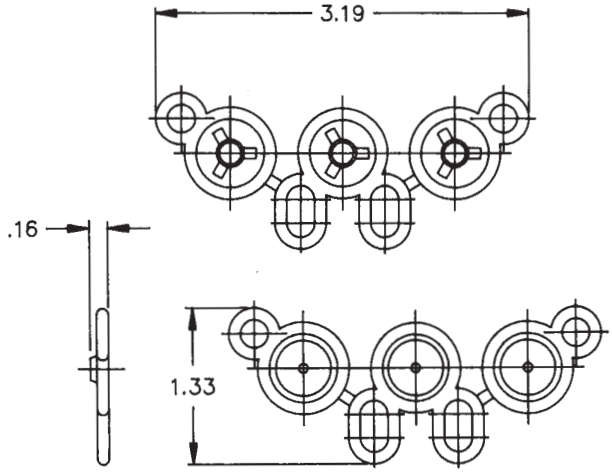
COMMON EXTERNAL PILOT PRESSURE

Use a 16" diameter drill at the 14 end to remove the thin wall on manifold station segment R432015314. **Clean thoroughly.**
NOTE: This wall is required to operate air piloted valves on manifold.

BLOCKING GASKET A
R432008985

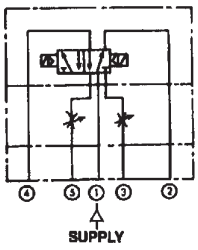


BLOCKING GASKET B



SIZE I ACCESSORIES

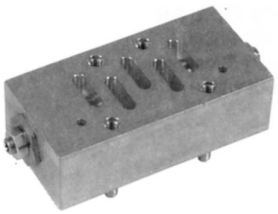
Sandwich Flow Controls (Meter Out Ports 5 & 3)



Our flow controls sandwich between the valve and subbase eliminating the need for addition piping and external controls for both working ports. Adjustment is with a knob on each side thread, along with our two stage needle design ensures excellent control. Kit includes flow control (1), gasket (1), and screws (4).

Part No. R432015347 *

Dimensions
Height: .98" (25mm)
Maximum Overall Length:
4.17" (106mm)



Dual Sandwich Pressure Regulator (Port 2 & 4)

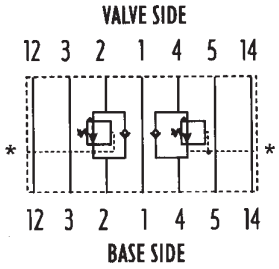
Both delivery port pressures are adjustable individually. Ideal foı applications within a manifold where independent regulation of twc supply pressures is required; no external pilot supply is required if minimum pilot pressure is available. Supplying port 2 and 4, free flow reverse check valves allow high flow in both directions. Three pressure ranges are available, with locking adjustment knobs at "Control 12" for port 2 and "Control 14" end for port 4.

Kit includes regulator (1), gasket (1), screws (4), plus gauges for 10-120 psi model.

Part No. **0821302051* (10-120 psi)**
R432015497 (5-60 psi)**
R432015498 (3-30 psi)**

*Comes with gauges, gauge ports G 1/8.
Height: 1.77" (45mm) less gauge
Length: 11.42" (290mm)

**No gauge, 1/8" NPT gauge port,
2 gauge port plugs included
Height: 1.54" (39mm)
Length: 12.13" (308mm)



90° Elbow for use in regulator gauge port. 1/8" NPT male to 1/8" NPT female.
Part no. R432002543

Sandwich Pressure Regulator (Port 1)

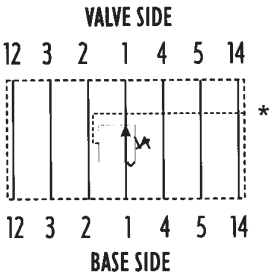
Ideal for applications within a manifold where a particular pressure is required for one or more valves. Our regulator controls inlet pressure through to each cylinder port. A relieving type the knob will also lock into a given position. Kit includes regulator (1), gasket (1), screws (4), plus gauge for the 10-120 psi model.

Part No. **0821302048* (10-120 psi)**
R432009189 (5-60 psi)**
R432009190 (3-30 psi)**

*Comes with gauge, gauge port is G 1/8.
Height: 1.77" (45mm) less gauge
Length: 7.80" (198mm)

**No gauge, 1/8" NPT gauge port,
2 guage port plugs included
Height: 1.54" (39mm)
Length: 6.73" (171mm)

NOTICE*
Dual Accessory Bolt Kit
Order **Bolt Kit R432015948** to mount Sandwich Regulators with a Sandwich Flow Control (R432015347).

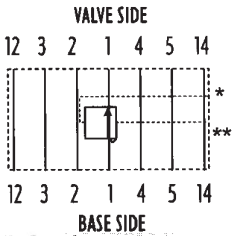


Maintenance Plate

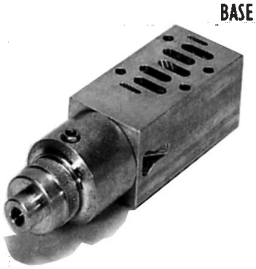
A maintenance plate, mounted between valve and sub-base, is used when servicing individual valves in a manifold system, or replacing a cylinder while the system is still operating. See next page.

Remote Pilot-Operated Regulator (10-120 psi)

Remote control of all pressure settings throughout the selected range. Pilot source can be a smaller regulator manually adjusted or electronically adjusted via a command signal for precise control of force and speed. Example: Controlling RPM of an air motor. Rexroth Electro-Pneumatic (E/P) Devices can be directly connected to this unit (see Rexroth sales catalog SC-600). Kit includes regulator (1), gasket (1), screws (4), gauge port plugs (2).



Part No. R432009216*
Dimensions
Height: 1.54" (39mm)
Maximum Overall Length: 6.06" (154mm)
*1/8" NPT GAUGE PORT
**1/8" NPT PILOT PORT



ACCESSORIES (continued)

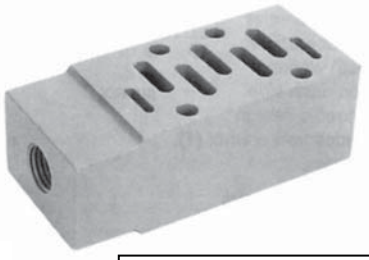
SIZE I Sandwich Auxiliary Pressure Block (Port 1)

The separate pressure block allows for more than two pressures to be provided to a manifold of valves. This unit sandwiches between the valve and base. Pressure to the balance of the manifold is isolated. Kit includes plate (1), gasket (1), screws (4).

Part No. R432015767*
Part No. R432015768*

(Allows 3 or more pressures to be applied to the same manifold assembly. See page 20 for details.)

1/4"-18 NPT
INLET



Dimensions
Height: 1.19"
Maximum Overal Length: 3.45"

***NOTICE**
Dual Accessory Bolt Kit
Order **Bolt Kit R432015950** to mount Sandwich Auxiliary Pressure Block (R432015767) with a Sandwich Flow Control (R432015347).

Maintenance Plate (Sizes I, II, III)

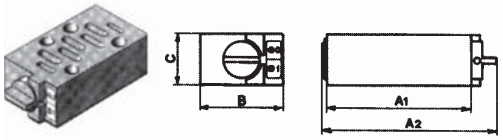
Mounts between valve and sub-base. Used when servicing individual valves in a manifold system, or replacing a cylinder while the rest of the system is still operating. Two positions, can be locked with a cotter pin:
0. Maintenance position, flow is minimal and valve is isolated[§];
1. Open position, normal operation - full flow in the system.

[§]The low flow in the maintenance position allows slow pressurizing when the valve is returned to service. This low flow also requires the removal of trapped downstream pressure before removing or servicing these same components.

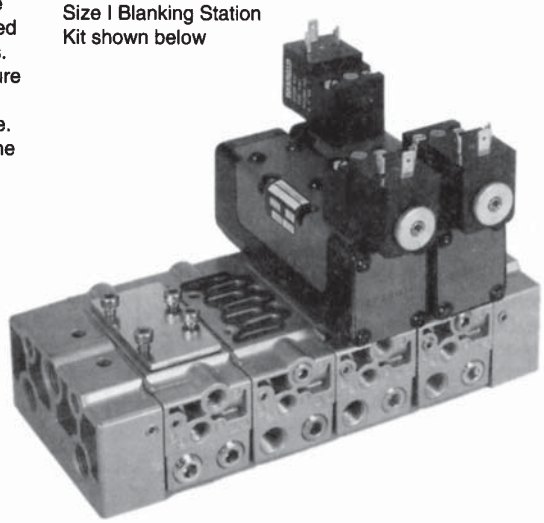
CAUTION: Before service or removal of any components, all trapped pressure must be released. Vertically mounted cylinders, gravity and mechanically loaded actuators must be blocked/disabled to avoid injury or system damage. Install blanking station segment kit if this minimal flow is undesirable when the valve is not present.

Material: Aluminum, black anodized.
Pressure range: Vacuum to 150 psi. *dim = IN (mm)*

ISO	Part Number	A1	A2	B	C
1	580 159 000 0	2.76 (70)	3.35 (85)	1.57 (40)	0.98 (25)
2	580 259 000 0	3.42 (87)	4.09 (104)	1.97 (50)	1.10 (28)
3	580 359 000 0	4.65 (118)	5.39 (137)	2.56 (65)	1.42 (36)



Size I Blanking Station Kit shown below



SIZE I Blanking Plate Kit

Allows for valve to be added later.
Can be removed to add valve to existing manifold.
Kit includes plate (1), gasket (1), screws (4).
Shown on 1/4" base.

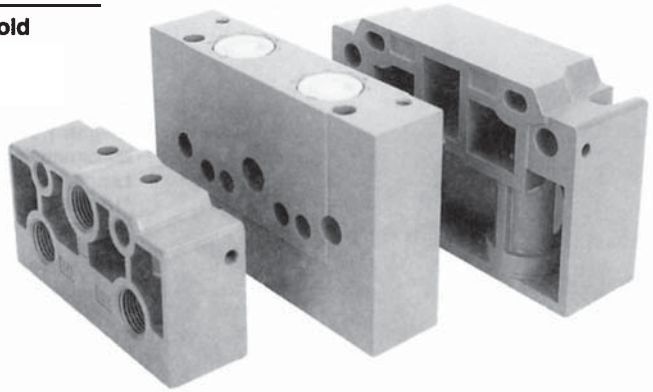
Part No. R432015320

Transition Plate Dimensions
3.15" (H) X 1.23" (W) X 4.97" (L)

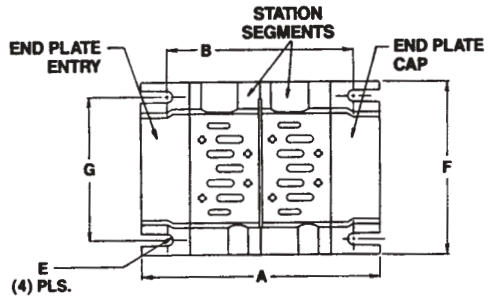
Transition Plate Kit (For Size I manifold segment R432015315 and Size II R432015318 station segments only)

This kit allows the combining of our sizes I and II bases, with side porting, in the same manifold. No need to sacrifice by either undersizing or oversizing to meet design needs.

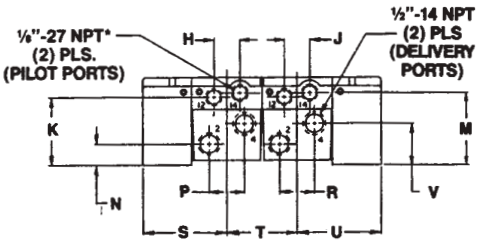
Part No. R432015323
Kit contains all hardware plus:
1 - Transition plate (Size I to Size II)
1 - Size I Endplate
1 - Size II Endplate
(Cannot be used with R432015314)



ISO SIZE II SUBBASES & MANIFOLDS
End Ported Manifold
1/2" NPT delivery port

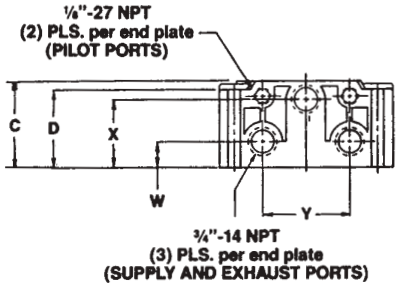


SIDE VIEW



*Note: other side contains port 12 only (⅛"-27 NPT)

END VIEW



Part Number R432015318* - Manifold Station Segment**
Part Number R432015319 - End Plates (Includes both ends)**

DIM	C	D	E	F	G	H	J	K	M	N
IN	3.15	2.82	.17R	4.96	4.09	.79	.79	2.52	2.68	.67
mm	80.0	71.6	R 4.3	126.0	104.0	20.0	20.0	64.0	68.0	17.0

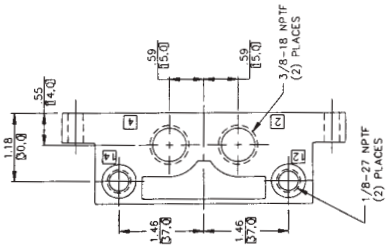
DIM	P	R	S	T	U	V	W	X	Y
IN	1.02	1.02	2.68	2.20	2.68	1.42	1.18	2.44	2.44
mm	26.0	26.0	68.0	56.0	68.0	36.0	30.0	62.0	62.0

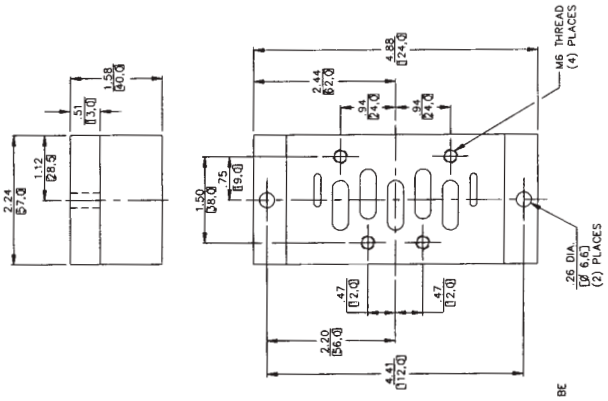
DIM	NUMBER OF VALVES													
	2		3		4		5		6		7		8	
A	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
	7.56	192.0	9.76	248.0	11.97	304.0	14.17	360.0	16.38	416.0	18.58	472.0	20.79	528.0
B	6.01	168.0	8.82	224.0	11.00	279.4	13.23	336.0	15.43	392.0	17.64	448.0	19.84	504.0

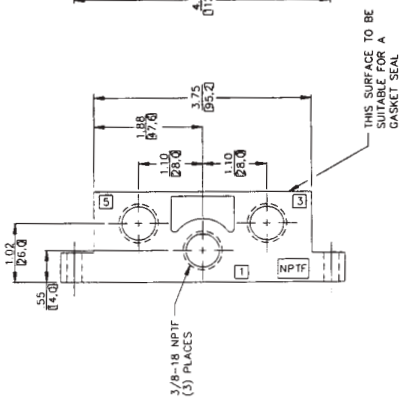
*Manifold segment plates included.
** All hardware is included.

Single Subbase (side ported)
3/8" or 1/2" NPT ports

Part Number R432015307 - Port Size 1/2"
Part Number R432015489 - Port Size 3/8" (shown)







R432012058 Silencer, 3/8" NPT
R432011952 Silencer, 1/2" NPT

ISO SIZE II MANIFOLDS

REXROTH END PORTED MANIFOLDS

STATION SEGMENT

Each station segment kit comes complete with hardware, seals, and a sealing plate. The sealing plate is placed between each segment to ensure sealing between the Buna N gaskets. The standard sealing plate (PLATE A) included has windows open for ports 1,3, & 5.

END PLATE KITS

Consists of two end plates complete with hardware and seals. Pressure is blocked on Size II end plates with 3/4" pipe plugs (included).

EASY MANIFOLD ASSEMBLY

Use a 3 mm hex key to partially back out (approximately 4 turns counter clockwise) the installed set screw. Press the mating station segment or end plate to the manifold assembly with a sealing plate between the two, and turn the hex key clockwise to complete assembly. Tighten set screws on both sides of the manifold.

DUAL MANIFOLD SUPPLY PRESSURE

On size II manifolds, simply remove the pipe plugs. This is standard practice if more than 3 valves are energized at the same time and flow is critical to the application.

MANIFOLD WITH TWO DIFFERENT SUPPLY PRESSURES

On size II manifolds, place plate B where the pressure division is desired and remove pipe plugs from the end cover.

COMMON EXTERNAL PILOT PRESSURE

If a common external pilot is required (normally if supply pressure is below minimum pressure or a vacuum supply is used) for the entire length of the manifold, all standard plates (plate A) must be replaced by plate C. Individual valves can be externally piloted by connecting the external pilot supply to port 14 on the end of the station segment.

PLEASE CONSULT FACTORY WITH SPECIAL APPLICATIONS 1 AND 2 BELOW:

1) Manifold With Two Different Supply Pressures & Common Ext. Pilot

2) Manifold With Three Different Supply Pressures

PLATE A
1, 3 & 5 Open
R432015343

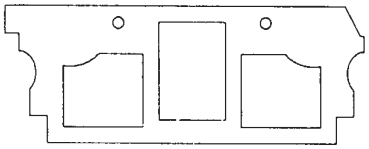


PLATE B
All ports blocked
R432015342

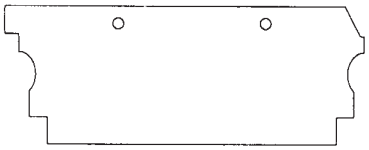
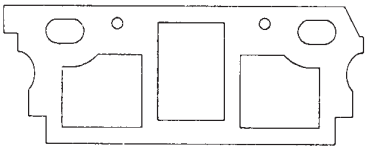
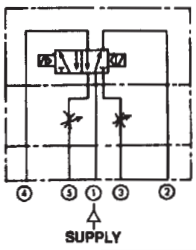


PLATE C
1, 3, 5, 12 & 14 Open
R432015344



ISO SIZE II ACCESSORIES

Sandwich Flow Controls (Meter Out Ports 3 & 5)



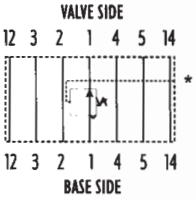
Our flow controls sandwich between the valve and subbase eliminating the need for additional piping and external controls for both working ports. Adjustment is with a knob on each side. A fine thread, along wth our two stage needle design assures excellent control. Kit includes speed control (1), gasket (1), and screws (4).

Part No. R432015348*
Dimensions
Height: 1.14" (29mm)
Maximum Overall Length: 6.99" (177.5mm)

90° Elbow for use in regulator gauge port. 1/8" NPT male to 1/8" NPT female.
Part no. R432002543

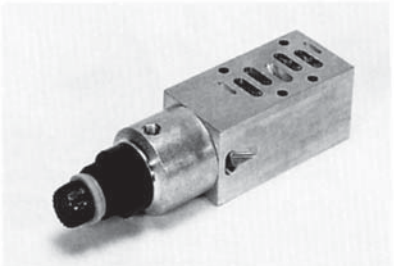
NOTICE*
Dual Accessory Bolt Kit
Order **Bolt Kit R432015949** to mount Sandwich Regulators with a Sandwich Flow Control (R432015348).

Sandwich Regulator (Port 1)



Ideal for applications within a manifold where a particular pressure is required for one or more valves. Our regulator controls inlet pressure through to each cylinder port. A relieving type, the knob will also lock into a given position. Kit includes regulator (1), gasket (1), screws (4), gauge port plugs (2).

Part No. 0821302064* (10-120 psi)
R432009192* (5-60 psi)
R432030015* (3-30 psi)
Dimensions
Height: 2.05" (52mm)
Maximum Overall Length: 7.68" (195mm)
*1/8" NPT GAUGE PORT



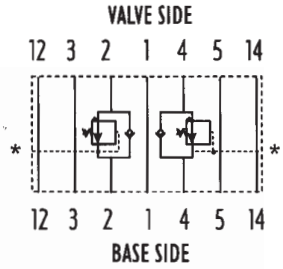
ISO SIZE II ACCESSORIES

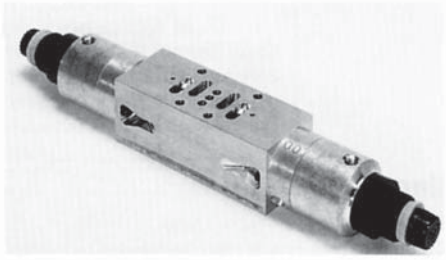
Dual Pressure Sandwich Regulator

Our pressure regulators sandwich between the valve and subbase eliminating the need for additional piping. Ideal for applications within a manifold where independent regulation of two supply pressures is required; no external pilot supply is required if minimum pilot pressure is available. Supplying ports 2 and 4, free flow reverse check valves allow high flow in both directions. Three pressure ranges are available, with locking adjustment knobs at "Control 12" for port 2 and "Control 14" end for port 4.
Kit includes regulator (1), gasket (1), screws (4), gauge port plugs (2).

Part No. 0821302067* (10-120 psi)
R432015495* (5-60 psi)

* 1/8" NPT GAUGE PORTS
Dimensions
Height: 2.05" (52mm)
Maximum Overall Length: 13.54" (344mm)





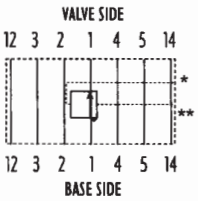
Maintenance Plate

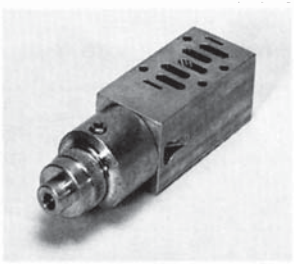
A maintenance plate, mounted between valve and sub-base, is used when servicing individual valves in a manifold system, or replacing a cylinder while the system is still operating. See page 22.

Remote Pilot-Operated Regulator (10-120 psi)

Ideal for applications where full remote control of all pressure settings throughout the selected range is needed. Pilot source can be a smaller regulator manually adjusted or electronically adjusted via a command signal for precise control of force and speed. Example: Controlling RPM of an air motor. Rexroth Electro-Pneumatic (E/P) Devices can be directly connected to this unit (see Rexroth sales catalog SC-600). Kit includes regulator (1), gasket (1), screws (4), gauge port plugs (2). * 1/8" NPT GAUGE PORTS
**1/8" NPT PILOT PORT

Part No. R432030601* (single air pilot)
Dimensions
Height: 2.05" (52mm)
Maximum Overall Length: 7.00" (178mm)





ISO SIZE II ACCESSORIES (continued)

Sandwich Auxillary Pressure Block (Port 1)

The separate pressure block allows for more than two pressures to be provided to a manifold of valves. This unit sandwiches between the valve and base. Pressure to the balance of the manifold is isolated. Kit includes plate (1), gasket (1), screws (4).

For photos, see Size 1 on page 22.

Dimensions
Height: 1.54" (39.1mm)
Maximum Overall Length: 4.28" (108.7)
1/2"-14 NPT INLET

Part No. R432015769*
Part No. R432015770*

(Allows 3 or more pressures to be applied to the same manifold assembly. **See page 24 for details.)**

***NOTICE**
Dual Accessory Bolt Kit
Order **Bolt Kit R432000880** to mount Sandwich Auxiliary Pressure Block (R432015769) with a Sandwich Flow Control (R432015348).

Blanking Plate Kit

Allows for valve to be added later.
Can be removed to add valve to existing manifold.
Kit includes plate (1), gasket (1), screws (4).
Shown on 1/4" base.

Part No. R432015321

Transition Plate Kit

For part no. R432015315 (old style) and R432015318

This kit allows the combining of our sizes I and II bases, with side porting, in the same manifold. No need to sacrifice by either undersizing or oversizing to meet design needs.

Part No. R432015323
Kit contains all hardware plus:
1 - Transition plate (Size I to Size II)
1 - Size I Endplate
1 - Size II Endplate
(Cannot be used with R432015314)

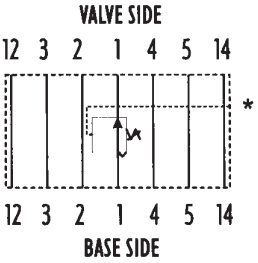
Transition Plate Dimensions (H x W x L)
3.15" (80mm) X 1.23" (31.2mm) X 4.97" (126.2mm)

ISO SIZE III ACCESSORIES

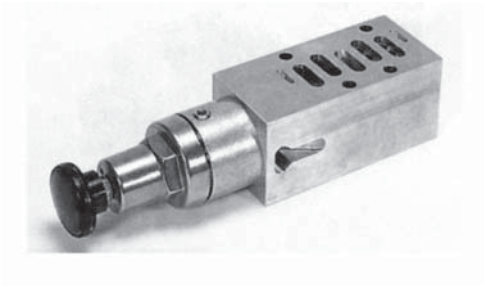
Sandwich Regulator (Port 1)

Ideal for applications within a manifold where a particular pressure is required for one or more valves. Our regulator controls inlet pressure through to each cylinder port. A relieving type, the knob will also lock into a given position. Kit includes regulator (1), gasket (1), screws (4), gauge port plugs (2).

Part No. 0821302050* (10-120 psi)
R432009194* (5-60 psi)
R432009195* (3-30 psi)



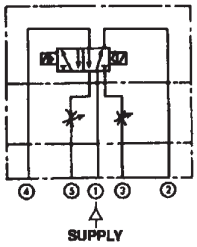
Dimensions
Height: 2.52" (64mm)
Maximum Overall Length: 10.55" (268mm)
* 1/8" NPT GAUGE PORTS

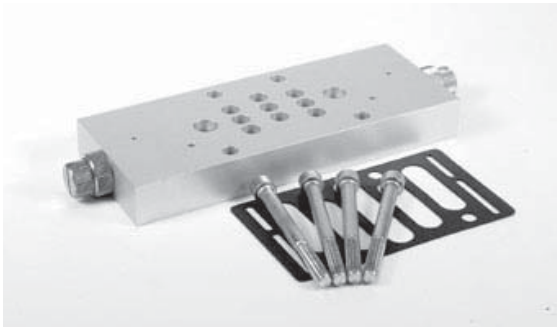


Sandwich Flow Controls (Meter Out Ports 3 & 5)

Our flow controls sandwich between the valve and subbase eliminating the need for additional piping and external controls for both working ports. Adjustment is via a screw on each side, assuring excellent control. Kit includes speed control (1), gasket (1), and screws (4).

Part No. R432008895
Dimensions
Height: 0.94" (23.9mm)
Maximum Overall Length: 6.44" (163.6mm)
Width: 2.50" (63.5mm)





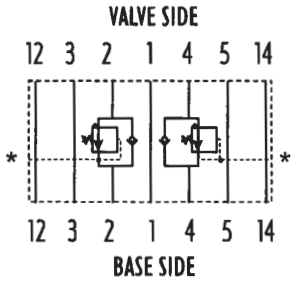
ISO SIZE III ACCESSORIES (continued)

Dual Sandwich Regulator

Ideal for applications within a manifold where independent regulation of two supply pressures is required; no external pilot supply is required if minimum pilot pressure is available. Supplying ports 2 and 4, free flow reverse check valves allow high flow in both directions. Three pressure ranges are available, with locking adjustment knobs at "Control 12" for port 2 and "Control 14" end for port 4.
Kit includes regulator (1), gasket (1), screws (4), gauge port plugs (2).

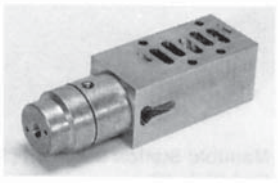
Part No. **5747021032(10-120 psi)**
R432009411 (5-60 psi)

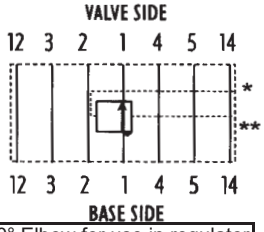
Dimensions
Height: 2.52" (64mm)
Maximum Overall Length: 18.66" (474mm)
*1/8" NPT GAUGE PORTS



Remote Pilot-Operated Regulator (10-120 psi)

Allows full remote control of all pressure settings throughout the selected range. Pilot source can be a smaller regulator manually adjusted or electronically adjusted via a command signal for precise control of force and speed. Example: Controlling RPM of an air motor. Rexroth Electro-Pneumatic (E/P) Devices can be directly connected to this unit (see Rexroth sales catalog SC-600).
Kit includes regulator (1), gasket (1), gauge port plugs (2) and screws (4). *1/8" NPT GAUGE PORTS
**1/8" NPT PILOT PORT
Part No. R432009281
Dimensions
Height: 2.52" (64mm)
Maximum Overall Length: 8.50" (216mm)





90° Elbow for use in regulator gauge port. 1/8" NPT male to 1/8" NPT female.
Part no. R432002543

Maintenance Plate

A maintenance plate, mounted between valve and sub-base, is used when servicing individual valves in a manifold system, or replacing a cylinder while the system is still operating. **See page 22.**

R432011952 Silencer, 1/2" NPT
R432012059 Silencer, 3/4" NPT

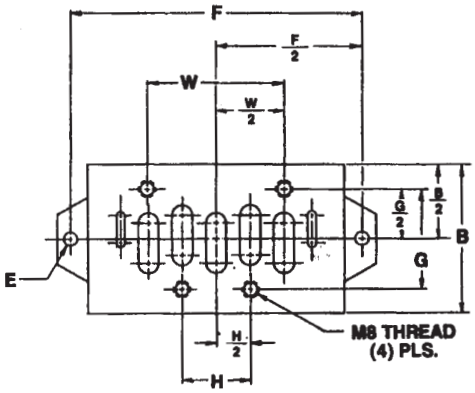
Blanking Plate Kit - Size III

Allows for valve to be added later. Kit includes plate, gasket and screws.
Part No. 5803870000

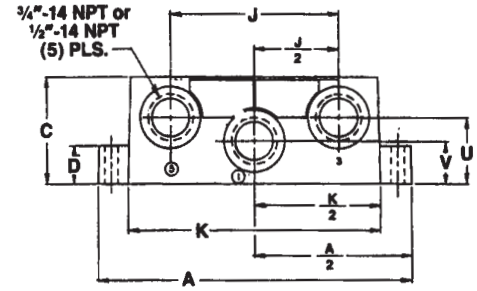
Metric manifolds and subbases are available from on-line catalog on the Internet.

ISO SIZE III SUBBASES

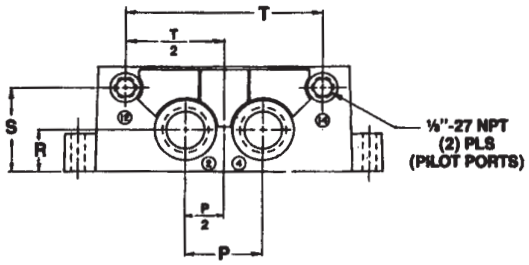
Single Subbase (side ported) 1/2" or 3/4" NPT ports



SIDE VIEW



SIDE VIEW (FROM OTHER SIDE)

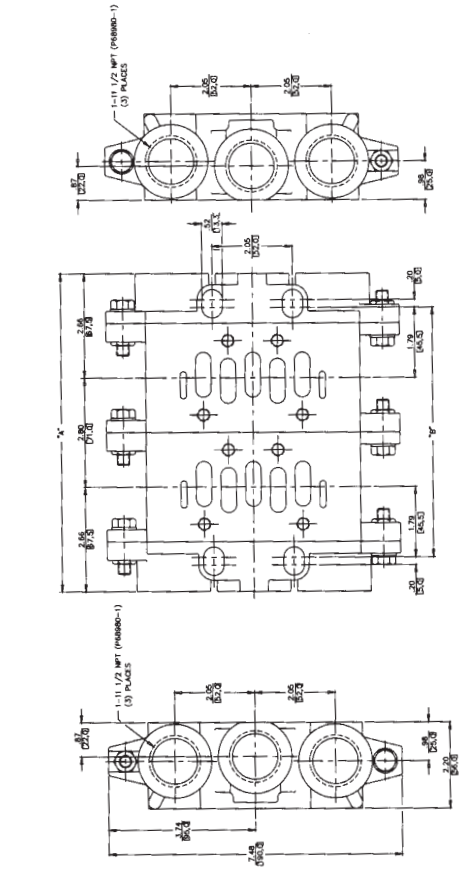


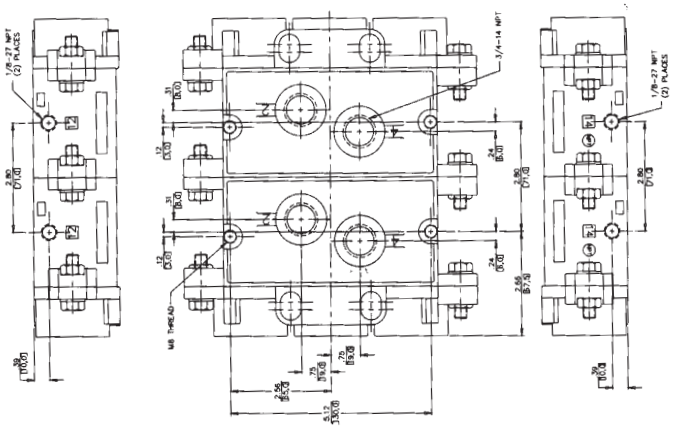
Part No. **R432015309 - port Size 3/4" NPT**
R432015308 - port Size 1/2" NPT
R432009166 - port Size 3/4" BSPP

DIM	A	B	C	D	E	F	G	H	J
IN	5.87	2.80	1.97	.71	.26 dia.	5.34	1.89	1.26	3.15
mm	149.0	71.0	50.0	18.0	Ø18.0	136.0	48.0	32.0	80.0

DIM	K	P	R	S	T	U	V	W
IN	4.72	1.42	.79	1.58	3.62	1.22	.79	2.52
mm	120.0	36.0	20.0	40.1	92.0	31.0	20.0	64.0

ISO SIZE III Bottom Ported Manifolds
1/2" or 3/4" NPT Delivery Ports



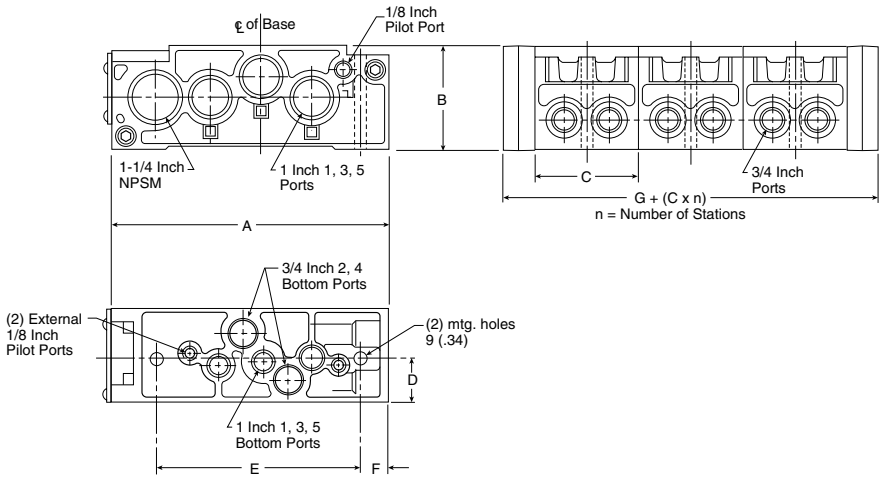


Part No. R432015491 - Manifold Station Segment (1/2" NPT)
Part No. R432015490 for 3/4" NPT Delivery Ports
Part No. R432015492 - End Plates (includes both ends)

DIM	NUMBER OF VALVES													
	2		3		4		5		6		7		8	
A	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
	8.10	205.7	10.90	276.9	13.70	348.0	16.50	419.1	19.30	490.2	22.10	561.3	24.90	632.5
B	6.38	162.1	9.18	233.2	11.98	304.3	14.78	375.4	17.58	446.5	20.38	517.7	23.18	588.8

ISO SIZE IV Bottom & Side Ported Manifolds

Dimensions	A	B	C	D	E	F	G
IN	9.07	3.24	3.29	1.54	6.89	0.91	2.04
mm	230	82	84	39	175	23	52



Part No. R432011719 - Manifold Station Segment (3/4" NPT)
Part No. R432011720 - End Plate Kit
Part No. R432011721 - Manifold Isolation Disc

Blanking Plate Kit - Size IV

Allows for valve to be added later. Kit includes plate, gasket and screws.
Part No. 5804870000

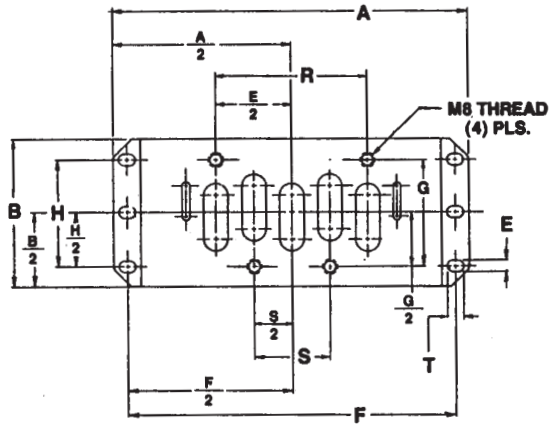
R432011952 Silencer, 1/2" NPT
R432012059 Silencer, 3/4" NPT

Metric manifolds and subbases are available from on-line catalog on the Internet.

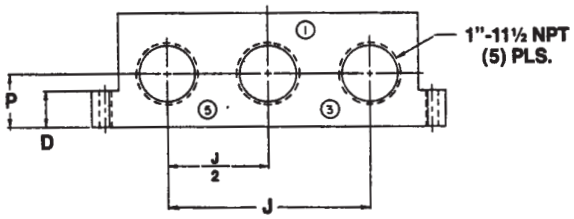
ISO SIZE IV SUBBASES

Single Subbase (side ported) 1" NPT ports

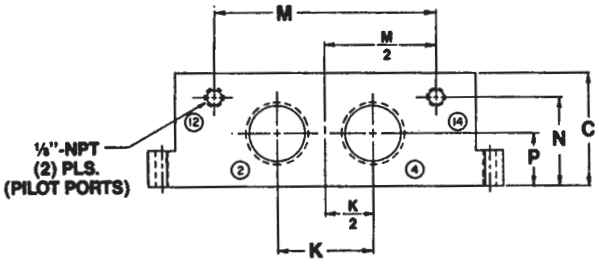
TOP VIEW



SIDE VIEW



SIDE VIEW (FROM OTHER SIDE)



Part No. R432015310 - Port Size 1"

DIM	A	B	C	D	E	F	G	H	J
IN	7.32	3.15	2.44	.71	.26	6.77	2.28	1.97	4.17
mm	186.0	80.0	62.0	18.0	6.5	172.0	58.0	50.0	106.0

DIM	K	M	N	P	R	S	T
IN	1.97	4.57	1.85	1.10	3.15	1.58	.33
mm	50.0	116.0	47.0	28.0	80.0	40.0	8.5

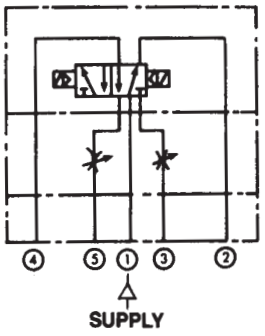
ISO SIZE IV ACCESSORIES

Sandwich Flow Controls (Meter Out Ports 3 & 5)

Our flow controls sandwich between the valve and subbase eliminating the need for additional piping and external controls for both working ports. Adjustment is via a screw on each side, assuring excellent control. Kit includes speed control (1), gasket (1), and screws (4).

Dimensions
Height: 0.94"
Maximum Overall Length: 7.75"
Width: 3.00"

Part No. R432009004



Metric manifolds and subbases are available from on-line catalog on the Internet.

ORDER FORM FOR FACTORY ASSEMBLED MANIFOLDS

Factory assembled manifolds are available for the following valve lines in this catalog (other valve lines not shown in this catalog are also available as factory-assembled manifolds):

CERAM VALVES**
TYPE 740 VALVES**
TYPE 840 VALVES**

**** Minimum order quantity of five identical factory assembled manifold assemblies required per order on these valve lines.**

Instructions for Ordering Factory Assembled Manifolds

❶ Choose valve line desired. For Ceram valves, be sure to indicate end or bottom ported manifolds.

Check One:

☐ **CERAM END PORTED** ☐ **CERAM BOTTOM PORTED**

☐ **TYPE 740** ☐ **TYPE 840**

❷ List valve part number required per each station (See example)

❸ Indicate accessory per valve (Example: sandwich speed controls and regulators–see example.)

❹ Are wireways required? (Type 840 only–see example.)

☐ **YES** ☐ **NO**

NOTE: Manifolds will not be factory wired.

❺ Is a non-standard manifold required? (Example: dual pressure manifolds, common external pilots, etc.)

A) CERAM Manifolds—
Dual pressure manifolds, common external pilots, more than two manifold pressures, etc.
Indicate SPECIAL PLATE where required. If a Size I to II jumper plate is required, indicate J in the SPECIAL PLATE blank.

B) Type 740 & 840 only—
If dual pressure manifold is required, mark BLOCKED between the two stations where pressure will be different.

EXAMPLE:
Station 1 - Size I Single Solenoid CERAM™ with a regulator;
Station 2 - Size I Double Solenoid CERAM™ without accessories.

Plate B will isolate Stations 1 & 2 from the rest of the manifold. Other examples available from the factory.

NOTES:
Unless otherwise denoted, all solenoid single supply manifolds will have supply ports on left end cover and pressure blocked on right side.

14 SIDE - CERAM™ ONLY

NORMAL SUPPLY PRESSURE SIDE

STATION 1	VALVE PART NO.	
	ACCESSORY	
	WIREWAY (TYPE 840 ONLY)	
(CERAM) SPECIAL PLATE TYPE ____		(740/840) BLOCKED ❑
2	VALVE PART NO.	
	ACCESSORY	
	WIREWAY (TYPE 840 ONLY)	
(CERAM) SPECIAL PLATE TYPE ____		(740/840) BLOCKED ❑
3	VALVE PART NO.	
	ACCESSORY	
	WIREWAY (TYPE 840 ONLY)	
(CERAM) SPECIAL PLATE TYPE ____		(740/840) BLOCKED ❑
4	VALVE PART NO.	
	ACCESSORY	
	WIREWAY (TYPE 840 ONLY)	
(CERAM) SPECIAL PLATE TYPE ____		(740/840) BLOCKED ❑
5	VALVE PART NO.	
	ACCESSORY	
	WIREWAY (TYPE 840 ONLY)	
(CERAM) SPECIAL PLATE TYPE ____		(740/840) BLOCKED ❑

LAST STATION ON THIS SIDE IS NORMALLY BLOCKED.

14 SIDE - TYPE 740™ & 840™

EXAMPLE:

NORMAL SUPPLY PRESSURE SIDE

1	❷ VALVE PART NO.	R432006435
	❸ ACCESSORY	R432015347
	❹ WIREWAY (TYPE 840 ONLY)	
(CERAM) SPECIAL PLATE TYPE ____		(740/840) BLOCKED ❑

GT Series Size I and GS Series Size II Valves

** Solenoid Valve Internal To External Pilot Field Conversion **
CAUTION: Air supply should be removed before modification.

EXTERNALLY PILOTED VALVES ARE AVAILABLE DIRECTLY FROM THE FACTORY. See model explanation on page 14 as well as individual notes on pages 5 - 12 under standard valve models for ordering instructions.
The following procedure should be used to convert a solenoid valve from internal pilot to external pilot pressure operation. All valves come from the factory internally piloted. External pilot function is required if the supply pressure is below the minimum pilot pressure of 29 psi (2-position valves; 44 psi for 3-position models) or if the customer is using vacuum for supply pressure.

SIZE I GT SERIES VALVE
EXTERNAL PILOT CONVERSION

Figure 1

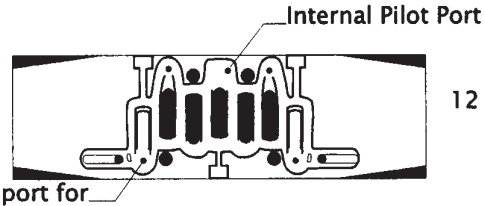
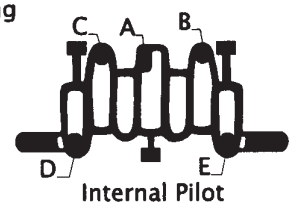
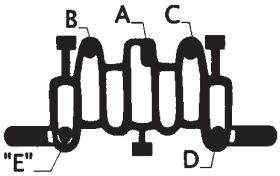


Figure 2



Internal Pilot
Standard Gasket Orientation

Figure 3



Reversed for External Pilot Conversion

SIZE II GS SERIES VALVE
EXTERNAL PILOT CONVERSION

Figure 1

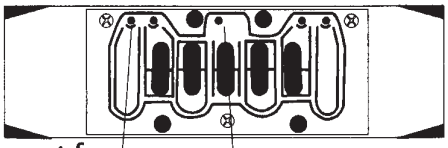
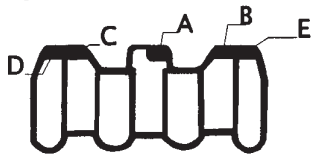
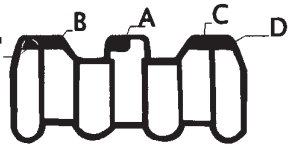


Figure 2



Internal Pilot
Standard Gasket Orientation

Figure 3



Reversed for External Pilot Conversion

For external pilot conversion, remove gasket from valve body as shown in Figures 1 and 2. Flip gasket end-to-end so that Tab "A" will cover the internal pilot port shown in Figure 1. Remove Tab "E" shown in Figure 3. Mount valve to base.
Apply a minimum of 29 psi (2-position valves) or 44 psi (3-position valves) to Port 14. Port 14 will provide pilot pressure to all solenoids regardless of single or double configuration.
NOTE: Port 12 does not need to be plugged. Port 12 is used only on Double Air Pilot models.

Note: This page does not apply to air piloted/air spring return valves.

Internal to External Pilot Conversion, Size III & IV

GASKET ORIENTATION INFORMATION FOR REPAIR OR EXTERNAL PILOT CONVERSION

CAUTION: Air supply should be removed before modification.

EXTERNALLY PILOTED VALVES ARE AVAILABLE DIRECTLY FROM THE FACTORY. See model explanation on page 14 as well as individual notes on pages 5 - 12 under standard valve models for ordering instructions.

The following procedure should be used to convert a solenoid valve from internal pilot to external pilot pressure operation. All valves come from the factory internally piloted. External pilot function is required if the supply pressure is below the minimum pilot pressure of 29 psi (2-position valves; 44 psi for 3-position models) or if the customer is using vacuum for supply pressure.

Reorient the gaskets located underneath the blue saddle cover. Pneumatic symbols are stamped on the cover of the valve to indicate which function has been chosen. The black corner tab of each gasket is visible through a hole (in the cover) located by the symbol of the operator chosen. As you can see by the diagram below, each outside operator gasket can be rotated in one of four positions (details A, B,C, or D).

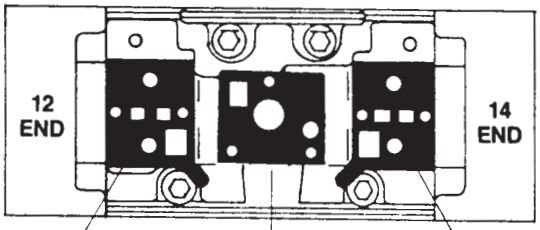
Also shown is the common pilot gasket which can be rotated in two positions (details E & F). This gasket should always be in the "E" position except for double solenoid (external pilot) with a common pilot. Ports 12 or 14 must be used for the common pilot, but the other unused port must be blocked. For separate pilot pressures, continue to use position E.

Common Pilot Gasket Position F

*(For Use When You Need Common Pilot Signals To Ports 12 & 14)

Operator Gasket Position C

Operator Gasket Position D



Operator Gasket Position A

Common Pilot Gasket Position E

Operator Gasket Position B

GASKET POSITION CHART

OPERATOR COMBINATION DESIRED	12 END	COMMON PILOT GASKET	14 END
Single Solenoid (internal pilot)/metal spring return	C	E	B
Single Solenoid (internal pilot)/air spring return (internal)	B	E	B
Single Solenoid (internal pilot)/air spring return (external)	D	E	B
Single Solenoid (external pilot)/metal spring return	C	E	D
Single Solenoid (external pilot)/air spring return (internal)	B	E	D
Single Solenoid (external pilot)/air spring return (external)	D	E	D
Double Solenoid (internal pilot) 2 & 3 position	A	E	B
*Double Solenoid (external pilot) 2 & 3 position	C	F	D
Air Pilot/Metal Spring	C	E	C
Air Pilot/Air Spring (internal)	B	E	C
Air Pilot/Air Spring (external)	D	E	C
Double Air Pilot 2 & 3 positions	D	E	C

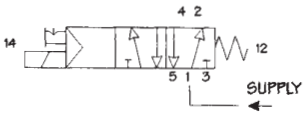
*NOTE: Position "F" for double solenoid external pilot supply only. All other valve models use position "E."

Piping Instructions - All Sizes (I, II, II, & IV)
CAUTION: Air supply should be removed before modification.

Normal Piping Procedure

Use these connections if you have one supply pressure only.

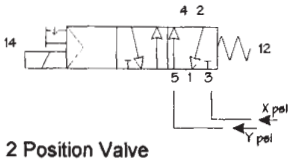
Single Pressure



Port	Marking
1 =	Supply Pressure
2 & 4 =	Delivery (Cylinder)
3 & 5 =	Exhaust
12 & 14 =	External Pilot Supply

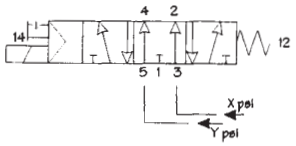
Dual Pressure Piping Procedure

2 Position Valve Piping. (Do not use unless you must use 2 different supply pressures.)



2 Position Valve

Port	Marking
1 =	Common Exhaust Port
2 & 4 =	Delivery (Cylinder) Ports
3 & 5 =	Supply Pressures
12 & 14 =	External Pilot Supply



3 Position Valve

3 Position Valve Piping. (Use for supplied center or for 2 different supply pressures.)

Dual Pressure Valve Conversion Instructions (Size I & II)

Please note that the supply pressure in Port 5 must be at least 29 psi (for 2-position models) or 44 psi (for 3-position models).
If minimum pressure is not met on port 5, external piloting must be used; see page 31 for directions.
Size I & II CERAM Valves are designed for dual pressure applications. For this service, "replumb" the subbase by using ports "3" and "5" for the two different supplies, and port "1" for a common exhaust. (Ports "2" and "4" are still the delivery ports.) Port "3" will supply port "2", and port "5" will supply port "4". After the subbase has been "replumbed", remove the valve from the subbase and remove the bottom gasket as shown in Figures 1 and 2. Flip the gasket end-to-end so the internal pilot hole will be covered by the gasket as shown in Figure 3. Remove tab "B" as shown in Figure 3. Remount valve to base.

SIZE I GT SERIES VALVE
DUAL PRESSURE CONVERSION

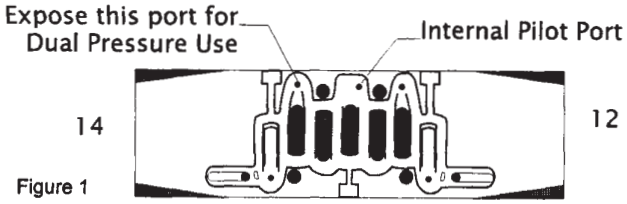


Figure 1

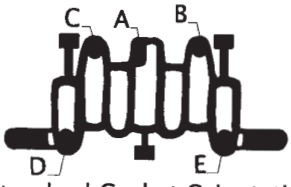


Figure 2

Standard Gasket Orientation

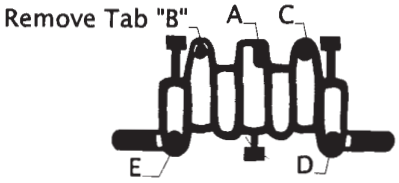


Figure 3

Reversed for Dual Pressure Conversion

SIZE II GS SERIES VALVE
DUAL PRESSURE CONVERSION

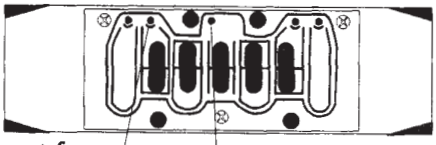


Figure 1

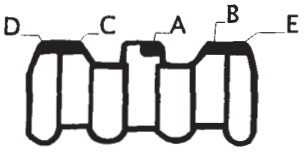


Figure 2

Standard Gasket Orientation

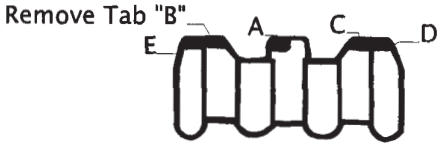


Figure 3

Reversed for Dual Pressure Conversion

Dual Pressure Valve Conversion Instructions (Size III & IV)

Convert to external pilot according to instructions on page 32, then follow instructions at top right of this page.

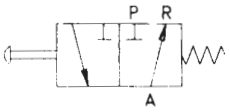
Snap 3-Way Directional Poppet Valve

Panel Mount - 1/4" or 6mm tubing connection

Rexroth
Bosch Group

The Snap Valve product line has been discontinued effective 12-31-09.

3 Way / 2 Position
Manually Operated Poppet Valves
Panel Mounting - Tubing Connection



P=SUPPLY
A=DELIVERY
R=EXHAUST

TECHNICAL DATA:

Body: Polyacetal
Port Sizes: Tubing connection is for 1/4" O.D. x .040 wall or 6mm O.D. x 1mm wall poly tubing
Working Pressure: 0 to 150 PSI
Flow: C_V = .10
Temperature Range: +5° to +140° F
Media: Air (either lubricated or non-lubricated)

FEATURES

- Easy to assemble, flexible design.
- Same valve fits six different operators.
- All operators can mount in 7/8" (.88") diameter panel knockout.
- 1/4" molded fittings and nuts included.
- Comes complete with both 1/4" (grey) and 6mm (black) tube nuts.

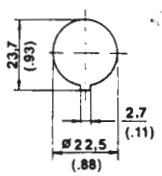
How To Order: First order valve and then choose desired operator.

BASIC VALVE			
TUBING CONNECTION	FIGURE	PART NUMBER	WGT. OZ.
1/4 O.D.*	1	R432006531	.7

* Tubing connection is for 1/4" or 6mm O.D. poly tubing

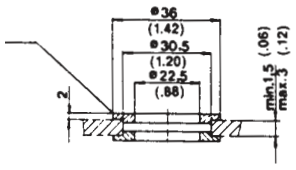
OPERATORS				
DESCRIPTION	FIGURE	SYMBOL	PART NUMBER	WGT. OZ.
Flush Button	2		8940409902	.5
Mushroom Button	3		8940409512	.8
Mushroom w/ Lock	4		8940409602	.9
Rotary Knob Long Lever	5		8940410002	.8
Rotary Knob Short Lever	6		8940410102	.7
Toggle	7		8940410702	.6

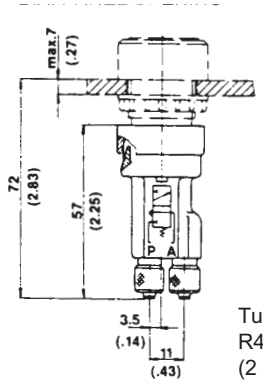
ASSEMBLY: Insert operator into basic valve, press lightly until latched.
DISASSEMBLY: Insert small flat-bladed tool into slot (fig 1), apply light force to spread keeper ring. Remove operator from valve.



PANEL OPENING DIMENSIONS

REDUCING RING
8951817904 FOR
MOUNTING INTO 30.5mm (1.2")
DIAMETER PANEL OPENING





TOOL SLOT FOR DISASSEMBLY

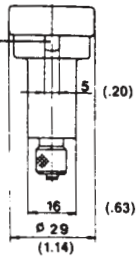


FIG. 1

Tube Nut Kit
R432015690
(2 additional)

6 OPERATORS

UNLATCH BY CLOCKWISE ROTATION

DIMENSIONS *MM / INCH*

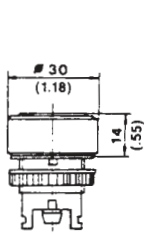


FIG. 2

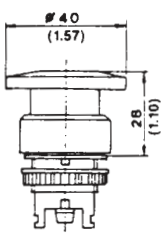


FIG. 3

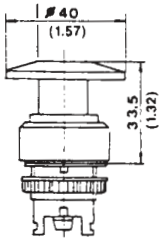


FIG. 4

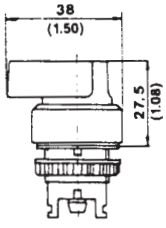


FIG. 5

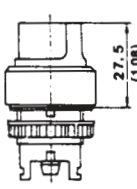


FIG. 6

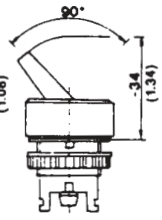


FIG. 7

OPERATORS MAY BE ROTATED 180° IN RELATION TO BASIC VALVE FOR DESIRED ACTUATION.

MiniBlock™ 3-Way Directional Poppet Valve

3-Way, 2 position, cam roller operator

Rexroth
Bosch Group

3 Way / 2 Position Manually Operated
Normally closed, cam roller operated, #10-32 ports and 1/4" tube fittings

TECHNICAL DATA:

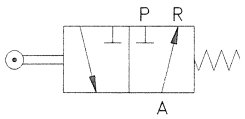
Port Sizes:
#10-32 Ports or
1/4" O.D. x .040 wall poly tubing
barb fittings (included)

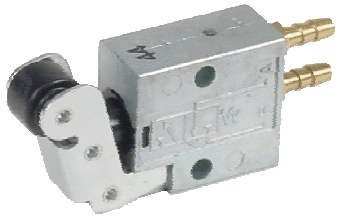
Working Pressure: 0 to 150 PSI

Flow:
Cv = .15 (1/4" O.D. x .040 tubing barb)

Media: Air, either lubricated or non-lubricated

Materials:
Die cast zinc & engineering plastic





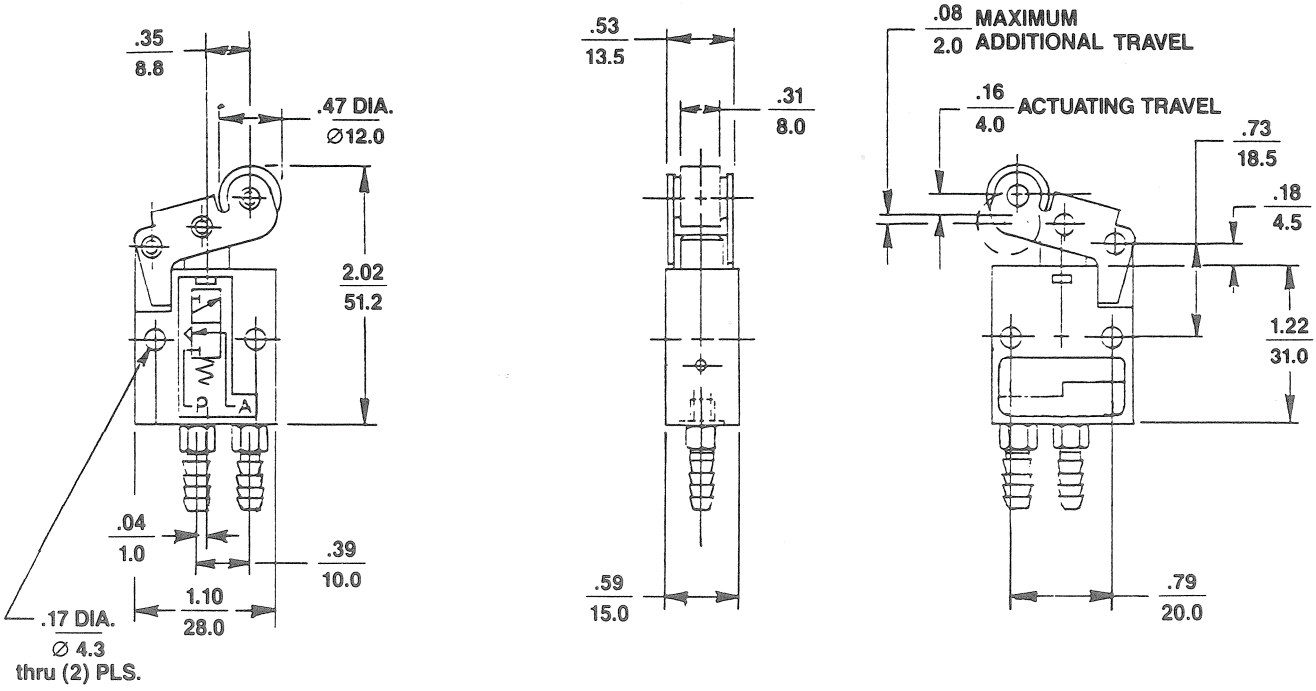
FEATURES

- Long life poppet cartridge assembly
- Heavy duty cam operator
- Fittings included for 1/4" O.D. x .040 wall poly tubing.

DESCRIPTION	SYMBOL OPERATOR	PART NUMBER	OPERATOR FORCE IN POUNDS @ 150 PSI N/C	WEIGHT IN OZ.	PORT SIZE
Cam Roller w/Barb Fittings		5632600000	1.6	2.8	#10/32 or 1/4 O.D. Tubing
MISCELLANEOUS ACCESSORIES AND KITS					
Spare barb fitting kit		R432015679			

NOTE: All dimensions expressed in $\frac{IN}{MM}$

DIMENSIONS:



Series 830 3-Way Directional Poppet Valve

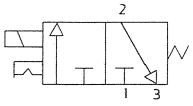
Solenoid operated

Rexroth
Bosch Group

TECHNICAL DATA:

NOTE: All dimensions expressed in $\frac{IN}{MM}$

Port Sizes: Single Subbase 1/8" NPT
Manifolds (2 thru 8 stations)
10-32 delivery ports with
1/4" NPT supply
Working Pressure: 0-150 psi
Flow: C_V = .06
(up to 3 SCFM w/ 150 psi pressure supply; up to 2.25 SCFM w/ 80 psi supply (15 psi pressure drop)
Temperature Range: +5°F to +122°F
Media: Air, either lubricated or non-lubricated
Materials: Rugged enginering plastic body with nylon coil, subbase and manifolds of black anodized aluminum.
Manual Override: Locking



NOTE: Valve mounting screws provided with subbases and manifolds are M3 x 18mm.

ELECTRICAL DATA:
NEMA 4 (IP65) electrical protection

Standard Voltages (all coils rated for continuous duty)	Power Consumption	
	Inrush	Holding
24, 120 VAC (50/60 Hz)	8.5 VA	6.9 VA
6, 12, 24 VDC	4.8 W	

Voltage tolerance: ± 10%

FEATURES

- Direct acting, poppet design
- 3-way normally closed, single solenoid
- Manifold capabilities, 2 thru 8 stations
- Operates with lubricated or nonlubricated air

Valves with non-lighted connector

Port Size	Part No.
120 VAC-50/60 Hz	R432006547
240 VAC-50/60 Hz	R432006549
12 VDC	R432006552
24 VDC	R432006555
24 VAC-50/60 Hz	R432006557

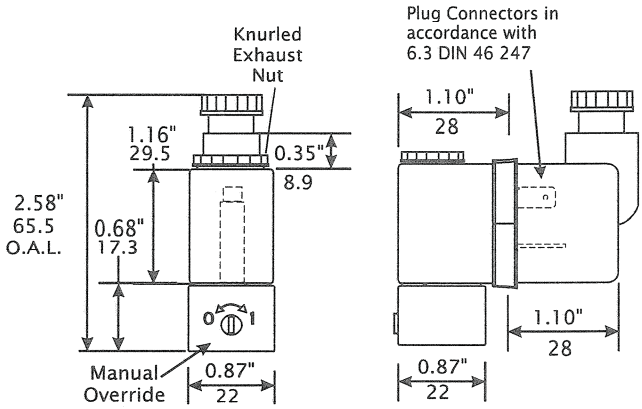
Valves with lighted connector

Port Size	Part No.
120 VAC-50/60 Hz	R432006548
240 VAC-50/60 Hz	R432006550
12 VDC	R432006553
24 VDC	R432006556
24 VAC-50/60 Hz	R432030351

Subbases and Manifolds

Port Size	Part No.
Single subbase, 1/8" ports	R432006538
2-Station manifold, 10-32 ports	R432006539
3-Station manifold, 10-32 ports	R432006540
4-Station manifold, 10-32 ports	R432006541
5-Station manifold, 10-32 ports	R432006542
6-Station manifold, 10-32 ports	R432006543
7-Station manifold, 10-32 ports	R432006544
8-Station manifold, 10-32 ports	R432006545

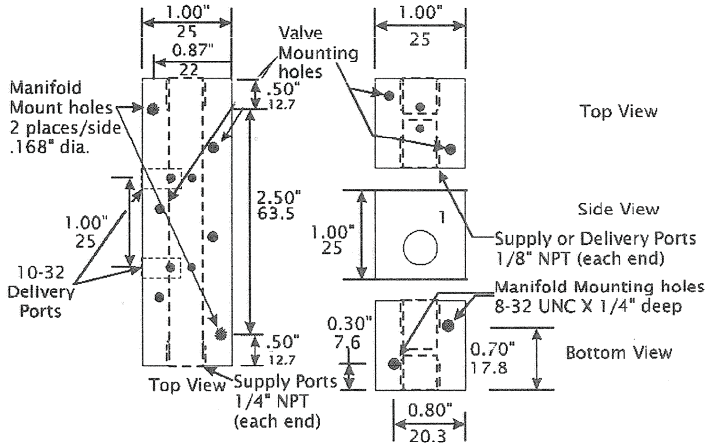
Valve Dimensions



dimensions = $\frac{IN}{mm}$

Subbase Dimensions

Manifold valves mount on 1" centers. For more than two stations, add 1" to O.A.L. for each additional station (up to 8 stations).



Two Station Manifold Single Station Manifold

Replacement Coils

Port Size	Part No.
120 VAC-50/60 Hz	R432006534
240 VAC-50/60 Hz	R432030356
12 VDC	R432006535
24 VDC	R432006536
24 VAC/ 50/60Hz	R432006537

4 Way / 2 Position
Solenoid & Air Pilot Poppet Valves

TECHNICAL DATA:

Port Sizes: Integrated Fittings: 1/4" O.D. x .040" wall poly tubing (grey tube nuts)

Flow: Cv = .20

Working Pressure: 20 psi minimum (External pilots not available)
150 psi maximum (Below 105°F) – solenoid & air pilot valves
115 psi maximum (105°F - 122°F) – solenoid valves
115 psi maximum (105°F - 140°F) – air pilot valves
No vacuum service

Temperature Ranges: +5° to +122° F (20-115 psi)– solenoid valves
+5° to +140° F (20-150 psi) – air pilot valves
+5° to 105° F (20-150 psi) – solenoid & air pilot valves

Media: Air (either lubricated or non-lubricated)

Materials: Polyacetal Engineering Plastic with polyurethane seals and diaphragm

Weight: 2.6 oz. (single solenoid)

Manual Override: Locking

ELECTRICAL DATA:

Standard Voltages (all coils are rated for continuous duty)	Power Consumption	
	Inrush	Holding
24, 120 VAC (50/60 Hz)	2.9 VA	2.0 VA
12, 24 VDC	1.6 W	

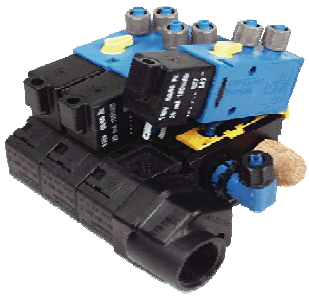
Voltage Tolerance: ±10%
NEMA 4 ELECTRICAL PROTECTION
NOTE: Solenoid connectors must be ordered separately. One per solenoid required. See complete listing on page 89.

OPTIONS: Wireways – See pages 38 and 40

Solenoids with indicator lights available-contact Rexroth.

MANIFOLD MOUNTING

(See page 30 to order factory assembled manifolds.)



FEATURES

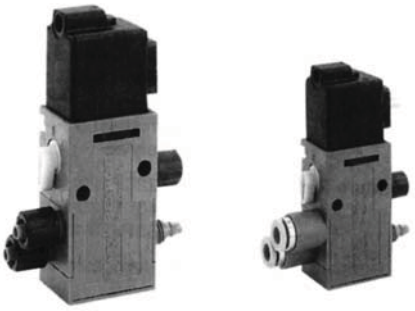
- 4 way/4 ported directional control valve.
- Compact and lightweight (only 2.6 oz. and requires less than 3 cubic inches of space).
- Designed to operate on non-lubricated air.
- Integral fitting (for 1/4" plastic tubing) for fast, leak free connections.
- Modular wireway system
- NEMA 4 Electrical Protection (valve only)
- UL Recognized
- "Clip type" valve to manifold mounting means valve installation and removal takes only seconds (similar to Type 740™ concept).
- Polyacetal Engineering Plastic construction provides excellent corrosion resistance.
- Poppet type valve design provides millions of trouble free cycles.
- Manual override standard.
- Twist lock coil design (no tools required) permits convenient interchangeability between AC and DC coils.
- 3 snap together modular manifold sections facilitate most manifold requirements (accommodates 3/8" O.D. tubing for both supply and exhaust).
- Cycle life—20-100 million cycles
- Response time:
  Supply pressure 90 psi
  Energized-(0-81 psi): 16ms
  De-energized (90-9 psi): 18ms
  Response time based on 24 VDC Single Solenoid

4 Way / 2 Position Poppet Valves
Single & Double Solenoid, Single & Double Air Pilot

NOTE: All dimensions expressed in IN / MM

NOTE: Valves on this page are not supplied with connectors. Connectors must be ordered separately. See bottom of this page and page 89.

NEW PART NO.	OLD PART NO.	DESCRIPTION
5728409990	P -026641-00001	Sgl. Sol. 120 VAC/50-60 Hz
R432008661	P -026641-00002	Single Sol. 220/230 VAC
R432008662	P -026641-00004	Single Solenoid 12 VDC
5728409980	P -026641-00005	Single. Solenoid 24 VDC
R432008663	P -026641-00006	Sgl. Sol. 24 VAC/50-60 Hz
R432008664	P -026642-00001	Dbl. Sol. 120 VAC/50-60 Hz
R432008665	P -026642-00004	Double Solenoid 12 VDC
R432008666	P -026642-00005	Double Solenoid 24 VDC
R432030358	P -026642-00006	Dbl. Sol. 24 VAC/50-60 Hz
R432008659	P -026639-00000	Single Air Pilot
R432008660	P -026640-00000	Double Air Pilot



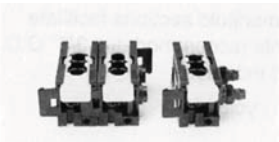
Typical width of valve: 0.87” (22.5mm)
Push-in fittings for metric tubing available. See online catalog.

Wireways, Connectors and Manifolds

Wireway System

Technical Data:
Nominal Voltage: Max. 125V
Continuous Current: 3.2A
Ambient Temperature: +5°F to +175°F
Protection: NEMA 1
Material: Blade and fork contact: nickel plated steel
Spring terminal: stainless steel
Note: Connectors are not required for each individual valve when using wireway R432008679, only one (1) connector per complete manifold is needed.

Manifold System (factory assembled also available)



Manifold accommodates 3/8” O.D. tubing.

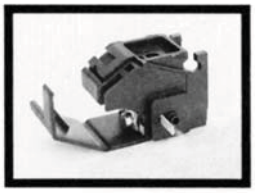
Part Number	Description
*R432008411	Inlet segment
*R432008412	End segment
*R432008413	Station segment
* For a single valve subbase, order Part Number R432008744	

Ordering Example:
(4 station manifold)

1 inlet segment
1 end segment
2 station segments

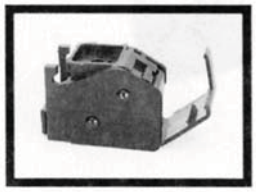
* Includes all o-rings required.

8941012202
SERIES 840 VALVE CONNECTOR
(See page 89 for lighted connectors)



R432008679
WIREWAY SEGMENT

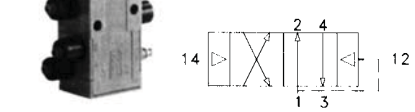
R432008830
1/2” CONDUIT CONNECTOR KIT

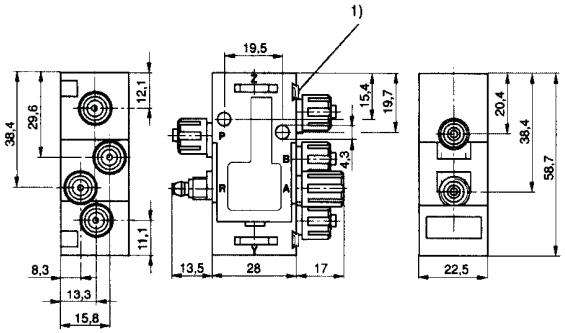


R432008829
WIREWAY END CAP

DIMENSIONS

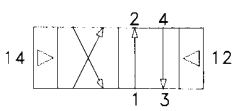
SGL AIR PILOT

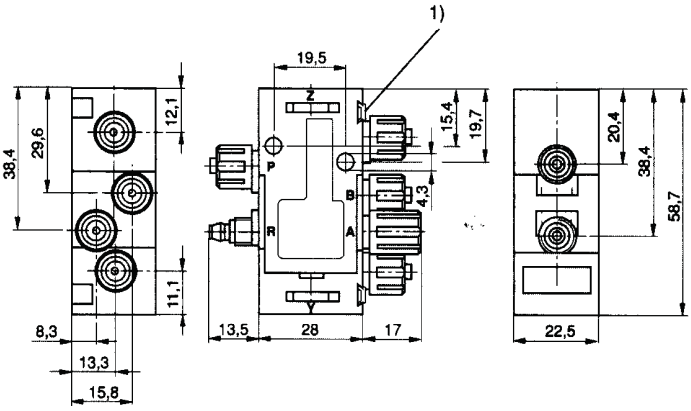




1) Mounting space for nameplate.

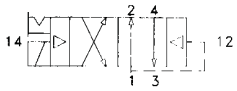
DBL AIR PILOT

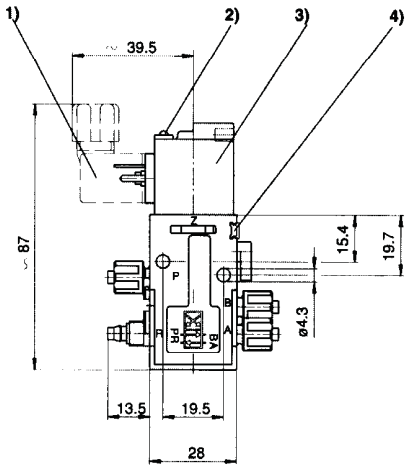




1) Mounting space for nameplate.

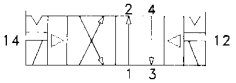
SGL SOLENOID

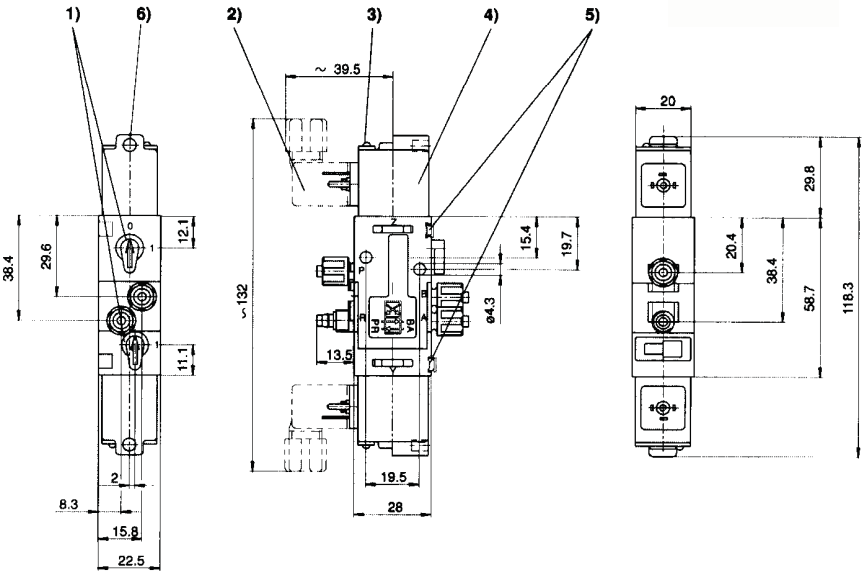




1) Connector rotates at 90° intervals. 2) LED indicator. 3) Coil rotates at 90° intervals. 4) Mounting space for nameplate.

DBL SOLENOID





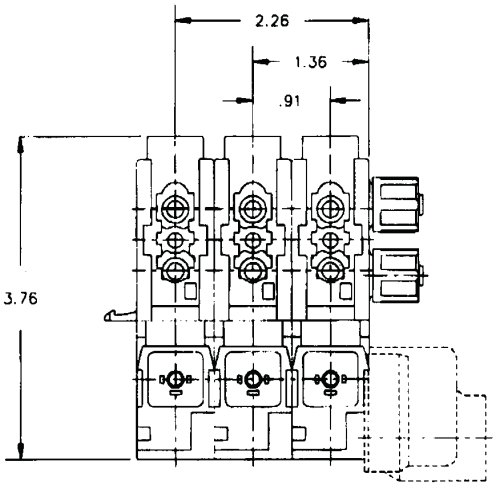
1) Manual overrides. 2) Connector rotates at 90° intervals. 3) LED indicator. 4) Coil rotates at 90° intervals. 5) Mounting spaces for nameplate. 6) Hole for M5 fitting or silencer (Ø4.5mm).

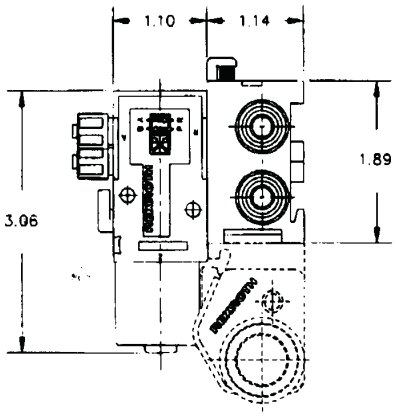
Total System Drawing

NOTE: Optional supply ports are available by drilling and tapping a #10-32 thread into the bottom or side of the manifold.

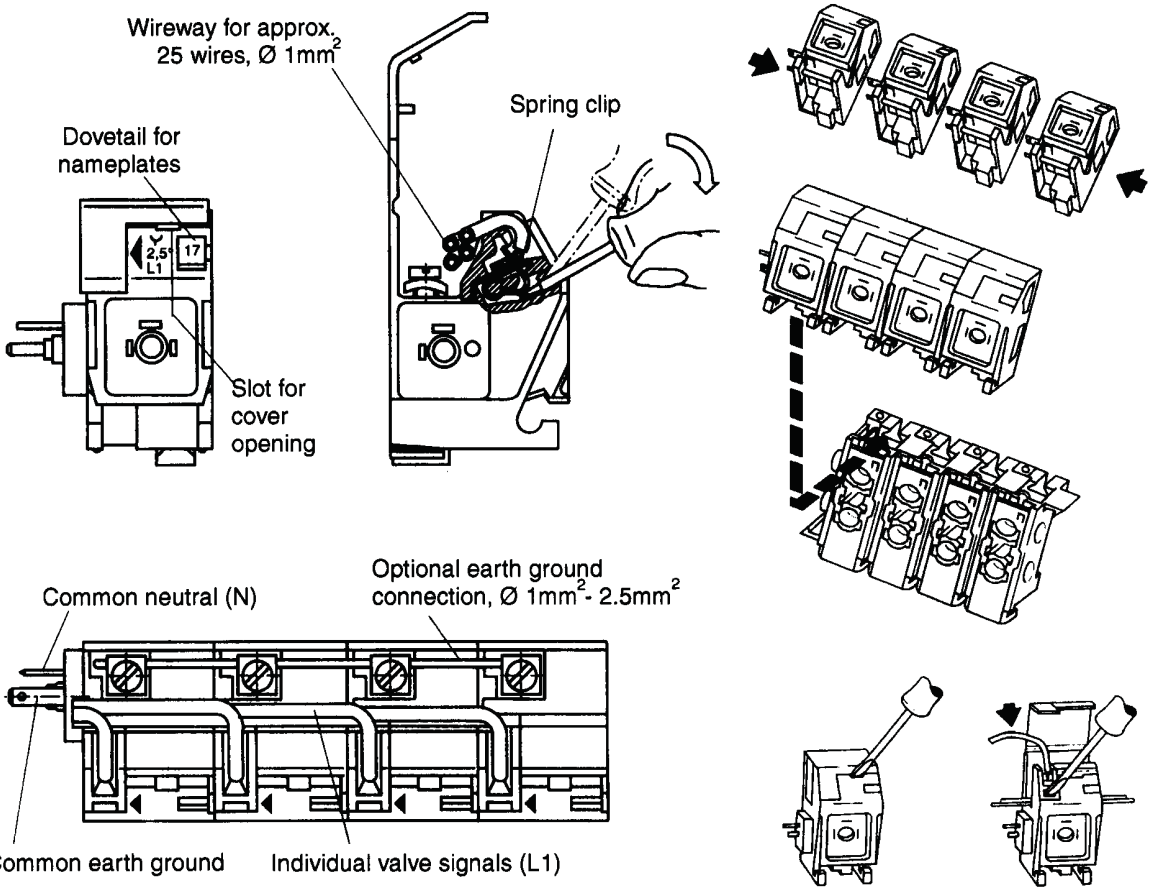
"O" rings (provided with each manifold segment) should be lubricated before installation.
Valve to manifold "O" ring – Part no. 8970724744
Manifold to manifold "O" ring – Part no. 8970862504

Subbases can be mounted with DIN rail (en 50 022) or with #8 screws. First, last, and every fourth station should be secured if DIN rail mounting is not used.



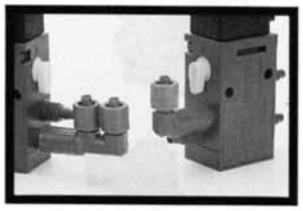


Wireway Electrical Connection



Accessories & Repair Parts
4 Way / 2 Position Poppet Valves

Blanking Cap
8930715002



Single Elbow
R432008328

Double Elbow
R432008416

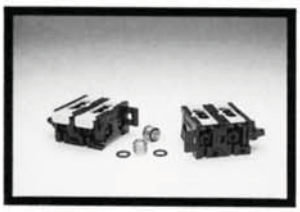
Valve Exhaust Silencer
5324002000

Manifold Exhaust Silencer
5324002020

1/4" Manifold Elbow
R432015479

3/8" Manifold Elbow
R432015301

Manifold Blanking Plate
R432008420



Dual Pressure Manifold Kit
5728400092

Exhaust Silencer for Pilot
8993800114

Exhaust Fitting Kit
R432015679

ACCESSORIES

PART NUMBER	DESCRIPTION
8930715002	Blanking Cap (for either delivery port)
R432008328	Elbow Fitting (1/4" for valve)
R432008416	Double Elbow Fitting (1/4" for valve)
5324002000	Exhaust Silencer (for valve)
5324002020	Exhaust Silencer (for manifold)
R432015479	Elbow Fitting (1/4" for manifold)
R432015301	Elbow Fitting (3/8" for manifold)
R432008420	Manifold Blanking Plate Kit
5728400092	Dual Pressure Manifold Kit
R432008514	Tube Nut Kit (2 pcs.) for manifold 3/8"
R432015689	Tube Nut Kit (2 pcs.) for valve 1/4"
8930714804	Tube nut, black. For 6 mm x 1 mm wall Poly tubing
8993800114	Exhaust Muffler (Silencer for pilot)
R432015679	Exhaust Fitting Kit (2 pcs.)

MANIFOLDS

PART NUMBER	DESCRIPTION
R432008411	Inlet Segment
R432008412	End Segment
R432008413	Station Segment
R432008744	Single Subbase (used to manifold mount a single valve.)

MOUNTING BARS

PART NUMBER	DESCRIPTION
R432008414	DIN Rail Mounting Bar (6")
R432008415	DIN Rail Mounting Bar (12")

Complete manifold assemblies snap or slide onto DIN rail.
Consult factory for longer lengths of DIN rail.

"SNAP" COILS

(Includes coil, armature, & plunger)

PART NUMBER	DESCRIPTION
5420935270	120 VAC/50-60 Hz
5420930210	12 VDC
5420930220	24 VDC
5420935220	24 VAC/50-60 Hz
5428405480	220/230 VAC

4 Way / 2 & 3 Position
Solenoid & Air Pilot Operated
Diaphragm-Poppet Valve

Standard fittings:
Single and double solenoid
Single and double air pilot

Push-in fittings:
Single and double solenoid
(Metric tubing only)

TECHNICAL DATA:

Port Sizes:
Integrated Fittings for 3/8", 5/16", and 8mm tubing
Push-in fitting styles bodies available for metric tubing only
(2 position only); see page 46.

Working Pressure:
20 PSI minimum
150 PSI maximum
External Pilots not available

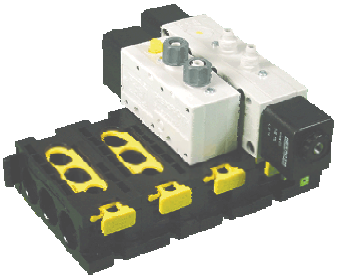
Flow: C_v=0.7- with Integrated Fittings
(C_v=1.3 - comparable flow to threaded part valve)

Temperature Range:
Solenoid Valve +5°F to 122°F
Air Pilot +5°F to 140°F

Media:
Air (either lubricated or non-lubricated)

Materials:
Polyacetal Engineering plastic with Buna N seals and diaphragms

Combination Manual Override:
Locking & Non-Locking



ELECTRICAL DATA:

Standard Voltage (all coils are rated for continuous duty)	Power Consumption	
	Inrush	Holding
24 VAC-50/60 Hz, 110V-50 Hz/120V-60 Hz 220V-50 Hz/240V	6.4 VA	3.7 VA
6, 12, 24 VDC	2.7 W	

Voltage Tolerance: ±10% (Except for Explosion proof and Intrinsically safe solenoids.)
NOTE: Electrical connectors must be ordered separately. One Per solenoid required. See complete listing on page 89.

Recommended Tubing
Standard 3/8" O.D. x .062" wall - poly tubing
* 5/16" O.D. x .040" wall - nylon tubing
* 8mm x 1.00mm wall poly tubing
* Requires optional tube nut kit (R432015289) for valves with special tube nuts.
Valves designed for 10mm O.D. x 1mm wall poly tubing are also available.
Adapters available: 1/4" O.D. x .040 wall - poly tubing
Tube nuts are supplied with each valve for 3/8" x .062 wall poly tubing

FEATURES:

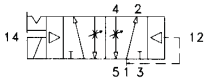
- NEMA 4 electrical protection
- Dual UL Listed/CSA models available.
- Brad Harrison® Coils available - consult factory
- Packaged as a unit with TASKMASTER™ cylinders in bore sizes 1 1/2" thru 4". See SC-200 sales catalog.
- Integrated Fittings
- Adjustable Built-in Flow Controls in R and S exhausts (two-position valves only)
- Cycle Life: 20-150 million cycles
- Response Time:
  Supply pressure 85 PSI
  Energized - (0-77 PSI) 18ms or less
  De-energized - (85-8 PSI) 32 ms or less
  Response times based on 24 VDC Single Solenoid

4 Way / 2 Position
Solenoid Operated Diaphragm Poppet Valve

NOTE: All dimensions expressed in $\frac{IN}{MM}$

NOTE: Electrical connector must be ordered separately. One per solenoid required. See complete listing on page 6.2.
All valves on this page come with 3/8" tube nuts designed to accommodate 3/8" x 0.062" wall poly tubing.
Valves with tube nuts for 5/16" (8mm) tubing, 10mm tubing, and push-in fitting style bodies available; see page 46.

SINGLE SOLENOID WITH AIR SPRING RETURN



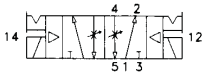
2 POSITION

NEW PART NO.	OLD PART NO.	VOLTAGE
5727495270	PW-067697-00001	110 VAC 50Hz/120 VAC 60Hz
R432016655	PW-067697-00002	220 VAC 50Hz/240 VAC 60Hz
R432016656	PW-067697-00003	6 VDC
R432016657	PW-067697-00004	12 VDC
5727490220	PW-067697-00005	24 VDC
R432016658	PW-067697-00006	24 VAC 50/60 Hz
R432002436		without coil

DOUBLE SOLENOID OPERATED

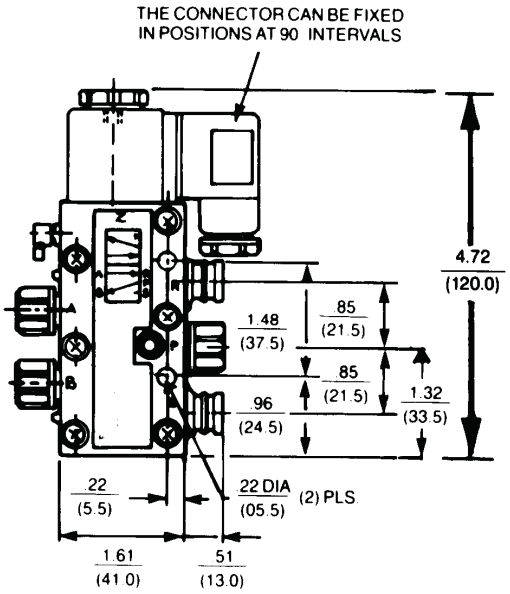
The external non-locking manual override button may be pushed from one side to the other to select which delivery port is pressurized initially.

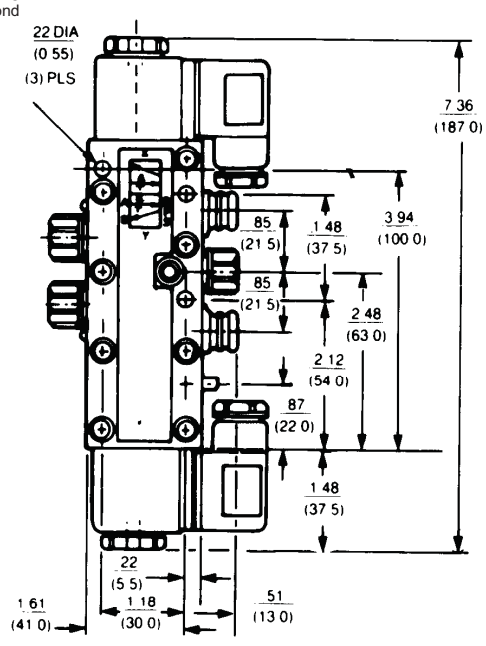
2 POSITION



NEW PART NO.	OLD PART NO.	VOLTAGE
R432016659	PW-067715-00001	110 VAC 50Hz/120 VAC 60Hz
R432016660	PW-067715-00002	220 VAC 50Hz/240 VAC 60Hz
R432016661	PW-067715-00003	6 VDC
R432016662	PW-067715-00004	12 VDC
R432016663	PW-067715-00005	24 VDC
R432016664	PW-067715-00006	24 VAC 50/60 Hz
R432002437		without coil

Unique Manual Override Feature: Single solenoid valves are equipped with a convertible manual override button. Valve comes standard with *extended locking* override. By snipping tab off of plastic button, override becomes *non-locking* extended. By snipping at second scored line, a *flush locking* override is obtained, requiring a screwdriver to actuate.





Typical width of valve: 1.38" (35.0mm)

See next page for U.L. Listed, CSA Approved models.

4 Way / 3 Position, Double Solenoid Operated Diaphragm Poppet Valve

NOTE: Electrical connector must be ordered separately. One per solenoid required. See complete listing on page 89.
All valves on this page come with 3/8" tube nuts designed to accommodate 3/8" x 0.062" wall poly tubing.

NEW PART NO.	OLD PART NO.	DESCRIPTION	SYMBOL
CLOSED CENTER VERSION			
R432016670	PW-067717-00001	110 VAC 50 Hz/120 VAC 60 Hz	
R432016671	PW-067717-00002	220 VAC 50 Hz/240 VAC 60 Hz	
R432016672	PW-067717-00003	6 VDC	
R432016673	PW-067717-00004	12 VDC	
R432016674	PW-067717-00005	24 VDC	
R432016675	PW-067717-00006	24 VAC 50/60 Hz	
R432002438		without coil	
EXHAUST OPEN CENTER VERSION			
R432016665	PW-067716-00001	110 VAC 50 Hz/120VAC 60 Hz	
R432016666	PW-067716-00002	220 VAC 50 Hz/240 VAC 60 Hz	
R432016667	PW-067716-00004	12 VDC	
R432016668	PW-067716-00005	24 VDC	
R432006669	PW-067716-00006	24 VAC 50/60 Hz	
R432002439		without coil	

Warning: Do not energize both solenoids at same time or all ports may be pressurized or exhausted.

4 Way / 2 Position, Solenoid Operated Dual U.L. Listed/CSA Models*

1/2" Conduit Solenoid Connector is pre-wired with 18" leads

NEW PART NO.	OLD PART NO.	DESCRIPTION
R432015884	P -069883-00001	110 VAC Single Sol. 50 Hz/120 VAC 60 Hz
R432015885	P -069883-00004	12 VDC Single Solenoid 2 Position
R432015886	P -069883-00005	24 VDC Single Solenoid 2 Position
R432015887	P -069883-00006	24 VAC 50/60 Hz Single Solenoid 2 Position
R432015881	P -069882-00001	110 VAC Double Sol. 50 Hz/120 VAC 60 Hz
R432030370	P -069882-00004	12 VDC Double solenoid 2 Position
R432015882	P -069882-00005	24 VDC Double Solenoid 2 Position
R432015883	P -069882-00006	24 VAC 50/60 Hz Double Solenoid 2 Position

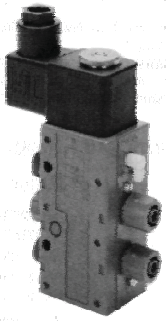
U.L./C.S.A. VALVES COME COMPLETE WITH SOLENOID CONNECTOR(S).

Dimensions are the same as our standard models.

* Indicator lights are not available for Dual U.L. Listed/CSA valves.

4 Way 2 Position Intrinsically Safe Solenoid Valves for Hazardous Locations Classes I, II and III Div I Groups A, B, C, D, E, F and G

For use in low voltage (24VDC) intrinsically safe applications.
No other voltage is approved.



Comes with standard non-lighted DIN solenoid connector.

*** Must be connected to an FM Approved Zener Diode Barrier.**

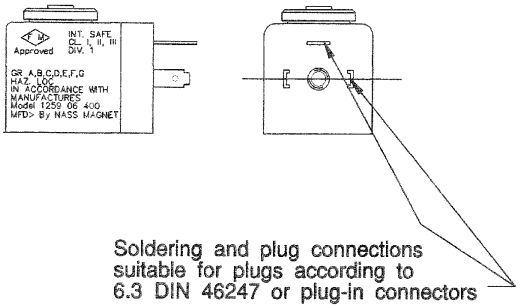
Maximum valve pressure is 115 PSI.

*FM Approved Barrier Manufacturers:
Stahl Incorporated—Woburn, MA
(Request Application Memo #35 and ADV-300.ISSV for Intrinsically Safe Valve information and Stahl Barrier part numbers.)

Single Solenoid Model
Part No. R432008894
(old no. P - 028044-00005)

For Dimension, reference standard solenoid models.

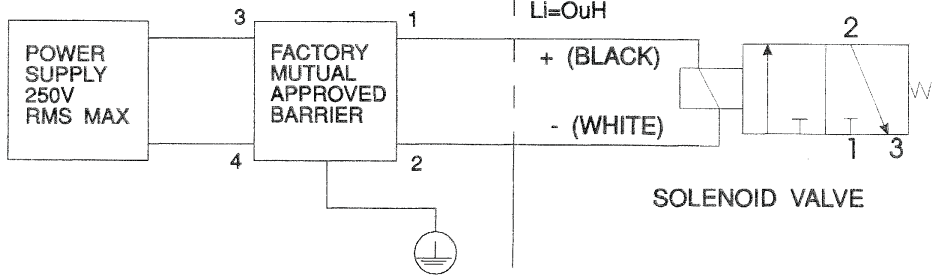
Installation Information



Soldering and plug connections suitable for plugs according to 6.3 DIN 46247 or plug-in connectors

NOTES:
(1) Maximum non-hazardous voltage not to exceed 250 V RMS.
(2) Connect per barrier manufacturer's instructions.
(3) Connect per ISA RP 12.6 instructions.
(4) Maximum valve pressure: 115 psi.
(5) Maximum inductance of solenoid operators when mounted on valve body not to exceed 375 mH.
(6) Solenoid operator for 3/2 way function normally closed.

HAZARDOUS LOCATION CLASS I, II, & III, DIV. 1
GROUPS A, B, C, D, E, F AND G.
V MAX = 28V
I MAX = 115mA
Ci=OuF
Li=OuH



4 Way / 2 Position Solenoid Operated

Standard Series 740 valve with tube nuts for 5/16" (0.040 wall) nylon tubing or 8mm (1mm wall) poly tubing.
Push-in fittings are for 10mm (1mm wall) poly tubing.
NOTE: Electrical connectors must be ordered separately. One per solenoid required. See complete listing on page 89.

2 Position — Standard fittings

Single Solenoid

NEW PART NO.	OLD PART NO.	DESCRIPTION
R432016647	PW-027860-00001	110 VAC 50 Hz/120VAC 60 Hz Single Solenoid
R432016648	PW-027860-00002	220 VAC 50 Hz/240VAC 60 Hz Single Solenoid
R432016649	PW-027860-00005	24 VDC Single Solenoid
R432016650	PW-027860-00006	24 VAC 50/60 Hz Single Solenoid

Double Solenoid

NEW PART NO.	OLD PART NO.	DESCRIPTION
R432016651	PW-027897-00001	110 VAC 50 Hz/120VAC 60 Hz Double Solenoid
R432016652	PW-027897-00002	220 VAC 50 Hz/240VAC 60 Hz Double Solenoid
R432030385	PW-027897-00004	12 VDC Double Solenoid
R432016653	PW-027897-00005	24 VDC Double Solenoid
R432016654	PW-028797-00006	24 VAC 505/60 Hz Double Solenoid

2 Position — Push-in fittings (10mm O.D. tubing)

Single Solenoid

NEW PART NO.	OLD PART NO.	DESCRIPTION
5727475280	572-747-528-0	220 VAC 50 Hz/240vac 60 Hz Single Solenoid
5727470220	572-747-022-0	24 VDC Single Solenoid
5727475302	572-747-530-2	Base Valve - No Solenoid*

Double Solenoid

NEW PART NO.	OLD PART NO.	DESCRIPTION
5727485280	572-748-528-0	220 VAC 50 Hz/240vac 60 Hz Double Solenoid
5727480220	572-748-022-0	24 VDC Double Solenoid
5727485302	572-748-530-2	Base Valve - No Solenoid*

*** Base valves are supplied without coil(s) or connector(s) which must be ordered separately (see page 51).**

Series 740 Valve with 10mm Supply and Delivery Ports for higher flow applications—2 Position

NEW PART NO.	OLD PART NO.	DESCRIPTION
R432015405	P -068700-K0000	Single Solenoid
R432015410	P -068704-K0000	Double Solenoid

10mm Valves are supplied without coil(s) or connector(s) which must be ordered separately (see page 51).

4 Way / 2 and 3 Position Solenoid Operated Corrosion Resistant Series 740 Valves

All fasteners and exposed metallic parts are 300 series stainless steel. These valves are recommended for most daily wash-down applications such as food processing, breweries and dairy plants, or anywhere else that corrosion ca be a problem. Dimensions are the same as standard valves.

NOTE: Special strain relief solenoid connectors are furnished with these valves.

CORROSION RESISTANT MODELS

2 POSITION VALVES Without Indicator Lights

New Part Number	Old Part Number	Description
R432015590	P -069294-00001	110VAC-50Hz/120VAC-60Hz Single Sol.
R432015591	P -069294-00002	220VAC-50Hz/240VAC-60Hz Single Sol.
R432015592	P -069294-00004	12 VDC Single Solenoid
R432015593	P -069294-00005	24 VDC Single Solenoid
R432015594	P -069294-00006	24 VAC-50/60Hz Single Solenoid

New Part Number	Old Part Number	Description
R432015597	P -069297-00001	110VAC-50Hz/120VAC-60Hz Double Sol.
R432015598	P -069297-00002	220VAC-50Hz/240VAC-60Hz Double Sol.
R432015599	P -069297-00005	24 VDC Double Solenoid

2 POSITION VALVES With Indicator Lights

New Part Number	Old Part Number	Description
R432015613	P -069344-00001	110VAC-50Hz/120VAC-60Hz Single Sol.
R432015614	P -069344-00004	12 VDC Single Solenoid
R432015615	P -069344-00005	24 VDC Single Solenoid
R432015616	P -069344-00006	24 VAC-50/60Hz Single Solenoid

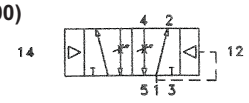
New Part Number	Old Part Number	Description
R432015617	P -069345-00001	110VAC-50Hz/120VAC-60Hz Double Sol.
R432015618	P -069345-00002	220V-50Hz/240V-60Hz Double Solenoid
R432015619	P -069345-00005	24 VDC Double Solenoid

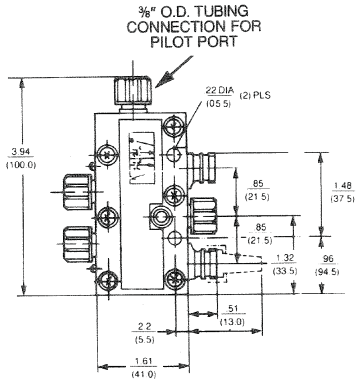
4 Way / 2 Position
Air Pilot Operated

NOTE: All dimensions expressed in IN / MM

SINGLE AIR PILOT VALVES

Part No. R432013808
(old P - 067698-00000)

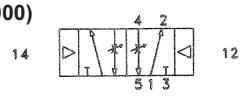


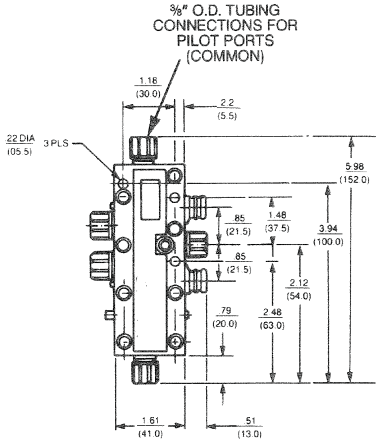


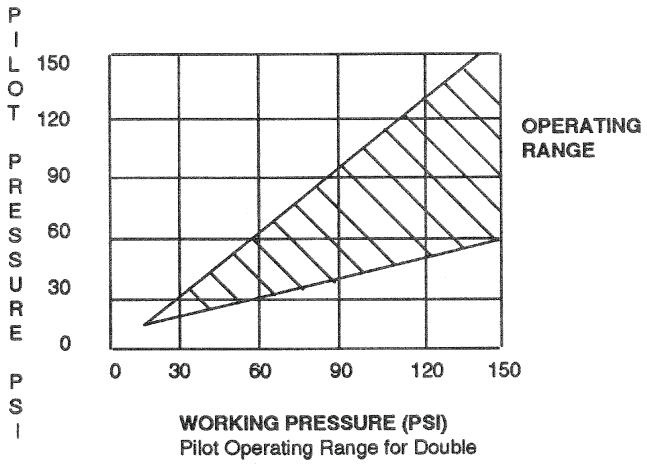
Typical width of valve: 1.38" (35.0mm)

DOUBLE AIR PILOT VALVES

Part No. R432013810
(old P - 067700-00000)







WORKING PRESSURE (PSI)
Pilot Operating Range for Double Air Pilot Valve.

FOR DOUBLE AIR PILOT

Manual override standard. This unique, external non-locking manual override button for the double air pilot may be pushed from one side to the other to select which delivery port is pressurized.

DOUBLE AIR BLEEDER VALVE:
Part No. R432008442 (old P –026125-00000)

OPERATION

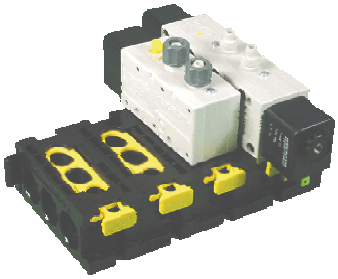
Exhausting either air pilot port while the opposite port is still pressurized will shift the valve. Valve features stainless steel fasteners for corrosion resistance.

NOTE: Snap valves are recommended for bleeder pilot valves; see page **34.**

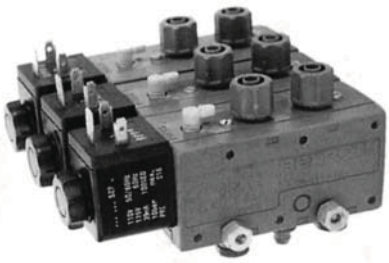
4 Way / 2 and 3 Position
Manifold Mounts & Gang Stacking

NOTE: All dimensions expressed in IN / MM

Manifold Mounting, Snap-Together Assembly
See page 30 to order factory assembled manifolds.



Gang Stacking Arrangement



NEW PART NO.	OLD PART NO.	DESCRIPTION
R432013811	*P -067701-00000	Inlet Segment
R432013812	*P -067702-00000	End Segment
R432013813	*P -067703-00000	Station Segment
R432015880	*P -069881-00000	Single Subbase (Identical to inlet segment except rear cavities are blocked. Used to manifold mount one valve only.

* Required O-rings included

ORDERING EXAMPLE
(4 Station Manifold):
1 - Inlet segment
1 - End segment
2 - Station segments

Part No. R432013853
O-Ring Kit (included with manifold segments)

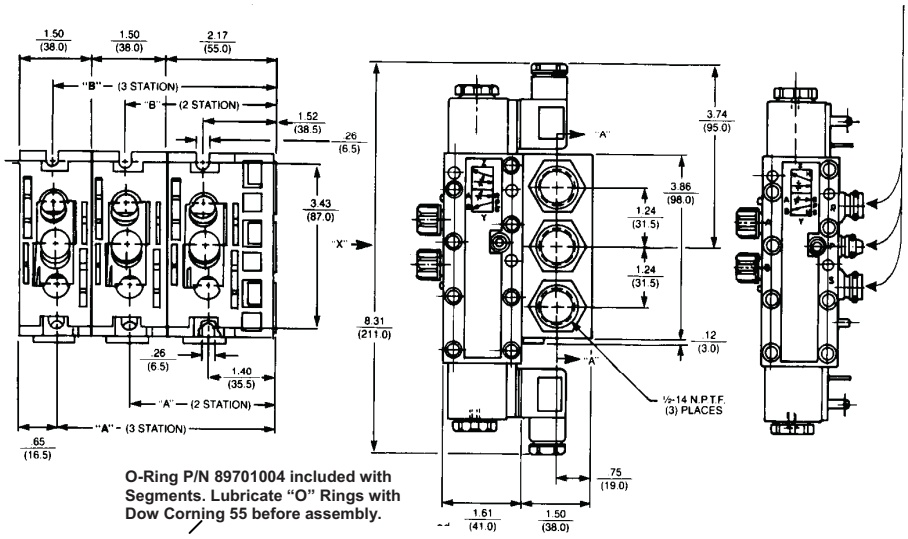
SHEAR PLUG KNOCKOUT
Ganged assembly-common supply pressure obtainable by knockout shear plugs

Mounting Accessories Kit Part Number R432013852
Includes O-ring (for sealing between the valve bodies) and an inlet port blanking cap. (Bolts and Nuts are not included).

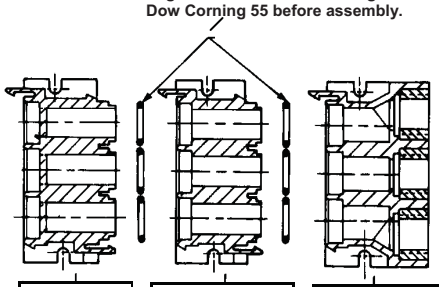
Stack can be held together and mounted with readily available 1/8" "all thread" material.

MANIFOLD INSTALLATION NOTE:
The first and last segment should always be securely mounted to a plate. If more than five valves are used, every third valve segment should also be securely mounted.

MANIFOLDS - OUTLINE DIMENSIONS



O-Ring P/N 89701004 included with Segments. Lubricate "O" Rings with Dow Corning 55 before assembly.



Manifold End Segment R432013812 | Manifold Station Segment R432013813 | Manifold Inlet Segment R432013811

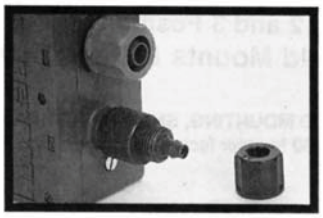
NOTE: Yellow lock tab on manifold segments are scored. This allows the end to be broken off (if desired), making it tamper resistant, thus requiring a screwdriver to remove valve.

No. of Stations	A	B
2	2.89	3.01
	(73.5)	(76.5)
3	4.39	4.51
	(111.5)	(114.5)
4	5.89	6.00
	(149.5)	(152.5)
5	7.38	7.50
	(187.5)	(190.5)
6	8.88	9.00
	(225.5)	(228.5)
7	10.37	10.49
	(263.5)	(266.5)
8	11.87	11.99
	(301.5)	(304.5)
9	13.37	13.48
	(339.5)	(342.5)
10	14.86	14.98
	(377.5)	(380.5)

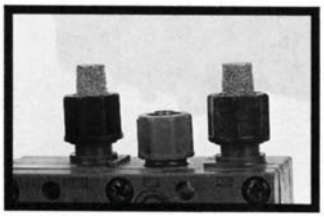
ACCESSORIES

R432015301
Elbow Fitting with nuts for 3/8" & 5/16" O.D. tubing

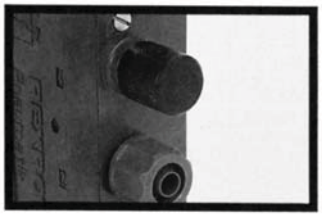
R432015479
Reducer Elbow Fitting with nut for 1/4" O.D. (.040" wall) tubing



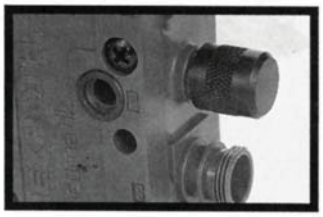
R432015475
Reducer Fitting with nut For 1/4" O.D. tubing



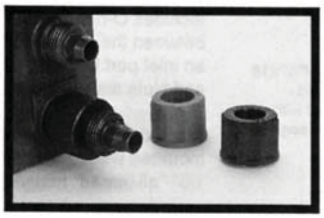
R432013850
Exhaust Tube Nut & Silencer (2 kits shown)



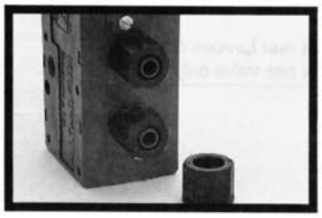
8919905502 (3/8", 5/16" or 8 mm)
8919905512 (10 mm)
Blanking Cap
(converts 4-way to 3-way)



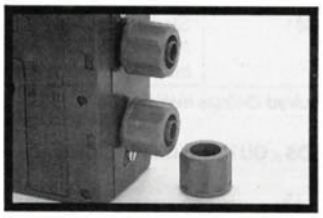
R432013852
Sheer Plug Knockout for Stacking



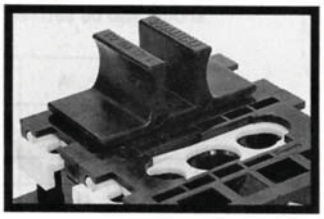
R432015513
Exhaust Fitting Adapter Kit (converts the standard exhaust fitting to a tube fitting for external piping)



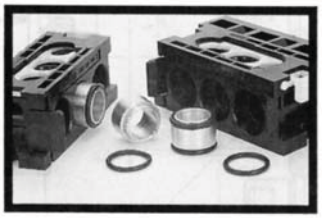
R432015289
Tube Nuts (3 ea.) for 5/16" (.040" wall) O.D. nylon tubing or 8mm (1mm wall) O.D. poly tubing



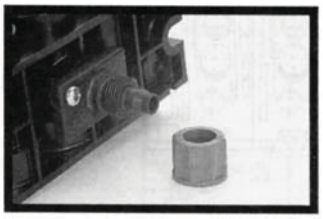
R432015287
Tube Nuts (3 ea.) for 3/8" O.D. (.062" wall) poly tubing



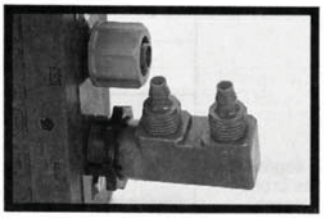
R432015511
Manifold Blanking Plate (use to block one segment)



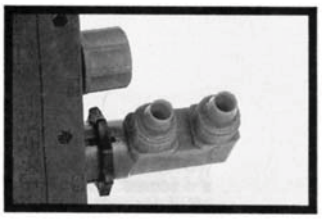
R432015330
Manifold Bushing Kit for two supply pressures



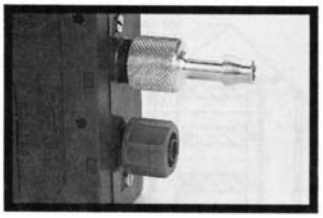
R432015512
Individual Manifold Supply Pressure Kit-mounts underneath manifold segment (not included)



R432015527
Double Elbow Fitting for 1/4" O.D. tubing



R432015526
Double Elbow Fitting for 3/8" & 5/16" O.D. tubing



R432015525
Barb Fitting for 1/4" I.D. Reinforced Hose

Repair Kits and Parts

Part No.	Old Part No.	Description
R432013884	P -067916-00000	Single Solenoid Body Repair Kit
R432013885	P -067917-00000	Double Solenoid Body Repair Kit (includes 3 position valves also)
R432013854	P -067817-00000	Air Pilot Operator Kit
R432013816	P -067705-K0000	Single Solenoid Body Assembly
R432013814	P -067704-K0000	Double Solenoid Body Assembly
R432015687	P -069541-00000	Solenoid Repair Kit, includes armature, plunger/spring & seal
8994702802	H -899470-02802	Solenoid Retainer Kit
R432013839	P -067782-00000	Valve Latch & Spring
R432013853	P -067816-00000	Valve Manifold Station "O" Ring Kit, (to attach valve to manifold)

Solenoid Kits

(Includes Armature, Coil, & Mtg. Hardware)

Part No.	Old Part No.	Description
R432015349	P -068648-00000	24 VAC-50/60Hz
R432013840	P -067783-00000	110VAC-50Hz/120VAC-60Hz
R432013841	P -067784-00000	220VAC-50Hz/240VAC-60Hz
R432029180	P -067785-00000	6 VDC
R432013842	P -067786-00000	12 VDC
R432013843	P -067787-00000	24 VDC

U.L. & C.S.A. Approved Coils

Part No.	Old Part No.	Description
R432015782	P -069713-K0001	110VAC-50Hz/120VAC-60Hz
R432015786	P -069713-00002	220VAC-50Hz/240VAC-60Hz
R432015789	P -069713-00006	24 VAC-50/60Hz
R432015783	P -069713-K0004	12 VDC
R432015784	P -069713-K0005	24 VDC

Standard Coils

Part No.	Model Number	Description
R432011985	P -048835-00001	110VAC-50Hz/120VAC-60Hz
R432011986	P -048835-00002	220VAC-50Hz/240VAC-60Hz
R432011988	P -048835-00004	12 VDC
R432011989	P -048835-00005	24 VDC
R432011990	P -048835-00006	24 VAC-50/60Hz

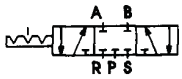
Coils for Corrosion Resistant Valves

Part No.	Model Number	Description
5428457072	H -542845-07072	110VAC-50Hz/120VAC-60Hz
5428457082	H -542845-07082	220VAC-50Hz/240VAC-60Hz
5420507012	H -542050-07012	12 VDC
5450507022	H -542050-07022	24 VDC
5428457022	H -542845-07022	24 VAC-50/60Hz

1/8”, 1/4” and 3/8” NPTF 4-WAY 5-PORTED

4 Way / 2 Position Detented

4 Way / 3 Position Detented (exhaust open center)



4 Way /3 Position Detented (closed center)

TECHNICAL DATE:

Port Sizes: 1/8”, 1/4” and 3/8” NPTF
Working Pressure: 0 to 150 psi
Flow: C^V 1/8” = 1.0, 1/4” = 1.1, 3/8” = 1.2
Temperature Range: -10°F to +175°F
Media: Air, either lubricated or non-lubricated
Materials: Body: Zinc die casting
Seals: Buna N

1/8” VALVES

ORDERING REFERENCE			Port Size	Flow C_v	Weight lb.
New Part No.	Old Part No.	Description			
R432013830	P -067772-00001	5 ports, 2-pos. detented	1/8” NPTF	1.0	1.6
R432013833	P -067773-00001	5 ports, 3-pos. detented (exhaust open center)			
R432013836	P -067774-00001	5 ports, 3 pos. detented (closed center)			

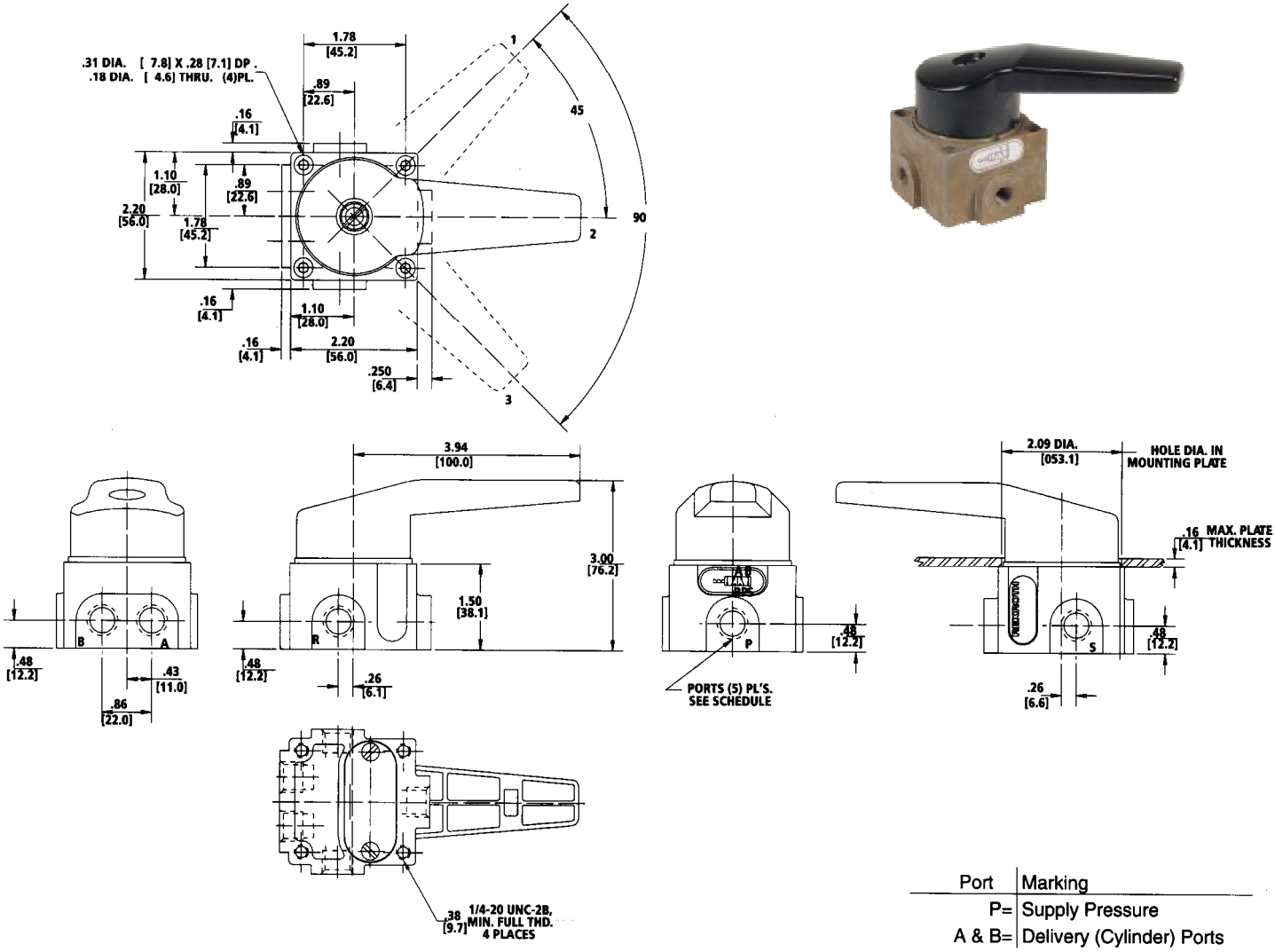
1/4” VALVES

ORDERING REFERENCE			Port Size	Flow C_v	Weight lb.
New Part No.	Old Part No.	Description			
R432013831	P -067772-00002	5 ports, 2-pos. detented	1/4” NPTF	1.1	1.6
R432013834	P -067773-00002	5 ports, 3-pos. detented (exhaust open center)			
R432013837	P -067774-00002	5 ports, 3 pos. detented (closed center)			

3/8” VALVES

ORDERING REFERENCE			Port Size	Flow C_v	Weight lb.
New Part No.	Old Part No.	Description			
R432013832	P -067772-00003	5 ports, 2-pos. detented	3/8” NPTF	1.2	1.6
R432013835	P -067773-00003	5 ports, 3-pos. detented (exhaust open center)			
R432013838	P -067774-00003	5 ports, 3-pos. detented (closed center)			

Dimensions for 1/8", 1/4" & 3/8" (all same except port sizes)



Port	Marking
P=	Supply Pressure
A & B=	Delivery (Cylinder) Ports
R & S=	Exhaust Ports

Repair Kits:

New Part Number	Old Part Number	Description
R432013883	P -067911-00000	1/8" Kit, for part numbers R432013830, R432013833, and R432013836 (old part numbers P -067772-00001, P -067773-00001, and P -067774-00001) (Includes seals, valve inserts, springs, etc.)
		1/4" & 3/8" Kit, 2 and 3 Position (Includes seals, valve inserts, springs, etc.). For old and new style valves.

Note: Repair kits for old design part numbers P -067769-00000, P -067770-00000, and P -067771-00000 are no longer available.

CD-7 Valves, Solenoid and Air Pilot

Specifications and features

Rexroth
Bosch Group

4 Way / 2 Position 1/4" NPT
Solenoid & Air Pilot Operated

TECHNICAL DATA:

Port Sizes: 1/4" NPT

Working Pressure: Vacuum service to 150 PSI

Pilot Pressure: **22 PSI minimum - Double Solenoid & Double Air Pilot (2 position models)**
45 PSI minimum - Single Solenoid & Single Air Pilot
45 PSI minimum - Double Solenoid & Double Air Pilot (3 position models)
Dual pressure applications acceptable when external pilot supply is used.

Flow: C_v 1.1

Temperature Range: **Solenoid Valve +5°F to +120°F**
Air Pilot -20°F to + 175°F
Explosion Proof Solenoid: 0° to +150°F

Media: Air (either lubricated or non-lubricated)

Seals: Buna-N

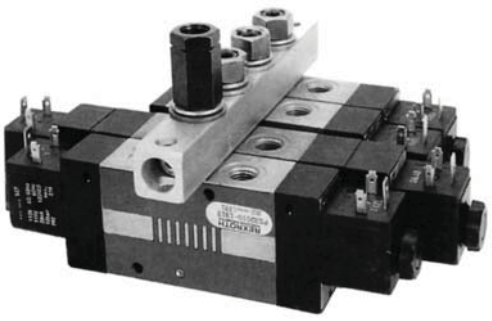
Manual Override: Locking

ELECTRICAL DATA:

Standard Voltage (all coils are rated for continues duty)	Power Consumption	
	Inrush	Holding
110 VAC 50 Hz/120 VAC 60 Hz 24 VAC 50/60 Hz	6.4 VA	3.7 VA
12, 24 VDC	2.7 W	

VOLTAGE TOLERENCE: ±10%
NOTE: Electrical connectors must be ordered separately.
One per valve required. See complete listing on page 89.

All Standard valves are rated for NEMA 4.
Brad Harrison® coils available - consult factory.



4 BANK PRESSURE PORT WITH 2 SINGLE SOLENOIDS AND 2 DOUBLE SOLENOIDS.

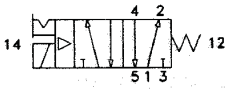
FEATURES

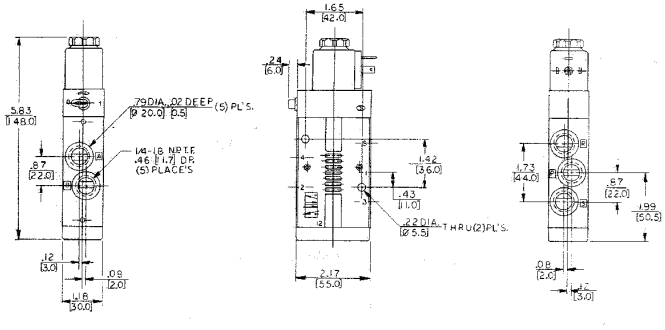
- **The 1/4" 4-way, 5-ported CD-7 Valve is an extremely versatile, yet compact, design.** This low-profile spool type design will not only enhance the appearance of your equipment, but will save valuable engineering space. A new simplified internal design allows for consistently reliable performance and ease of operation.
- **The CD-7 Valve is available with a wide range of solenoid, air pilot and mechanical operators.** This new design allows each valve body to be readily STACKED through a convenient and simplified single pressure port bar. Unique optional solenoid connectors offer neon indicator lights for (AC) circuits and L.E.D. displays for (DC) circuits.
- **Standard Plug-In DIN Connection**
  "Low wattage" (2.1W) solenoid and connector, available with or without built-in indicator light.
- **External Pilot:** (not shown) Allows an independent air supply to be connected to the pilot port of the solenoid operator.
- **Manual Locking Overrides**: Allow supplementary manual control and permit operating the valve when the electric power is off.
- **Solenoid Coil Removal**: Un-screw coil retaining nut and slip off the coil.
- **Seal Spacers**: New lightweight acetal cartridge assembly.
- **Manifold System**: Common pressure port bar

4 Way / 2 Position 1/4" NPT
Solenoid & Air Pilot Operated

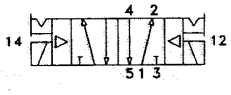
NOTE: All dimensions expressed in IN / MM

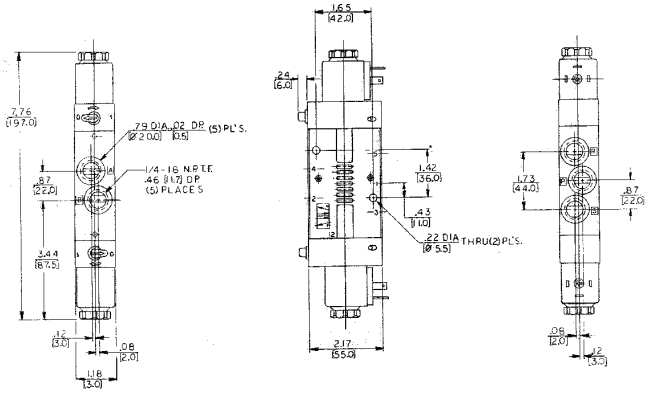
SINGLE SOLENOID
PLUG-IN (DIN) CONNECTION





DOUBLE SOLENOID
PLUG-IN (DIN) CONNECTION



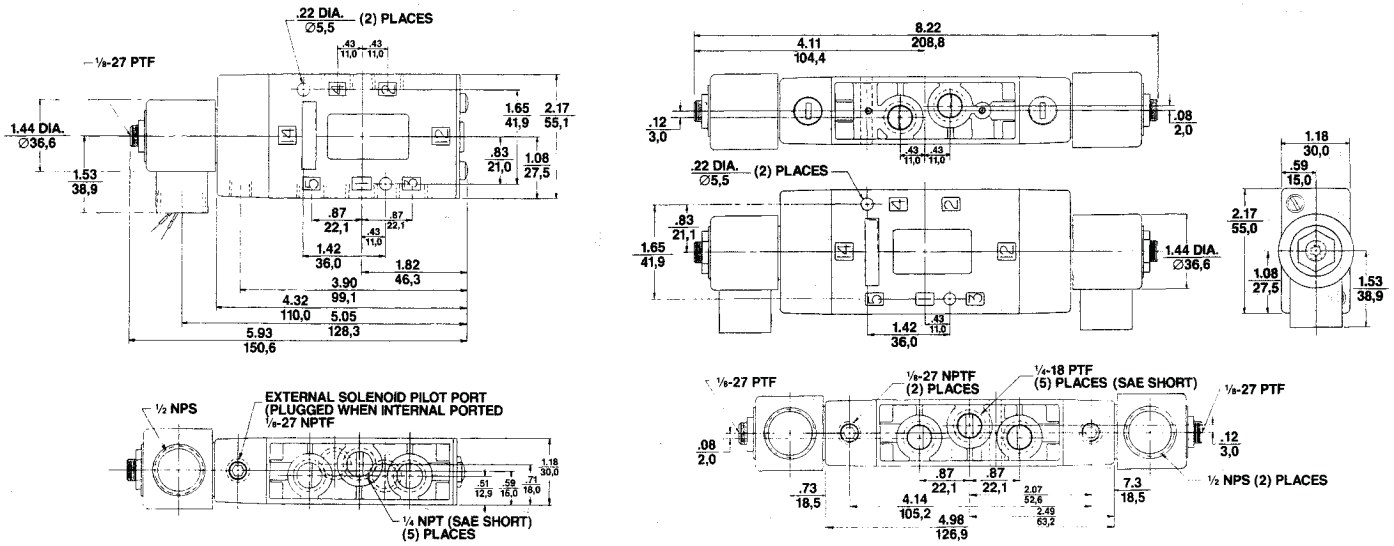


Single Solenoid 4-Way, 2 Position (less connector)			Double Solenoid 4-Way, 2 Position (less connector)		
Part Number	**Old Part No.**	**Description**	**Part Number**	**Old Part No.**	**Description**
*Internal Pilot:			*Internal Pilot:		
R432016582	PS-031010-01355	110V-50Hz/120V-60Hz	R432016587	PS-032010-01313	110V-50Hz/120V-60Hz
R432016583	PS-031010-01655	220V-50Hz/240V-60Hz	R432016589	PS-032010-01616	220V-50Hz/240V-60Hz
R432016585	PS-031010-07255	12 VDC	R432016593	PS-032010-07272	12 VDC
R432016584	PS-031010-06955	24 VDC	R432016591	PS-032010-06969	24 VDC
R432016586	PS-031010-07855	24 VAC-50/60Hz	R432016595	PS-032010-07878	24 VAC-50/60Hz
External Pilot:			External Pilot:		
R432016605	PS-034010-01355	110V-50Hz/120V-60Hz	R432016604	PS-034010-01313	110V-50Hz/120V-60Hz
R432016609	PS-034010-01655	220V-50Hz/240V-60Hz	R432016608	PS-034010-01616	220V-50Hz/240V-60Hz
R432016615	PS-034010-07255	12 VDC	R432016616	PS-034010-07272	12 VDC
R432016613	PS-034010-06955	24 VDC		PS-034010-06969	24 VDC
R432016618	PS-034010-07855	24 VAC-50/60Hz		PS-034010-07878	24 VAC-50/60Hz

*For all applications when supply pressure is 45 psi or higher. Use external pilot version if supply pressure is under 45 psi (including vacuum or dual pressure applications). Take care to note which version is required before ordering since internal/external conversion is not field convertible.

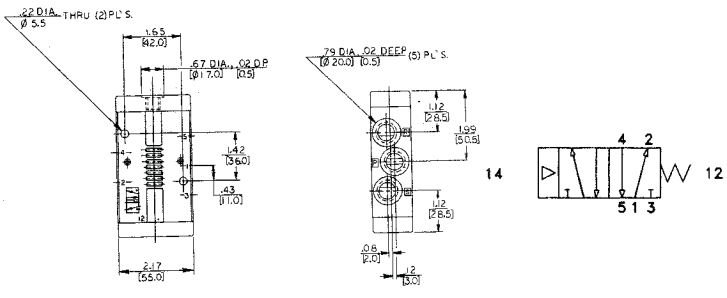
4 Way / 2 Position 1/4" NPT
Explosion Proof Solenoid Valves for Hazardous Locations

NEMA 7C & 7D & U.L. Class I - Groups C & D - Explosion Proof
NEMA 8C & 8D & U.L. Class I - Groups C & D - Explosion Proof
NEMA 9E, 9F, & 9G & U.L. Class II - Groups E, F, & G - Explosion Proof

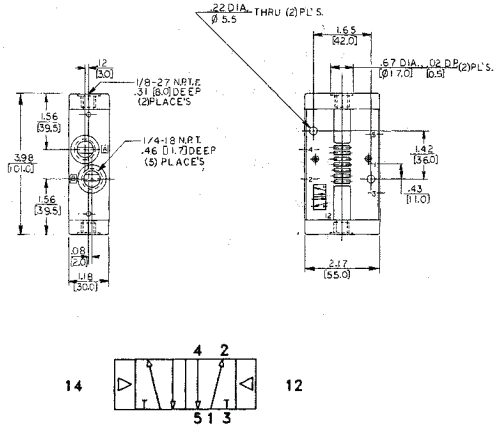


Model	Part No.	Old Part No.	Coil Voltage
Single Solenoid	R432016541	PS-021010-09255	120 VAC 50/60 Hz
Single Solenoid	R432016542	PS-021010-09555	240 VAC 50/60 Hz
Double Solenoid	R432016545	PS-022010-09292	120 VAC 50/60 Hz

4 Way / 2 Position 1/4" NPT
Air Pilot Operated Valves

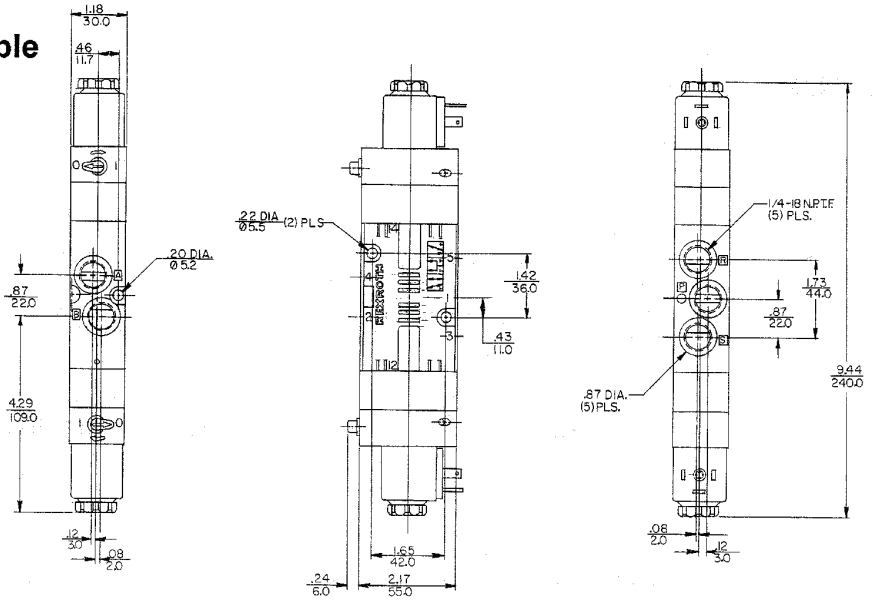


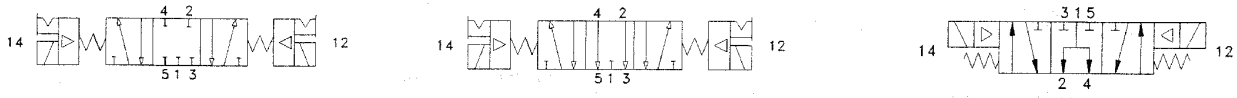
Single Air Pilot:
Part Number R432016611
(Old Part No. PS-034010-03355)



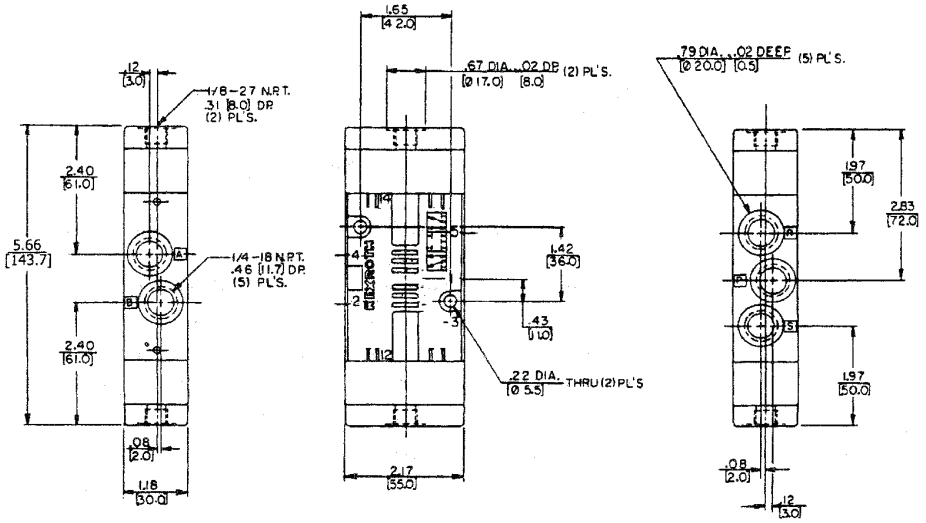
Double Air Pilot:
Part Number R432016610
(Old Part No. PS-034010-03333)

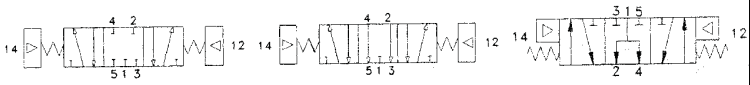
4-Way/3 Position, 1/4" NPT Double Solenoid and Air Pilot Operated





Double Sol., 3 Pos.	Closed Center		Exhaust Center		Supply Center	
Coil Voltage	Part No.	Old Part No.	Part No.	Old Part No.	Part No.	Old Part No.
110V-50Hz/120V-60Hz	R432016588	PS-032010-01515	R432016597	PS-032020-01515	R432016601	PS-032030-01515
220V-50Hz/240V-60Hz	R432016590	PS-032010-01818		PS-032020-01818		PS-032030-01818
12 VDC	R432016594	PS-032010-07474	R432016599	PS-032020-07474	R432030384	PS-032030-07474
24 VDC	R432016592	PS-032010-07171	R432016598	PS-032020-07171	R432016602	PS-032030-07171
24 VAC-50/60Hz	R432016596	PS-032010-07979	R432016600	PS-032020-07979	R432016603	PS-032030-07979





Air Pilot Model	Part No.	Old Part No.
Closed Center	R432016612	PS-034010-03535
Exh. Open Ctr.	R432016619	PS-034020-03535
Supply Open Ctr.	R432016620	PS-034030-03535

BODY REPAIR KIT
(Includes all rubber parts, 2 cartridges and 2 pilot piston assemblies)

Part No.	Old Part No.	Description
R432008496	P -026235-00000	PS3…Series

BODY REPAIR KIT
(Includes all rubber parts and 2 cartridges)

Part No.	Old Part No.	Description
R432013712	P -067189-K0000	PS2Series (Obs. STACKMASTER)

SOLENOID PILOT OPERATOR KIT
(One per solenoid required)

Part No.	Old Part No.	Description
R432008497	P -026236-00000	Internal Pilot
R432008657	P -026628-00000	External Pilot

SOLENOID PLUNGER REPAIR KIT
(Includes armature, plunger/spring and seal)

Part No.	Old Part No.	Description
R432015687	P -069541-00000	PS3…Series Standard Models

SOLENOID KITS
(Includes Complete Solenoid Operator and Coil)

INTERNAL PILOT		
Part No.	**Old Part No.**	**Description**
R432008498	P -026240-00000	110V-50Hz/120V-60Hz
R432008499	P -026241-00000	220V-50Hz/240V-60Hz
R432008500	P -026242-00000	24 VAC 50/60Hz
R432008501	P -026243-00000	12 VDC
R432008502	P -026244-00000	24 VDC

SOLENOID COILS

For Standard CD-7 Valves

Part Number	Old Part Number	Voltage
R432011985	P -048835-00001	110V-50Hz/120V-60Hz
R432011986	P -048835-00002	220V-50Hz/240V-60Hz
R432011990	P -048835-00006	24 VAC 50/60Hz
R432011988	P -048835-00004	12 VDC
R432011989	P -048835-00005	24 VDC

For Explosion Proof CD-7 Valves

Part Number	Old Part Number	Voltage
R432013760	P -067370-00000	110V-50Hz/120V-60Hz
R432013761	P -067371-00000	220V-50Hz/240V-60Hz
n/a	P -067373-00000	24 VAC 50/60Hz *
n/a	P -067373-00000	12 VDC *
R432013763	P -067374-00000	24 VDC

* 12VDC is dual rated for 24VAC and 60Hz service.

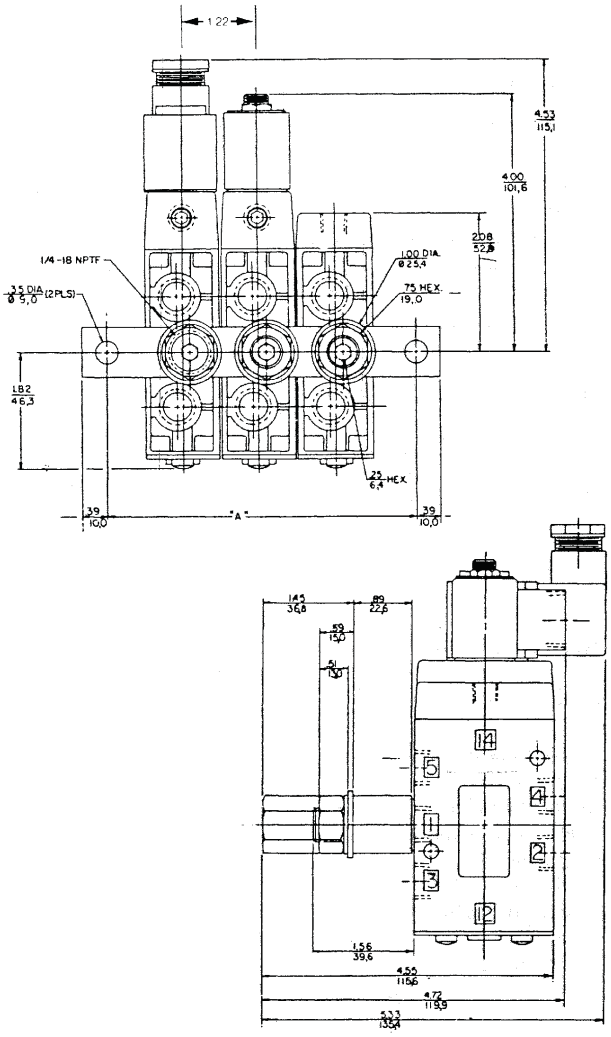
With these repair kits, the elastomer seals and some common wear parts on the component are renewed. On severely worn or damaged valves, additional parts may be required. For additional parts, information and service instructions, refer to Service Bulletin SM-300.30.

1/4” NPT Pressure Port Bar Manifold System for CD-7 Valves

Will accommodate a mixture of all types of CD-7 valves and operators. However, the Rotary Lever, Plain Knob and Explosion Proof operators may not have operating clearance.

How to Order: Select the valves or combination of CD-7 valves. Then select the number of stations by the part number listed below:

No. of Stations	Part No.	Old Part No.	“A” IN/mm
2	R432015553	P -069258-00002	3.62/92.0
3	R432015554	P -069258-00003	4.84/123.0
4	R432015555	P -069258-00004	6.06/154.0
5	R432015556	P -069258-00005	7.28/185.0
6	R432015557	P -069258-00006	8.50/216.0
7	R432015558	P -069258-00007	9.72/247.0
8	R432015559	P -069258-00008	10.94/278.0



4 Way / 2 Position 1/4" NPT
Manual and Mechanical Operators

NOTE: All dimensions expressed in $\frac{IN}{mm}$

TECHNICAL DATA:

Port Sizes: 1/4 NPT

Working Pressure: Vacuum service to 150 psi
Can be used for dual pressure applications.

Flow: $C_V = 1.1$

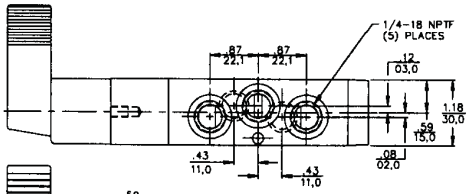
Temperature Range: -20° to +175° F

Media: Air (Lubricated or non-lubricated)

Materials: Body: Zinc die casting
Spools: Stainless Steel

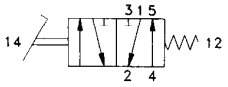
FEATURES:

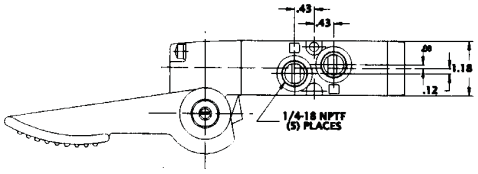
- **The 1/4" 4-way, 5-ported CD-7 Valve is an extremely versatile, yet compact, design.** This low profile spool type design will not only enhance the appearance of your equipment, but will save valuable engineering space.
- A simplified internal design allows for consistently reliable performance and ease of operation.

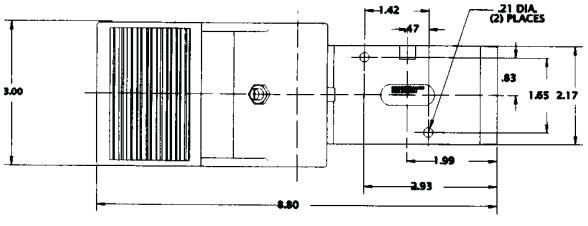


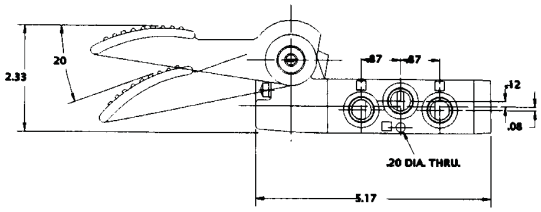
Pedal (2 position), Spring Return

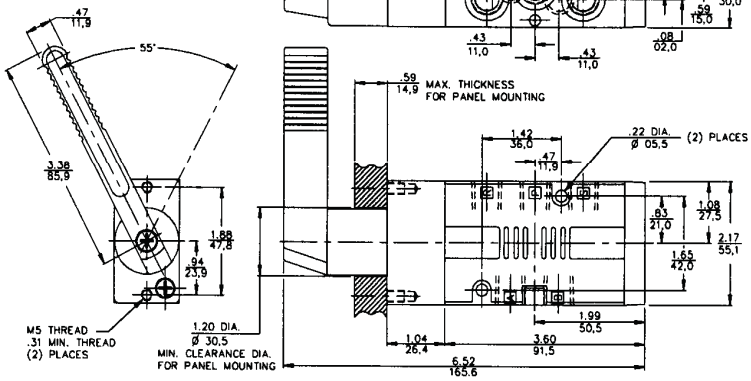
Part Number R432016624
(Old Part No. PS-034040-02255)

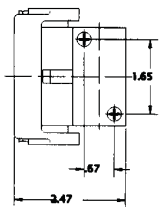






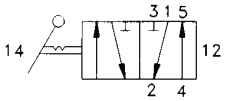






Rotary Lever (2 position), Detented Panel Mount Design

Part Number
R432016627
(Old Part No.
PS-034040-09155)

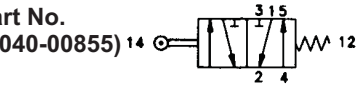


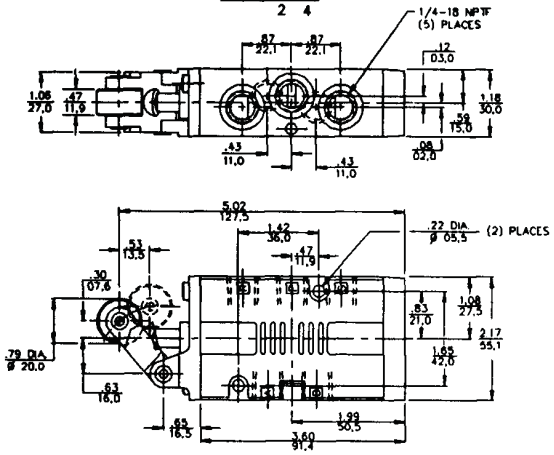
4 Way / 2 Position 1/4" NPT
Manual and Mechanical Operators

NOTE: All dimensions expressed in IN / MM

Roller
(2-Position, Spring Return)

Part Number R432016623
(Old Part No.
PS-034040-00855)

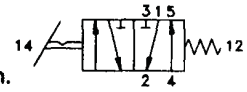


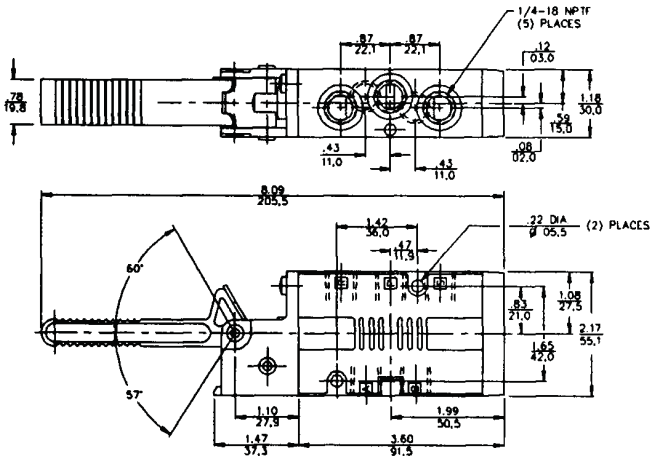


Toggle (2-Position, Spring Return or Detented)

Part Number R432016626
(Old Part No.
PS-034040-05855)

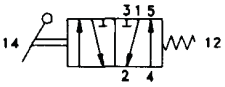
60° Travel-Spring Rtn.
57° Travel-Detented

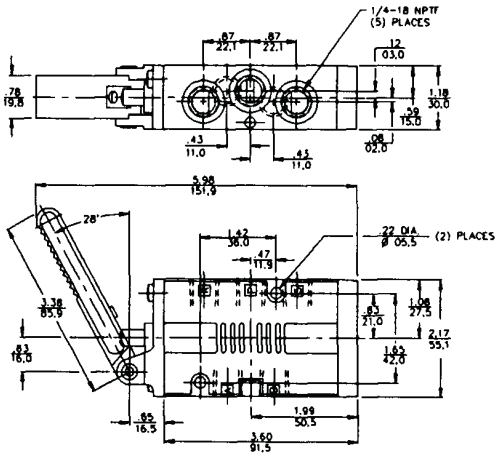




Paddle (2-Position, Spring Return)

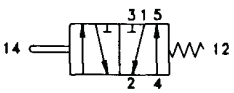
Part Number R432016621
(Old Part No.
PS-034040-00255)

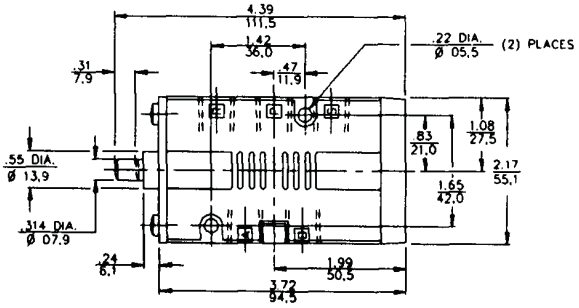




Plunger (2-Position, Spring Return)

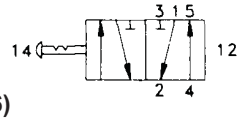
Part Number R432016625
(Old Part No. PS-034040-05155)





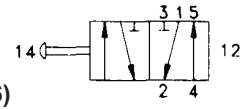
Knob (2-Position) Detented

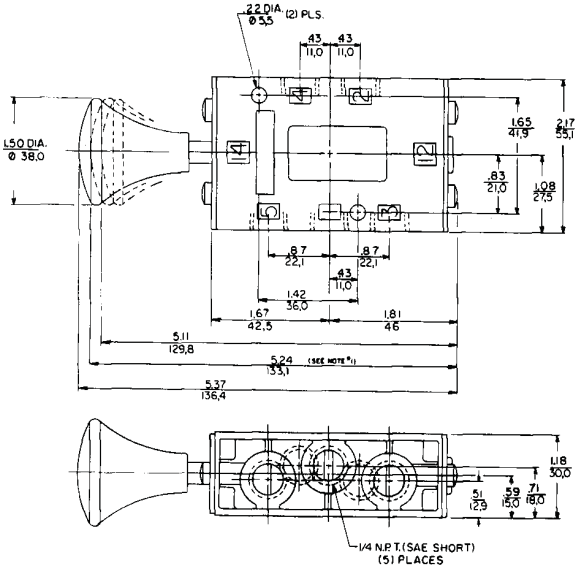
Part Number R432016557 (Old Part No. PS-024050-00456)



Knob (2-Position) w/o Spring Return

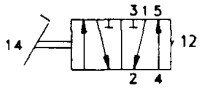
Part Number R432016553 (Old Part No. PS-024040-00456)

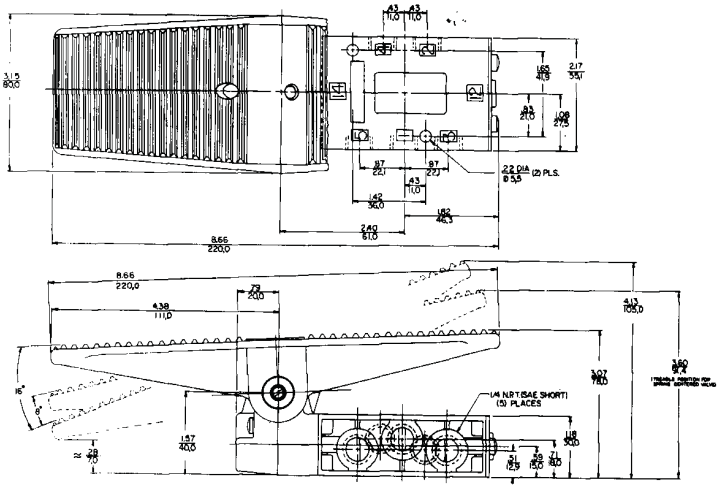




Treadle (2-Position) w/o Spring Return

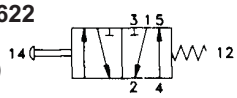
Part Number R432016562 (Old Part No. PS-024100-05456)

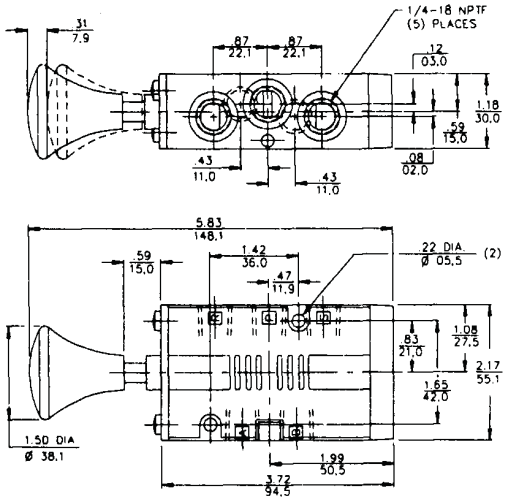




Knob (2-Position) with Spring Return

Part No. R432016622 (Old Part No. PS-034040-00555)





For Air Pilot return, order Part Number R432009214 (Old Part No. P -029992-00000)

MANUAL/MECHANICAL AIR PILOT OPERATOR PORTIONS

PART NUMBER	OLD PART NUMBER	OPERATOR KITS
R432030366	PS-020000-K0002	Paddle, w/Return Spring
R432016570	PS-030000-K0002	Paddle, w/Return Spring
R432030377	PS-020000-K0004	Knob, Less Return Spring
R432030362	PS-020000-K0005	Knob, w/Return Spring
R432016571	PS-030000-K0005	Knob, w/Return Spring
R432016492	PS-020000-K0008	Roller, w/Return Spring
R432016572	PS-030000-K0008	Roller, w/Return Spring
R432016493	PS-020000-K0009	1 Way Trip, w/Return Spring
R432016494	PS-020000-K0022	Pedal, w/Return Spring
R432030379	PS-020000-K0033	Air Pilot Less Return Spring

PART NUMBER	OLD PART NUMBER	OPERATOR KITS
R432016578	PS-030000-00033	Air Pilot Less Return Spring
R432030357	PS-020000-K0051	Plunger, w/Return Spring
R432030383	PS-030000-K0051	Plunger, w/Return Spring
R432016495	PS-020000-K0052	Treadle, w/Return Spring
R432030391	PS-020000-K0055	End Cover w/Return Spring
R432030381	PS-020000-K0056	End Cover, Less Return Spring
R432016573	PS-030000-K0058	Toggle, w/Return Spring
R432030376	PS-020000-K0091	Rotary Lever, w/Detents
R432016574	PS-030000-K0091	Rotary Lever, w/Detents

Operator Kits include all Operator Portions, Springs, Spacers, Plates, O-Rings, Mounting Screws & Angle Plates necessary in mounting the Operator Portion to the Main Valve Body.

PS2…Series valves use PS20000-…kits.
PS3…Series valves use PS30000-…kits.

4 Way / 2 & 3 Position 1/4” & 3/8” NPTF Solenoid, Air Pilot & Lever Operated

TECHNICAL DATA:

Port Sizes: 1/4” & 3/8” NPTF

Working Pressure: Valve inlet: 200 psi (13.8 bar) maximum with external pilot
150 psi (10.3 bar) maximum with internal pilot
Minimum Pilot Pressure: 2 position: 15 psi (1 bar)
Spring return models: 25 psi (1.7 bar)
Flow: C_v 1.0 (1000 Nl/min)

Temperature Range: -20°F to +160°F (-29°C to 71°C)

Media: Air and inert gases (In service higher than 18 cycles per minute or with continuous air flow, a lubricator is recommended.)

Materials: Body, subplate and operators: Die cast anodized aluminum
Spool: Machined from high-tensile anodized aluminum
Seals: Buna-N specially treated

Manual Override: Non-Locking

ELECTRICAL DATA:

Standard Voltage (all coils are rated for continues duty)	Power Consumption	
	Inrush	Holding
24, 120, 240 VAC 60 Hz	33 VA	22 VA
12, 24 VDC	12 W	

Molded Coil: Standard

Lead Length: 24”

Approximate Weights:

Single Solenoid	2.63 lbs. (1.19 kg)
Double Solenoid	3.38 lbs. (1.53 kg)
3-Position Double Solenoid	3.88 lbs. (1.76 kg)
Single Air Pilot	2.13 lbs. (0.97 kg)
Double Air Pilot	2.13 lbs. (0.97 kg)
3-Position Double Air Pilot	2.63 lbs. (1.19 kg)
2-Position Lever	2.50 lbs. (1.13 kg)
3-Position Lever	2.38 lbs. (1.08 kg)

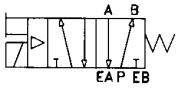
Features:

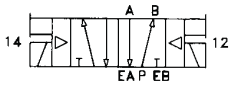
- **Subbase mounted** four-way valves for two and three position (spring centered) closed center operation and a selection of three operators.
- **Three-way function** can be obtained by plugging one delivery port to provide either normally open or closed operation.
- **Unique subbase** is designed to be mounted to the customer’s equipment with only two mounting bolts, which saves labor and material during installation.
- **Separate tapped exhaust ports,** in the subbase, for each delivery port allow exhaust air to be piped away for safety or noise reduction purposes and permit use of exhaust restrictors for cylinder speed control.
- **Minimum number of wearing parts.** Lessens the chance of equipment downtime and reduces the cost of repair.
- **Low pilot pressure.** A low (15 psi without springs—25 psi with springs) pilot pressure rating assures reliable operation. Fluctuating line pressures within the plant do not affect operation.
- **Continuous-duty solenoid.** Won’t burn out...even when energized for extended periods. Pilot operated for fast response. Non-locking manual override is standard.
- **Lightweight aluminum spool.** Aluminum spool is precision finished for faster response and optimum dependability.
- **Low friction spool bore.** Bore is roller burnished for lower spool friction and longer seal life.
- **No-leak seals.** Specially treated Buna-N seals assure low friction and long wear without leakage.
- **Easier maintenance.** Simplified design offers quick access for maintenance through 3-bolt valve portion mounting and easy end cover removal.
- **U.L. listed.**

TaskMaster® Valve, 4-Way Directional Control

Solenoid operated models, 2 & 3 Position, 1/4” & 3/8” NPTF

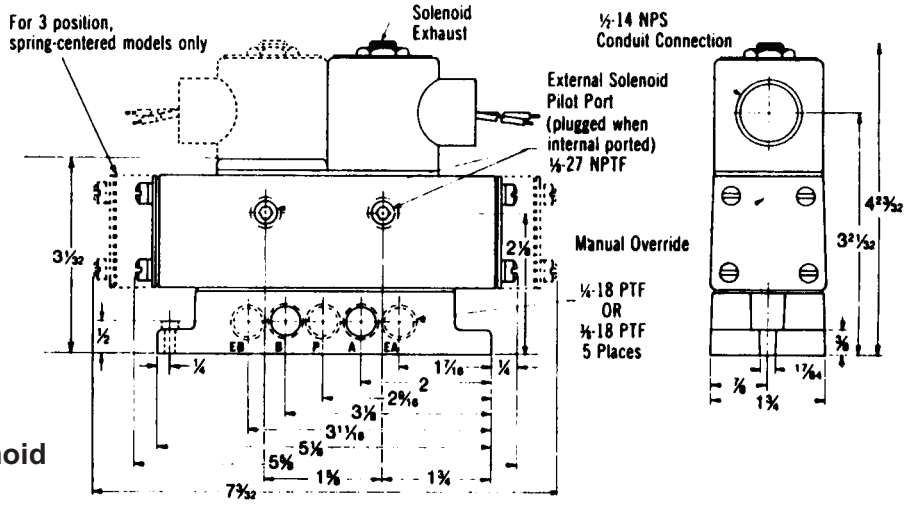
Solenoid Operated, 2 Position Subbase Mounted Single or Double Solenoid Operated



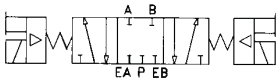


Port Size (120VAC version) See Coil Voltages Note	Single Solenoid		Double Solenoid	
	Internal	External	Internal	External
With 1/4” subbase	R431008475 (PJ-022711-00000)	R431008471 (PJ-021711-00000)	R431008479 (PJ-022771-00000)	R431008474 (PJ-021771-00000)
With 3/8” subbase	R431008491 (PJ-032711-00000)	R431008488 (PJ-031711-00000)	R431008495 (PJ-032771-00000)	R431008490 (PJ-031771-00000)
Valve less subbase	R431008459 (PJ-012711-00000)	R431008456 (PJ-011711-00000)	R431008462 (PJ-012771-00000)	R431009192 (PJ-011771-00000)

Model code (and old part number) shown in parenthesis.



3 Position Subbase Mounted Spring-Centered Double Solenoid Operated, Closed Center



Port Size	Part No.	Model No.
With 1/4” subbase	R431008482	PJ-025771-00000
With 3/8” subbase	R431008499	PJ-035771-00000
Less subbase	R431008466	PJ-015771-00000

Explosion Proof Valves

Port Size	Part No.	Model No.
1/4” - 120VAC, like PJ22711	R431005866	P -061772-00000
1/4” - 120VAC, like PJ12711	R431009194	P -060887-K0000
1/4” - 24VDC, like PJ12715	R431005602	P -060887-00004

Coil Voltages:

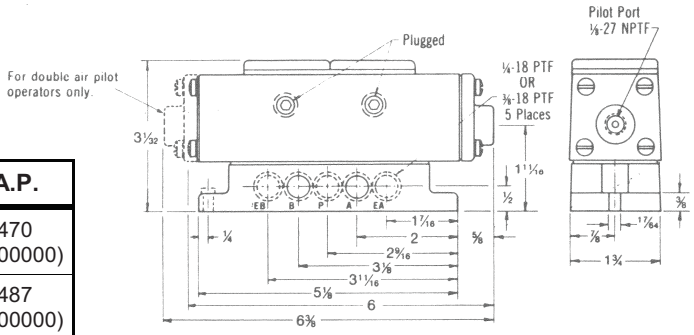
The coil voltage of a solenoid operator is identified by the last digit of the valve model code. The last digit of all solenoid valve model codes listed identifies a 120VAC, 60 Hz coil. Solenoid valves with other ratings may be ordered by using the table at right and substituting the appropriate digit in the model code (not part number beginning with R).

Other Notes:
Solenoid pilot pressure must be a minimum of 25 psi with return springs, 15 psi less return springs and a maximum of 150 psi. A flush, non-locking manual override is standard for manual operation when the electric power is off. Other optional features are available upon request such as high pressure (200 psi) solenoids.

Coil Voltages		*Last Digit in Model Code
**Primary	**Secondary	
120VAC, 60 Hz	38VDC	1
240VAC, 60 Hz	70VDC	2
480VAC, 60 Hz	145VDC	3
12VDC	42VAC, 60 Hz	4
24VDC	86VAC, 60Hz	5

*See valve model codes. (Does not apply to Hopper Dump Valve version P –060681-00001 or explosion proof models.)
**Primary and secondary voltages will be stenciled on the solenoid data plate.

2 Position Subbase Mounted
Single or Double Air Pilot Operated

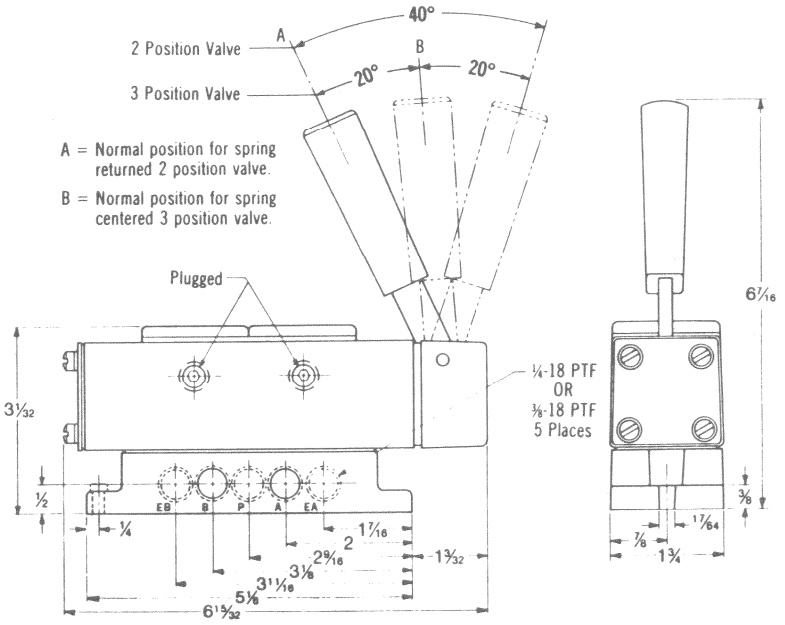


Port Size	Single A.P.	Double A.P.
With 1/4” subbase	R431008469 (PJ-021610-00000)	R431008470 (PJ-021660-00000)
With 3/8” subbase	R431008486 (PJ-031610-00000)	R431008487 (PJ-031660-00000)
Less subbase	R431008454 (PJ-011610-00000)	PJ-015771-00000 (PJ-011660-00000)

Model code (and old part number) shown in parenthesis.

2 and 3 Position Subbase Mounted
Lever Operated

Port Size	2 Pos. with Spring	2 Pos. w/o Spring	3 Pos. Spring Ctr.
With 1/4” subbase	R431008468 (PJ-020210-00000)	R431008467 (PJ-020200-00000)	R431008481 (PJ-023210-00000)
With 3/8” subbase	R431008485 (PJ-030210-00000)	R431008484 (PJ-030200-00000)	R431008498 (PJ-033210-00000)
Less subbase	R431009175 (PJ-010210-00000)	R431008453 (PJ-010200-00000)	R431008465 (PJ-013210-00000)

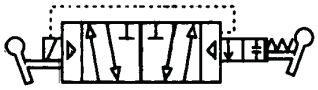


TaskMaster® Valve, 4-Way Directional Control

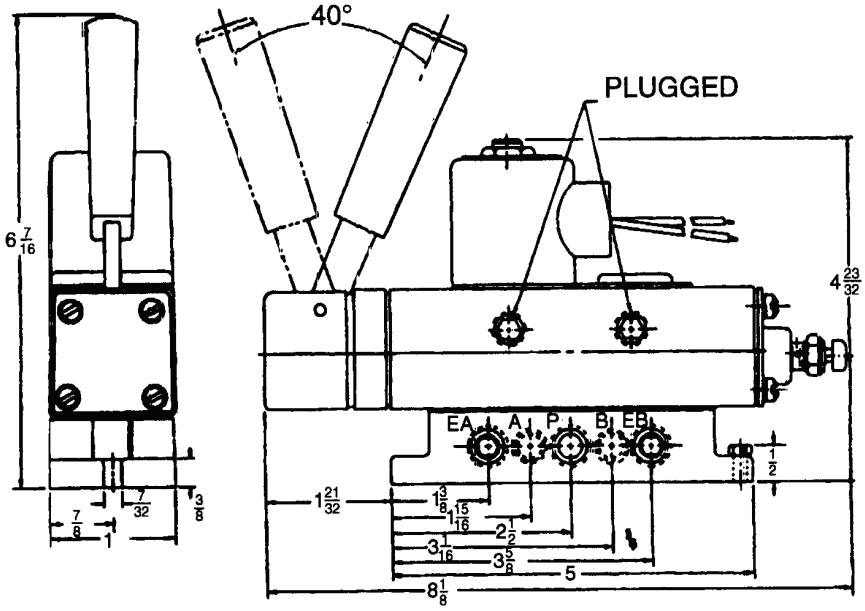
Hopper dump valve; repair kits, subplates and parts

Hopper Dump Valve

Part No. R431005556 (old P –060681-00001)
Part No. R431005557 (old P –060681-00002)*



This unique version is typically used for operating hoppers on many types of trailers hauling different types of aggregate. The valve has solenoid and handle operators. The solenoid permits remote operation of the valve. The handle operates in conjunction with a bleeder button which depressurizes the air spring return allowing the handle to be moved. Manual operation can only be obtained with the solenoid de-energized.
*Higher flow due to plugs omitted from EA and EB ports.



Note: All subbase ports are 3/8” NPT.

Repair Kits, Subplates and Miscellaneous Parts

Repair Kits/Parts

Part No.	Description
R431005395	Valve body kit
R431006634	Valve body kit, Viton
R431005396	Operator kit
R431005397	Operator kit, Viton
R431005645	Solenoid repair kit (includes plunger, spring & gasket)
R431006057	Solenoid exhaust filter
R431006858	Solenoid sleeve (armature)

Subplates

Part No.	Description
R431005110	1/4” NPT subplate
R431005109	3/8” NPT subplate

*Last digit in model code. (Does not apply to Hopper Dump Valve version P –060681-00001 or explosion proof models.)

Solenoid Operators and Kits

Last Digit*	Coil Voltage	Part Numbers		
		Solenoid Operator Kit		Solenoid
		Ext. Pilot	Internal Pilot	
1	120VAC, 60 Hz	R431005146	R431005137	R431002779
2	240VAC, 60 Hz	R431005149	R431005143	R431002780
3	480VAC, 60 Hz	—	R431005144	R431002781
4	12VDC	R431005147	R431005140	R431002783
5	24VDC	R431005148	R431005142	R431002782

Coils

Last Digit*	Part no.	Coil Voltage
1	R431005915 (P –061920-00000)	120VAC, 60 Hz
2	R431005916 (P –061920-00001)	240VAC, 60 Hz
3	R431005917 (P –061920-00002)	480VAC, 60 Hz
4	R431005919 (P –061920-00004)	12VDC
5	R431005918 (P –061920-00003)	24VDC

4 Way / 2 & 3 Position
1/4” - 1-1/4” NPTF Solenoid, Air Pilot & Mechanical Operators

TECHNICAL DATA:
Port Sizes: 1/4”, 3/8”, 1/2”, 3/4”,1” 1-1/4” NPTF

Working Pressure: Maximum valve inlet air pressure: 150 psi (10.3 bar)
Minimum air pilot pressure:
15 psi (1.0 bar) w/o return spring (all sizes)
30 psi (2.1 bar) 1” and 1-1/4” valves w/return spring
40 psi (2.8 bar) 1/2” and 3/4” valves w/return spring
50 psi (3.4 bar) 1/4” and 3/8” valves w/return spring
Valves can also be used for vacuum or dual pressure service when externally piloted.

Flow:
C_v 2.39 (2390 Nl/min) 1/4” NPTF
C_v 3.73 (3730 Nl/min) 3/8” NPTF
C_v 6.17 (6170 Nl/min) 1/2” NPTF
C_v 7.88 (7880 Nl/min) 3/4” NPTF
C_v 13.61 (13,610 Nl/min) 1” NPTF
C_v 15.75 (15,750 Nl/min) 1-1/4” NPTF

Temperature Range: -20°F to +160°F (-29°C to 71°C)

Media: Air and inert gases (In service higher than 18 cycles per minute or with continuous air flow, a lubricator is recommended.)

Materials: Bodies and operators: Die cast aluminum
Spool: Machined from high-tensile aluminum, hard anodized, ground & polished to 8 micro-inch finish
Seals: Buna-N, oil-resistant, and bonded to a metallic ring (HI-Nitrile Buna-N seals are also available.

Manual Override: Non-Locking

Electrical Data:

Standard Voltage (all coils are rated for continues duty)	Power Consumption	
	Inrush	Holding
120, 240 VAC 60 Hz	33 VA	22 VA
12, 24 VDC	12 W	

Features:

- **Response time.** Actual test data shows only 175 milliseconds is required to fill a 250 cubic inch volume to 80% of line pressure with a normally closed solenoid operated valve. Where a spring is used to open the valve (normally open valve) only 253 milliseconds is required to fill the same volume.
- **Continuous-duty solenoid.** Won’t burn out...even when energized for extended periods. Pilot operated for fast response.
- **Lightweight aluminum spool** of extra large diameter assures high-speed performance. Requires only short movement to deliver high-capacity air flow. File-hard anodized surface, polished to an 8 micro-inch finish, withstands wear and abrasion; offers greatest sealing qualities, minimum friction and maximum speed. Spool is balanced so air pressure won’t affect its position.
- **Low-friction, positive sealing ring** is actually two seals in one; an outer static seal and an inner dynamic seal bonded to a metallic spacer ring. The ring protects the inner seal from the radical compression absorbed by the other seal. Assures longest life with positive sealing.
- **Seal retainers** keep inner and outer sealing surfaces in precise position for maximum reliability and efficiency. Combined with the non-compressible seal rings, PowerMaster valve retainers eliminate tolerance build-up in the free stack height of both retainers and seals.
- **Free-floating piston** with extra large surface area means faster response at lower pressures.
- **Manual non-locking overrides** allow supplementary manual control an permits operating the valve when the electric power is off.
- **External pilot** allows an independent air supply to be connected to the pilot port in the valve operator or subplate for air pilot pressure.
- **Wire leads** of 24” allows simplified conduit wiring.
- **Solenoid coil removal.** Unscrew hex nut and slip off the solenoid housing and coil.
- **Exhaust restrictors** can be used in either or both exhaust port to provide speed control of cylinders. (Refer to Accessory Valve catalog SC-400.)

PowerMaster® Valve, 4-Way Directional Control

4 Way, 2 and 3 Position, single and double solenoid operated
Tapped body, 1/4” through 3/4” NPTF models

Single & Double Solenoid Coil Voltages
120 VAC part numbers are shown on this page, for other voltages, use the following table and substitute the appropriate suffix on the MODEL number of the valve being used.

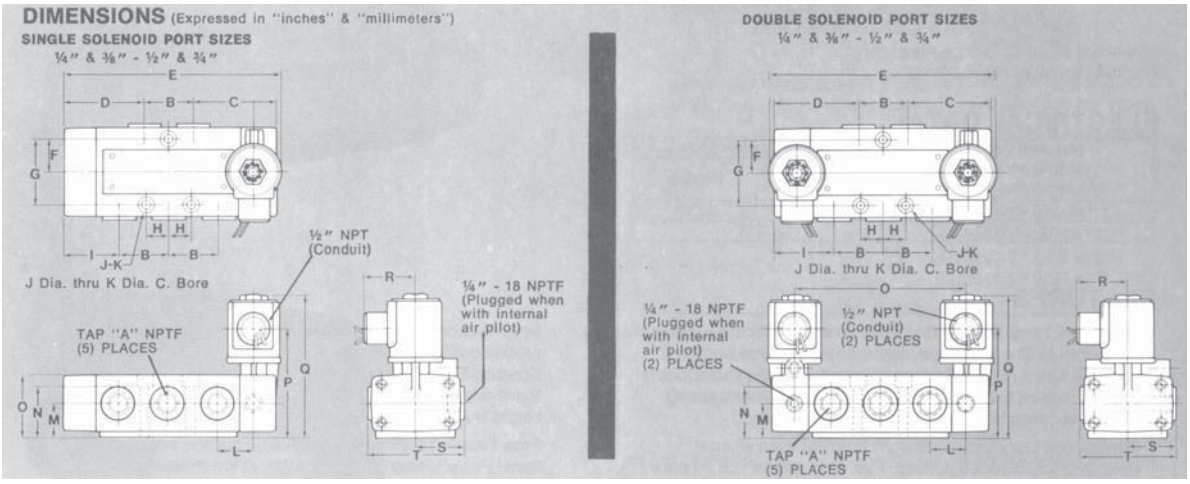
Coil Voltages		Suffix: Single Solenoid	Suffix: Double Solenoid
AC	120 Volts 60 Hz	8500	8484
AC	240 Volts 60 Hz	8700	8686
AC	480 Volts 60 Hz	8900	8888
AC	110 Volts 50 Hz	8100	8080
AC	220 Volts 50 Hz	8300	8282
DC	12 Volts	9500	9494
DC	24 Volts	9100	9090
DC	240 Volts	9300	9292

Single Solenoid
4 Way, Tapped Exhaust

Port Size	Internal Air Pilot		External Air Pilot	
	Part No.	Model No.	Part No.	Model No.
1/4”	R431008519	PT-024106-08500	R431008516	PT-024104-08500
3/8”	R431008542	PT-034106-08500	R431008538	PT-034104-08500
1/2”	R431008566	PT-044106-08500	R431008564	PT-044104-08500
3/4”	R431008595	PT-064106-08500	R431008589	PT-064104-08500

Double Solenoid: 4 Way, Tapped Exhaust

Port Size	Internal Air Pilot		External Air Pilot	
	Center Spring, 3 Pos. Closed Ctr.	2 Position No Springs	Center Spring, 3 Pos. Closed Ctr.	2 Position No Springs
1/4”	R431008524 (PT-024117-08484)	R431008521 (PT-024107-08484)	— (PT-024115-08484)	R431009183 (PT-024105-08484)
3/8”	R431008550 (PT-034117-08484)	R431008545 (PT-034107-08484)	R431008549 (PT-034115-08484)	R431008541 (PT-034105-08484)
1/2”	R431008575 (PT-044117-08484)	R431008571 (PT-044107-08484)	R431008574 (PT-044115-08484)	R431009193 (PT-044105-08484)
3/4”	R431008601 (PT-064117-08484)	R431008598 (PT-064107-08484)	R431008600 (PT-064115-08484)	R431008593 (PT-064105-08484)



	A	B		C		D		E		F		G		H		I		J	
		IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
SINGLE SOLENOID	1/4" & 3/8"	1.50	38	2.56	65	2.44	62	6.65	169	1.00	25	2.00	51	.69	18	1.69	43	.28	7
	1/2" & 3/4"	1.88	48	3.06	78	2.94	75	8.03	204	1.19	30	2.38	60	.94	24	2.00	56	.28	7
DOUBLE SOLENOID	1/4" & 3/8"	1.50	38	2.56	65	2.56	65	6.91	176	1.00	25	2.00	51	.69	18	1.81	46	.28	7
	1/2" & 3/4"	1.88	48	3.06	78	3.06	78	8.28	210	1.19	30	2.38	60	.94	24	2.12	54	.28	7

	K		L		M		N		O		P		Q		R		S		T	
	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
SINGLE SOLENOID	.50	13	1.12	28	1.06	27	1.56	40	1.94	49	3.31	84	4.38	111	1.56	40	1.50	38	3.00	76
	.50	13	1.44	37	1.06	27	1.69	43	2.06	52	3.44	87	4.50	114	1.56	40	1.75	44	3.50	89
DOUBLE SOLENOID	.50	13	1.12	28	1.06	27	1.56	40	5.25	133	3.31	84	4.38	111	1.56	40	1.50	38	3.00	76
	.50	13	1.44	37	1.06	27	1.69	43	6.62	168	3.44	87	4.50	114	1.56	40	1.75	44	3.50	89

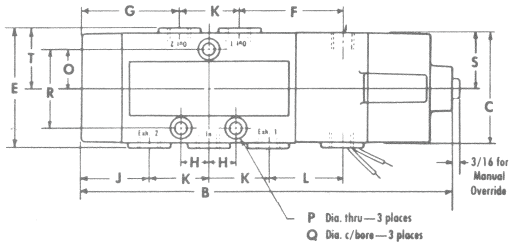
PowerMaster® Valve, 4-Way Directional Control

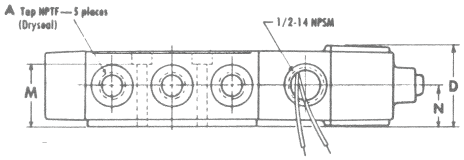
4 Way, 2 and 3 Position, single and double solenoid operated
Tapped body, 1” and 1-1/4” NPTF models

Rexroth
Bosch Group

Single Solenoid, Tapped Exhaust

Port Size	Part No.	Model No.	Approx. Weight lbs. (kg)
1”	R431008610	PT-084106-03100	10 (4.5)
1-1/4”	R431008619	PT-094106-03100	10 (4.5)





Dimensions in inches (mm)

A	B	C	D	E	F	G	H
1”-11 1/2 1 1/4”-11 1/2	13.44 (341)	4.13 (105)	2.59 (66)	4.38 (111)	4.19 (106)	4.00 (102)	1.31 (33)

J	K	L	M	N	O	P	Q	R	S	T
2.69 (68)	2.63 (67)	2.75 (70)	2.13 (54)	1.31 (33)	1.50 (38)	0.34 (8.7)	0.63 (15. 9)	3.00 (76)	2.06 (52)	2.19 (56)

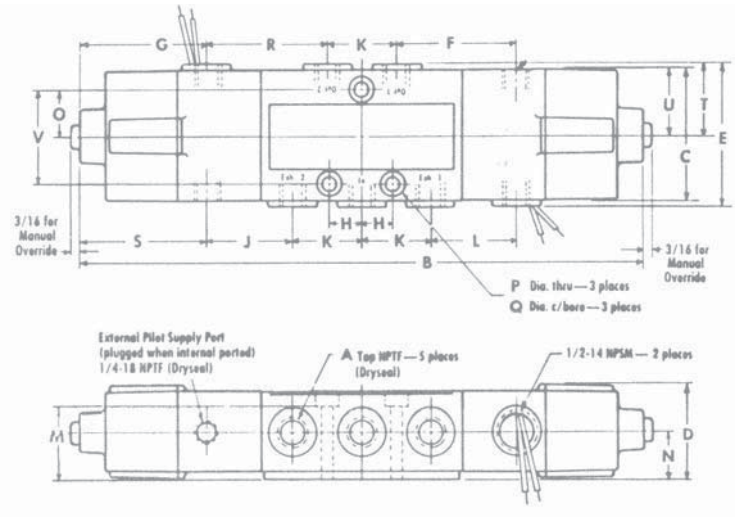
Double Solenoid, Tapped Exhaust

Port Size	Internal Air Pilot			Approx. Weight lbs. (kg)
	Center Spring, 3 Pos. Closed Ctr.	Center Spring, 3 Pos. Exhaust Open Ctr.	No Springs	
1”	R431008613 PT-084117-03030	R431008615 PT-084517-03030	R431008611 PT-084107-03030	12.25 (5.57)
1- 1/4””	R431008623 PT-094117-03030	R431008625 PT-094517-03030	R431008621 PT-094107-03030	12.25 (5.57)

Dimensions in inches (mm)

A	B	C	D	E	F	G	H	J	K	L
1”-11 1/2 1 1/4”-11 1/2	16.25 (413)	4.13 (105)	2.59 (66)	4.38 (111)	4.19 (106)	2.75 (75)	1.31 (33)	2.88 (68)	2.63 (67)	2.88 (73)

M	N	O	P	Q	R	S	T	U	V	
2.13 (54)	1.31 (33)	1.50 (38)	0.34 (8.7)	0.63 (15.9)	4.06 (103)	2.63 (67)	2.19 (56)	2.06 (52)	3.00 (76)	



Note:

All valves on this page are also available in 24VDC. Substitute –04300 as the suffix in the model code for single solenoid models, or –04242 for double solenoid valves. 120VAC and 24VDC are the only voltages available in 1” and 1- 1/4” models. A complete listing of model codes to new part numbers is available online on the PowerMaster Valve page at: www.boschrexroth-us.com/pmvalve

PowerMaster® Valve, 4-Way Directional Control

4 Way, 2 and 3 Position, lever operated
Tapped body, 1/4” through 3/4” NPTF models

Rexroth
Bosch Group

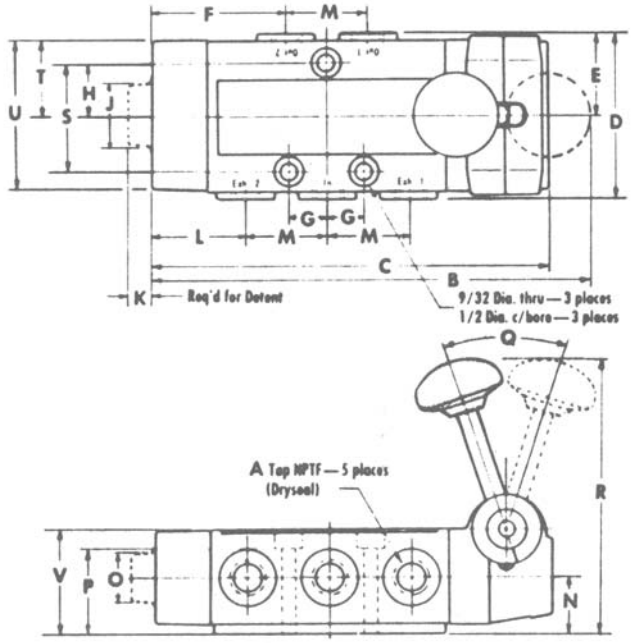
4 Way, Tapped Exhaust, Lever Operated

Port Size	Two Position			Approx. Weight lbs. (kg)
	Return Spring	Detents	No Spring or Detents	
1/4”	R431008510 (PT-024101-00200)	R431008508 (PT-024101-00011)	R431008507 (PT-024101-00010)	3.25 (1.48)
3/8”	R431008532 (PT-034101-00200)	R431008530 (PT-034101-00011)	R431008529 (PT-034101-00010)	3.25 (1.48)
1/2”	R431008558 (PT-044101-00200)	R431008556 (PT-044101-00011)	R431008555 (PT-044101-00010)	4.25 (1.93)
3/4”	R431008583 (PT-064101-00200)	R431008581 (PT-064101-00011)	R431008580 (PT-064101-00010)	4.25 (1.93)

Port Size	Three Position				Approx. Weight lbs. (kg)
	Closed Center		Exhaust Open Center		
	Center Springs	Detents	Center Springs	Detents	
1/4”	R431008511 (PT-024101-00300)	R431008509 (PT-024101-00115)	R431008526 (PT-024501-00300)	R431008525 (PT-024501-00115)	3.25 (1.48)
3/8”	R431008533 (PT-034101-00300)	R431008531 (PT-034101-00115)	R431008553 (PT-034501-00300)	R431008552 (PT-034501-00115)	3.25 (1.48)
1/2”	R431008559 (PT-044101-00300)	R431008557 (PT-044101-00115)	R431008577 (PT-044501-00300)	R431008576 (PT-044501-00115)	4.25 (1.93)
3/4”	R431008584 (PT-064101-00300)	R431008582 (PT-064101-00115)	R431008604 (PT-064501-00300)	R431008603 (PT-064501-00115)	4.25 (1.93)

Dimensions in inches (mm)

A	B	C	D	E	F	G	H	J	K	L
1/4-18 3/8-18	8.13 (207)	7.25 (184)	3.00 (76)	1.50 (38)	2.44 (62)	0.69 (17.5)	1.00 (25)	1.13 (29)	0.44 (11.2)	1.69 (43)
1/2-14 3/4-14	9.44 (240)	8.69 (221)	3.50 (89)	1.75 (44)	2.94 (75)	0.94 (23.9)	1.19 (30)	1.34 (34)	0.63 (16.0)	2.00 (51)
M	**N**	**O**	**P**	**Q**	**R**	**S**	**T**	**U**	**V**	
1.50 (38)	1.06 (27)	0.88 (22.2)	1.56 (40)	37°	5.19 (132)	2.00 (51)	1.38 (35)	2.75 (70)	1.94 (49)	
1.88 (48)	1.06 (27)	1.09 (43)	1.69 (43)	35°	5.44 (138)	2.38 (60)	1.63 (41)	3.25 (83)	2.06 (52)	



PowerMaster® Valve, 4-Way Directional Control

4 Way, 2 and 3 Position, treadle operated
Tapped body, 1/4” through 3/4” NPTF models

Rexroth Bosch Group

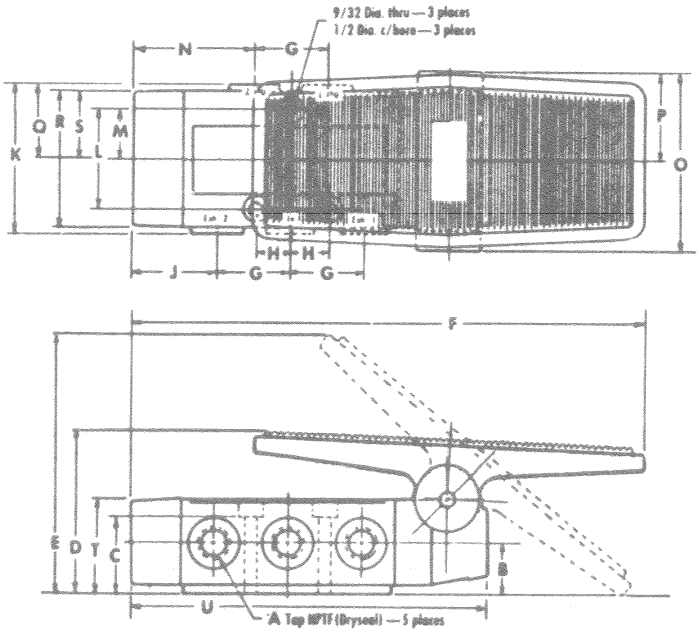
4 Way, Tapped Exhaust, Treadle Operated

Port Size	Less Springs	Center Springs Closed Center	Approx. Weight lbs. (kg)
1/4”	R431008513 (PT-024101-01100)	R431008514 (PT-024101-01200)	4.25 (1.93)
3/8”	R431008535 (PT-034101-01100)	R431008536 (PT-034101-01200)	4.25 (1.93)
1/2”	R431008561 (PT-044101-01100)	R431008562 (PT-044101-01200)	5.50 (2.49)
3/4”	R431008586 (PT-064101-01100)	R431008587 (PT-064101-01200)	5.50 (2.49)

Treadle Operators
Treadle operators are furnished without a return spring for two-position heel and toe operation. For three-position operation, centering springs are used. The two-position model may also be used as a three-position, closed center combination.

Dimensions in inches (mm)

A	B	C	D	E	F	G	H	J	K
1/4-18 3/8-18	1.06 (27)	1.56 (40)	3.31 (84)	5.31 (135)	10.44 (265)	1.50 (38)	0.69 (17.5)	1.69 (43)	3.00 (76)
1/2-14 3/4-14	1.06 (27)	1.69 (43)	3.88 (99)	5.75 (146)	11.94 (303)	1.88 (48)	0.94 (23.9)	2.00 (51)	3.50 (89)
L	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**	**U**
2.00 (51)	1.00 (25)	2.44 (62)	3.56 (90)	1.78 (45)	1.50 (38)	2.75 (70)	1.38 (35)	1.94 (49)	7.25 (184)
3.38 (86)	1.19 (30)	2.94 (75)	3.56 (90)	1.78 (45)	1.75 (44)	3.25 (83)	1.63 (41)	2.06 (52)	8.69 (221)



PowerMaster® Valve, 4-Way Directional Control

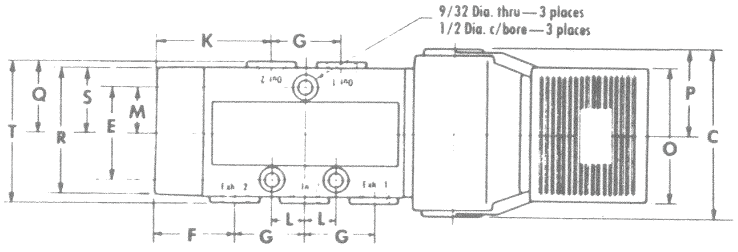
4 Way, 2 and 3 Position, pedal operated, spring returned
Tapped body, 1/4” through 3/4” NPTF models

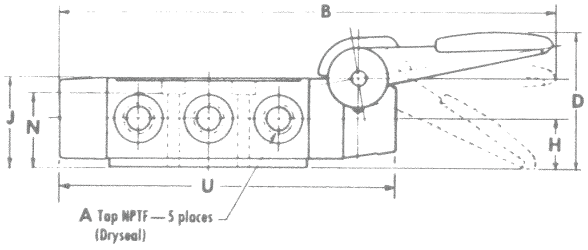
4 Way, Tapped Exhaust, Pedal Operated

Port Size	Part Number (Model Number)	Approx. Weight lbs. (kg)
1/4”	R431008512 (PT-024101-01000)	3.25 (1.48)
3/8”	R431008534 (PT-034101-01000)	3.25 (1.48)
1/2”	R431008560 (PT-044101-01000)	4.25 (1.93)
3/4”	R431008585 (PT-064101-01000)	4.25 (1.93)

Dimensions in inches (mm)

A	B	C	D	E	F	G	H	J	K
1/4-18 3/8-18	10.69 (272)	3.56 (90)	2.91 (74)	2.00 (51)	1.69 (43)	1.50 (38)	1.06 (27)	1.94 (49)	2.44 (62)
1/2-14 3/4-14	12.06 (306)	3.56 (90)	2.94 (75)	2.38 (60)	2.00 (51)	1.88 (48)	1.06 (27)	2.10 (53)	2.94 (75)
L	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**	**U**
0.69 (17.5)	1.00 (25)	1.56 (40)	2.88 (73)	1.78 (45)	1.50 (38)	2.75 (70)	1.38 (35)	3.00 (76)	7.25 (184)
0.94 (23.9)	1.19 (30)	1.69 (43)	2.88 (73)	1.78 (45)	1.75 (44)	3.25 (83)	1.63 (41)	3.50 (89)	8.69 (221)





PowerMaster® Valve, 4-Way Directional Control

4 Way, 2 and 3 Position, air pilot operated
Tapped body, 1/4” through 1-1/4” NPTF models

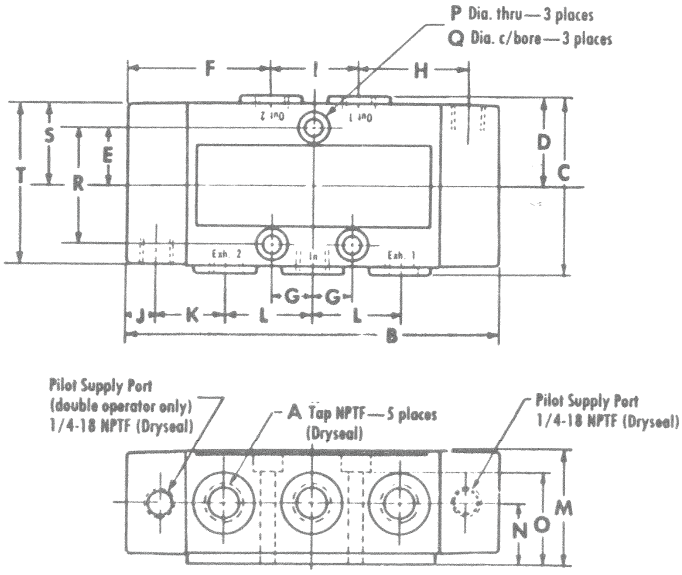
Rexroth
Bosch Group

4 Way, Tapped Exhaust, Air Pilot Operated

Port Size	Single Air Pilot	Double Air Pilot			Approx. Weight lbs. (kg)
		Center Springs, Closed Center	Center Springs, Exh. Open Center	No Springs	
1/4”	R431008515 (PT-024104-01700)	R431008523 (PT-024115-01616)	R431008528 (PT-024515-01616)	R431008518 (PT-024105-01616)	2.75 (1.25)
3/8”	R431008537 (PT-034104-01700)	R431008547 (PT-034115-01616)	R431008554 (PT-034515-01616)	R431008540 (PT-034105-01616)	2.75 (1.25)
1/2”	R431008563 (PT-044104-01700)	R431008573 (PT-034115-01616)	R431008578 (PT-044515-01616)	R431008565 (PT-044105-01616)	4.25 (1.93)
3/4”	R431008588 (PT-064104-01700)	R431008599 (PT-064115-01616)	R431008606 (PT-064515-01616)	R431008592 (PT-064105-01616)	4.25 (1.93)
1”	R431008607 (PT-084104-01700)	R431008612 (PT-084115-01616)	R431008614 (PT-084515-01616)	R431008609 (PT-084105-01616)	7.75 (3.52)
1-1/4”	R431008616 (PT-094104-01700)	R431008622 (PT-094115-01616)	R431008624 (PT-094515-01616)	R431008618 (PT-094105-01616)	7.75 (3.52)

Dimensions in inches (mm)

A	B	C	D	E	F	G	H	J	K
1/4-18 3/8-18	6.63 (168)	3.00 (76)	1.50 (38)	1.00 (25)	2.56 (65)	0.69 (17.5)	1.88 (48)	0.69 (17.5)	1.13 (29)
1/2-14 3/4-14	8.00 (203)	3.50 (89)	1.75 (44)	1.19 (30)	3.06 (78)	0.94 (23.9)	2.38 (60)	0.69 (17.5)	1.44 (37)
1-11 1/2 1 1/4—11 1/2	10.63 (270)	4.38 (111)	5.19 (132)	1.50 (38)	4.00 (102)	1.31 (33)	3.25 (83)	0.75 (19.1)	1.94 (49)
L	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**	
1.50 (38)	1.94 (49)	1.06 (27)	1.56 (40)	0.28 (7.1)	0.50 (12.7)	2.00 (51)	1.38 (35)	2.75 (70)	
1.88 (48)	2.06 (52)	1.06 (27)	1.69 (43)	0.28 (7.1)	0.50 (12.7)	2.38 (60)	1.63 (41)	3.25 (83)	
2.63 (67)	2.59 (66)	1.31 (33)	2.13 (54)	0.34 (8.6)	0.63 (15.9)	3.00 (76)	2.06 (52)	4.13 (105)	



Repair Kits (Buna-N elastomers)

Port Size	Repair Kit	Part No.	Old Part No.
1/4” - 3/8”	Valve spool kit	R431004790	P -058875-00000
1/2” - 3/4”	Valve spool kit	R431004795	P -058884-00000
1” - 1 1/4”	Valve spool kit	R431004793	P -058880-00000
1/4” - 3/8”	*Solenoid Repair	R431006971	P -066948-00000
1/2” - 3/4”	*Solenoid Repair	R431006972	P -066948-00001
1” - 1 1/4”	*Solenoid Repair	R431004792	P -058878-00000
1/4” - 3/8”	*Air Pilot Operator	R431005569	P -060693-00000
1/2” - 3/4”	*Air Pilot Operator	R431005568	P -060692-00000
1” - 1 1/4”	*Air Pilot Operator	R431005567	P -060691-00000

* Two each required for double operator valves.

Repair Kits (Hi-Nitrile)**

Port Size	Repair Kit	Part No.	Old Part No.
1/4” - 3/8”	Valve spool kit	R431004791	P -058875-00001
1/2” - 3/4”	Valve spool kit	R431004796	P -058884-00001
1” - 1 1/4”	Valve spool kit	R431004794	P -058880-00001

* These seals have been tested and have proven compatible with ASTM #1 and #3 oils as well as ANDEROL 500.

With these repair kits, the elastomer seals and some common wear parts on the component are renewed. On severely worn or damaged components, additional parts may be required. For additional parts, information and service instructions, refer to Service Manual SM-300.8000.

Solenoid Repair for 1/4” – 3/4” Valves

Voltage	Coil Only	Complete Solenoid Operator
120VAC, 60 Hz	R431005915	R431002779
240VAC, 60 Hz	R431005916	R431002780
480VAC, 60 Hz	R431005917	R431002781
12VDC	R431005918	R431002782
24VDC	R431005919	R431002783
240VDC	R431005920	R431002789
120VAC, 50 Hz	—	R431005751
240VAC, 50 Hz	—	R431005750
Sol. Operator Repair Kit **		R431005645
Solenoid Exhaust Muffler		R431006057

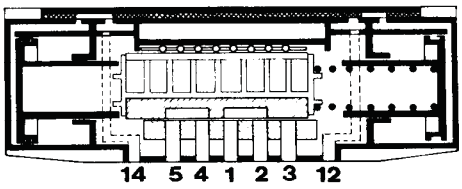
** Includes plunger, return spring and gasket. Order coil separately.

Solenoid Repair for 1” – 1 1/4” Valves

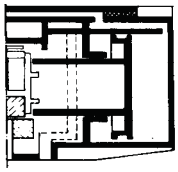
Voltage	Coil Only
120VAC, 60 Hz	R431004228
240VAC, 60 Hz	R431004229
480VAC, 60 Hz	R431009174
12VDC	R431004223
24VDC	R431004222
230VDC	R431004224
120VAC, 50 Hz	R431004225
240VAC, 50 Hz	—
Sol. Operator Repair Kit***	Part No.
Internal Pilot	R431004652
External Pilot	R431004647

*** Coils are not included and must be ordered separately.

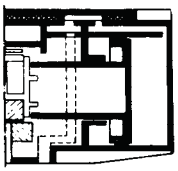
REXROTH CERAM™ 4 WAY DIRECTIONAL CONTROL VALVE–SLIDE TYPE



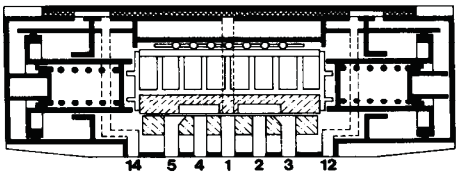
Air Pilot 2 Position
Metal Spring Return



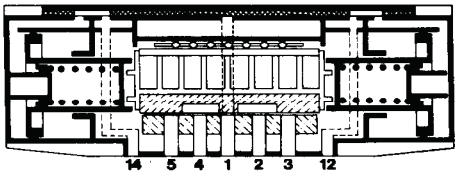
12 End
for Air Spring Return



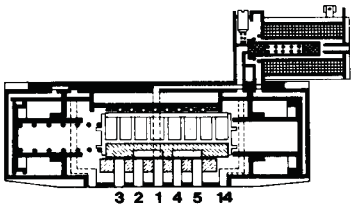
12 End
for Double Air Pilot



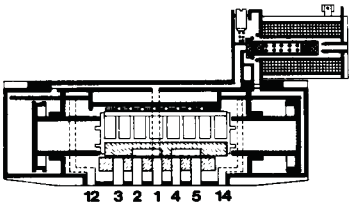
Air Pilot 3 Position
Exhaust Open Center



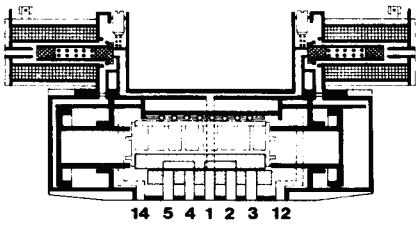
Air Pilot 3 Position
Closed Center



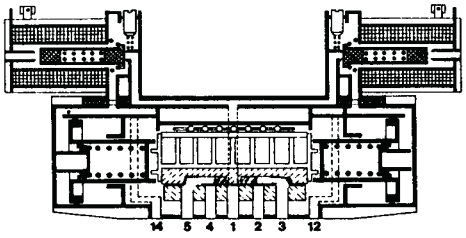
Single Solenoid 2 Position
Metal Spring Return



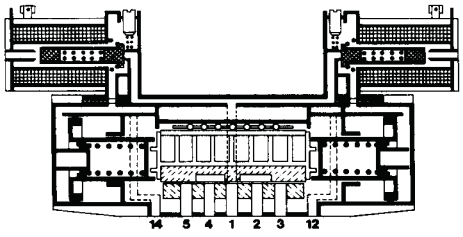
Single Solenoid 2 Position
Air Spring Return



Double Solenoid
2 Position



Double Solenoid 3 Position
Exhaust Open Center

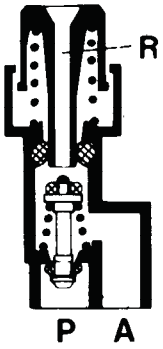


Double Solenoid 3 Position
Closed Center

Port	Marking
1=	Supply Pressure
2 & 4=	Delivery (Cylinder) Ports
3 & 5=	Exhaust Ports
12 & 14=	External Pilot Ports

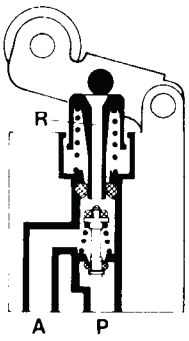
Snap 3-Way Valve

Poppet Type Snap™ Valve
Normally Closed only



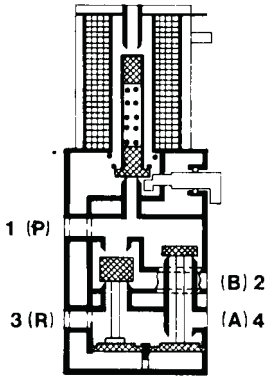
Miniblock 3-Way Valve

2mm Miniblock™ Roller Cam
Operated



Series 840 4-Way Valve

Single Solenoid
Air Spring Return

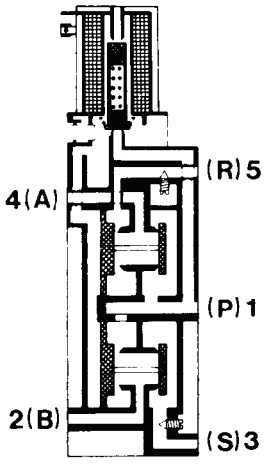


Port	Marking
P=	Supply Pressure
A=	Delivery (Cylinder) Port
R=	Exhaust Port

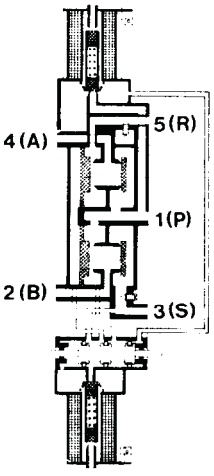
Port	Marking
1(P)=	Supply Pressure
2(B) & 4(A)=	Delivery (Cylinder) Ports
3(R)=	Exhaust Port

REXROTH TYPE 740™ 4 WAY DIRECTIONAL CONTROL VALVES—POPPET TYPE

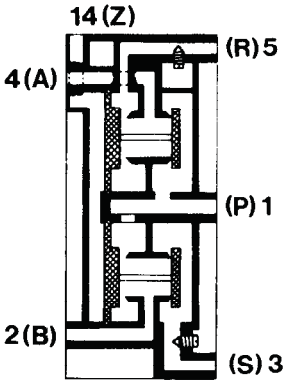
Single Solenoid
Air Spring Return



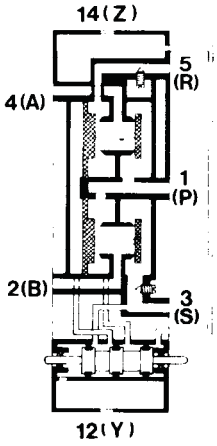
Double Solenoid
2 Position



Single Air Pilot
Air Spring Return

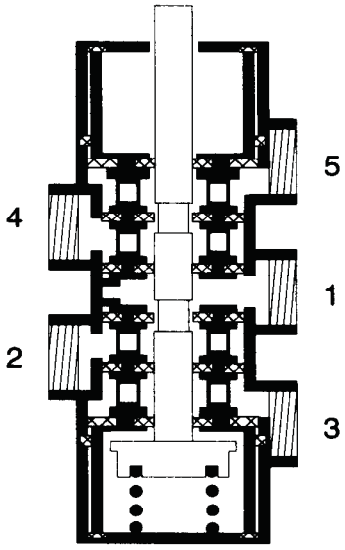


Double Air Pilot
2 Position

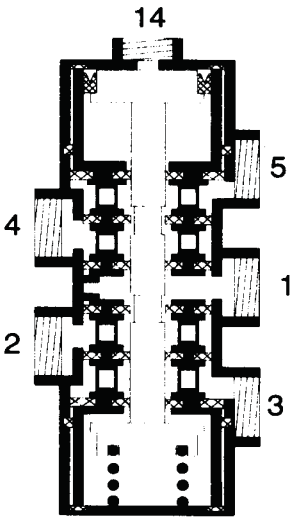


Port	Marking
1=	Supply Pressure
2 (B) & 4 (A)=	Delivery (Cylinder) Ports
3 (S) & 5 (R)=	Exhaust Ports
12 (Y) & 14 (Z)=	Air Pilot Ports

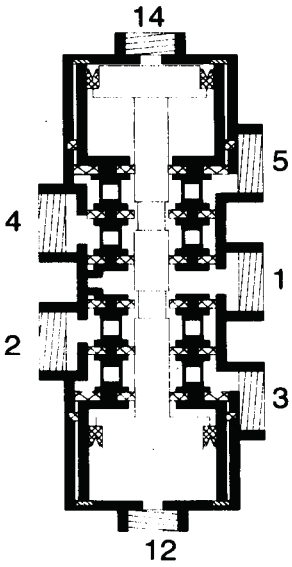
REXROTH CD-7™ 4 WAY DIRECTIONAL CONTROL VALVES–SPOOL TYPE



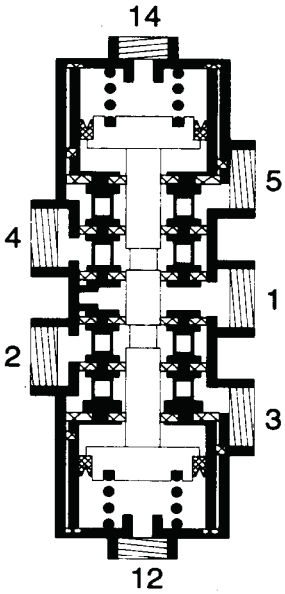
Mechanically Operated



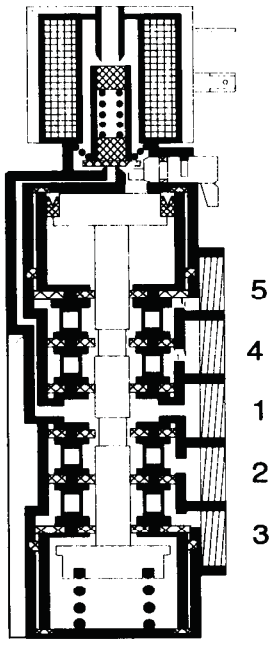
Single Air Pilot



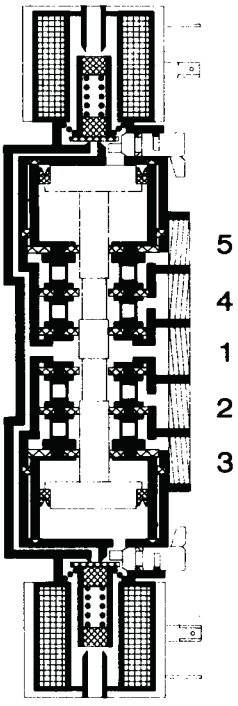
Double Air Pilot 2 Position



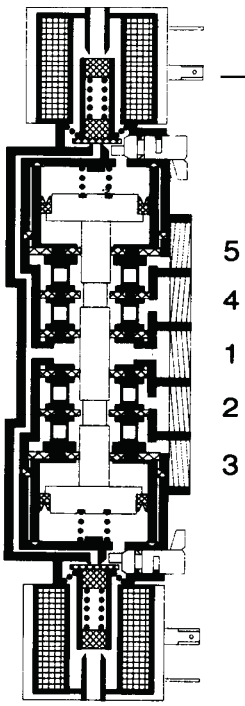
Double Air Pilot
3 Position Closed Center



Single Solenoid Operated



Double Solenoid 2 Position

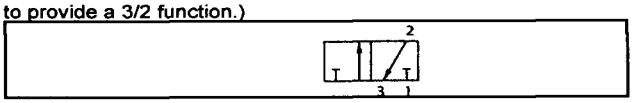


Double Solenoid
3 Position Exhaust Open Center

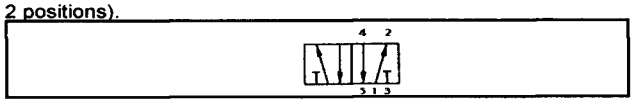
Port	Marking
1=	Supply Pressure
2 & 4=	Delivery (Cylinder) Ports
3 & 5=	Exhaust Ports
12 & 14=	External Pilot Ports

REXROTH DIRECTIONAL CONTROL VALVE APPLICATION - to move cylinders & actuators.

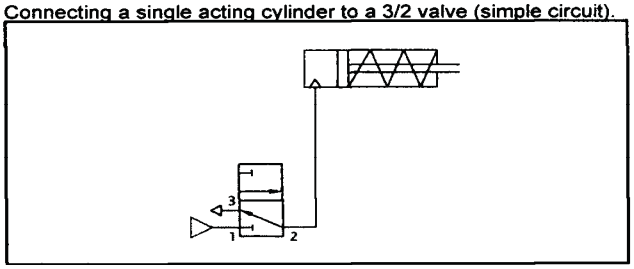
Single acting cylinders need a 3/2 valve, meaning 3 ports and 2 positions. Port 1=supply pressure; 2=out to cylinder; 3=exhaust from cylinder. (Unused port of a 4/2 or 5/2 valve can be plugged to provide a 3/2 function.)



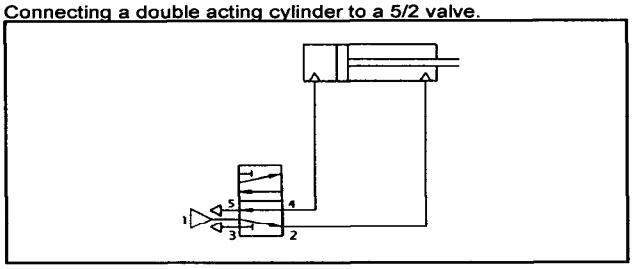
Double acting cylinders need a 4/2 or 5/2 valve (4 or 5 ports, 2 positions).



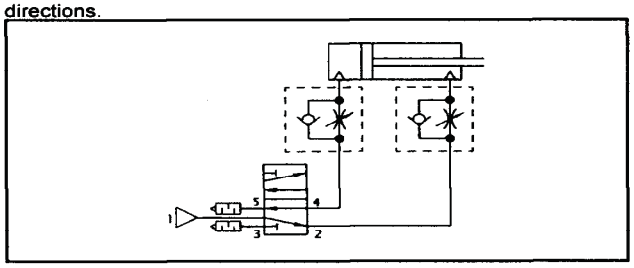
Connecting a single acting cylinder to a 3/2 valve (simple circuit).



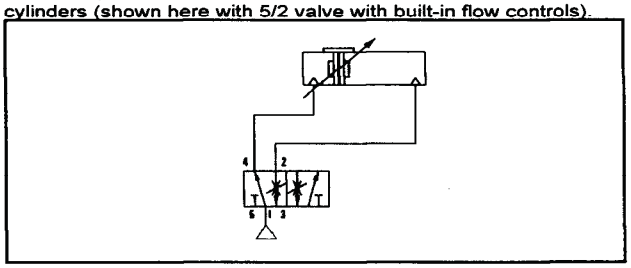
Connecting a double acting cylinder to a 5/2 valve.



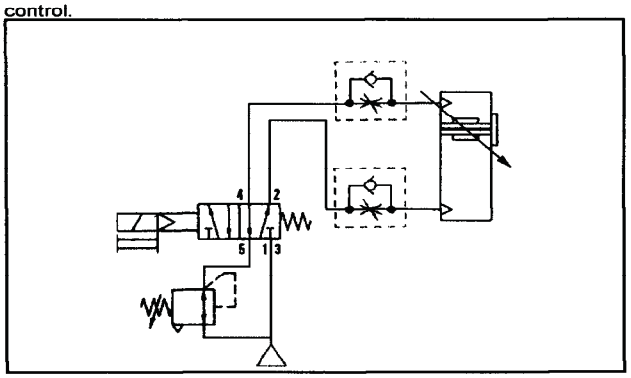
Connecting meter-out flow controls for speed control in both directions.



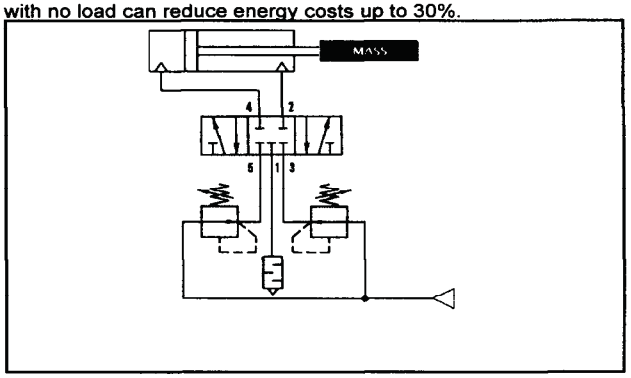
Rodless cylinders: regulated in same way as conventional cylinders (shown here with 5/2 valve with built-in flow controls).



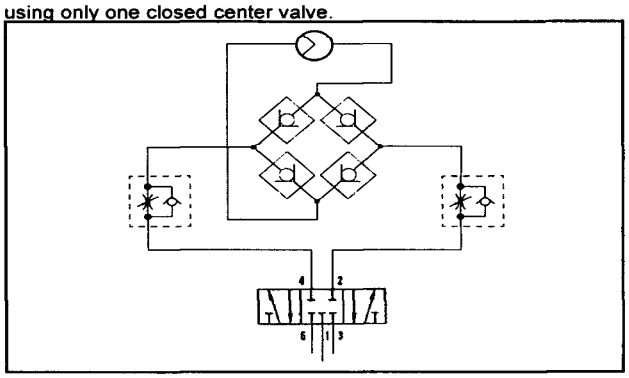
For vertical applications it is possible to use an extra pressure regulator for mass equilibrium and check-choke valves for speed control.



Dual pressure piping with a lower pressure returning a piston rod with no load can reduce energy costs up to 30%.

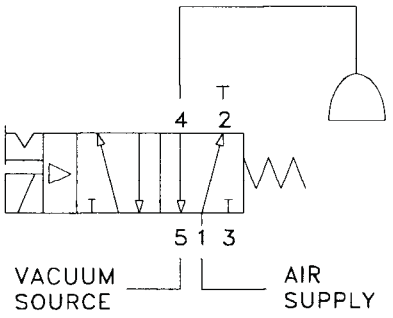


Pneumatic rectifier circuit allows unidirectional air motor to operate at two different, adjustable speeds, with braking action, using only one closed center valve.



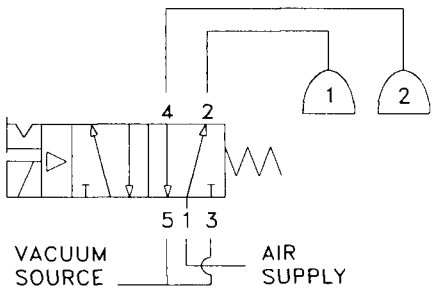
#1 VACUUM-PRESSURE APPLICATION

Vacuum-Pick up object (Non-energized)
Pressure-Blow off object (Energized)
(Switching Ports 2 & 4, 3 & 5 will reverse the above action)
3 Way Application-Internal pilot supply
Port use:
1. Supply Pressure
2. Plugged
3. Not Used
4. To Vacuum Cup
5. From Vacuum Source



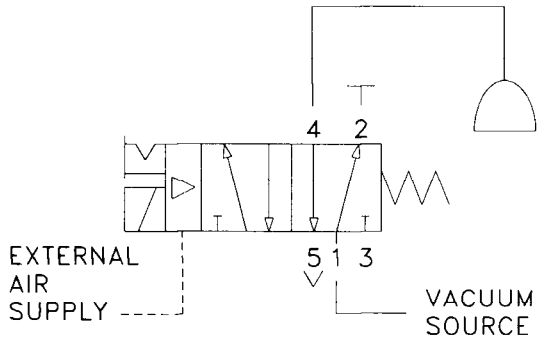
#2 VACUUM-PRESSURE APPLICATION

Vacuum-Pick up object
Pressure-Blow off object
4 way Application-Internal Supply
Conditions:
Non-Energized-Blow off Port 2, Pick up Port 4
Energized-Blow off Port 4, Pick up Port 2
Port use:
1. Supply pressure
2. To vacuum cup 1
3. & 5. To vacuum source
4. To vacuum cup 2



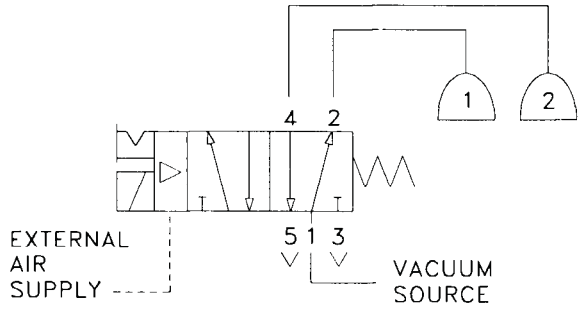
#3 VACUUM-GRAVITY APPLICATION

Vacuum-Pick up object (Energized)
Atmosphere-Gravity drop object (Non-energized)
(Switching Ports 2 & 4 will reverse the above action)
3 way Application-External Pilot Supply required
Port use:
1. Vacuum source
2. Plugged
3. Not Used
4. To vacuum cup
5. Atmosphere



#4 VACUUM-GRAVITY APPLICATION

Vacuum-Pick up object
Atmosphere-Gravity drop object
4 way Application-External Pilot Supply required
Conditions:
Non-energized-Pick up cup 1, Drop cup 2
Energized-Pick up cup 2, Drop cup 1
Port use:
1. From vacuum source
2. To vacuum cup 1
3. & 5. Atmosphere (exhaust)
4. To vacuum cup 2

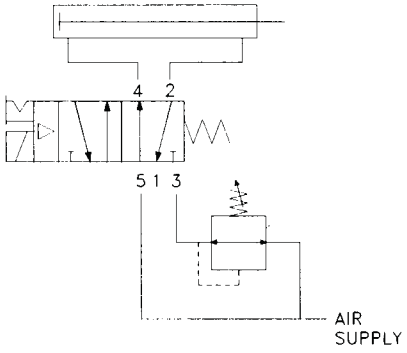


★

Valves in this catalog that can be used in dual pressure applications:
Ceram™, CD-7, and PowerMaster® valves.

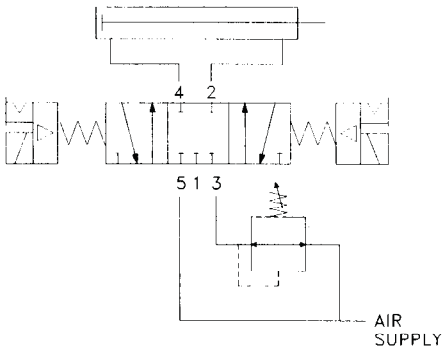
#1 APPLICATION

AIR SAVINGS
Work stroke provides full power to move load.
Return stroke uses low pressure to retract unloaded cylinder and uses less air.



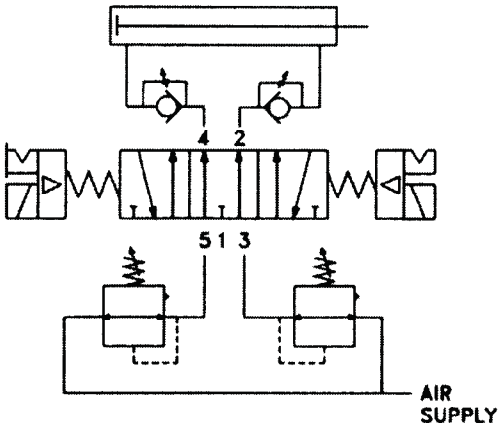
#2 APPLICATION

AIR SAVINGS + DWELL
Work stroke provides full power to move load.
Return stroke uses low pressure for less air usage.
Both ends of stroke provide holding force when operators are de-energized.



#3 APPLICATION

EQUAL FORCE BOTH DIRECTIONS
Regulators set to pressures that equalize piston forces.
Piston stops at point operator is removed.



AIR VALVE SIZING (Note: For cylinder sizing information see catalog SC-200)

A practical guide for estimating the port size of air valves for general industrial applications.

FOREWORD

The purpose of this section is to provide a convenient method for estimating the port sizes of air valves to be used in general industrial applications. Cylinder bore size, cylinder speeds, operating pressure and the pressure drop through the components are considered in the selection process. Some general guidelines are offered for line lengths and piping. This section is not intended to be an engineering paper on the subject of air flow in pneumatic components. For very critical applications, the user should refer to the more extensive technical literature on the subject.

GENERAL INSTRUCTIONS

The air valve selected must be capable of delivering the necessary flow of air at an acceptable pressure drop through the valve, lines, and fittings to the power device...most typically a double acting cylinder(s).

For general applications, a pressure drop of 10 to 15 psi through the valve is usually satisfactory. Since pressure drops in a system are additive when components are piped in series, a lower pressure drop such as 5 psi should be used in complex circuits. The C_v charts in this section list actual airflow at the commonly used pressure drops. For other applications, an even lower pressure drop may be indicated. Consult REXROTH PNEUMATICS for assistance on critical applications.

The C_v value of a component is used to designate the actual flow capacity of that device. The actual flow at various pressure drops, operating pressures and temperatures can be mathematically calculated from the C_v value. By definition, a flow path with a C_v value of 1.0 will pass 1 gpm of water with a 1 psi pressure drop under certain standard conditions. The C_v value can also be used to calculate the flow of a compressible fluid such as air, and these methods are widely used in both hydraulics and pneumatics.

It is very popular to size an air valve by matching the NPT port size of the cylinder being used. This usually results in a satisfactory application. The port sizes on cylinders have been developed over many years of experience. In most cases, the NPT cylinder port has a higher C_v value than the typical valve of the same pipe size.

SIZING AIR VALVES WITH THE USE OF FLOW ChartS

The following procedure can be used to size an air valve when the cylinder speed or other conditions do not meet the parameters previously stated. Matching the proper valve with a standard cylinder is very simple by using the following A & B Charts.

1. CHOOSE SYSTEM SUPPLY PRESSURE

Choose proper set of A & B Charts by matching system supply pressure (located on upper right corner on pages 102-105). For air motors, spray guns or other continuous flow devices, use the SCFM (Standard Cubic Feet per Minute) listed by the component manufacturers.

2. DETERMINE AIR FLOW REQUIREMENT IN SCFM

Find SCFM required in Chart A by matching cylinder bore and cylinder speed (V_{ips}—inches per second) required. Use the extending or retracting stroke speed, whichever is fastest. If the cylinder has a large oversize piston rod, refer to the section titled, "Additional Sizing Considerations."

$$V_{ips} = \frac{S}{T} \text{ or } \frac{S}{30/CPM}$$

where

V_{ips} = velocity (inches per second)
S = stroke (inches)
T = time to complete one stroke (seconds)
CPM = cycles per minute (a complete cycle consists of one extension and one retraction)

3. DETERMINE THE C_v VALUE REQUIRED

Use Chart B to match SCFM (calculated in step 2 above) with acceptable pressure drop columns of Δ5-Δ25 psi. For most general applications, a pressure drop of Δ10 is acceptable. If application speed is critical, Δ5 psi should be considered. If speed is not critical, Δ15-Δ25 psi will choose the most economical (smaller calculated C_v) value.

4. SELECT THE AIR VALVE SIZE

Select an air valve with a C_v value equal to or larger than that determined in the previous step.

EXAMPLES:

1. What C_v is required for a 2 1/2" bore x 20" stroke cylinder that must extend completely in 2 seconds? Assume a supply pressure of 60 psi and a pressure drop across the valve of 5 psi.

—Go to the 60 psi supply chart (page 102).

—Determine velocity [V ips = S/T] required by dividing stroke (in inches) by extension time:

20"/2 seconds = 10 inches/second.

—On Chart A, find where the 10 inches per second column intersects the 2 1/2" bore row. SCFM required is 8.7 SCFM. On Chart B, under the pressure drop column of 5 psi, choose a valve that can deliver at least 8.7 SCFM. This indicates that a Minimaster™, Taskmaster™, CD-7™, Size I Ceram™, etc. (or any other valve which can deliver at least 8.7 SCFM) has a capacity large enough for this application.

2. What C_v is required for a 6" bore x 30" stroke cylinder operating at 10 cycles per minute? Assume a supply pressure of 80 psi and a pressure drop of 10 psi.

—Go to the 80 psi supply chart (page 103).

—Because cycles per minute is a known factor, the velocity must be determined by using the following formula:

$$V_{ips} = \frac{S}{(30/cpm)}$$

$$\frac{30''}{(30/10cpm)} = 30/3 = 10 \text{ inches/second.}$$

—On Chart A, find where the 10 inches per second column intersects the 6" bore row. SCFM required is 63.2 SCFM. On Chart B, under the pressure drop column of 10 psi, choose a valve that can deliver at least 63.2 SCFM. This indicates that a 1/4" Powermaster™, Size II Ceram™, 3/8" Powermaster, Size III Ceram™, etc. (or any other valve which can deliver at least 63.2 SCFM) has a capacity large enough for this application.

Note: If the V_{ips} is not located on Chart A, add 2 or more values to determine required V_{ips}. In example 2, assume that 45 cpm is required. $V_{ips} = \frac{30}{(30/45cpm)}$ = 45 ips. Add the 25 ips column (158.1 SCFM) and the 20 ips column (126.5 SCFM) for a total of 284.6 SCFM for 45 cpm.

AIR VALVE SIZING (continued)

CYLINDERS

If the cylinder has an oversize piston rod and the retracting stroke is fastest and is being used to size the air valve, the volume represented by the rod may be subtracted from the SCFM requirement (common rod diameters are shown in the charts). The speed of the cylinder in inches per second (ips) is the stroke divided by the time in seconds required to complete that stroke.

LINES AND LINE LENGTHS

If the line lengths between the delivery ports of the air valve and the cylinder ports significantly exceed 10 ft. in length, it may be necessary to add the line volume to the SCFM requirement. Add additional SCFM if the line volume exceeds 20% of the cylinder volume (this occurs often on small cylinders).

SCFM = Line Volume (cu. in.) x 60 x $\left(\frac{\text{Supply Pressure} + 14.7}{14.7}\right)$

RESPONSE TIME CONSIDERATION

If the system speed is critical and the cycles per minute required is high, the response time of the valve should be considered. Consult the factory to determine corrected cycles per minute for the individual valve performance in question. In most applications, this is not necessary.

VALVE FITTING RESTRICTIONS

If tubing is used instead of standard pipe, the valve fitting can sometimes restrict the flow of the valve and the rest of the system. This is normally not a problem, but if the system speed is considered critical, this should be considered. This restriction can be approximated by applying the following equation to the minimum inside diameter of the fitting (I.D.):

Corrected $C_v = 18 \times (\text{I.D.})^2$

Example: A 3/8" Powermaster™ valve has a C_v of 3.73. A 1/2" tubing fitting is installed in the port that has a minimum inside diameter of .38". The valve is therefore estimated to have a corrected C_v of 18 x (.38" x .38") = 2.60.

OTHER CONDITIONS

The air temperature has some effect on the SCFM requirements and flow capacities. The charts are calculated at 70°F standard temperature. Unless very extreme temperatures are present, the margin of error is within the limits of these sizing methods. High humidity tends to decrease the flow capacities of valves. This can be allowed for in the C_v selection.

MULTIPLE VALVE PATHS & COMPLEX SYSTEMS

COMPONENTS IN A SERIES—In a pneumatic circuit where air passes through more than one device in series, the pressure drops are additive (including line pressure losses). In general industrial applications involving cylinders, this occurs most often when the cylinder(s) is speed controlled with the use of flow control check and choke valves. The C_v value of the flow control valve in the free flow direction must be considered.

PRESSURE REGULATORS—The capacity of a pressure regulating valve is determined by the drop from set pressure on the delivery side of the regulator. Be sure to check the capacity of a pressure regulator in the manufacturer's catalog. It is common for a regulator to be one or more pipe sizes larger than the directional valve it is supplying. The regulator should deliver the desired flow with a drop from set pressure that does not affect the performance of the system (usually less than 10%). This is a very common error in general industrial applications.

There are several C_v formulas in use today. The National Fluid Power Association is currently using the following C_v formula (Tables A & B as well as all stated Rexroth Pneumatics C_v values are calculated with this same formula):

CAPACITY COEFFICIENT FORMULA

$$C_v = \frac{Q}{22.48}\sqrt{\frac{T_1 x G}{\Delta P \times (P_2 + P_a)}}$$

where

C_v = capacity coefficient (a numeral)
Q = flow in standard cubic feet per minute (scfm)
G = specific gravity of the flowing medium (G = 1 for air)
T_1 = absolute temperature (degrees F + 460)
P_1 = inlet pressure (psig)
P_2 = outlet pressure (psig) ($P_2 = P_1 - \Delta P$)
ΔP = pressure drop (psi) static to static pressure
P_a = atmospheric pressure (normally 14.7 psi)

NOTE: This equation is valid for Subsonic flow only. To insure subsonic flow (velocities below the speed of sound: 11 fps), limit pressure drop so that $\frac{P_2 + P_a}{P_1 + P_a}$ is between 0.85 and 1.0.

PNEUMATIC CYLINDER SPEED

$V_p = \frac{S}{T \times 12}$ where

V_p = Cylinder speed (fps)
S = Stroke (inches)
T = Time to complete above stroke (seconds)

PNEUMATIC FLOW REQUIRED (Average) "Q"

SCFM avg = C x Dp x S x SPM where

SCFM avg = Avg ft^3 free air per minute required
D_p = Displacement of cylinder in ft^3 per inch of stroke
S = Stroke in inches
SPM = Strokes per minute, count both in and out strokes
C = Compression ratio:

$$\frac{\text{Supply pressure (psig)} + 14.7 \text{ psi}}{14.7 \text{ psi}}$$

CHART A – SCFM FLOW REQUIRED BY STANDARD AIR CYLINDERS 60 PSI

SPEED OF CYLINDER (inches per second) @ 60 psi

	0.5	1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
BORE	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM
0.625	0.0	0.1	0.1	0.2	0.2	0.3	0.3	0.4	0.5	0.8	1.1	1.4	1.6	1.9	2.2
0.750	0.0	0.1	0.2	0.2	0.3	0.4	0.5	0.6	0.8	1.2	1.6	1.9	2.3	2.7	3.1
1.000	0.1	0.1	0.3	0.4	0.6	0.7	0.8	1.1	1.4	2.1	2.8	3.5	4.2	4.9	5.5
1.125	0.1	0.2	0.4	0.5	0.7	0.9	1.1	1.4	1.8	2.6	3.5	4.4	5.3	6.1	7.0
1.375	0.1	0.3	0.5	0.8	1.0	1.3	1.6	2.1	2.6	3.9	5.2	6.6	7.9	9.2	10.5
1.500	0.2	0.3	0.6	0.9	1.2	1.6	1.9	2.5	3.1	4.7	6.2	7.8	9.4	10.9	12.5
1.750	0.2	0.4	0.8	1.3	1.7	2.1	2.5	3.4	4.2	6.4	8.5	10.6	12.7	14.9	17.0
2.000	0.3	0.6	1.1	1.7	2.2	2.8	3.3	4.4	5.5	8.3	11.1	13.9	16.6	19.4	22.2
2.500	0.4	0.9	1.7	2.6	3.5	4.3	5.2	6.9	8.7	13.0	17.3	21.7	26.0	30.3	34.6
3.000	0.6	1.2	2.5	3.7	5.0	6.2	7.5	10.0	12.5	18.7	24.9	31.2	37.4	43.7	49.9
3.250	0.7	1.5	2.9	4.4	5.9	7.3	8.8	11.7	14.6	22.0	29.3	36.6	43.9	51.2	58.6
4.000	1.1	2.2	4.4	6.7	8.9	11.1	13.3	17.7	22.2	33.3	44.3	55.4	66.5	77.6	88.7
5.000	1.7	3.5	6.9	10.4	13.9	17.3	20.8	27.7	34.6	52.0	69.3	86.6	103.9	121.3	138.6
6.000	2.5	5.0	10.0	15.0	20.0	24.9	29.9	39.9	49.9	74.8	99.8	124.7	149.7	174.6	199.6
7.000	3.4	6.8	13.6	20.4	27.2	34.0	40.7	54.3	67.9	101.9	135.8	169.8	203.7	237.7	271.6
8.000	4.4	8.9	17.7	26.6	35.5	44.3	53.2	71.0	88.7	133.0	177.4	221.7	266.1	310.4	354.8
10.000	6.9	13.9	27.7	41.6	55.4	69.3	83.1	110.9	138.6	207.9	277.2	346.5	415.7	485.0	554.3
12.000	10.0	20.0	39.9	59.9	79.8	99.8	119.7	159.6	199.6	299.3	399.1	498.9	598.7	698.4	798.2
14.000	13.6	27.2	54.3	81.5	108.6	135.8	163.0	217.3	271.6	407.4	543.2	679.0	814.9	950.7	1086.5
16.000	17.7	35.5	71.0	106.4	141.9	177.4	212.9	283.8	354.8	532.1	709.5	886.9	1064.3	1241.7	1419.1
18.000	22.5	44.9	89.8	134.7	179.6	224.5	269.4	359.2	449.0	673.5	898.0	1122.5	1347.0	1571.5	1796.0

CHART B – Cv REQUIRED TO MEET SCFM @60 PSI

Supply Pressure	P1	60	60	60	60	60
Outlet Pressure	P2	55	50	45	40	35
Pressure Drop	Delta P	5	10	15	20	25
Valve Line	Cv	SCFM	SCFM	SCFM	SCFM	SCFM
SNAP Valve	0.10	1.82	2.48	2.92	3.23	3.44
C Flow Control	0.11	2.01	2.73	3.21	3.55	3.79
2mm MINIBLOCK	0.15	2.73	3.73	4.38	4.84	5.16
TYPE 840	0.20	3.65	4.97	5.84	6.46	6.88
1/8" Rotary Valve	0.30	5.47	7.45	8.77	9.69	10.33
TASKMASTER	1.00	18.23	24.84	29.22	32.30	34.42
CD-7	1.10	20.05	27.32	32.14	35.53	37.86
1/4" Rotary Valve	1.10	20.05	27.32	32.14	35.53	37.86
Size I CERAM	1.10	20.05	27.32	32.14	35.53	37.86

Supply Pressure	P1	60	60	60	60	60
Outlet Pressure	P2	55	50	45	40	35
Pressure Drop	Delta P	5	10	15	20	25
Valve Line	Cv	SCFM	SCFM	SCFM	SCFM	SCFM
1/4" "D" PILOTAIR	1.47	26.80	36.51	42.95	47.48	50.60
1/4" POWERMASTER	2.39	43.57	59.36	69.84	77.19	82.26
Size II CERAM	2.40	43.75	59.61	70.13	77.51	82.61
3/8" POWERMASTER	3.73	67.99	92.64	108.99	120.47	128.39
Size III CERAM	4.30	78.38	106.80	125.65	138.88	148.00
1/2" "D" PILOTAIR	4.53	82.58	112.51	132.37	146.31	155.92
1/2" POWERMASTER	6.17	112.47	153.25	180.29	199.27	212.37
Size IV CERAM	7.50	136.72	186.28	219.16	242.23	258.15
3/4" POWERMASTER	7.88	143.64	195.72	230.26	254.50	271.23
1" POWERMASTER	13.61	248.09	338.04	397.69	439.57	468.45
1-1/4" POWERMASTER	15.75	287.10	391.19	460.23	508.68	542.11

CHART A - SCFM FLOW REQUIRED BY STANDARD AIR CYLINDERS 80 PSI

SPEED OF CYLINDER (inches per second) @ 80 psi

	0.5	1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
BORE	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM
0.625	0.0	0.1	0.1	0.2	0.3	0.3	0.4	0.5	0.7	1.0	1.4	1.7	2.1	2.4	2.7
0.750	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.8	1.0	1.5	2.0	2.5	3.0	3.5	4.0
1.000	0.1	0.2	0.4	0.5	0.7	0.9	1.1	1.4	1.8	2.6	3.5	4.4	5.3	6.1	7.0
1.125	0.1	0.2	0.4	0.7	0.9	1.1	1.3	1.8	2.2	3.3	4.4	5.6	6.7	7.8	8.9
1.375	0.2	0.3	0.7	1.0	1.3	1.7	2.0	2.7	3.3	5.0	6.6	8.3	10.0	11.6	13.3
1.500	0.2	0.4	0.8	1.2	1.6	2.0	2.4	3.2	4.0	5.9	7.9	9.9	11.9	13.8	15.8
1.750	0.3	0.5	1.1	1.6	2.2	2.7	3.2	4.3	5.4	8.1	10.8	13.5	16.1	18.8	21.5
2.000	0.4	0.7	1.4	2.1	2.8	3.5	4.2	5.6	7.0	10.5	14.1	17.6	21.1	24.6	28.1
2.500	0.5	1.1	2.2	3.3	4.4	5.5	6.6	8.8	11.0	16.5	22.0	27.5	32.9	38.4	43.9
3.000	0.8	1.6	3.2	4.7	6.3	7.9	9.5	12.6	15.8	23.7	31.6	39.5	47.4	55.3	63.2
3.250	0.9	1.9	3.7	5.6	7.4	9.3	11.1	14.8	18.6	27.8	37.1	46.4	55.7	64.9	74.2
4.000	1.4	2.8	5.6	8.4	11.2	14.1	16.9	22.5	28.1	42.2	56.2	70.3	84.3	98.4	112.4
5.000	2.2	4.4	8.8	13.2	17.6	22.0	26.4	35.1	43.9	65.9	87.8	109.8	131.8	153.7	175.7
6.000	3.2	6.3	12.6	19.0	25.3	31.6	37.9	50.6	63.2	94.9	126.5	158.1	189.7	221.4	253.0
7.000	4.3	8.6	17.2	25.8	34.4	43.0	51.7	68.9	86.1	129.1	172.2	215.2	258.3	301.3	344.3
8.000	5.6	11.2	22.5	33.7	45.0	56.2	67.5	89.9	112.4	168.7	224.9	281.1	337.3	393.5	449.7
10.000	8.8	17.6	35.1	52.7	70.3	87.8	105.4	140.5	175.7	263.5	351.4	439.2	527.1	614.9	702.7
12.000	12.6	25.3	50.6	75.9	101.2	126.5	151.8	202.4	253.0	379.5	506.0	632.5	759.0	885.4	1011.9
14.000	17.2	34.4	68.9	103.3	137.7	172.2	206.6	275.5	344.3	516.5	688.7	860.8	1033.0	1205.2	1377.4
16.000	22.5	45.0	89.9	134.9	179.9	224.9	269.8	359.8	449.7	674.6	899.5	1124.4	1349.2	1574.1	1799.0
18.000	28.5	56.9	113.8	170.8	227.7	284.6	341.5	455.4	569.2	853.8	1138.4	1423.0	1707.6	1992.3	2276.9

CHART B - Cv REQUIRED TO MEET SCFM @80 PSI

Supply Pressure	P1	80	80	80	80	80
Outlet Pressure	P2	75	70	65	60	55
Pressure Drop	Delta P	5	10	15	20	25
Valve Line	Cv	SCFM	SCFM	SCFM	SCFM	SCFM
SNAP Valve	0.10	2.07	2.84	3.38	3.77	4.08
C Flow Control	0.11	2.27	3.13	3.71	4.15	4.48
2mm MINIBLOCK	0.15	3.10	4.26	5.06	5.66	6.11
TYPE 840	0.20	4.14	5.68	6.75	7.55	8.15
1/8" Rotary Valve	0.30	6.20	8.53	10.13	11.32	12.23
TASKMASTER	1.00	20.68	28.42	33.76	37.74	40.76
CD-7	1.10	22.75	31.26	37.14	41.52	44.84
1/4" Rotary Valve	1.10	22.75	31.26	37.14	41.52	44.84
Size I CERAM	1.10	22.75	31.26	37.14	41.52	44.84

Supply Pressure	P1	80	80	80	80	80
Outlet Pressure	P2	75	70	65	60	55
Pressure Drop	Delta P	5	10	15	20	25
Valve Line	Cv	SCFM	SCFM	SCFM	SCFM	SCFM
1/4" "D" PILOTAIR	1.47	30.40	41.78	49.63	55.48	59.92
1/4" POWERMASTER	2.39	49.42	67.92	80.69	90.21	97.42
Size II CERAM	2.40	49.63	68.20	81.03	90.58	97.83
3/8" POWERMASTER	3.73	77.13	106.00	125.93	140.78	152.04
Size III CERAM	4.30	88.92	122.20	145.18	162.29	175.27
1/2" "D" PILOTAIR	4.53	93.68	128.74	152.94	170.97	184.65
1/2" POWERMASTER	6.17	127.59	175.34	208.31	232.87	251.50
Size IV CERAM	7.50	155.10	213.14	253.22	283.07	305.71
3/4" POWERMASTER	7.88	162.95	223.94	266.05	297.41	321.20
1" POWERMASTER	13.61	281.45	386.77	459.51	513.68	554.76
1-1/4" POWERMASTER	15.75	325.70	447.59	531.76	594.45	641.99

CHART A – SCFM FLOW REQUIRED BY STANDARD AIR CYLINDERS 100 PSI

SPEED OF CYLINDER (inches per second) @ 100 psi

	0.5	1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
BORE	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM	SCFM
0.625	0.0	0.1	0.2	0.2	0.3	0.4	0.5	0.7	0.8	1.2	1.7	2.1	2.5	2.9	3.3
0.750	0.1	0.1	0.2	0.4	0.5	0.6	0.7	1.0	1.2	1.8	2.4	3.0	3.6	4.2	4.8
1.000	0.1	0.2	0.4	0.6	0.9	1.1	1.3	1.7	2.1	3.2	4.3	5.3	6.4	7.4	8.5
1.125	0.1	0.3	0.5	0.8	1.1	1.3	1.6	2.2	2.7	4.0	5.4	6.7	8.1	9.4	10.8
1.375	0.2	0.4	0.8	1.2	1.6	2.0	2.4	3.2	4.0	6.0	8.0	10.1	12.1	14.1	16.1
1.500	0.2	0.5	1.0	1.4	1.9	2.4	2.9	3.8	4.8	7.2	9.6	12.0	14.4	16.8	19.2
1.750	0.3	0.7	1.3	2.0	2.6	3.3	3.9	5.2	6.5	9.8	13.0	16.3	19.5	22.8	26.1
2.000	0.4	0.9	1.7	2.6	3.4	4.3	5.1	6.8	8.5	12.8	17.0	21.3	25.5	29.8	34.0
2.500	0.7	1.3	2.7	4.0	5.3	6.6	8.0	10.6	13.3	19.9	26.6	33.2	39.9	46.5	53.2
3.000	1.0	1.9	3.8	5.7	7.7	9.6	11.5	15.3	19.2	28.7	38.3	47.9	57.5	67.0	76.6
3.250	1.1	2.2	4.5	6.7	9.0	11.2	13.5	18.0	22.5	33.7	45.0	56.2	67.4	78.7	89.9
4.000	1.7	3.4	6.8	10.2	13.6	17.0	20.4	27.2	34.0	51.1	68.1	85.1	102.1	119.2	136.2
5.000	2.7	5.3	10.6	16.0	21.3	26.6	31.9	42.6	53.2	79.8	106.4	133.0	159.6	186.2	212.8
6.000	3.8	7.7	15.3	23.0	30.6	38.3	46.0	61.3	76.6	114.9	153.2	191.5	229.8	268.1	306.4
7.000	5.2	10.4	20.9	31.3	41.7	52.1	62.6	83.4	104.3	156.4	208.5	260.7	312.8	364.9	417.1
8.000	6.8	13.6	27.2	40.9	54.5	68.1	81.7	108.9	136.2	204.3	272.4	340.5	408.6	476.6	544.7
10.000	10.6	21.3	42.6	63.8	85.1	106.4	127.7	170.2	212.8	319.2	425.6	532.0	638.4	744.8	851.1
12.000	15.3	30.6	61.3	91.9	122.6	153.2	183.8	245.1	306.4	459.6	612.8	766.0	919.2	1072.4	1225.7
14.000	20.9	41.7	83.4	125.1	166.8	208.5	250.2	333.6	417.1	625.6	834.1	1042.7	1251.2	1459.7	1668.2
16.000	27.2	54.5	108.9	163.4	217.9	272.4	326.8	435.8	544.7	817.1	1089.5	1361.8	1634.2	1906.6	2178.9
18.000	34.5	68.9	137.9	206.8	275.8	344.7	413.7	551.5	689.4	1034.1	1378.9	1723.6	2068.3	2413.0	2757.7

CHART B – Cv REQUIRED TO MEET SCFM @100 PSI

Supply Pressure	P1	100	100	100	100	100
Outlet Pressure	P2	95	90	85	80	75
Pressure Drop	Delta P	5	10	15	20	25
Valve Line	Cv	SCFM	SCFM	SCFM	SCFM	SCFM
SNAP Valve	0.10	2.29	3.16	3.78	4.25	4.62
C Flow Control	0.11	2.52	3.48	4.15	4.67	5.09
2mm MINIBLOCK	0.15	3.43	4.74	5.66	6.37	6.94
TYPE 840	0.20	4.57	6.32	7.55	8.50	9.25
1/8" Rotary Valve	0.30	6.86	9.48	11.33	12.75	13.87
TASKMASTER	1.00	22.87	31.60	37.76	42.50	46.24
CD-7	1.10	25.16	34.76	41.54	46.75	50.86
1/4" Rotary Valve	1.10	25.16	34.76	41.54	46.75	50.86
Size I CERAM	1.10	25.16	34.76	41.54	46.75	50.86

Supply Pressure	P1	100	100	100	100	100
Outlet Pressure	P2	95	90	85	80	75
Pressure Drop	Delta P	5	10	15	20	25
Valve Line	Cv	SCFM	SCFM	SCFM	SCFM	SCFM
1/4" "D" PILOTAIR	1.47	33.62	46.45	55.51	62.47	67.97
1/4" POWERMASTER	2.39	54.66	75.51	90.25	101.57	110.52
Size II CERAM	2.40	54.89	75.83	90.63	101.99	110.98
3/8" POWERMASTER	3.73	85.30	117.85	140.85	158.51	172.48
Size III CERAM	4.30	98.34	135.86	162.38	182.73	198.84
1/2" "D" PILOTAIR	4.53	103.60	143.13	171.06	192.51	209.47
1/2" POWERMASTER	6.17	141.10	194.95	232.99	262.20	285.31
Size IV CERAM	7.50	171.52	236.97	283.21	318.72	346.81
3/4" POWERMASTER	7.88	180.21	248.98	297.56	334.87	364.38
1" POWERMASTER	13.61	311.25	430.02	513.94	578.37	629.34
1-1/4" POWERMASTER	15.75	360.19	497.64	594.75	669.31	728.29

CHART A - SCFM FLOW REQUIRED BY STANDARD AIR CYLINDERS 150 PSI

SPEED OF CYLINDER (inches per second) @ 150 psi

BORE	0.5 SCFM	1.0 SCFM	2.0 SCFM	3.0 SCFM	4.0 SCFM	5.0 SCFM	6.0 SCFM	8.0 SCFM	10.0 SCFM	15.0 SCFM	20.0 SCFM	25.0 SCFM	30.0 SCFM	35.0 SCFM	40.0 SCFM
0.625	0.1	0.1	0.2	0.4	0.5	0.6	0.7	1.0	1.2	1.8	2.4	3.0	3.6	4.2	4.8
0.750	0.1	0.2	0.3	0.5	0.7	0.9	1.0	1.4	1.7	2.6	3.4	4.3	5.2	6.0	6.9
1.000	0.2	0.3	0.6	0.9	1.2	1.5	1.8	2.4	3.1	4.6	6.1	7.6	9.2	10.7	12.2
1.125	0.2	0.4	0.8	1.2	1.5	1.9	2.3	3.1	3.9	5.8	7.7	9.7	11.6	13.5	15.5
1.375	0.3	0.6	1.2	1.7	2.3	2.9	3.5	4.6	5.8	8.7	11.6	14.4	17.3	20.2	23.1
1.500	0.3	0.7	1.4	2.1	2.7	3.4	4.1	5.5	6.9	10.3	13.7	17.2	20.6	24.1	27.5
1.750	0.5	0.9	1.9	2.8	3.7	4.7	5.6	7.5	9.4	14.0	18.7	23.4	28.1	32.8	37.4
2.000	0.6	1.2	2.4	3.7	4.9	6.1	7.3	9.8	12.2	18.3	24.4	30.6	36.7	42.8	48.9
2.500	1.0	1.9	3.8	5.7	7.6	9.5	11.5	15.3	19.1	28.6	38.2	47.7	57.3	66.8	76.4
3.000	1.4	2.7	5.5	8.2	11.0	13.7	16.5	22.0	27.5	41.2	55.0	68.7	82.5	96.2	110.0
3.250	1.6	3.2	6.5	9.7	12.9	16.1	19.4	25.8	32.3	48.4	64.5	80.7	96.8	113.0	129.1
4.000	2.4	4.9	9.8	14.7	19.6	24.4	29.3	39.1	48.9	73.3	97.8	122.2	146.7	171.1	195.5
5.000	3.8	7.6	15.3	22.9	30.6	38.2	45.8	61.1	76.4	114.6	152.8	191.0	229.2	267.4	305.5
6.000	5.5	11.0	22.0	33.0	44.0	55.0	66.0	88.0	110.0	165.0	220.0	275.0	330.0	385.0	440.0
7.000	7.5	15.0	29.9	44.9	59.9	74.9	89.8	119.8	149.7	224.6	299.4	374.3	449.2	524.0	598.9
8.000	9.8	19.6	39.1	58.7	78.2	97.8	117.3	156.4	195.5	293.3	391.1	488.9	586.6	684.4	782.2
10.000	15.3	30.6	61.1	91.7	122.2	152.8	183.3	244.4	305.5	458.3	611.1	763.9	916.6	1069.4	1222.2
12.000	22.0	44.0	88.0	132.0	176.0	220.0	264.0	352.0	440.0	660.0	880.0	1100.0	1320.0	1539.9	1759.9
14.000	29.9	59.9	119.8	179.7	239.5	299.4	359.3	479.1	598.9	898.3	1197.7	1497.2	1796.6	2096.0	2395.5
16.000	39.1	78.2	156.4	234.7	312.9	391.1	469.3	625.8	782.2	1173.3	1564.4	1955.5	2346.6	2737.7	3128.8
18.000	49.5	99.0	198.0	297.0	396.0	495.0	594.0	792.0	990.0	1484.9	1979.9	2474.9	2969.9	3464.9	3959.9

CHART B - Cv REQUIRED TO MEET SCFM @150 PSI

Supply Pressure	P1	150	150	150	150	150
Outlet Pressure	P2	145	140	135	130	125
Pressure Drop	Delta P	5	10	15	20	25
Valve Line	Cv	SCFM	SCFM	SCFM	SCFM	SCFM
SNAP Valve	0.10	2.76	3.84	4.63	5.25	5.77
C Flow Control	0.11	3.04	4.22	5.09	5.78	6.35
2mm MINIBLOCK	0.15	4.14	5.76	6.94	7.88	8.66
TYPE 840	0.20	5.52	7.68	9.25	10.51	11.54
1/8" Rotary Valve	0.30	8.28	11.52	13.88	15.76	17.31
TASKMASTER	1.00	27.59	38.41	46.27	52.53	57.71
CD-7	1.10	30.35	42.25	50.90	57.78	63.48
1/4" Rotary Valve	1.10	30.35	42.25	50.90	57.78	63.48
Size I CERAM	1.10	30.35	42.25	50.90	57.78	63.48

Supply Pressure	P1	150	150	150	150	150
Outlet Pressure	P2	145	140	135	130	125
Pressure Drop	Delta P	5	10	15	20	25
Valve Line	Cv	SCFM	SCFM	SCFM	SCFM	SCFM
1/4" "D" PILOTAIR	1.47	40.56	56.46	68.02	77.22	84.83
1/4" POWERMASTER	2.39	65.95	91.79	110.59	125.55	137.92
Size II CERAM	2.40	66.22	92.18	111.05	126.07	138.50
3/8" POWERMASTER	3.73	102.92	143.26	172.59	195.94	215.25
Size III CERAM	4.30	118.65	165.15	198.97	225.88	248.14
1/2" "D" PILOTAIR	4.53	125.00	173.98	209.61	237.96	261.41
1/2" POWERMASTER	6.17	170.25	236.97	285.50	324.11	356.05
Size IV CERAM	7.50	206.95	288.05	347.04	393.98	432.80
3/4" POWERMASTER	7.88	217.43	302.64	364.62	413.94	454.73
1" POWERMASTER	13.61	375.54	522.71	629.76	714.93	785.39
1-1/4" POWERMASTER	15.75	434.59	604.90	728.78	827.35	908.88

Rexroth
Bosch Group

Metric Conversion Chart/ Fluid Power "SI" Units

TERM	"SI" UNIT FOR FLUID POWER	"CUSTOMARY U.S." UNITS	CONVERSION
Length	millimeter (mm)	inch (in)	25.4 mm = 1 inch
Pressure (1)	bar (assume gage unless otherwise stated)	pounds per square inch (psig or psia)	1 bar = 14.5 psi
Pressure (2)	bar (value less than 1.0)	inches of mercury (in Hg)	0.034 bar = 1 in Hg (@60°F)
Flow (3)	liters per minute (l/min)	gallons per minute (USGPM)	3.79 l/min = 1 USGPM
Flow (4)	normal liters per minute (nl/m)	standard cubic feet per minute (scfm)	1 nl/m = .0353 scfm
Flow	Normal liters per minute (nl/m)	Cv	nl/m÷984=Cv
Force	Newton (N)	pound (f) lb (f)	4.44 N = 1 lb (f)
Mass	Kilogram (kg)	pound (m) lb (m)	1 kg = 2.20 lb (m)
Time	second (s)	second (s)	— — — — — — — —
Volume (3)	liter (l)	gallon (US gal)	3.79 l = 1 US gal
Temperature	degrees Celsius (°C)	degrees Fahrenheit (°F)	°C = 5/9 (°F - 32)
Torque	Newton-meters (N-m)	pounds (f) - inches (lb (f) - in)	1 N-m = 8.88 lb (f) - in
Power	kilowatt (kW)	horsepower (HP)	1kW = 1.34 HP
Shaft Speed	revolutions per minute (rev/min)	revolutions per minute (RPM)	— — — — — — — —
Frequency	Hertz (Hz)	cycles per second (cps)	1 Hz = 1 cps
Displacement	milliliters per revolution (ml/rev)	cubic inches per revolution (cipr)	1 ml/rev = .061 cipr
Kinimatic Viscosity	centistokes (cSt)	Saybolt (SUS)	1 cSt = 4.635 SUS (5)
Velocity	meters per second (m/s)	feet per second (fps)	1 m/s = 3.28 fps
Lateral Stress	deka Newtons per square millimeter (da N/mm^2)	pounds per square inch (psi)	1 da N/mm^2 = 1,450 psi

NOTES:

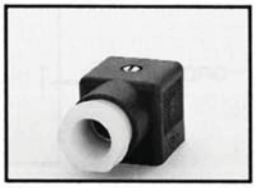
(1) pressure above atmospheric
(2) pressure below atmospheric
(3) liquid
(4) gas - under standard temperature, humidity and pressure conditions per ISO/R 554-1967
(5) @ 38°C; factor is 4.667 @ 99°C

Solenoid Connectors and Cables

Solenoid Connectors for Ceram™, Series 740, and CD-7™ Valves (DIN 43650-FORM A/ISO 4400 30MM)

STRAIN RELIEF CONNECTORS NON-LIGHTED

8941000302*
Old Part No. H -894100-00302
(Standard)

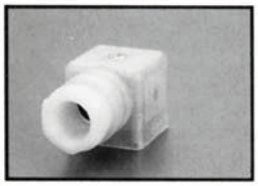


**Part No. R432013747
(Old Part No. P -067325-00000)
(for use with wireways)

1/2" CONDUIT CONNECTORS NON-LIGHTED

Part No. R432015626
(Old Part No P -069390-00000)
(Molded Engineering Plastic)

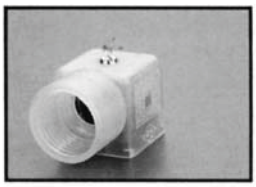
Part No. R432015781**
(Old Part No. P -069707-00000)
Metallic



Part No.	Old Part No.	
**R432013726	P -067261-00000	120 VAC
**R432013728	P -067262-00000	240 VAC
**R432013729	P -067264-00000	12 VDC
**R432013730	P -067265-00000	24 VDC
**R432015629	P -069417-00000	24 VAC

3/8" CONDUIT CONNECTOR NON-LIGHTED

Part No. R432015404***
(Old Part No. P -068674-00000)



Part No.	Old Part No.	
R432008421	P -026078-00001	120VAC***
R432008422	P -026078-00002	240 VAC***
R432008423	P -026078-00004	12 VDC***
R432008424	P -026078-00005	24 VDC***
R432008425	P -026078-00006	24 VAC***

Solenoid Connectors For MINIMASTER™, Series 581 and Series 830 Valves ONLY (INDUSTRIAL FORM§ 22MM)

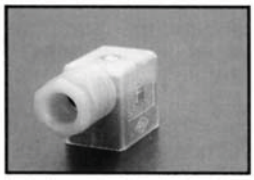
Non-Lighted

*8941004702
Old Part No. H -894100-04702

STRAIN RELIEF CONNECTORS

Part No.	Old Part No.	
*R432013878	P -067854-00000	120 VAC
*R432013879	P -067855-00000	240 VAC
*R432013880	P -067857-00000	12 VDC
*R432013881	P -067858-00000	24 VDC
*R432008426	P -026079-00000	24 VAC

Lighted



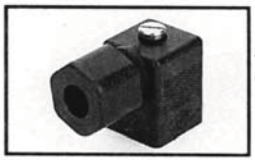
§ Not FORM B.

Solenoid Connectors for Series 840, Series 579, & Series TC Valves ONLY (Micro-Form C)

VOLTAGE (lighted version)	PART NO.	OLD PART NO.
120 VAC/DC (Without Lead)	R432011981	P -048824-00001
120 VAC/DC (W/3' LEAD)	R432011961	P -048803-00001
120 VAC/DC (W/6' LEAD)	R432011963	P -048804-00001
24 VAC/DC (Without Lead)	R432011982	P -048824-00005
24 VAC/DC (w/3' LEAD)	R432011962	P -048803-00005
24 VAC/DC (W/6' LEAD)	R432011964	P -048804-00005

Solenoid Connector Lighted

Strain Relief Solenoid Connector Non-Lighted

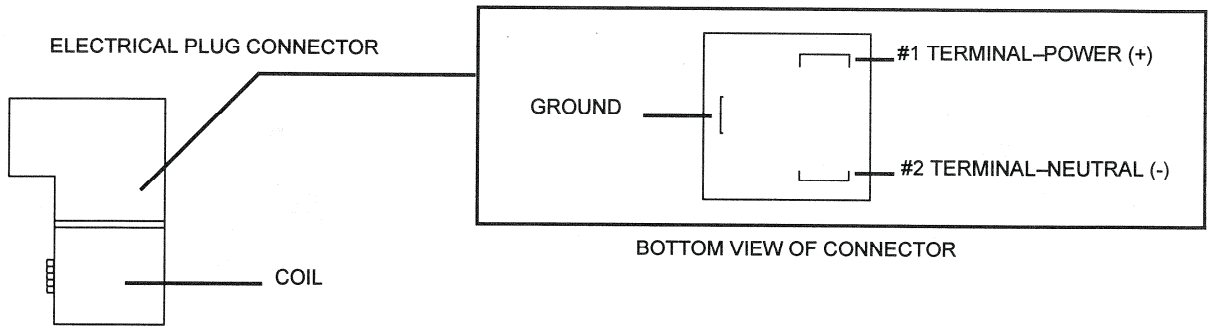


Part No. 8941012202 (Old part no. H -894101-02202)

Recommended Wire Size for Solenoid Connector: 18-22 gauge wire Cable diameter: .080" to .265" O.D.
R432008830 (Old Part No. P -027609-00000) 1/2" conduit connector for 840 wireway.

*0.236-0.315 O.D. Cable Diameter, **0.315-0.394 O.D. Cable Diameter, ***Cable Diameter up to 0.200
All connectors this page: Maximum Wire Size A.W.G. #14. (14 gauge may not fit in lighted connector.)

Electrical Hook-up Information for standard DIN connectors on Ceram™, CD-7, and Series 740 valves.



Cables

ANSI Cables for (Brad Harrison®) Ceram™ Valves

One connector/cable per solenoid.

ANSI B93.55 Female Plug Connector (Mini)/Cable Assemblies

Part Number	No. of Poles	Cord Length "L"
R432011957	3	3 Ft.
R432011958	3	6 Ft.
R431001675	5	3 Ft.
R432011960	5	6 Ft.

NFPA Color Coding:
3 Pole Cord - no. 1 Green, No. 2 & 3 Red
5 Pole Cord - no. 3 Green, No. 1, 2, 4 & 5 Red

DIN Connectors with Attached Cable, Strain Relief with U.L. "S" Type Cable, Form A

Part Number	Description
R432011965	w/o Ind. Lights, w/3' Leads
R432011969	w/o Ind. Lights, w/6' Leads
R432011966	120 VAC Lighted w/3' Leads
R432011970	120 VAC Lighted w/6' Leads
R432011968	24 VDC Lighted w/3' Leads
R432011971	24 VDC Lighted w/6' Leads

Advantages of Suppression

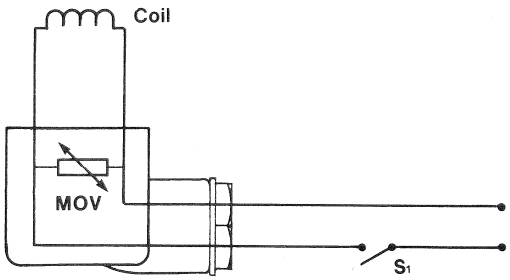
- Reduce contact burnout, increasing switch life up to ten times.
- High frequency interference pulses eliminated, lowering electronic noise.
- Protect programmable controllers and other types of electronic controllers from inductive spikes without addition of extra modules or hardware. All suppression systems are available with the standard connector for Ceram™, CD-7 and Series 740 valves shown on page 89.

DIN Connectors with Surge Suppression - VAC Models

Part Number	Description
R432011972	120 VAC Non-Lighted w/6' Leads
R432011974	120 VAC Lighted w/6' Leads

MOV (metal oxide varistor) in parallel with coil.
When switch (S_1) is opened or closed, the energy in the coil is limited by the MOV.

- Protects both supply and switch
- Good drop out time
- Good for AC or DC voltage
- Not polarity dependent

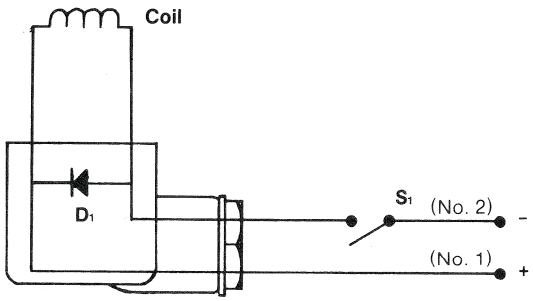


DIN Connectors with Surge Suppression - VDC Models

Part Number	Description
R432030348	12 VDC Lighted w/6' Leads
R432011973	24 VDC Non-Lighted w/6' Leads
R432011975	24 VDC Lighted w/6' Leads

Diode in parallel with coil.
When switch (S_1) is opened, the energy stored in the coil is trapped and dissipated by the diode (D_1).

- Works only with DC voltage
- Increases drop out time
- Polarity dependent



NOTICES TO PRODUCT USERS

1. WARNING: FLUID MEDIA

Bosch Rexroth pneumatic devices are designed and tested for use with filtered, clean, dry, chemical free air at pressures and temperatures within the specified limits of the device. For use with media other than air or for human life support systems, Bosch Rexroth must be consulted. Hydraulic cylinders are designed for operation with filtered, clean, petroleum based hydraulic fluid; operation using fire-resistant or other special types of fluids may require special packing and seals. Consult the factory.

2. WARNING: MATERIAL COMPATIBILITY

Damage to product seals or other parts caused by the use of non-compatible lubricants, oil additives or synthetic lubricants in the air system compressor or line lubrication devices voids Bosch Rexroth's warranty and can result in product failure or other malfunction. See lubrication recommendations below.

AIR LINE LUBRICANTS! In service higher than 18 cycles per minute or with continuous flow of air through the device, an air line lubricator is recommended. * (Do not use line lubrication with vacuum products.) However, the lubricator must be maintained since the oil will wash out the grease, and lack of lubrication will greatly shorten the life expectancy. The oils used in the lubricator must be compatible with the elastomers in the device. The elastomers are normally BUNA-N, NEOPRENE, VITON, SILICONE and HYTREL. Bosch Rexroth recommends the use of only petroleum-based oils without synthetic additives, and with an aniline point between 180° and 210° F.

COMPRESSOR LUBRICANTS! All compressors (with the exception of special "oil free" units) pass oil mist or vapor from the internal crankcase lubricating system through to the compressed air. Since even small amounts of non-compatible lubricants can cause severe seal deterioration (which could result in component and system failure) special care should be taken in selecting compatible compressor lubricants. It is recommended that users review the National Fluid Power Association "Recommended Guide Lines For Use Of Synthetic Lubricants In Pneumatic Fluid Power Systems" (NFPA T1-1978).

3. WARNING: INSTALLATION AND MOUNTING

The user of these devices must conform to all applicable electrical, mechanical, piping and other codes in the installation, operation or repair of these devices.

INSTALLATION! Do not attempt to install, operate or repair these devices without proper training in the technique of working on pneumatic or hydraulic systems and devices, unless under trained supervision. Compressed air and hydraulic systems contain high levels of stored energy. Do not attempt to connect, disconnect or repair these products when system is under pressure. Always exhaust or drain the pressure from system before performing any service work. Failure to do so can result in serious personal injury.

MOUNTING! Devices should be mounted and positioned in such manner that they cannot be accidentally operated.

4. WARNING: APPLICATION AND USE OF PRODUCTS

The possibility does exist for any device or accessory to fail to operate properly through misuse, wear or malfunction. The user must consider these possibilities and should provide appropriate safe guards in the application or system design to prevent personal injury or property damage in the event of malfunction.

5. WARNING: CONVERSION, MAINTENANCE AND REPAIR

When a device is disassembled for conversion to a different configuration, maintenance or repair, the device must be tested for leakage and proper operation after being reassembled and prior to installation.

MAINTENANCE AND REPAIR! Maintenance periods should be scheduled in accordance with frequency of use and working conditions. All Bosch Rexroth products should provide minimum of 1,000,000 cycles of maintenance free service when used and lubricated as recommended. However, these products should be visually inspected for defects and given an "in system" operating performance and leakage test once a year. Where devices require major repair as result of the one million cycles, one year, or routine inspection, the device must be disassembled, cleaned, inspected, parts replaced as required, rebuilt and tested for leakage and proper operation prior to installation. See individual catalogs for specific cycle life estimates.

6. PRODUCT CHANGES

Product changes including specifications, features, designs and availability are subject to change at any time without notice. For critical dimensions or specifications, contact factory.

*Many Bosch Rexroth pneumatic components can operate with or without air line lubrication; see individual sales catalogs for details.

--Refer to the appropriate service catalog for parts and service information.

LIMITATIONS OF WARRANTIES & REMEDIES

Bosch Rexroth warrants its products sold by it to be free from defects in material and workmanship to the following:
For twelve months after shipment Bosch Rexroth will repair or replace (F.O.B. our works), at its option, any equipment which under normal conditions of use and service proves to be defective in material or workmanship at no charge to the purchaser. No charge will be made for labor with respect to defects covered by this Warranty, provided that the work is done by Bosch Rexroth or any of its authorized service facilities. However, this Warranty does not cover expenses incurred in the removal and reinstallation of any product, nor any downtime incurred, whether or not proved defective.
All repairs and replacement parts provided under this Warranty policy will assume the identity, for warranty purposes, of the part replaced, and the warranty on such replacement parts will expire when the warranty on the original part would have expired. Claims must be submitted within thirty days of the failure or be subject to rejection.
This Warranty is not transferable beyond the first using purchaser. Specifically, excluded from this Warranty are failures caused by misuse, neglect, abuse, improper operation or filtration, extreme temperatures, or unauthorized service or parts. This Warranty also excludes the use of lubricants, fluids or air line additives that are not compatible with seals or diaphragms used in the products. This Warranty sets out the purchaser's exclusive remedies with respect to products covered by it, whether for negligence or otherwise. Neither, Bosch Rexroth nor any of its affiliates will be liable for consequential or incidental damages or other losses or expenses incurred by reason of the use or sale of such products. Our liability (except as to title) arising out of the sale, use or operation of any product or parts, whether on warranty, contract or negligence (including claims for consequential or incidental damage) shall not in any event exceed the cost of replacing the defective products and, upon expiration of the warranted period as herein provided, all such liability is terminated. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, WHETHER FOR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE. No attempt to alter, amend or extend this Warranty shall be effective unless authorized in writing by an officer of Bosch Rexroth Corporation.
Bosch Rexroth reserves the right to discontinue manufacture of any product, or change product materials, design or specifications without notice.

Pneumatic Directional Control Valve Features Available

DESCRIPTION	PORT SIZE	TYPE	Flow (Cv)	Inline/Tapped Body	Manifold	Plug-in	Single Subbase Available	External Pilot	Maximum Pressure (psi)	Dual Pressure	Vacuum Service	Air Pilot Operated	Solenoid Operated	NEMA 4/6	UL, UR or CSA	Explosion Proof	Brad Harrison® Connector	Intrinsically Safe	3 Position Offered	Dual 3/2 Valve Offered	Non-Lubricated Operation
Ceram™ Size I	1/4", 3/8"NPT; G1/8, G1/4	Slide 4 Way	1.10		•		•	•	150	•	•	•	•	4	•	•	•	•	•		•
Ceram™ Size II	3/8", 1/2"NPT; G1/4, G3/8	Slide 4 Way	2.40		•		•	•	150	•	•	•	•	4	•	•	•	•	•		•
Ceram™ Size III	1/2", 3/4"NPT; G3/8, G1/2	Slide 4 Way	4.30		•		•	•	150	•	•	•	•	4	•	•	•	•	•		•
Ceram™ Size IV	3/4" NPT; G1/2, G3/4	Slide 4 Way	7.50		•		•	•	150	•	•	•	•	4	•	•	•	•	•		•
Series DO10	M5 (10-32UNF)	Poppet 3 way	0.008-0.014		•				105				•								•
Series 830™	1/8"NPT, 10-32UNF	Poppet 3 Way	0.06		•		•		150				•	4							•
MiniBlock™	10-32UNF & 1/4" tube	Poppet 3 Way	0.15	•					150												•
Series AP (mech.)	10-32,1/8",1/4"NPT;M5,G1/8,G1/4	Poppet 3 & 4 Way	0.15-0.60	•					145												•
Series 840	Tube (1/4" and 6mm)	Poppet 4 Way	0.20	•	•		•		150			•	•	4							•
CA44 (AS-i)	M7, 4mm and 6mm tube[2]	Poppet 4 Way	0.20		•	•			116				•	4						•	•
Series MC	M7, 4mm and 6mm tube	Poppet 4 Way	0.20		•	•			116				•	4/6	•					•	•
Series 579 / 589	Tube (1/4", 5/16", 6mm, 8mm)	Poppet 3/4 Way	0.52-0.85	•	•			•	150	•	•	•	•	4							•
Series 740	Tube (3/8", 5/16", 8mm,10mm)	Poppet 4 Way	0.70-0.95	•	•		•		150			•	•	4	•		•	•			•
Rotair® Block	1/8", 1/4", 3/8"NPT	Poppet 4 Way	1.00-1.20	•					150										•		•
WV04	M3, M5 (10-32UNF)	Spool 4 Way	0.07-0.14	•	•		•		101				•						•		•
WV02	1/8"NPT;G1/8	Spool 3 & 4 Way	0.25-0.60	•	•	•	•		145			•	•						•	•	•
LS04	Tube (1/8", 1/4", 4, 6mm)	Spool 3 & 4 Way	0.20-0.32	•	•	•			116		•		•						•	•	•
LP04	Tube (1/8", 1/4", 4, 6mm)	Spool 3 & 4 Way	0.35		•	•		•	145	•	•		•	4	•				•	•	•
HF04	6mm tube, M7 thread	Spool 3 & 4 Way	0.40		•	•		•	145	•	•		•	4	•				•	•	•
HF03	1/8"NPT,G1/8,8mm(5/16") tube	Spool 3 & 4 Way	0.70		•	•		•	145	•	•		•	4	•				•	•	•
HF02	G1/4, 10mm tube	Spool 3 & 4 Way	1.40		•	•		•	145	•	•		•	4	•				•	•	•
TC08	1/8" NPT, G1/8	Spool 4 Way	0.70-0.80	•	•			•	145	•	•	•	•	4					•		•
TC15	1/4" NPT, G1/4	Spool 4 Way	1.30-1.50	•	•			•	145	•	•	•	•	4					•		•
CL03 Clean Line	G1/4, 8mm (5/16") tube	Spool 3 & 4 Way	0.75-0.85		•	•		•	145	•	•		•	6+[1]	•				•	•	•
CD02-PI Plug-in	1/8" NPT, G1/8, 1/4", 8mm (5/16")	Spool 3 & 4 Way	0.55-0.65		•	•	•	•	145	•	•		•	4	•				•	•	•
CD01-PI Plug-in	1/4" NPT, G1/4, 3/8", 10mm	Spool 3 & 4 Way	1.00-1.35		•	•	•	•	145	•	•		•	4	•				•	•	•
CD01-PL Plug-in	1/4"NPT, G1/2, G1/4; 4,6,8mm	Spool 3 & 4 Way	0.65-1.01		•	•	•	•	145	•	•		•	4					•	•	•
TaskMaster®	1/4", 3/8"NPT	Spool 4 Way	1.00				•	•	200			•	•		•	•			•		
Series CD07	1/4"NPT	Spool 4 Way	1.10	•	•			•	150	•	•	•	•	4		•	•		•		•
Series 581™Size 1	1/4", 3/8"NPT; G1/8, G1/4	Spool 4 Way	1.40		•		•	•	150	•	•	•	•						•		•
Series 581™ Size II	3/8", 1/2"NPT; G1/4, G3/8	Spool 4 Way	2.70		•		•	•	150	•	•	•	•						•		•
Series 581™ Size III	1/2", 3/4"NPT; G3/8, G1/2	Spool 4 Way	4.80		•		•	•	150	•	•	•	•						•		•
Series 581™Size IV	3/4" NPT; G1/2, G3/4	Spool 4 Way	6.00		•		•	•	150	•	•	•	•						•		•
Series 261 Size I	1/4", 3/8"NPT; G1/4, G3/8	Spool 3 & 4 Way	0.95-1.40		•	•	•	•	150	•	•		•	4					•	•	•
Series 261 Size II	3/8", 1/2"NPT; G3/8, G1/2	Spool 4 Way	2.70		•	•	•	•	150	•	•		•	4					•		•
Series 261 Size III	1/2", 3/4"NPT; G1/2, G3/4	Spool 4 Way	4.10-4.80		•	•	•	•	150	•	•		•	4					•		•
Type D Pilotair®	1/4", 1/2"NPT	Spool 2, 3, 4 Way	2.10-5.10	•				•	250	•	•	•	•			•			•		
PowerMaster®	1/4", 3/8"NPT	Spool 4 Way	3.70	•				•	150	•	•	•	•						•		
PowerMaster®	1/2", 3/4"NPT	Spool 4 Way	7.90	•				•	150	•	•	•	•						•		
PowerMaster®	1", 1-1/4"NPT	Spool 4 Way	15.70	•					150			•	•						•		

• = Available

Notes: [1] CL03 is IP69K wash down rated.

[2] Inch supply & exhaust manifold available.

Mechanical Operators Available:

		Lever	Rotary Lever	Toggle Lever	Pedal	Treadle	Roller	One-way Trip	Knob	Nose Mounted Knob	Paddle	Plunger	Flush Button	Mushroom Button	Mushrm./Locking Button	Short Rotary Knob	Toggle
Series CD07	Spool 4 Way		•	•	•	•	•	•	•		•	•					
TaskMaster®	Spool 4 Way	•															
Type D Pilotair®	Spool 2, 3,4 Way	•			•	•	•		•	•							
PowerMaster®	Spool 4 Way	•			•	•											
MiniBlock™	Poppet 3 Way						•										
Series AP	Poppet 3/4Way	•	•	•	•		•	•					•	•	•	•	•
Rotair® Block	Poppet 4 Way		•														

Bosch Rexroth Corporation
Pneumatics
1953 Mercer Road, Lexington, KY 40511
Tel 859-254-8031 Fax 859-254-4188/800-489-4188
pneumatics@boschrexroth-us.com
www.boschrexroth-us.com/brp

For valves not in this catalog, PDF downloads are available at: www.boschrexroth-us.com/brp

Rexroth
Bosch Group

Bosch Rexroth Corporation
Pneumatics
1953 Mercer Road
Lexington, KY 40511-1021
Telephone (859) 254-8031
Facsimile (859) 281-3491
www.boschrexroth-us.com/brp

Bosch Rexroth
Regional Sales Offices:

Central
Bosch Rexroth Corporation
2150 Point Boulevard, Suite 800
Elgin, IL 60123
Telephone (224) 293-3551
Facsimile (847) 551-9812

Great Lakes
Bosch Rexroth Corporation
2730 Research Drive
Rochester Hills, MI 48309
Telephone (248) 267-4000
Facsimile (248) 853-2033

Northeast
Bosch Rexroth Corporation
99 Rainbow Road
East Granby, CT 06026
Telephone (860) 844-8377
Facsimile (860) 844-8595

Bosch Rexroth Corporation
2315 City Line Road
Bethlehem, PA 18017-2131
Telephone (610) 694-8300
Facsimile (610) 694-8467

Southeast
14001 South Lakes Drive
Charlotte, NC 28273
Telephone (800) 438-5983
Facsimile (704) 583-0523

Southwest
1520 Selene Drive
Carrollton, TX 75006
Telephone (800) 739-7684

West
Bosch Rexroth Corporation
7901 Stoneridge Drive, Suite 220
Pleasanton, CA 94588
Telephone (925) 227-1074
Facsimile (925) 227-1081

Bosch Rexroth Corporation
13766 Alton Parkway, Suite 147
Irvine, CA 92618-1622
Telephone (949) 609-1640
Facsimile (888) 873-3434

Bosch Rexroth
U.S. Business Unit Offices

Bosch Rexroth Corporation
Corporate Headquarters
5150 Prairie Stone Parkway
Hoffman Estates, IL 60192-3707
Telephone (847) 645-3600
Facsimile (847) 645-6201

Bosch Rexroth Corporation
Electric Drives and Controls
5150 Prairie Stone Parkway
Hoffman Estates, IL 60192-3707
Telephone (847) 645-3600
Facsimile (847) 645-6201

Bosch Rexroth Corporation
Hydraulics
2315 City Line Road
Bethlehem, PA 18017-2131
Telephone (610) 694-8300
Facsimile (610) 694-8467

Bosch Rexroth Corporation
Linear Motion and Assembly Technologies
816 E. Third Street
Buchanan, MI 49107
Telephone (800) 322-6724
Facsimile (269) 695-3446

14001 South Lakes Drive
Charlotte, NC 28273
Telephone (800) 438-5983
Facsimile (704) 583-0523

Bosch Rexroth Corporation
Hydraulics
8 Southchase Court
Fountain Inn, SC 29644-9018
Telephone (864) 967-2777
Facsimile (864) 967-8900

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