

CERAM™

- ISO Sizes I, II, III, and IV
- Port Sizes 1/4", 3/8", 1/2", 3/4", and 1"
- C_v = 1.1, 2.4, 4.3, and 7.5
- Solenoid and Air Pilot Valve Operators
- Two and Three Positions Solenoids
- Explosion Proof and Intrinsically Safe Solenoids
- Expected Service Life Exceeds 150 Million Cycles
- Working Pressures 0 to 150 PSI Max



General Information

The Ceram™ 4-way pneumatic directional control valve uses sliding ceramic plates to form a nearly perfect, indestructible seal. The plates wipe themselves clean, shrugging off ingested dirt that destroys ordinary valves. The valve is pre-lubed with grease. Its unique ceramic plate wiping action prevents wear even without line lubrication. An extensive field service testing program verifies an anticipated life of 30 million cycles under adverse conditions. The valve has an ISO 5599/1 mounting dimension so its completely interchangeable with other ISO valves.

The Ceram™ valve operates with 50 or 60 Hz service, using continuous duty plug-in solenoids with DIN 43 650 connectors and meets NEMA 4 electrical specifications for wash down applications. The valve is available with single or double air pilots operators.

There are four basic valve sizes, all meeting ISO specifications. Subplates and manifold available for 1/4" through 1" N.P.T. piping. The manifolds can be either end or bottom ported and are fastened together in stack form with a unique set-screw. No special tie rods required.

Four methods of operation. Single or double air piloted solenoids and single or double air pilots. Solenoids can be supplied with either internal or external pilot supply and single solenoids can be either metal spring or air spring return. Air pilots receive pressure from small ports in the subplate or manifolds.

For special requirements of speed or force, the Ceram™ valve can provide sandwiched flow and pressure regulator controls on sizes I and II. Sizes I and II manifolds can be connected together in one stack through the use of Jumper Plates.

The Ceram™ valve has a lasting construction with corrosion resistant materials, and finishes.

Ceram™ Valve Specifications

PRESSURE CAPABILITY – Operation: 0 to 150 PSI Pilot: 29–36 to 150 PSI			
PORTS C _v and S.C.F.M.			
Valve	Port	CV	S.C.F.M
I	1/4", 3/8"	1.1	40 SCFM
II	3/8", 1/2"	2.4	86 SCFM
III	1/2", 3/4"	4.3	155 SCFM
IV	1"	7.5	269 SCFM
MEDIA: Air and inert gases (Vacuum applications – Consult Factory)			
TEMPERATURE RANGE			
Solenoid Valves: +5°F to +150°F (Consult Factory for lower temp. models.)			
Air Pilot Valves: +5°F to +175°F (Consult Factory for lower temp. models.)			

CERAM™

4-Way Directional Valves

Ceram™ Valve Specifications (Continued)

COIL DATA			
Voltage/ Frequency	Inrush Current	Holding Current	Rated Power @ 60Hz
Size I & II			
12 VDC	225 MA	225 MA	2.7 Watts
24 VDC	113 MA	113 MA	2.7 Watts
24 VAC 50/60	250 MA	154 MA	3.7 Volt-Amps
110/120 VAC 50/60	50 MA	31 MA	3.7 Volt-Amps
220/240 VAC 50/60	24 MA	15 MA	3.7 Volt-Amps
Size III & IV			
12 VDC	508 MA	508 MA	6.1 Watts
24 VDC	254 MA	254 MA	6.1 Watts
110/120 VAC 50/60	129 MA	78 MA	9.4 Volt-Amps
220/240 VAC 50/60	65 MA	39 MA	9.4 Volt-Amps

Ordering Information

Part Number Code Identification

OPERATORS
"14" END "12" END

GX X 00 X X -0 XX XX

G	X	X	(SIZE)	00																			
S or T		1 - ISO 1		2nd and 3rd digits are always zero																			
S		2 - ISO 2																					
		3 - ISO 3																					
		4 - ISO 4																					
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">X</td> <td style="width: 50%; text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">(Description)</td> <td style="text-align: center;">(Solenoid)</td> </tr> <tr> <td>1 - 3 Pos. Valve, Exh. Open Cntr. Ext Pilot</td> <td>0 - None</td> </tr> <tr> <td>2 - 3 Pos. Valve, Closed Cntr. Ext. Pilot</td> <td>1 - Single Solenoid</td> </tr> <tr> <td>3 - 3 Pos. Valve, Exh Open Cntr. Int. Pilot</td> <td>2 - Double Solenoid</td> </tr> <tr> <td>4 - 3 Pos. Valve, Closed Cntr., Int. Pilot</td> <td></td> </tr> <tr> <td>5 - 2 Pos. Valve, Ext. Pilot</td> <td></td> </tr> <tr> <td>6 - 2 Pos. Valve, Int. Pilot</td> <td></td> </tr> </table>								X	X	(Description)	(Solenoid)	1 - 3 Pos. Valve, Exh. Open Cntr. Ext Pilot	0 - None	2 - 3 Pos. Valve, Closed Cntr. Ext. Pilot	1 - Single Solenoid	3 - 3 Pos. Valve, Exh Open Cntr. Int. Pilot	2 - Double Solenoid	4 - 3 Pos. Valve, Closed Cntr., Int. Pilot		5 - 2 Pos. Valve, Ext. Pilot		6 - 2 Pos. Valve, Int. Pilot	
X	X																						
(Description)	(Solenoid)																						
1 - 3 Pos. Valve, Exh. Open Cntr. Ext Pilot	0 - None																						
2 - 3 Pos. Valve, Closed Cntr. Ext. Pilot	1 - Single Solenoid																						
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<div style="border: 1px solid black; padding: 5px; display: inline-block;">Valve Operators</div>																							

03	2 or 3 Pos. ANSI 3 pin MiniConnection 120 VAC 50/60 Hz	39	2 Position 24 VDC
04	2 or 3 Pos. ANSI 4 pin Micro-Connection 24 VDC	40*	Metal Spring Return
24	2 Pos. 120 VAC 50/60 Hz	41	3 Position with Centering Springs 24 VDC
26	3 Pos. with Centering Springs 120 VAC 50/60 Hz	43	Exp. Proof 2 Pos. 120 VAC 50/60 Hz
33	Air Pilot - 2 Pos. Valves	46	Exp. Proof 2 Pos. 24 VDC
36	2 Pos. 12 VDC	51*	Air Spring Return
38	3 Position with Centering Springs 12 VDC	62	3 Position 24 VAC 50/60 Hz
		*Used on "12" end only. More options available, please contact your local Womack office for more information.	

Note: Solenoid Connectors sold separately, please see page 102 for more information.

ISO SIZE I	
Part No.	Description
R432015488	Single Subbase Side Ported 3/8" NPT Ports
R432015314	Manifold Station Segment End Ported 1/4" NPT Ports
R432015316	Manifold End Plates (Includes Both Ends)
ISO SIZE II	
R432015307	Single Subbase Side Ported 1/2" NPT Ports
R432015318	Manifold Station Segment End Ported 1/2" NPT Delivery Ports
R432015319	Manifold End Plates (Includes Both Ends)
ISO SIZE III	
R432015309	Single Subbase Side Ported 3/4" NPT Ports
R432015490	Manifold Station Segment Bottom Ported 3/4" NPT Delivery Ports
R432015492	Manifold End Plates (Includes Both Ends)
ISO SIZE IV	
R432011719	Manifold Station Segment Bottom and Side Ported 3/4" NPT Delivery Ports
R432011720	Manifold End Plates

Series 830™

FEATURES

- Direct Acting, Poppet Design
- 3-Way Normally Closed, Single Solenoid
- Manifold Capabilities, 2 thru 8 Stations
- Operates with Lubricated or Non-Lubricated Air



TECHNICAL DATA

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 with 150 psi pressure supply; up to 2.25 SCFM with 80 psi supply (15 psi pressure drop))
Temperature Range:	+5°F to +122°F
Media:	Air, either lubricated or non-lubricated
Materials:	Rugged engineering plastic body with nylon coil, subbase and manifolds of black anodized aluminum.
Manual Override:	Locking

ELECTRICAL DATA

STANDARD VOLTAGES (ALL COILS ARE 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%

Series 830™

VALVES WITH NON-LIGHTED CONNECTOR

PART NO.	MODEL NO.	DESCRIPTION
R432006547	L-830-311-000-0	120 VAC – 50/60 Hz
R432006549	L-830-321-000-0	240 VAC – 50/60 Hz
R43 2006552	L-830-341-000-0	12 VDC
R432006555	L-830-351-000-0	24 VDC
R432006557	L-830-361-000-0	24 VAC – 50/60 Hz

VALVES WITH LIGHTED CONNECTORS

PART NO.	MODEL NO.	DESCRIPTION
R432006548	L-830-312-000-0	120 VAC – 50/60 Hz
R432006550	L-830-322-000-0	240 VAC – 50/60 Hz
R432006553	L-830-342-000-0	12 VDC
R432006556	L-830-352-000-0	24 VDC
R432030351	L-830-362-000-0	24 VAC – 50/60 Hz

SUBBASES AND MANIFOLDS

PART NO.	MODEL NO.	DESCRIPTION
R432006538	L-830-000-120-0	Single Subbase, 1/8" Ports
R432006539	L-830-000-210-0	2-Station Manifold, 10-32 Ports
R432006540	L-830-000-310-0	3-Station Manifold, 10-32 Ports
R432006541	L-830-000-410-0	4-Station Manifold, 10-32 Ports
R432006542	L-830-000-510-0	5-Station Manifold, 10-32 Ports
R432006543	L-830-000-610-0	6-Station Manifold, 10-32 Ports
R432006544	L-830-000-710-0	7-Station Manifold, 10-32 Ports
R432006545	L-830-000-810-0	8-Station Manifold, 10-32 Ports

REPLACEMENT COILS – MATERIAL CLASS B-6

PART NO.	MODEL NO.	DESCRIPTION
R432006534	L-830-C10-000-0	120 VAC – 50/60 Hz
R432030356	L-830-C20-000-0	240 VAC – 50/60 Hz
R432006535*	L-830-C40-000-0	12 VDC
R432006536	L-830-C50-000-0	24 VDC
R432006537*	L-830-C60-000-0	24 VDC – 50/60 Hz

*The same coil is used for 12 VDC and 24 VAC valves. Both voltages appear on coil.

Series 840

4-Way / 2-Position Solenoid and Air Pilot Poppet Valves

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



TECHNICAL DATA

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

Flow: Cv = 0.20

Working Pressure:

- 20 psi minimum (external pilots not available)
- 150 psi maximum (below 105°F) - solenoid and 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

Series 840

4-Way / 2-Position

Solenoid and Air Pilot Poppet Valves

TECHNICAL DATA (CONTINUED)

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 and 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.

Solenoids with indicator lights available.

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

NOTE: Valves on this page are not supplied with connectors. Connectors must be ordered separately.

Series 740

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

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 1½" thru 4".
- 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



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 pos. only).

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 and non-locking

Series 740

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

ELECTRICAL DATA

STANDARD VOLTAGES (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.

Recommended Tubing

Standard 3/8" O.D. × .062" wall - poly tubing
 *5/16" O.D. × .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. × 1mm wall poly tubing are also available.

Adapters available: 1/4" O.D. × .040 wall - poly tubing

Tube nuts are supplied with each valve for 3/8" × .062 wall poly tubing

4-Way / 2- Position, Solenoid Operated Diaphragm Poppet Valve 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

4-Way / 2- Position, Solenoid Operated Diaphragm Poppet Valve Double Solenoid Operated (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

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

NEW PART NO.	OLD PART NO.	DESCRIPTION
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*

NEW PART NO.	OLD PART NO.	DESCRIPTION
R432015884	P-069883-00001	110 VAC 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 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

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

Solenoid Connectors for Ceram™ and Series 740 (DIN 43650-Form A/ISO 4400 30MM)



STRAIN RELIEF CONNECTORS

Part No.	Old Part No.	Voltage
8941000302*	H -894100-00302	Standard, non-lighted
R432013747**	P -067325-00000	For use with wireways, non-lighted
R432013726**	P -067261-00000	120 VAC lighted
R432013728**	P -067262-00000	240 VAC lighted
R432013729**	P -067264-00000	12 VDC lighted
R432013730**	P -067265-00000	24 VDC lighted
R432015629**	P -069417-00000	24 VAC lighted



1/2" CONDUIT CONNECTORS

R432015626	P -069390-00000	Engineering Plastic, non-lighted
R432015781**	P -069707-00000	Metallic, non-lighted
R432008421	P -026078-00001	120 VAC lighted***
R432008422	P -026078-00002	240 VAC lighted***
R432008423	P -026078-00004	12 VDC lighted***
R432008424	P -026078-00005	24 VDC lighted***
R432008425	P -026078-00006	24 VAC lighted***



3/8" CONDUIT CONNECTOR

R432015404***	P -068674-00000	Non-lighted
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*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.)

Solenoid Connectors for Series 830 Valves ONLY (Industrial FORM S 22MM)



STRAIN RELIEF CONNECTORS NON-LIGHTED		
Part No.	Old Part No.	Voltage
8941004702*	H-894100-04702	
STRAIN RELIEF CONNECTORS LIGHTED		
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

Solenoid Connectors for Series 840 and Series TC Valves ONLY (Micro-Form C)



STRAIN RELIEF SOLENOID CONNECTOR NON-LIGHTED		
8941012202	H-894101-02202	
SOLENOID CONNECTOR LIGHTED		
R432011981	P-048824-00001	120 VAC/DC (without Lead)
R432011961	P-048803-00001	120 VAC/DC (with 3' Lead)
R432011963	P-048804-00001	120 VAC/DC (with 6' Lead)
R432011982	P-048824-00005	24 VAC/DC (without Lead)
R432011962	P-048803-00005	24 VAC/DC (with 3' Lead)
R432011964	P-048804-00005	24 VAC/DC (with 6' Lead)

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

All connectors this page: maximum wire size A.W.G. #14.

(14 gauge may not fit in lighted connector.)

§Not FORM B

Series TC08 and TC15 Manifolds or Single In-Line Valves

The Series TC08 and TC15 valve families provide a highly reliable, high-flow, cost effective solution to a wide variety of applications. Use of polymer technology results in light weight, and the compact design permits use in tight spaces. The easy-to-assemble manifold system has a reduced height because it does not require subbases, and quick valve changes make it maintenance friendly. Offering inch and metric porting options widens customer choice.



Version	Spool valve, zero overlap
Ambient temperature min. / max.	-10°C / +50°C (+14°F / +122°F)
Medium	Compressed air acc. to ISO 8573-1: 2001
Compressed air acc. to ISO 8573-1:2001	Class 6-4-3, class 5-4-4
Medium temperature	-10°C / +50°C (+14°F / +122°F)
Protection class according to EN 60529:2000, with electrical connector	IP65 (NEMA 4)
Duty cycle ED	100%
Materials	
Housing	Polyamide
Seals	Acrylonitrile butadiene rubber (NBR), polyurethane

5/2-Way Valve, Series TC08

$C_v = 0.8$, thread connection 1/8" NPTF, single or double solenoid, electrical connector form C, ISO 15217, manual override: turn with detent

Operating Voltage	Working Pressure Min. / Max. (PSI)	Pilot Supply	Pilot Pressure (PSI)	C_v	Switching Time t_{on} / t_{off} (ms)	Weight (lbs.)	Part No.
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	36 ... 145	Internal	36 ... 145	0.8	17/22*	0.309	R422101200 R422101201 R422101202 R422101203
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	-13 ... 145	External	36 ... 145	0.8	17/22*	0.309	R422101204 R422101205 R422101206 R422101207
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	44 ... 145	Internal	44 ... 145	0.8	12/16*	0.309	R422101208 R422101209 R422101210 R422101211
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	-13 ... 145	External	44 ... 145	0.8	12/16*	0.309	R422101212 R422101213 R422101214 R422101215

*Switching time measured according to ISO 12238.

Series TC08 and TC15

Manifolds or Single In-Line Valves

5/2-Way Valve, Series TC08 (Continued)

$C_v = 0.8$, thread connection 1/8" NPTF, single or double solenoid, electrical connector form C, ISO 15217, manual override: turn with detent

Operating Voltage	Working Pressure Min. / Max. (PSI)	Pilot Supply	Pilot Pressure (PSI)	C_v	Switching Time t_{on} / t_{off} (ms)	Weight (lbs.)	Part No.
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	29 ... 145	Internal	29 ... 145	0.8	9 / 9*	0.379	R422101216 R422101217 R422101218 R422101219
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	-13 ... 145	External	29 ... 145	0.8	9 / 9*	0.379	R422101220 R422101221 R422101222 R422101223

*Switching time measured according to ISO 12238.

5/3-Way Valve, Series TC08

$C_v = 0.7$, thread connection 1/8" NPTF, 3-position double solenoid, electrical connector form C, ISO 15217, manual override: turn with detent

Operating Voltage	Working Pressure Min. / Max. (PSI)	Pilot Supply	Pilot Pressure (PSI)	C_v	Switching Time t_{on} / t_{off} (ms)	Weight (lbs.)	Part No.
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	44 ... 145	Internal	44 ... 145	0.7	13 / 13*	0.392	R422101224 R422101225 R422101226 R422101227
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	-13 ... 145	External	44 ... 145	0.7	13 / 13*	0.392	R422101228 R422101229 R422101230 R422101231
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	44 ... 145	Internal	44 ... 145	0.7	13 / 13*	0.392	R422101232 R422101233 R422101234 R422101235
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	-13 ... 145	External	44 ... 145	0.7	13 / 13*	0.392	R422101236 R422101237 R422101238 R422101239
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	44 ... 145	Internal	44 ... 145	0.7	13 / 13*	0.392	R422101240 R422101241 R422101242 R422101243
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	-13 ... 145	External	44 ... 145	0.7	13 / 13*	0.392	R422101244 R422101245 R422101246 R422101247

*Switching time measured according to ISO 12238.

Series TC08 and TC15

Manifolds or Single In-Line Valves

5/2-Way Valve, Series TC15

$C_v = 1.5$, thread connection 1/4" NPTF, single or double solenoid, electrical connector form C, ISO 15217, manual override: turn with detent

Operating Voltage	Working Pressure Min. / Max. (PSI)	Pilot Supply	Pilot Pressure (PSI)	C_v	Switching Time t_{on} / t_{off} (ms)	Weight (lbs.)	Part No.
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	29 ... 145	Internal	29 ... 145	1.5	22 / 20*	0.584	R422101248 R422101249 R422101250 R422101251
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	-13 ... 145	External	29 ... 145	1.5	22 / 20*	0.584	R422101252 R422101253 R422101254 R422101255
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	36 ... 145	Internal	36 ... 145	1.5	12 / 35*	0.584	R422101256 R422101257 R422101258 R422101259
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	-13 ... 145	External	36 ... 145	1.5	12 / 35*	0.584	R422101260 R422101261 R422101262 R422101263
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	44 ... 145	Internal	44 ... 145	1.5	10 / 10*	0.518	R422101264 R422101265 R422101266 R422101267
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	-13 ... 145	External	44 ... 145	1.5	10 / 10*	0.518	R422101268 R422101269 R422101270 R422101271

*Switching time measured according to ISO 12238.

5/3-Way Valve, Series TC15

$C_v = 1.3$, thread connection 1/4" NPTF, 3-position double solenoid, electrical connector form C, ISO 15217, manual override: turn with detent

Operating Voltage	Working Pressure Min. / Max. (PSI)	Pilot Supply	Pilot Pressure (PSI)	C_v	Switching Time t_{on} / t_{off} (ms)	Weight (lbs.)	Part No.
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	44 ... 145	Internal	44 ... 145	1.3	13 / 13*	0.613	R422101272 R422101273 R422101274 R422101275
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	-13 ... 145	External	44 ... 145	1.3	13 / 13*	0.613	R422101276 R422101277 R422101278 R422101279
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	44 ... 145	Internal	44 ... 145	1.3	13 / 13*	0.613	R422101280 R422101281 R422101282 R422101283

*Switching time measured according to ISO 12238.

Series TC08 and TC15 Manifolds or Single In-Line Valves

5/3-Way Valve, Series TC15 (Continued)

$C_v = 1.3$, thread connection 1/4" NPTF, 3-position double solenoid, electrical connector form C, ISO 15217, manual override: turn with detent

Operating Voltage	Working Pressure Min. / Max. (PSI)	Pilot Supply	Pilot Pressure (PSI)	C_v	Switching Time t_{on} / t_{off} (ms)	Weight (lbs.)	Part No.
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	-13 ... 145	External	44 ... 145	1.3	13 / 13*	0.613	R422101284 R422101285 R422101286 R422101287
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	44 ... 145	Internal	44 ... 145	1.3	13 / 13*	0.613	R422101288 R422101289 R422101290 R422101291
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	-13 ... 145	External	44 ... 145	1.3	13 / 13*	0.613	R422101292 R422101293 R422101294 R422101295

*Switching time measured according to ISO 12238.

Version	Spool valve, zero overlap
Working pressure min. / max.	-0.9 / 10 bar (-13 / 145 PSI)
Ambient temperature min. / max.	-10°C / +50°C (+14°F / +122°F)
Medium	Compressed air acc. to ISO 8573-1:2001
Compressed air acc. to ISO 8573-1:2001	Class 6-4-3, class 7-5-4
Medium temperature	-10°C / +50°C (+14°F / +122°F)
Duty cycle ED	100%

Valves, Series TC08

Manifold valves, series TC08, thread connection 1/8" NPTF, single or double solenoid, electrical connector form C, ISO 15217, manual override: turn with detent

Operating Voltage	Working Pressure Min. / Max. (PSI)	Pilot Supply	Pilot Pressure (PSI)	C_v	Switching Time t_{on} / t_{off} (ms)	Weight (lbs.)	Part No.
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	-13 ... 145	External	36 ... 145	0.8	15 / 22*	0.276	R422101152 R422101153 R422101154 R422101155
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	-13 ... 145	External	44 ... 145	0.8	16 / 21*	0.276	R422101156 R422101157 R422101158 R422101159
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	-13 ... 145	External	29 ... 145	0.8	9 / 9*	0.346	R422101160 R422101161 R422101162 R422101163

*Switching time measured according to ISO 12238.

Series TC08 and TC15 Manifolds or Single In-Line Valves

Valves, Series TC08 (Continued)

Manifold valves, series TC08, thread connection 1/8" NPTF, single or double solenoid, electrical connector form C, ISO 15217, manual override: turn with detent

Operating Voltage	Working Pressure Min. / Max. (PSI)	Pilot Supply	Pilot Pressure (PSI)	C _v	Switching Time t _{on} / t _{off} (ms)	Weight (lbs.)	Part No.
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	-13 ... 145	External	44 ... 145	0.7	12 / 12*	0.346	R422101164 R422101165 R422101166 R422101167
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	44 ... 145	External	44 ... 145	0.7	12 / 12*	0.346	R422101168 R422101169 R422101170 R422101171
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	-13 ... 145	External	44 ... 145	0.7	12 / 12*	0.346	R422101172 R422101173 R422101174 R422101175

*Switching time measured according to ISO 12238.

Valves, Series TC15

Manifold valves, series TC15, thread connection 1/4" NPTF, single or double solenoid, electrical connector form C, ISO 15217, manual override: turn with detent

Operating Voltage	Working Pressure Min. / Max. (PSI)	Pilot Supply	Pilot Pressure (PSI)	C _v	Switching Time t _{on} / t _{off} (ms)	Weight (lbs.)	Part No.
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	-13 ... 145	External	36 ... 145	1.5	18 / 21*	0.443	R422101176 R422101177 R422101178 R422101179
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	-13 ... 145	External	36 ... 145	1.5	12 / 35*	0.443	R422101180 R422101181 R422101182 R422101183
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	-13 ... 145	External	44 ... 145	1.5	10 / 10*	0.505	R422101184 R422101185 R422101186 R422101187
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	-13 ... 145	External	44 ... 145	1.3	13 / 13*	0.538	R422101188 R422101189 R422101190 R422101191
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	-13 ... 145	External	29 ... 145	1.3	13 / 13*	0.538	R422101192 R422101193 R422101194 R422101195
12 VDC 24 VDC 110 VAC, 50 / 60 Hz 230 VAC, 50 / 60 Hz	-13 ... 145	External	29 ... 145	1.3	13 / 13*	0.538	R422101196 R422101197 R422101198 R422101199

*Switching time measured according to ISO 12238.

Type "A" PILOTAIR®

- Block-Type or Panel Mount
- Poppet-Type
- Die Cast Aluminum Bodies
- One Piece Unitized Cartridge Valve Element
- Maximum Inlet 250 PSI
- Interchangeability of Parts with **Controlair®** and **Flexair®** Product Lines
- 3-Way and 4-Way



Block-Type Valves

The **Block-Type "A" PILOTAIR® Valve** is a poppet-type, on/off, 3-way directional valve enclosed in a solid die-cast aluminum block. The basic valve and all operators can be easily and quickly assembled without special tools. This valve features a choice of six operators, assembled to the basic valve to provide cam, lever, and pilot cylinder operation. The design permits conversion from one type of operation to another and simplifies stocking. Use 2-MA-1A basic valve and order operator kit separately. Contact your local **Womack** sales office for more information. The body design lends itself to individual or multiple-mounting operations.



Panel-Mounted Valves

The **Panel-Mounted "A" PILOTAIR® Valve** is a poppet-type pneumatic directional control valve consisting of a cam housing portion and a valve portion containing from one to four 3-way valve units.

The Panel-Mounted valve is a streamlined compact design which are suited for deluxe panel mountings in consoles or control panels. It can be mounted horizontal or vertical. The internal parts are enclosed making them ideal for outdoor installations.

Single unit valves for 3-way operation may be normally open or normally closed. The two unit valve have two, three, or five positions of operation as do the three and four units valves. Detents can be had for two, three, or five positions, or handle may be spring-returned to center for three position operation. Contact your nearest **Womack** sales office for more information.



Type "A" PILOTAIR®

Material Class B-2

VALVE TYPE	PART NO.	OLD PART NO.	FUNCTION / DESCRIPTION
2-MA-1A	R431004659	P-058718-00000	2 Position 3 Way; Basic Valve; Less Lugs; NC
2-MA-1A	R431004661	P-058719-00000	2 Position 3 Way; Basic Valve; With Lugs; NC
2-CA-1A	R431004665	P-058720-00000	2 Position 3 Way; Cam Dog; NC
2-CA-1A	R431004666	P-058721-00000	2 Position 3 Way; 2 Direction Rollercam, NC
2-CA-1A	R431004668	P-058721-00002	2 Position 3 Way; Cam Lever Only; NC
2-CA-1B	R431004669	P-058722-00000	2 Position 3 Way; 2 Direction R-Cam; 30#s; NO
2-CA-1B	R431004671	P-058722-00002	2 Position 3 Way; 2 Direction R-Cam; 40#s; NO
2-CA-1B	R431004672	P-058722-00003	2 Position 3 Way; 2 Direction R-Cam; 14#s; NO
2-CA-1B	R431004673	P-058722-00005	2 Position 3 Way; Cam With Tip; 30#s; NO (No roller)
2-PA-1A	R431004674	P-058723-00000	2 Position 3 Way; Pilot Operator; NC
2-LA-1A	R431004675	P-058724-00000	2 Position 3 Way; Palm Lever Operator; NC
2-CA-1C	R431005758	P-061347-00000	2 Position 3 Way; Single Direction R-Cam; NC
2-BA-1	R431003427	P-054692-00002	2 Pos. 3 Way; Pushbutton Operator; NC (unpainted)
2-BA-1	R431003429	P-054692-00004	Chrome
2-BA-1	R431003430	P-054692-00006	Black
2-HA-1	R431004994	P-059331-00000	2 Position 3 Way; DNTS 1 & 2
2-HA-1	R431004996	P-059331-00002	Chrome
2-HA-1L	R431004997	P-059332-00001	2 Position 3 Way; LCH 1 & 2
2-HA-1L	R431004998	P-059332-00002	Black
2-HA-1L	R431004999	P-059332-00003	Chrome
2-HA-1R	R431005000	P-059333-00000	2 Position 3 Way; DNTS 1 & 2
2-HA-1LR	R431005001	P-059334-00001	2 Position 3 Way; LCH 1 & 2
2-HA-1LR	R431005002	P-059334-00003	2 Position 3 Way; LCH 1 & 2 Chrome
2-HA-1W	R431005660	P-061083-00000	2 Position 3 Way; Spring Centered
2-HA-1RW	R431005661	P-061090-00000	2 Position 3 Way; Spring Centered
2-HA-1R	R431006571	P-065207-00000	2 Position 3 Way
2-HA-1	R431006456	P-064533-00000	2 Position 3 Way
2-HA-2F	R431003360	P-054427-00001	5 Position Double 3 Way; DNTS 1, 2, & 3
2-HA-2F		P-054427-00003	Black
2-HA-2		P-059007-00001	3 Position 4 Way; Gray; DNTS 1, 2, & 3, 9/16 - 18 UNF
2-HA-2	R431004909	P-059103-00001	3 Position 4 Way; Neu-Switch; DNTS 1 & 2
2-HA-2	R431005003	P-059335-00000	3 Position 4 Way; DNTS 1, 2, & 3
2-HA-2	R431005004	P-059335-00002	Black
2-HA-2	R431005005	P-059335-00003	Chrome
2-HA-2	R431005402	P-060150-00000	P59335 Less Knob
2-HA-2	R431005536	P-060443-00001	3 Position 4 Way; 2-HA-4 Cover; DNTS 1 & 2
2-HA-2	R431005815	P-061644-00000	P59335 Key Operated
2-HA-2	R431005820	P-061652-00000	3 Position 4 Way; DNTS 1, 2, & 3
2-HA-2F	R431006025	P-062204-00000	5 Position 4 Way; DNTS 1, 2, & 3
2-HA-2L	R431005006	P-059336-00003	3 Position 4 Way; Ctr. Ex.; DNTS 1, 2, & 3; LCH 1 & 3
2-HA-2L	R431005007	P-059336-00004	Black
2-HA-2R	R431005009	P-059337-00002	Chrome
2-HA-2R	R431005010	P-059337-00003	Black
2-HA-2LR	R431005011	P-059338-00002	3 Position 4 Way; DNTS 1, 2, & 3; LCH 1 & 3
2-HA-2Z	R431005013	P-059339-00000	3 Position 4 Way; Spring Centered
2-HA-2Z	R431005014	P-059339-00002	Black
2-HA-2Z	R431005015	P-059339-00003	Chrome
2-HA-2Y	R431005016	P-059340-00000	2 Position 4 Way; DNTS 1 & 2
2-HA-2Y	R431005017	P-059340-00001	-65 Degrees F
2-HA-2Y	R431005018	P-059340-00003	Chrome
2-HA-2LY	R431005019	P-059341-00001	Position 4 Way; LCH 1 & 2
2-HA-2X	R431005020	P-059342-00000	3 Position Double 3 Way; DNTS 1, 2, & 3
2-HA-2LX	R431005021	P-059343-00001	3 Position Double 3 Way; LCH 1 & 3
2-HA-2R	R431005754	P-061326-00000	P59337 (Long Handle)

Type "A" PILOTAIR®

Material Class B-2

VALVE TYPE	PART NO.	OLD PART NO.	FUNCTION / DESCRIPTION
2-HA-2Y	R431005861	P-061745-00000	2 Position 4 Way; Open Center Exhaust
2-HA-2LZ	R431005864	P-061755-00000	3 Position 4 Way; LCH 3; SPRG 2
2-HA-2L	R431005927	P-061966-00000	3 Position 4 Way; Black; DNTS 1, 2, & 3; LCH 2
2-HA-2L	R431006008	P-062082-00000	3 Position 4 Way; DNTS & LCH 1, 2, & 3
2-HA-2L	R431006009	P-062082-00001	Black
2-HA-2L	R431006010	P-062082-00002	Chrome
2-HA-2Z	R431009172	P-062756-00000	P59339 (Long Handle)
2-HA-2LY	R431006194	P-063158-00000	2 Position 4 Way; Open Center; LCH 1 & 2
2-HA-2LY	R431006195	P-063158-00002	Chrome
2-HA-2U	R431006413	P-064417-00000	3 Position 4 Way; DNTS 1, 2, & 3
2-HA-2LY	R431006604	P-065353-00000	2 Position 4 Way; Black; LCH 1 & 2
2-HA-2LZ	R431006819	P-066471-00000	3 Position 4 Way; LCH 2 & 3; SPG 1; 9/16 - 18 UNF
2-HA-2ZD	R431007369	P-068859-00000	3 Position Spring/Detent
2-HA-3	R431004513	P-058380-00001	2/3 Position Triple 3 Way; Double Handle
2-HA-3	R431004510	P-058374-00001	4 Position Triple 3 Way
2-HA-3	R431004511	P-058378-00002	4 Position Triple 3 Way
2-HA-3	R431004512	P-058379-00001	5 Position Triple 3 Way
2-HA-3	R431009019	P-060877-00000	5 Position Triple 3 Way
2-HA-3	R431005733	P-061266-00001	3 Position Triple 3 Way; Long Handle
2-HA-3	R431005734	P-061266-00002	3 Position Triple 3 Way
2-HA-3	R431006034	P-062269-00000	5 Position Triple 3 Way
2-HA-3	R431006523	P-064907-00000	3 Position Triple 3 Way
2-HA-3	R431009143	P-066848-00001	3 Position Triple 3 Way
2-HA-4	R431009113	P-058381-00001	5 Position Quad. 3 Way
2-HA-4	R431004537	P-058451-00001	3/3 Position Quad. 3 Way; Double Handle
2-HA-4	R431004541	P-058455-00002	5 Position Quad. 3 Way
2-HA-4	R431004542	P-058456-00001	5 Position Quad. 3 Way
2-HA-4	R431004543	P-058457-00001	2 Position Quad. 3 Way
2-HA-4	R431004544	P-058458-00001	3/3 Position Quad. 3 Way; Double Handle
2-HA-4	R431004801	P-058892-00001	5 Position Quad. 3 Way
2-HA-4	R431005386	P-060056-00000	5 Position Quad. 3 Way
2-HA-4	R431005403	P-060153-00000	5 Position Quad. 3 Way
2-HA-4	R431005485	P-060324-00000	4 Position Quad. 3 Way
2-HA-4	R431005632	P-060957-00000	5 Position Quad. 3 Way; Short Handle
2-HA-4	R431005740	P-061274-00000	5 Position Quad. 3 Way
2-HA-4	R431005803	P-061619-00000	5 Position Quad. 3 Way
2-HA-4	R431006000	P-062068-00000	5 Position Quad. 3 Way
2-HA-4L	R431006303	P-063806-00000	3 Position Quad. 3 Way
2-HA-4	R431006498	P-064814-00000	4 Position Quad. 3 Way
2-HA-4	R431006505	P-064844-00000	5 Position Quad. 3 Way
2-HA-4	R431006508	P-064849-00000	3 Position 4 Way
2-HA-4	R431007290	P-068443-00000	5 Position 3 Way
2-HA-4	R431009160	P-068915-00000	3 Position Single Handle
Kit *	R431003743	P-055474-K0002	Major Repair (Material Class B-6)

* NOTE: One (1) Repair Kit Per Active Valve Cavity Required.

Type “P” ROTAIR®

The **ROTAIR® Valve** is a handle-operated, rotary-type, directional control valve. Air-flow patterns are selected by using up to eight distinct handle positions, and delivery air is directed through a rotary valve to the necessary number of delivery ports.

Those models with an “S” suffix have a limit switch which is activated in the neutral position. This electrical switch can provide a neutral starting interlock when the starting switch to the engine starting relay is wired through it. The number of handle positions in each valve is indicated by the initial digit in the model designation.

Some models of the **ROTAIR® Valve** are equipped with a “Down-Shift Inhibitor”. This safety feature prevents down-shifting until the proper electrical signal is obtained from the transmission. Detented models have pins in the cover only, except between neutral and first.



Installation

The **ROTAIR® Valve** can be installed in any position convenient for manual operation; however, an installation with the handle vertical is recommended. As assembled, each valve includes a pipe bracket, or subbase, to which all piping connections are made. Pipe connections are clearly marked by numbers on the bracket. All ports between the pipe bracket and valve assembly are sealed with tetraseals. This arrangement permits easy removal of the valve assembly without disturbing the pipe connections.

An adequate air filter should be installed in the supply line ahead of the **ROTAIR® Valve**. Clean air is essential to the trouble-free life of the rotary valve seat.

When the neutral start interlock is desired, the terminals marked “normally closed” and “common”, on the limit switch, should be used. The “normally open” terminal can be used for other purposes since the circuit will be made at all times other than in neutral.

Operation

Maximum operating pressure for the **ROTAIR® Valve** is 150 psi, with a temperature range of -40°F to +160°F. The handle-positioning labyrinth is composed of two mating parts, the body and cover. The handle shaft moves, by side-to-side motion, through an arc of designated handle positions, assuring correct sequence of operation. A handle position cannot be bypassed unintentionally on those models with a labyrinth slot pattern.

Features

Greater dependability and longer, trouble-free service are provided by the improved **ROTAIR® Valve**. Corrosion resistance throughout the valve is ensured by the materials used, and several important design changes.

The valve cover, pipe bracket, and the body are die cast aluminum. Handle guide pins in the body are hardened steel, cadmium plated. To eliminate maintenance problems and the need for frequent relapping of the rotary valve seat and rotary valve, caused by dirt and foreign matter in the air system, seven molded nylon, 150 micron strainers are installed in the pipe bracket, one in each port.

Multiple Handle Position Three-Way Valve Type "P" ROTAIR®

Material Class B-2

MODEL NO.	PART NO.	OLD PART NO.	FUNCTION / DESCRIPTION
5P-5S	R431003921	P-055804-00001	F4 and R2 Handle Position Blocked
6P-1S	R431006324	P-063984-00000	Detented (Automatic Mode)
6P-1S	R431006325	P-063984-00001	Same with Special Instruction Plate
6P-2S	R431006031	P-062255-00000	R2 Handle Position Blocked - 12 VDC Inhibitor
6P-5S	R431003982	P-057081-00001	R2 Handle Position Blocked
6P-5S	R431006581	P-065235-00001	Similar to P63985-1 Except Labyrinth, Reverse Blocked and Instruction Plate to Suit
7P-5	R431006216	P-063348-00000	No Neutral Switch
7P-5S	R431003701	P-055380-00001	5 FWD - N - 1 Rev
7P-5S	R431003722	P-055421-00001	4 FWD - N - 2 Rev
7P-5S	R431005698	P-061184-00000	3 FWD - N - 3 Rev
7P-7S	R431004176	P-057564-00001	4 FWD - N - 2 Rev
7P-8S	R431004018	P-057250-00004	3 FWD - N - 3 Rev
7P-8S	R431004019	P-057250-00006	"Z" Slot, Detented and Offset Handle
7P-9S	R431006326	P-063985-00000	Detented (Automatic Mode)
7P-9S	R431006327	P-063985-00001	Detented (Special Instruction Plate)
7P-9S	R431006328	P-063985-00002	Detented (Manual Mode Instruction Plate)
7P-9S	R431006329	P-063985-00003	Detented (Manual with 1st Gear Start)
8P-1S	R431003806	P-055556-00003	6 FWD - N - 1 Rev
8P-1S	R431003807	P-055556-00004	Same with Opposite Direction Instruction Plate
8P-1S	R431006323	P-063983-00001	Same with Opposite Direction Plate with 24 VDC Inhibitor
8P-1S	R431009150	P-064733-00000	6 FWD - N - 1 Rev
8P-2S	R431005595	P-060867-00004	Same with Opposite Direction Plate with 12 VDC Inhibitor
8P-2S	R431005596	P-060867-00005	Same with Opposite Direction Plate with 24 VDC Inhibitor
		P-026576-00000	Latch Kit

N-1 Reducing Valve - Material Class B-2

PART NO.	OLD PART NO.	FUNCTION / DESCRIPTION
R434002001	P-052605-00008	30 psi (-65°F Operation)
R434001986	P-055503-00015	15 psi
R434001985	P-055503-00060	60 psi
R434001984	P-055504-00000	No Factory Setting (60-150 psi Range)
R434001983	P-055504-00060	60 psi
R434001982	P-055504-00065	65 psi
R434001971	P-055504-00070	70 psi
R434001980	P-055504-00100	100 psi
R434001990	P-055504-00125	125 psi
R434001978	P-055504-00150	150 psi
R434002103	P-063234-00000	0-72 psi
R434001977	P-055777-00000	3-100 psi

* Specify pressure range in last 2 or 3 digits.

Type "H" CONTROLAIR®

- Versatile Three- and Four-Way Pressure Regulating Directional Valve
- Or Combination of Pressure Regulating and Non-Regulating Three-Way Valve
- Hand, Foot, or Mechanically Operated
- Maximum Supply Pressure 200 PSI
- Temperature Range -40° to 160°F
- Light Operating Forces
- Diaphragm and Seals Made of Oil-Resistant Synthetic Rubber
- All Steel Parts are Plated



Description

The **Bosch Rexroth Type "H" CONTROLAIR® Valves** are a family of pneumatic pressure regulating, directional valves. Hand, foot or mechanically operated, these valves control both pressure and air flow. Some control these functions in one air circuit. Others selectively control these functions in two separate and independent air circuits or in branches of the same circuit. Still others control these functions either selectively or simultaneously in three separate and independent branches of an air circuit.

With each valve, the position of the operator – lever, pedal, cam, or knob – determines the air pressure delivered by the valve. Changing operator positions changes delivery pressure. Once the operator's position is set, a **CONTROLAIR® Valve** maintains the delivery pressure for that position, automatically. It feeds more air into a circuit to compensate for leakage and operations which reduce pressure. It vents air from a circuit to compensate for operations and other conditions which would increase a circuit's pressure.

MODEL NO.	DESCRIPTION	FUNCTION
H-1	Footpedal	Operate for one pressure regulated circuit.
H-2	Hand Lever	Operate for one pressure regulated circuit.
HC-2	Hand Lever	Operate for two pressure regulated circuits.
HD-2	Hand Lever	Operate for one pressure regulated circuit and two non-regulated circuit.
HE-2	Hand Lever	Operate for one pressure regulated circuit and one non-regulated circuit.
H-3	Cam	Operate for one pressure regulated circuit.
H-4	Handknob	Operate for one pressure regulated circuit.
The H-2, HC-2, HD-2 and HE-2 CONTROLAIR® Valves are available with any one of the following types of lever return or holding characteristics. These characteristics are indicated by the suffix added to the designation.		
X		Self returning. The lever returns from the extreme position to the valve's "Neutral" or "Off" position when the operating force is removed.
LX		Self returning with latch. The lever return to the valves "Neutral" or "Off" position when manually moved out of the latch position (extreme travel position).
FX		Self holding. The lever stays in any position in which it is placed. The holding friction is adjustable.

FLEXAIR® Valve

- Precise Control of Pneumatic Equipment
- Especially Useful to Control Oil Drilling Rigs, Excavating Machinery, Hoists, Dredges, Production Machines, and Special Purpose Equipment
- Three-Way Valve
- Weights Approximately Six Pounds
- Packing Rings and Valve Seats are Oil Resistant
- Metal Parts are Anodized Aluminum, Stainless or Plated Steel
- Maximum Inlet Pressure 150 PSI



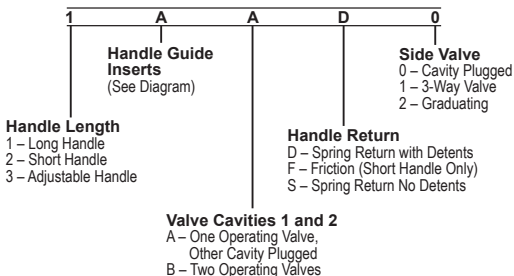
Description

Bosch Rexroth's FLEXAIR® Valve can deliver a definite and precise outlet pressure in one or two outlet ports. The handle may be moved forward, backward, to one side, or in combination of directions to control pressure in one or two of the three outlet ports. Handle movement forward or backward provides air pressure proportional to handle movements; handle movement to one side operates an on/off valve. Handle guides can be included in the valve to limit handle movement to certain areas or to control sequencing. If downstream pressure drops, the FLEXAIR® will compensate to maintain outlet pressure (without further handle movement).

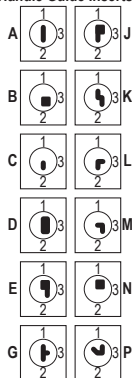
Although most valves operate as described in the paragraph above, any of the three directions can deliver a pressure proportional to handle travel (pressure control valve), control an on/off (3-way) valve, or have no valve at all. Forward movement controls valve #1, backward movement controls valve #2, and sideward movement controls valve #3.

The handle is available in two lengths. Either handle length can be spring returned or detented. Short handles can include an adjustable friction option.

Designation Code and Ordering Information



Handle Guide Inserts



Additional Order Description

(Add to Designation Code)

- Specify pressure range of graduating valve #1 and #2
- Specify pressure range of side graduating valve, if desired
- Specify preloads, and/or full pressure setting for valves in cavities #1 and #2, if desired
- Specify panel mounting kit, if required. Kit Pc No. P52875*
- Specify exhaust adapter kits for cavities #1 and #2. Kit Pc. No. P61340*

(*Not factory installed)