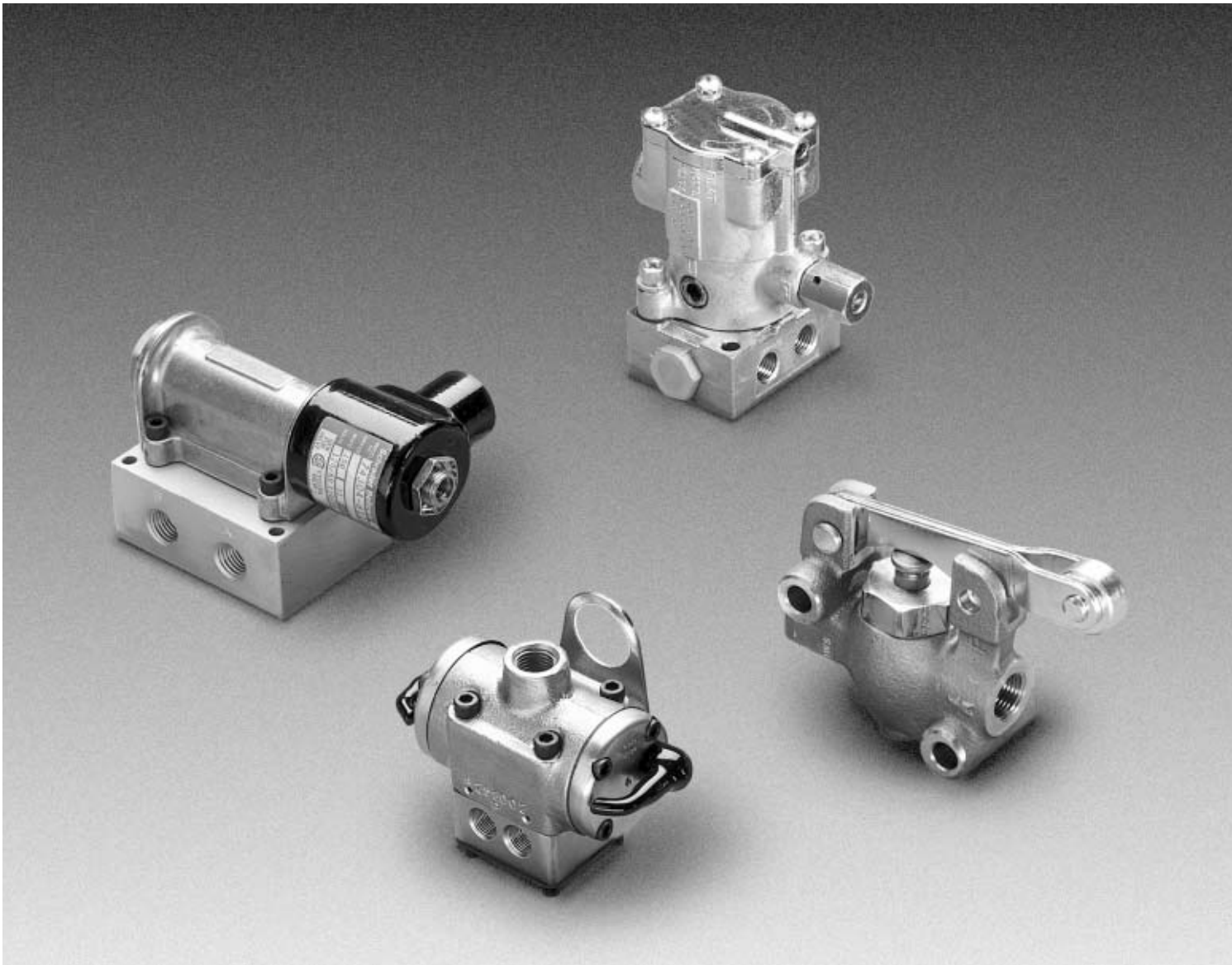




Directional Control Valves

***Pilot, Mini-King, Electroaire,
Multi-Purpose, Sliding Seal and
Brass Poppet***

Catalog VAL-MISC-3/USA



**Schrader
Bellows®**



WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

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- Identical, Interchangeable Coils – serve for continuous or intermittent duty. Coil will not overheat, even when continuously energized.
- Body and Cover – die-cast of high tensile zinc-base alloy.
- Synthetic O-rings and Seals – resist action of air, oil and grease.
- High-Speed Cycling – the medium passing through the center of the valve dissipates coil heat, keeping it cool.
- Seats, Plunger and Spring – corrosion-resistant stainless steel.
- Optional Junction Box – 1/2" threaded conduit connection; fully sealed; large enough for 18" leads.
- Captive Type Screws – on both top cover and junction box cover prevent loss.
- Coil Hermetically Sealed – encapsulated in thermosetting epoxy resin.
- Cadmium-Plated Magnet Bars – highly permeable, low-carbon steel.
- One-Piece Plunger – unbreakable, with top and bottom seals precision molded in place.
- Only One Moving Part – in the valve -- the plunger.

Note: If it is possible that the ambient temperature may fall below freezing, the medium must be moisture free to prevent internal damage or unpredictable behavior.

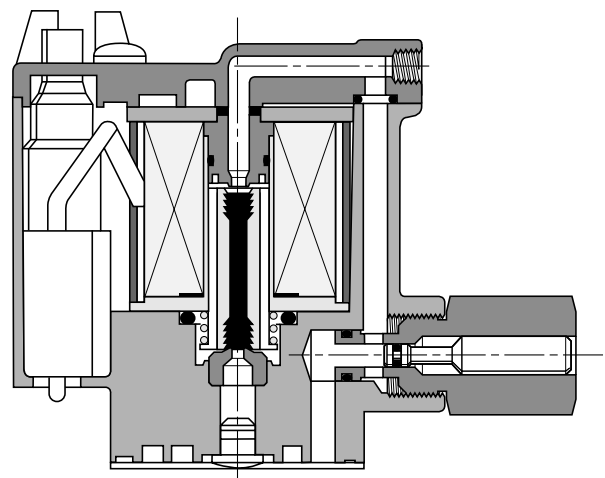
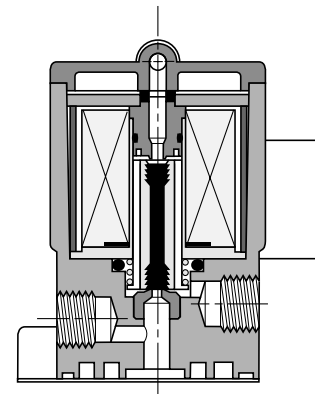
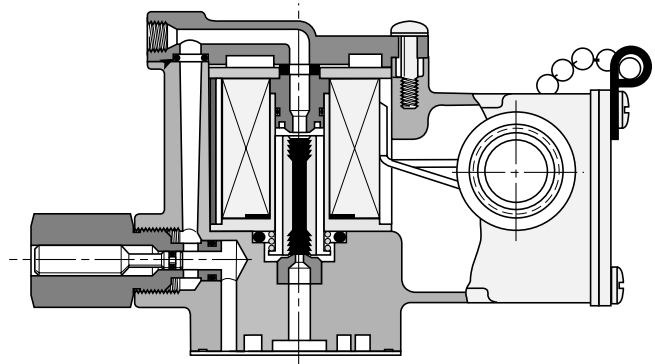
• **Special Service Pilots –**

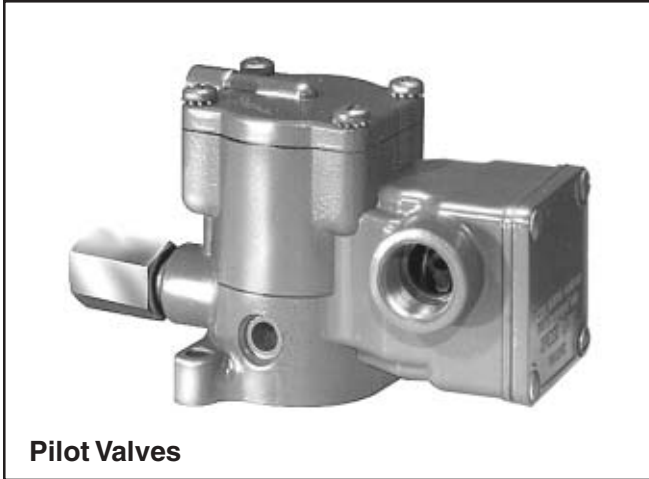
Special Service pilots are designed for applications where cycling is infrequent and the pilot is to be energized for indefinite periods of time . . . hours, days or weeks. Typical uses include fail-safe or emergency shut-down circuits where the pilot is to be energized and the valve open as long as the main control is “alive”, in order to shut off air equipment in the event of power failure.

The Special Service pilot operates satisfactorily in ambient temperatures up to 125°F, even when continuously energized and without the benefit of the cooling air which normally flows through the pilot during frequent cycling. Under certain conditions, satisfactory operation may be obtained at ambient temperatures above 125°F. Consult factory.

Incorporating the performance-proved design features of the Standard pilot, the Special Service pilot utilizes, a bullet-shaped stem on the upper end of the plunger. This bullet-shaped stem, seating in a hi-temp rubber o-ring, provides both a bubble-tight seal and positive release.

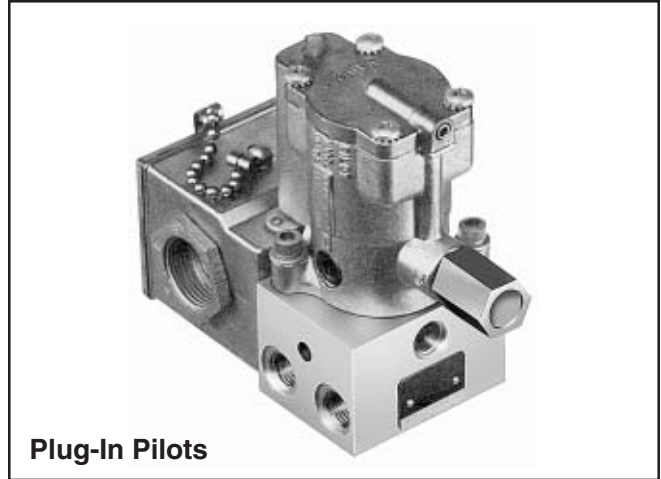
$$\text{Duty cycle} = \frac{\text{Time energized}}{\text{Time energized} + \text{time off}} \times 100 = \% \text{ duty cycle}$$





Pilot Valves

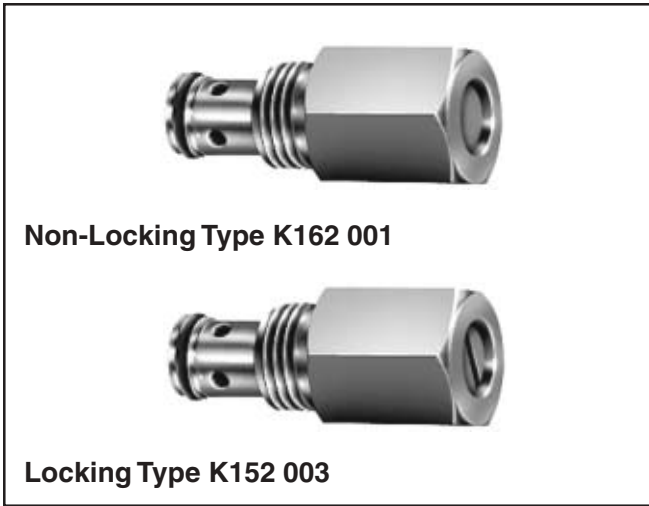
Pilot Valves – are “standard capacity” pilots designed to handle applications up to 600 cycles per minute. Pilot valves are specifically intended for pneumatic service, orifice sizes 1/16" to 3/16". Most models are available with wiring junction boxes. All normally open pilot valves are available with overrides.



Plug-In Pilots

Plug-In Pilots – are available for use on modular subbases. This feature permits quick valve changing without attention to electrical wiring. Available for subbase mounting only. For details see "Technical Information: Plug-In Pilot Valve."

Manual Overrides



Non-Locking Type K162 001

Locking Type K152 003

Subbase Options for Manifold-Mounted Valves



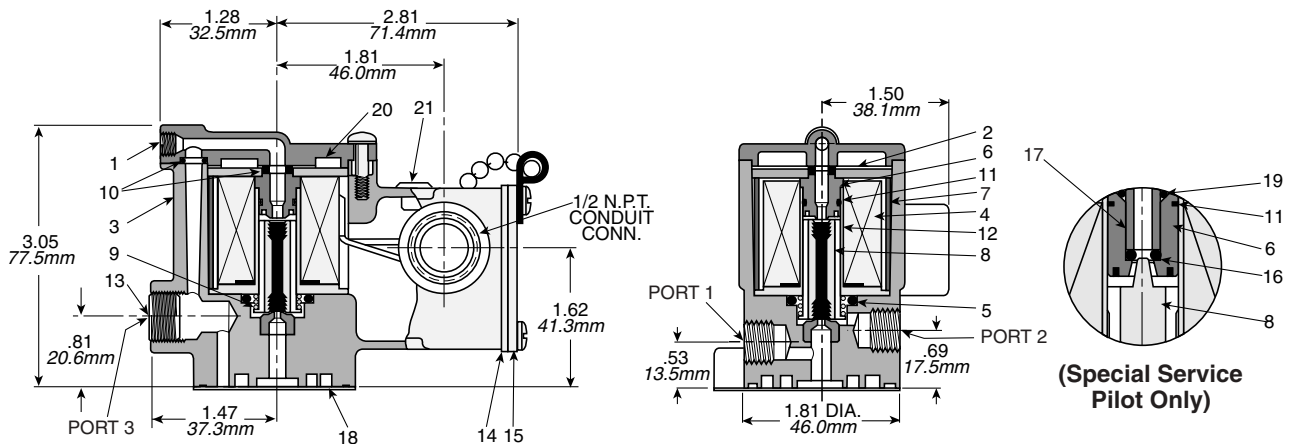
Single station subbase for standard pilots K022098

Maximum Operating Air Pressure (PSI)

Valve Orifice Size	Normally Closed		Normally Open	
	3-Way	2-Way	3-Way	2-Way
STANDARD DUTY PILOTS				
1/16"	150	250	200	200
3/32"	90	175	130	130
1/8"	60	125	90	90
HEAVY DUTY PILOTS				
1/8"	125	200	125	125
3/16"	60	90	90	90

Note: Pilots should generally be selected with the largest orifice size that will handle the operating pressure required. For fastest response use the largest orifice size possible.

Dimensions



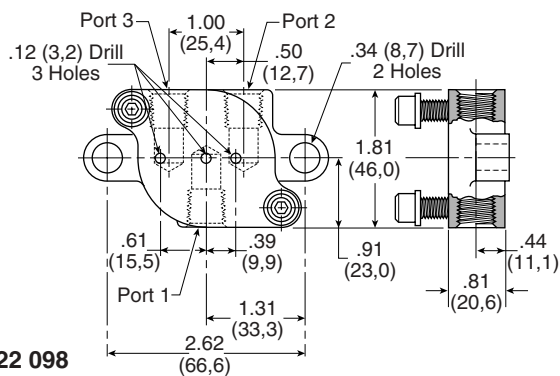
Parts List

Item No.	Part Number	Description	
1	K062 012	Cover Assembly	
	K062 015	Cover Assembly (Special Service)	
2	K323 005	Top Plate	
3	Manifold Mounted		
	With Junction Box	Without Junction Box	
	K112 073	K112 071	Body Assembly (1/16 Orifice) N.C.
	K112 051	K112 031	Body Assembly (1/16 Orifice) N.O.
	K112 052	K112 032	Body Assembly (3/32 Orifice)
	K112 050	K112 033	Body Assembly (1/8 Orifice)
	Direct Pipe Ported		
	With Junction Box	Without Junction Box	
	K112 070	K112 068	Body Assembly (1/16 Orifice) N.C.
	K112 054	K112 034	Body Assembly (1/16 Orifice) N.O.
K112 055	K112 035	Body Assembly (3/32 Orifice)	
K112 053	K112 036	Body Assembly (1/8 Orifice)	
4*	K593 025	Coil 120V 60Hz / 110V 50Hz	
	K593 035	Coil 240V 60Hz / 220V 50Hz	
	K593 003	Coil 6VDC	
	K593 010	Coil 12VDC	
	K593 014	Coil 24VDC	
	K593 041	Coil 120VDC	
5	H142 13	Seal	

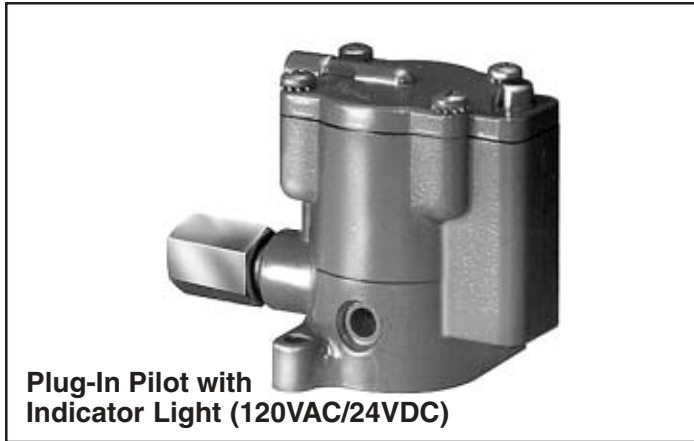
Item No.	Part Number	Description
6	K423 004	Top Seat (1/8 Orifice)
	K423 005	Top Seat (1/16 Orifice)
	K423 006	Top Seat (3/32 Orifice)
	K423 010	Top Seat (Special Service Pilot)
7	K443 009	Split Sleeve
8	K343 001	Plunger (Continuous Duty)
	K343 002	Plunger (Standard Service)
9	K473 001	Spring N.O. Valve
	K473 002	Spring N.C. Valve
10	H142 01	Seal
11	H249 69	O-Ring
12	K272 004	Plunger Guide
13	K21R 02025	Pipe Plug
14	K183 047	Cover Gasket
15	K062 004	Junction Box Cover Assembly
16	H134 73	O-Ring
17	K213 005	Insert
18	K183 001	Gasket
19	H134 13	O-Ring
20	H147 01	Shock Pad
21	K333 011	Plug
	H191 02	Light 120V/60(Not Shown)
	H191 10	Light 24 VDC (Not Shown)
	H181 27	Connector (Not Shown)

* Coil leads are 19" long. All others are specials.

- Parts included in Service Kit.
 - Special Service Kit K352 366
 - Standard Service Kit K352 166

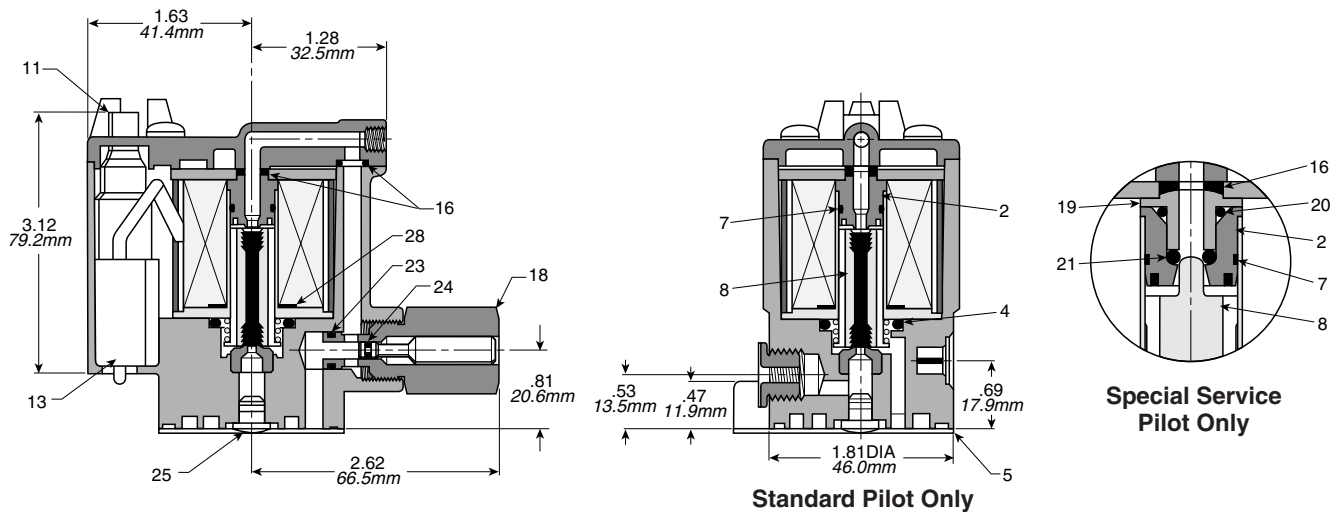


K022 098
SUBBASE



Replacement Pilots

Description	Standard Service		Special Service	
	Locking	Non-Locking	Locking	Non-Locking
With Override (120VAC)	K175 9035 53	K175 8035 53	K185 9025 53	K185 8025 53
With Override (Other than 120VAC)	K175 3035**	K175 2035**	K185 3025**	K185 2025**



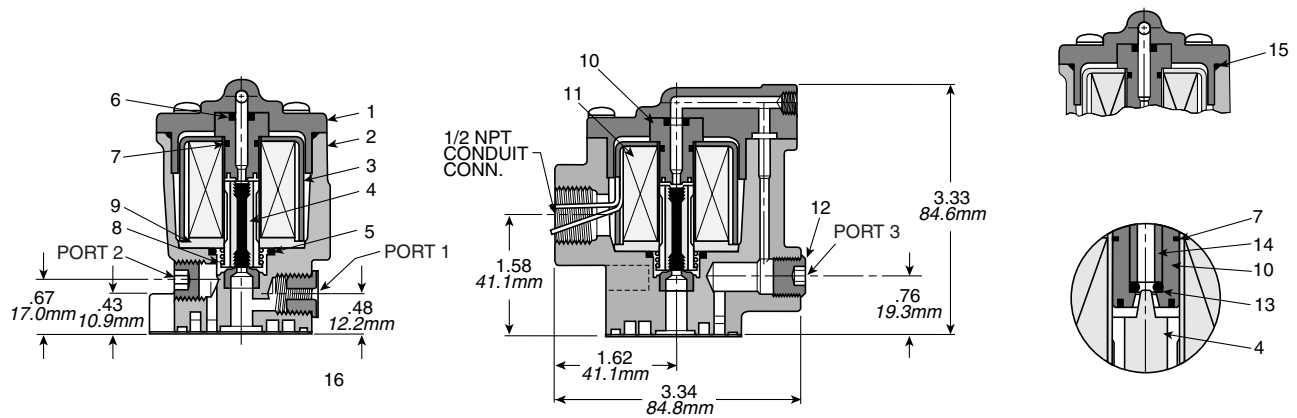
Parts List

Item No.	Part Number	Description
2	K423 005	Top Seat (STD. Service)
	K423 010	Top Seat (SPL. Service)
* 4	H142 13	Seal
* 5	K183 001	Gasket
* 7	H249 69	O-Ring
* 8	K343 002	Plunger (STD. Service)
	K343 001	Plunger (SPL. Service)
11	H191 05	Light (120 AC)
	H191 12	Light (24VDC)
13	K593 125	Coil 120V 60Hz / 110V 50Hz, for Indicator Light**
	K593 071	Coil 120V 60Hz / 110V 50Hz
	K593 081	Coil 240V 60 Hz / 220V 50 Hz
	K593 048	Coil 6VDC / 12V 60Hz
	K593 055	Coil 12VDC
	K593 274	Coil 24VDC, for Indicator Light**
	K593 060	Coil 24VDC

Item No.	Part Number	Description
* 16	H142 01	Seal
18	K152 003	Override Assembly
19	K213005	Insert
* 20	H134 13	O-Ring
* 21	H134 73	O-Ring
* 23	H134 58	O-Ring
* 24	H134 62	O-Ring
* 25	K333 002	Plug
28	K183 108	Gasket

* Parts included with Service Kit
 Standard Service Kit K352166
 Continuous Duty Kit K352366

Dimensions



(Special Service Pilot Only)

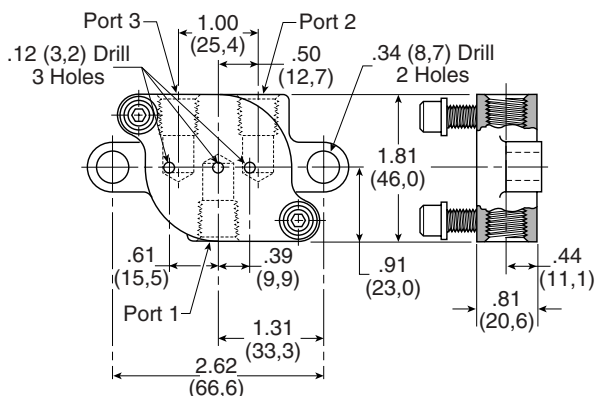
Parts List

Item No.	Part Number	Description	
1	K062 001	Cover Assembly	
2	Manifold Mounted	Direct Pipe Connected	
	K112 076	K112 075	Body (1/16 Bottom Seat) N.C.
	K112 040	K112 039	Body (1/16 Bottom Seat) N.O.
	K112 042	K112 041	Body (3/32 Bottom Seat)
	K112 044	K112 043	Body (1/8 Bottom Seat)
3	K203 001	Housing	
• 4	K343 001	Plunger (Special Service)	
	K343 002	Plunger (Standard Service)	
• 5	H142 13	Seal	
• 6	H134 11	O-Ring (Standard Service)	
	H134 61	O-Ring (Special Service)	
• 7	K593 036	O-Ring	
• 8	K473 001	Spring (N.O. Valve)	
	K473 002	Spring (N.C. Valve)	
9	K272 001	Plate-Sleeve Assembly	

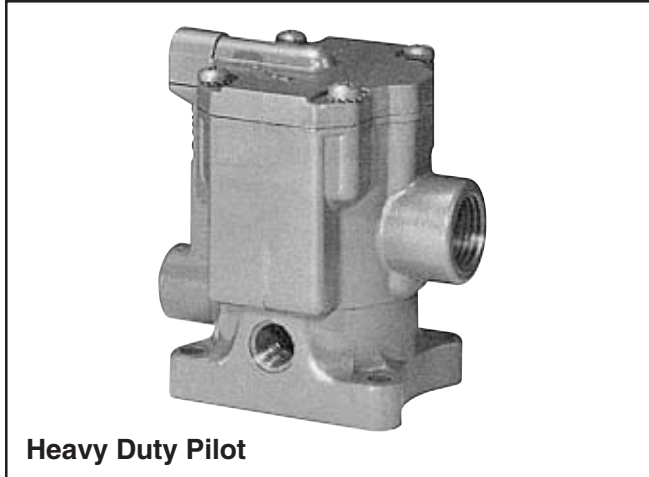
Item No.	Part Number	Description
10	K423 001	Top Seat (3/32 Orifice)
	K423 002	Top Seat (Special Service)
	K423 024	Top Seat (1/16 Orifice)
	K423 025	Top Seat (1/8 Orifice)
* 11	K593 025	Coil 120V-60Hz/110V-50Hz
	K593 035	Coil 290V-60Hz/220V-50HZ
	K593 003	Coil 6V DC
	K593 010	Coil 12V DC
	K593 014	Coil 24V DC
	K593 041	Coil 120V DC
12	K21R02025	Pipe Plug
13	H134 73	O-Ring
14	K213 001	Insert
• 15	H137 16	Gasket (NEMA-4 rated pilot only)
• 16	K183 001	Gasket

* Coil leads are 19" long. All others are specials.

- Parts included in Service Kit.
 - Special Service Kit K352 366
 - Standard Service Kit K352 166



K022 098
SUBBASE



Heavy Duty Pilot

Heavy Duty Pilot Valves –

are designed for applications requiring high-flow capacity with cycling speeds to 400 cycles per minute. 1/8" or 3/16" orifice sizes are available. The 3/16" orifice size provides highest flow and fastest response. The 1/8" orifice size provides maximum operating pressure. Pilots should generally be selected with the largest orifice size that will handle the operating pressure required.

Materials in Heavy Duty Pilots are selected to withstand corrosion and wear. They are designed to provide long, dependable service life in heavy duty service.

Heavy Duty Pilot Valves can be used for 2-Way or 3-Way normally open or normally closed service. They are designed for air, vacuum or inert gasses.

Direct Pipe Ported or Manifold Mounted types are available. Manual overrides can be supplied for 3-Way normally open function on manifold mounted valves only. Ports are 1/4" NPTF.

Optional Junction Box –

A bolt on junction box is optional on all heavy duty pilot valves. It may also be ordered for field conversion. (Junction Box Conversion Kit K322 004). Kit includes junction box and all necessary hardware.

Engineering Data:

Service: Air, Inert Gas, Vacuum
 Cycle Speed: Maximum 400 Cycles per Minute
 Current Consumption: @ 115V-60Hz: .43 amp Inrush;
 .24 amp Holding

Service Limitations:

Temperature – Maximum ambient temperature:
 Continuous Service:
 Standard Pilots: 100°F
 Intermittent Service:
 All Pilots: 125°F
 Minimum Ambient Temperature* 0°F

* In below-freezing ambient temperatures, it is important that a suitable lubricant be reasonably moisture-free.

How to Order:

Select Valve Model Number and add solenoid voltage and hertz code from page 12.

For example: K125 7041 53

Valve Description	Pilot Options	Orifice Size	Cv	Pressure Service		Vacuum Service
				2-Way	3-Way	
N.C. Direct Pipe Ported	w/Junction Box for 115-AC	1/8" 3/16"	.33 .39	K125 7037 K125 7060	K125 7041 K125 7064	K125 7066
	w/Junction Box for other than 115-AC	1/8" 3/16"	.33 .39	K125 4037 K125 4060	K125 4041 K125 4064	K125 4066
	Without Junction Box	1/8" 3/16"	.33 .39	K125 1037 K125 1060	K125 1041 K125 1064	K125 1066

Valve Description	Pilot Options	Orifice Size	Cv	Pressure Service	Vacuum Service
N.O. Direct Pipe Ported	w/Junction Box for 115-AC	1/8" 3/16"	.28 .34	K125 7043 K125 7066	K125 7064
	w/Junction Box for other than 115-AC	1/8" 3/16"	.28 .34	K125 4043 K125 4066	K125 4064
	Without Junction Box	1/8" 3/16"	.28 .34	K125 1043 K125 1066	K125 1064

Port Identification

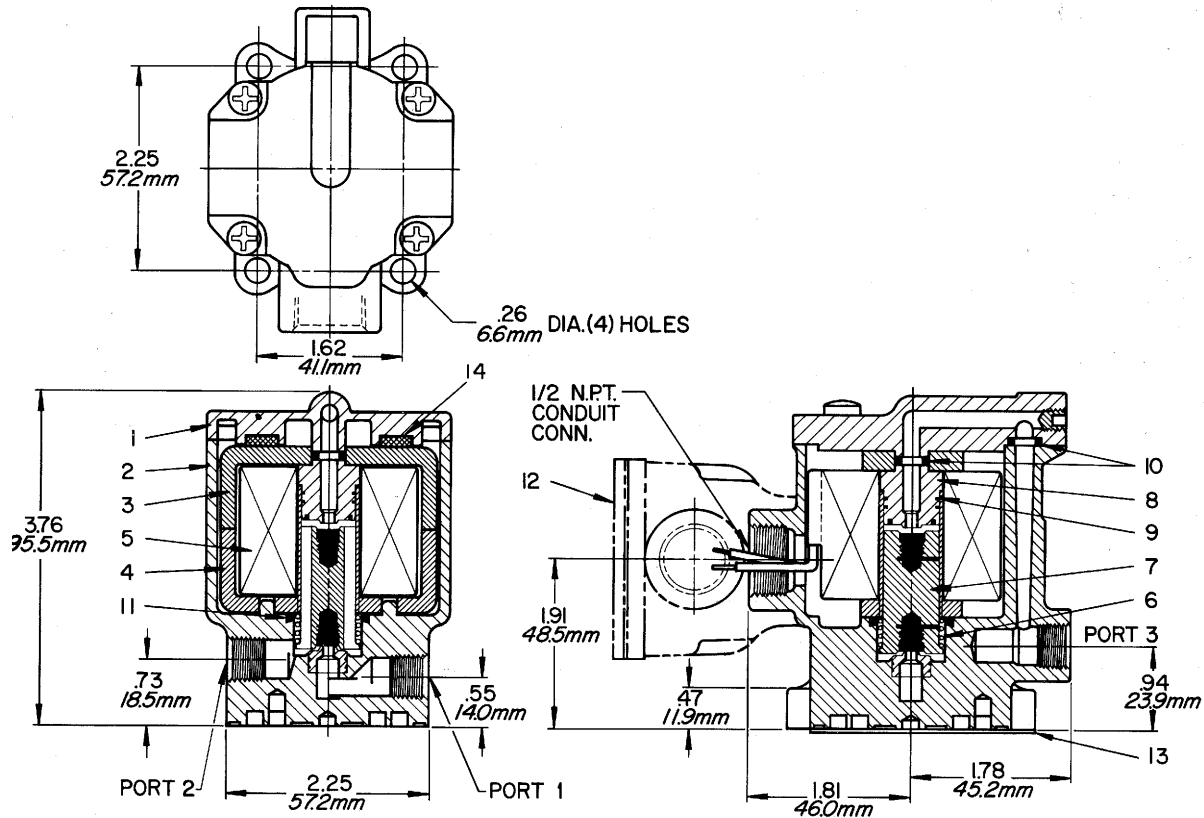
NORMALLY CLOSED		Port 1	Port 2	Port 3
Pressure Service	3-Way	Inlet	Cylinder	Exhaust
	2-Way	Outlet	Inlet	Plugged
Vacuum Service	3-Way	Pump	Device	Open
	2-Way	Pump	Device	Plugged
NORMALLY OPEN		Port 1	Port 2	Port 3
Pressure Service	3-Way	Exhaust	Cylinder	Inlet
	2-Way	Plugged	Outlet	Inlet
Vacuum Service	3-Way	Open	Device	Pump
	2-Way	Plugged	Device	Pump

Note: Use pipe plug K21R02025 for 2-Way service.

Operating Pressure:

Valve Orifice Size	Maximum Operating Air Pressure (PSI)			
	Normally Closed		Normally Open	
	3-Way	2-Way	3-Way	2-Way
1/8"	125	125	125	125
3/16"	60	200	90	90

Dimensions



Parts List

Item No.	Part Number	Description
1	K062 005	Cover Assy
2	K112 045	Body, Man. Mtd. (1/8" Bottom Seal)
	K112 046	Body, Man. Mtd. (3/16" Bottom Seal)
	K112 047	Body, Direct Pipe (1/8" Bottom Seal)
	K112 048	Body, Direct Pipe (3/16" Bottom Seal)
3	K013 001	Magnet Bar
4	K272 002	Sleeve Sub Assy
5*	K593 108	Coil (115V 60Hz)
	K593 112	Coil (230V 60Hz)
	K593 092	Coil 6VDC
	K593 094	Coil 12VDC
	K593 097	Coil 24VDC
	K593 107	Coil 115VDC

Item No.	Part Number	Description
6	K473 010	Spring N.O. Valve
	K473 011	Spring N.C. Valve
• 7	K343 042	Plunger
8	K423 020	Top Seat (1/8" Orifice)
	K423 022	Top Seat (3/16" Orifice)
• 9	H13436	Seal
• 10	H14202	Seal
• 11	H14215	Seal
12	K322 004	Junction Box Kit
• 13	K183 012	Gasket

* Coil leads are 19" long. For other voltages see page 12.
 • Parts included in Seal Kit K352 064.

Port Arrangement - 2 & 3-Way Valves

Valve Type		Pressure Service			Vacuum Service		
		Port 1	Port 2	Port 3	Port 1	Port 2	Port 3
3-Way	Normally Closed	Inlet	Cylinder	Exhaust	Pump	Device	Open
	Normally Open	Exhaust	Cylinder	Inlet	Open	Device	Pump
2-Way	Normally Closed	Outlet	Inlet	Plugged	Pump	Device	Plugged
	Normally Open	Plugged	Outlet	Inlet	Plugged	Device	Pump

NOTE: Use pipe plug K21R02025 for 2-way service.

**Replacement Coils & Electrical Data —
 Small Solenoid**

Voltage Code	Voltage			Coil Number		Electrical Data				
	60Hz	50Hz	D.C.	Plug-In	Flying Lead 18"	A.C. (Amps)		D.C. (Amps)	WATTS	
						Inrush	Hold	Hold	A.C	D.C
40	12	—	3	K593 052	K593 007	2.8	1.8	2.8	8	8.5
42	24	—	6	K593 048	K593 003	1.0	1.6	1.4	11	8.5
43	—	24	—	K593 061	K593 015	1.2	.75	—	7	—
45	—	—	12	K593 055	K593 010	—	—	.66	—	8
49	—	—	24	K593 060	K593 014	—	—	.32	—	8
51	—	130	48	K593 074	K593 028	.15	.23	.22	9	10.5
53	120	110	—	K593 125	K593 025	.29	.18	—	9	—
57	240	220	—	K593 081	K593 035	.18	.12	—	13	—
60	—	—	90	—	K593 020	—	—	.08	7.5	—
61	—	—	120	—	K593 041	.06	.09	.07	13	8

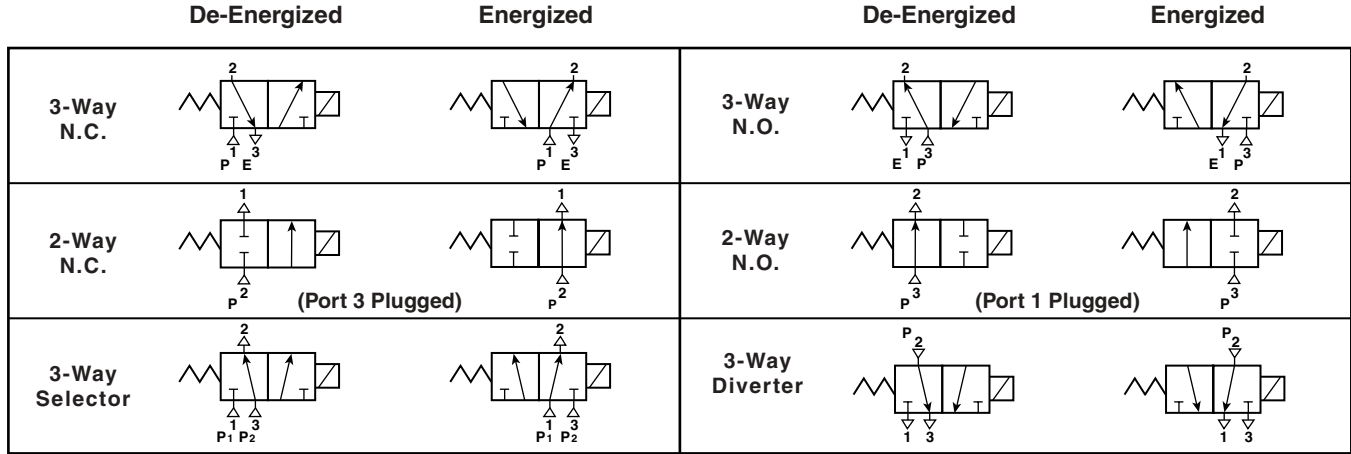
**Replacement Coils & Electrical Data —
 Heavy Duty Solenoid**

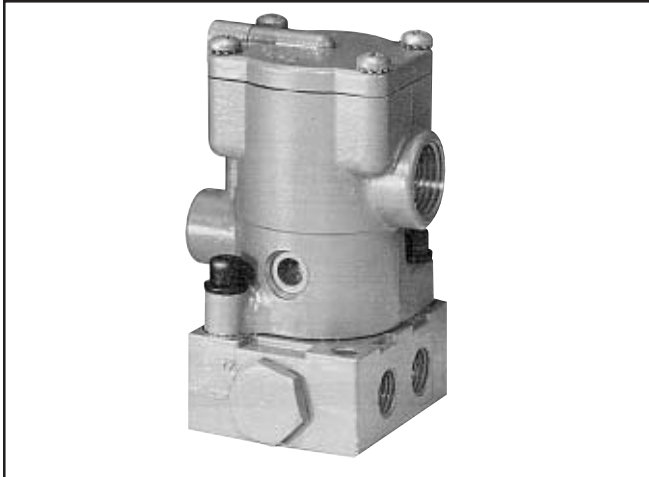
Voltage Code	Voltage			Coil Number		Electrical Data				
	60Hz	50Hz	D.C.	Flying Lead 18"	A.C. (Amps)		D.C. (Amps)	WATTS		
					Inrush	Hold	Hold	A.C	D.C	
40	12	—	—	K593 096	3.5	6.1	—	24	—	
42	24	—	—	K593 099	1.4	2.3	—	20	—	
43	—	24	—	K593 098	.9	1.6	—	12	—	
45	—	—	12	K593 094	—	—	.70	—	8	
49	—	—	24	K593 097	—	—	.33	—	8	
51	—	—	48	K593 102	—	—	.16	—	7.5	
53	115	—	—	K593 108	.25	.46	—	18.5	—	
54	—	110	—	K593 106	.19	.36	—	12	—	
56	230	—	—	K593 112	.15	.26	—	18.5	—	
58	—	230	—	K593 111	.11	.20	—	14	—	
61	—	—	115	K593 107	—	—	.07	—	9	

Note: Shaded areas indicate extended delivery times should be expected, consult supplier for availability.
BOLD FACE type indicates primary coil rating

Flow Patterns —

Standard and Heavy Duty pilot valves may be used for a variety of functions. Ports are stamped 1, 2, and 3 for easy application.





Features –

- Fast Response - Bubble Tight Sealing
- Small Size - 4 Inches High
- Single Solenoid - Only 3 Moving Parts
- Pilot Interchangeable with Speed Kings
- Available for Continuous Electrical Energization and for Hazardous, Wet or Dusty Locations
- Manual Override and Integral Junction Box are Optional Features. All Ports are 1/4" NPTF.
- Indicator Light Available on Junction Box Models for 120VAC and a 24VDC.

How to Order:

Select Valve Model Number and add solenoid voltage and hertz code from page 12.

For example: N195 21001 53

Valve Description	Standard Service		Special Service	
	With Override	Less Override	With Override	Less Override
Basic (1/2" Conduit Connection)	N195 23001	N195 21001	N195 23003	N195 21003
w/Junction Box for 115-AC	N195 29001	N195 27001	N195 29003	N195 27003
w/Junction Box for other than 115-AC	N195 26001	N195 24001	N195 26003	N195 24003
Hazardous Duty	N195 23501	N195 21501	N195 23503	N195 21503
NEMA-4	N195 23701	N195 21701	N195 23703	N195 21703

Function –

The MINI-KING 4-Way valve is a single solenoid valve especially suited for operating small bore cylinders or piloting larger valves. On applications where cylinders of 2" bore or less are used, the MINI-KING provides an ideal low cost control.

Engineering Data:

Service: Air, Inert Gas

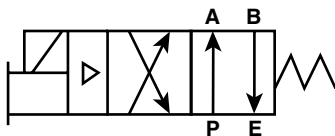
Pressure: 20 - 140 PSIG

Flow Cv: .14 Cyl. Port "A", .33 Cyl. Port "B"

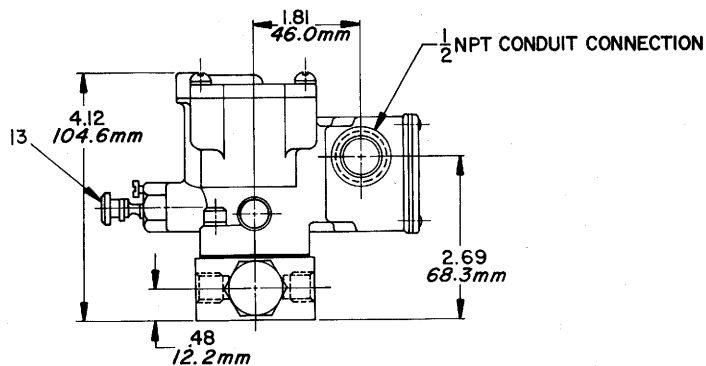
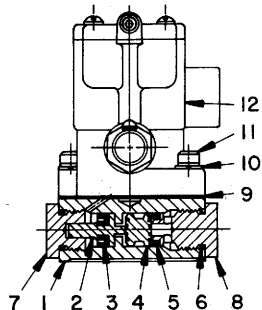
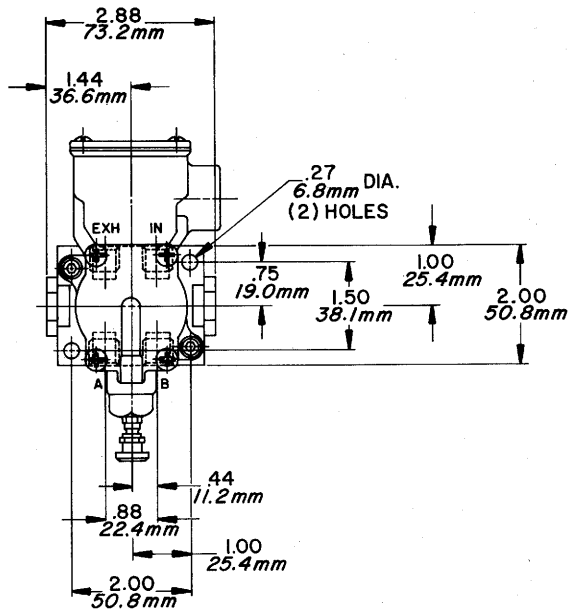
Current Consumption Data:

120V 60Hz - .29 amp inrush .18 amp holding

110V 50Hz - .32 amp inrush .22 amp holding



Dimensions



Parts List

Item No.	Part Number	Description	
1	K053 124	Body	
2	K313 003	Piston	
•3	H129 01	Packer	
•4	K282 001	Shuttle Assembly	
•5	H134 24	O-Ring	
•6	H142 07	Seal	
7	K033 003	End Cap	
8	K033 004	End Cap	
•9	K183 001	Gasket	
10	H175 12	Lockwasher	
11	H100 60	Cap Screw	
	Standard Service Pilot	Special Service Pilot	
12	K065 1033	K085 1023	Basic Pilot
	K065 3033	K085 3023	Basic Pilot w/Override
	K065 7033	K085 7023	Junction Box - Pilot 120-AC
	K065 9033	K085 9023	Junction Box - Pilot w/Override 120-AC
	K065 4033	K085 4023	JIC Pilot w/Junction Box For other than 120-AC

See "Dimensions-Parts Data; L-Pilot Valve Standard Duty page, or Dimensions-Parts Data; L-Pilot Valve-Hazardous Duty & NEMA 4."

Item No.	Part Number	Description
13	K152 003	Override Assembly
*	K593 025	Coil 120V 60Hz / 110V 50Hz
	K593 035	Coil 240V 60Hz/ 220V 50HZ
	K593 003	Coil 6VDC
	K593 010	Coil 12VDC
	K593 014	Coil 24VDC
	K593 041	Coil 120VDC

* Coil leads are 19" long. For other voltages see page 12.

• Parts included in Service Kit K352 061.
 Pilot Service Kit K352 166



Features –

- Modular Manifold Mounted for Simplified Installation
- Fast Response - Bubble Tight Sealing
- Single Solenoid - Only 3 Moving Parts
- Pilot Interchangeable with Speed Kings
- Available for Continuous Electrical Energization and for Hazardous, Wet or Dusty Locations
- Manual Override and Integral Junction Box are Optional Features. All Ports are 1/4" NPTF.
- Indicator Light Available on Junction Box Models for 120VAC and 24VDC.

Function –

The MINI-KING 4-Way valve is a single solenoid valve especially suited for operating small bore cylinders or piloting larger valves. On applications where cylinders of 2" bore or less are used, the MINI-KING provides an ideal low cost control.

Engineering Data:

Service: Air, Inert Gas

Pressure: 20 - 140 PSIG

Flow Cv: .14 Cyl. Port "A", .33 Cyl. Port "B"

Current Consumption Data:

120V 60Hz - .29 amp inrush .18 amp holding

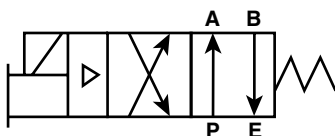
How to Order:

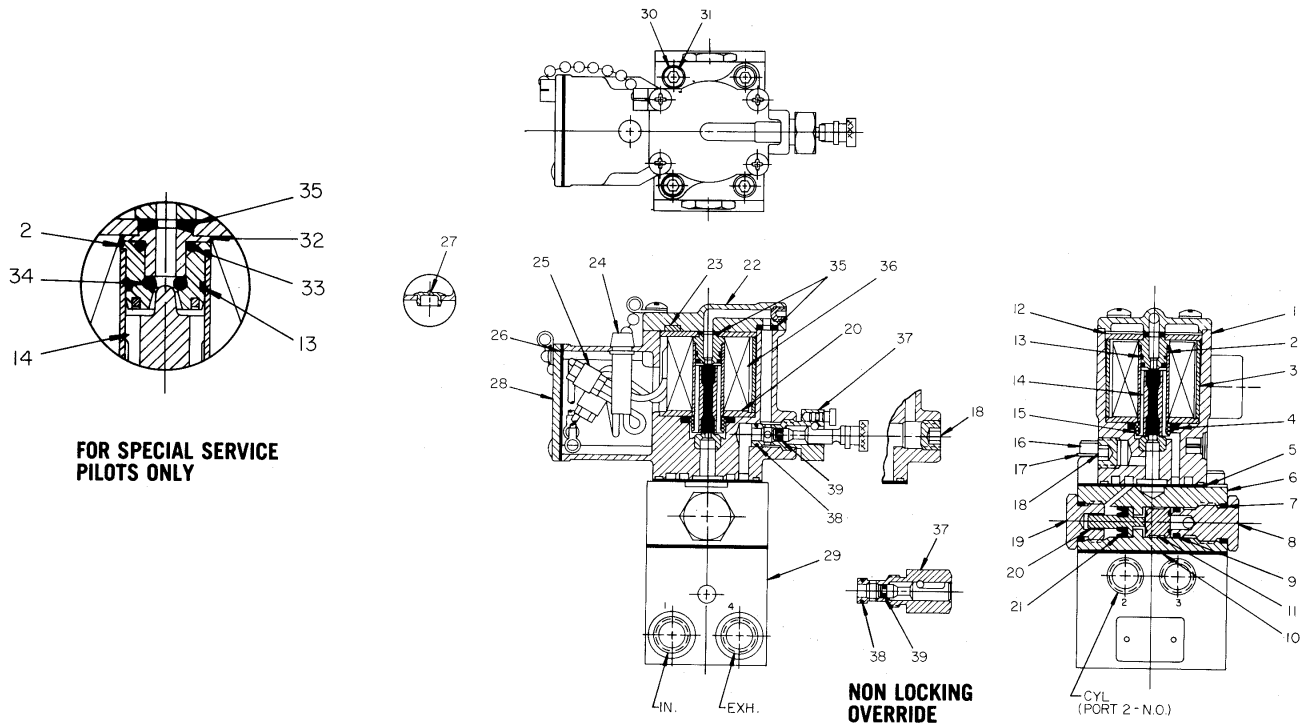
1. Valve —

Select Valve Model Number from table below. To complete the valve description, specify solenoid voltage and hertz code from page 12.

For example: N195 23001 53

Valve Description	Standard Service		Special Service	
	With Override	Less Override	With Override	Less Override
Basic (1/2" Conduit Connection)	N205 23001	N205 21001	N205 23003	N205 21003
w/Junction Box for 115-AC	N205 29001	N205 27001	N205 29003	N205 27003
w/Junction Box for other than 115-AC	N205 26001	N205 24001	N205 26003	N205 24003
Hazardous Duty	N205 23501	N205 21501	N205 23503	N205 21503
NEMA-4	N205 23701	N205 21701	N205 23703	N205 21703



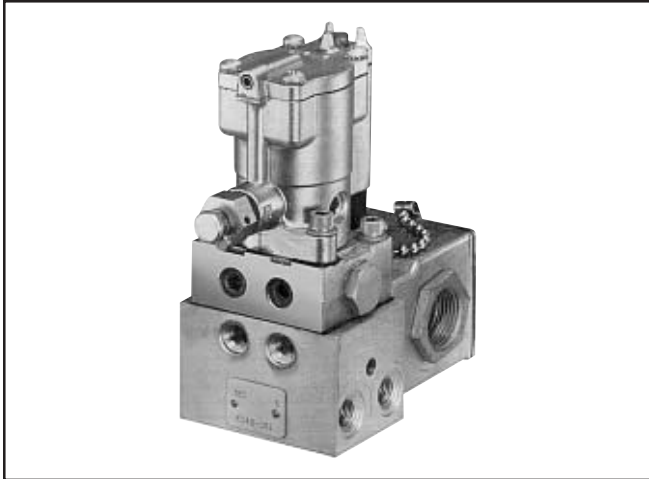


Parts List

Item No.	Part Number		Description
	With Junction Box	Without Junction Box	
1	K112 051	K112 031	Body (1/16" Orifice) N.O.
	K112 052	K112 032	Body (3/32" Orifice) N.O.
	K112 050	K112 033	Body (1/8" Orifice) N.O.
2	K423 005		Top Seat (1/16" Orifice)
	K423 006		Top Seat (3/32" Orifice)
	K423 004		Top Seat (1/8" Orifice)
	K423 010		Top Seat (Special Service)
3	K443 009		Sleeve
•4	K142 13		Seal
•5	K183 001		Gasket
6	K053 216		Body
•7	H142 07		Seal (2)
8	K033 004		End Cap
•9	H134 24		O-Ring
•10	K183 020		Gasket
•11	K282 001		Shuttle Assembly
12	K323 005		Top Plate
•13	H249 69		O-Ring
•14	K343 002		Plunger (Standard Service)
	K343 001		Plunger (Special Service)
15	K473 001		Spring
16	H100 60		Cap Screw (2)
17	H175 12		Washer (2)
18	K21R02025		Plug (2)
19	K033 003		End Cap
20	K313 003		Piston
•21	H129 01		U-Cup

Item No.	Part Number	Description
22	K062 012	Cover Assy (Standard Service)
	K062 015	Cover Assy (Special Service)
23	H147 01	Shock Pad (3)
24	H191 02	Indicator Light 120VAC
	H191 10	Indicator Light 24VDC
25	H181 27	Connector
26	K183 047	Gasket
27	K333 011	Plug
28	K062 004	Cover Assembly
29	K253 131	Manifold
30	H175 12	Washer (2)
31	H100 55	Screw (2)
32	K213 005	Insert
•33	H134 13	O-Ring
•34	H134 73	O-Ring
•35	H142 01	Seal (2)
36	K593 025	Coil 120V 60Hz / 110V 50Hz
	K593 035	Coil 240V 60Hz / 220V 50Hz
	K593 003	Coil 6VDC
	K593 010	Coil 12VDC
	K593 014	Coil 24VDC
	K593 041	Coil 120VDC
37	K152 003	Locking Override
	K162 001	Non-Locking Override
•38	H134 58	O-Ring
•39	H134 62	O-Ring

1. • Parts included in Service Instruction K352 061.
 2. For Special Service order Service Instruction K352 261.
 3. () Quantity req'd.



Features –

- Plug-In Electrical Connection
- Modular Manifold Mounted for Simplified Installation
- Fast Response - Bubble Tight Sealing
- Single Solenoid - Only 3 Moving Parts
- Pilot Interchangeable with Speed Kings
- Available for Continuous Electrical Energization
- Manual Override and Indicator Light are Optional Features. All Ports are 1/4" NPTF.
- Indicator Light Available for 120VAC and 24VDC.

Function –

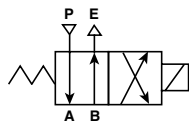
The MINI-KING 4-Way valve is a single solenoid valve especially suited for operating small bore cylinders or piloting larger valves. On applications where cylinders of 2" bore or less are used, the MINI-KING provides an ideal low cost control.

Engineering Data:

Service: Air, Inert Gas, Vacuum
 Pressure: 20 - 140 PSIG
 Flow Cv: .14 Cyl. Port "A", .33 Cyl. Port "B"

Current Consumption Data:

120V 60Hz - .29 amp inrush .18 amp holding
 110V 50Hz - .32 amp inrush .22 amp holding



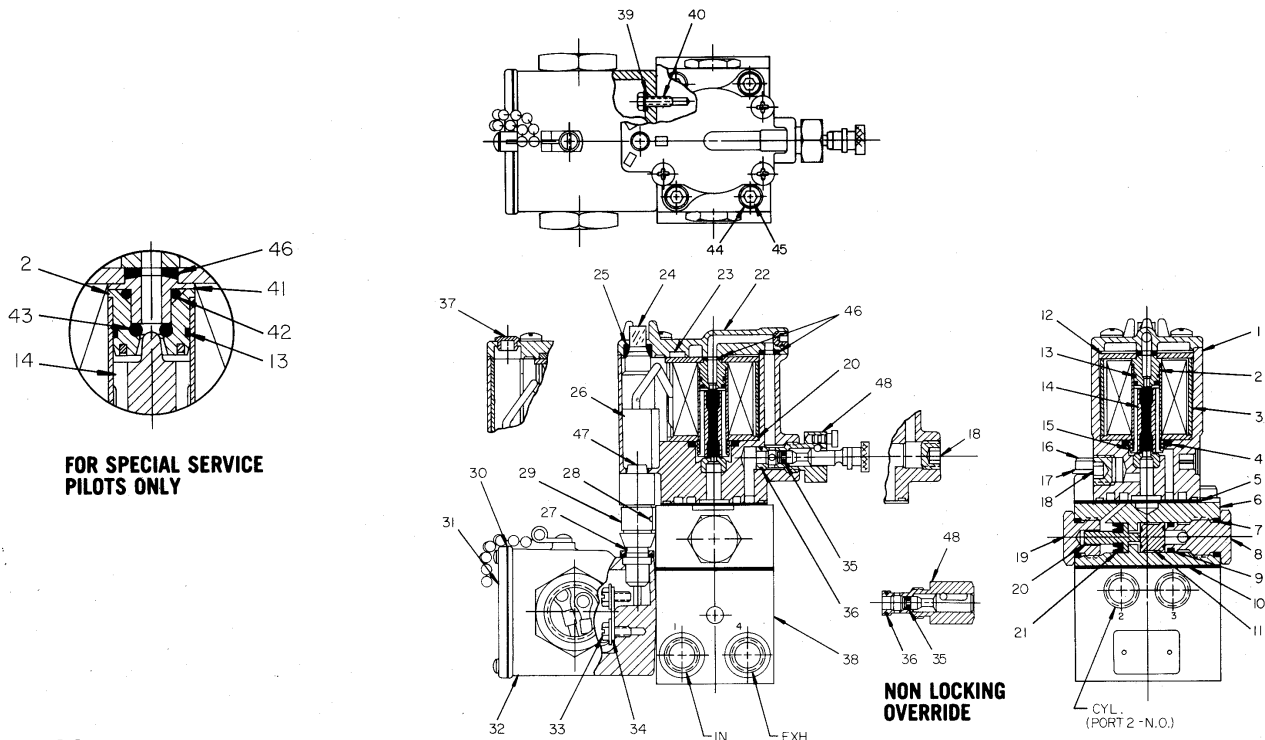
How to Order:

1. Valve —

Select Valve Model Number from table below. To complete the valve description, specify solenoid voltage and hertz code from page 12.

For example: N195 23001 53

Valve Description	Standard Service		Special Service	
	With Override	Less Override	With Override	Less Override
Basic	N215 23001	N215 21001	N215 23003	N215 21003
w/Indicator Light for 120-AC	N215 29001	N215 27001	N215 29003	N215 27003
for other than 115-AC	N215 26001	N215 24001	N215 26003	N215 24003

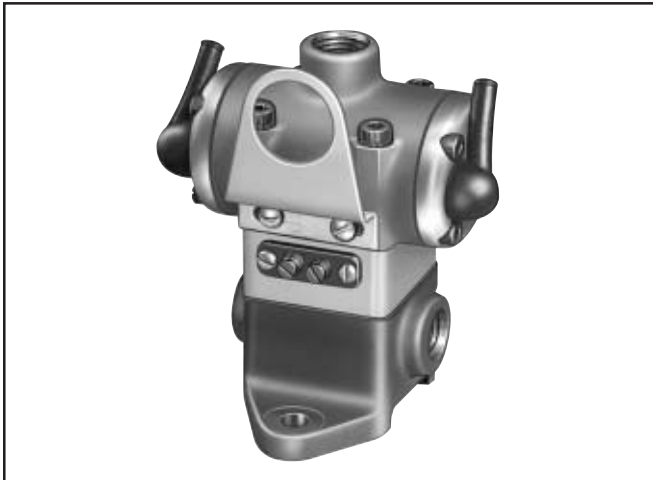


Parts List

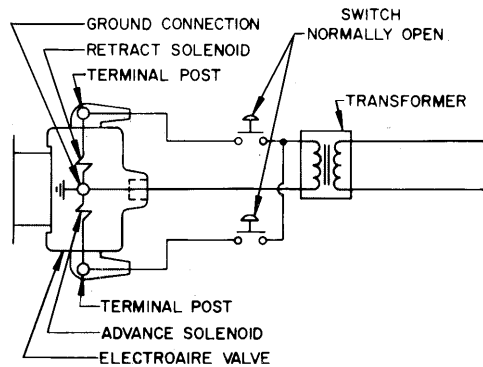
Item No.	Part Number	Description
1	K112 074	Body (1/16" Orifice) N.O.
	K112 037	Body (3/32" Orifice) N.O.
	K112 038	Body (1/8" Orifice) N.O.
2	K423 005	Top Seat (1/16" Orifice)
	K423 006	Top Seat (3/32" Orifice)
	K423 004	Top Seat (1/8" Orifice)
	K423 010	Top Seat (Special Service)
3	K443 009	Sleeve
•4	K142 13	Seal
•5	K183 001	Gasket
6	K053 216	Body
•7	H142 07	Seal (2)
8	K033 004	End Cap
•9	H134 24	O-Ring
•10	K183 020	Gasket
•11	K282 001	Shuttle Assembly
12	K323 005	Top Plate
•13	H249 69	O-Ring
•14	K343 002	Plunger (Standard Service)
	K343 001	Plunger (Special Service)
15	K473 001	Spring
16	H100 60	Cap Screw (2)
17	H175 12	Washer (2)
18	K21R02025	Plug (2)
19	K033 003	End Cap
20	K313 003	Piston
21	H129 01	U-Cup
22	K062 016	Cover Assy (Standard Service)
	K062 032	Cover Assy (Special Service)
23	H147 01	Shock Pad (3)
24	H191 05	Indicator Light
25	H663 003	Seal

Item No.	Part Number	Description
26	K593 125	Coil (For Indicator Light) 120V 60Hz / 110V 50Hz
	K593 081	Coil 240V 60Hz
	K593 048	Coil 6VDC
	K593 055	Coil 12VDC
	K593 060	Coil 24VDC
	K593 274	Coil (For Indicator Light) 24VDC
27	H027 44	Plug
28	H104 04	Screw (2)
29	K603 001	Retaining Clamp
30	K183 079	Gasket
31	K062 030	Cover Assembly
32	K203 061	Housing
33	H114 06	Screw (2)
34	K372 002	Grounding Strip Assembly
•35	H134 62	O-Ring
•36	H134 58	O-Ring
37	K333 010	Plug
38	K253 131	Manifold
39	H142 65	Seal (2)
40	H114 07	Screw (2)
41	K213 005	Insert
•42	H134 13	O-Ring
•43	H134 73	O-Ring
44	H175 12	Washer (2)
45	H100 55	Screw (2)
•46	H142 01	Seal (2)
47	H027 15	Connector
48	K152 003	Locking Override
	K162 001	Non-Locking Override
49	K663 004	Grommet (Not Show)

1. • Parts included in Service Instruction K352 061.
 2. For Special Service order Service Instruction K352 261.
 3. () Quantity req'd.



Wiring Diagram –



Description –

The Electroaire valve is a compact, air operated, electrically controlled 4-Way valve most widely used with an air motor. Electroaire valves can be remotely mounted for control of double acting cylinders and other air operated devices. Built in flow controls adjust cylinder rod speed in either or both directions.

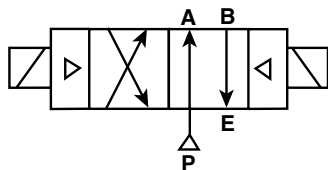
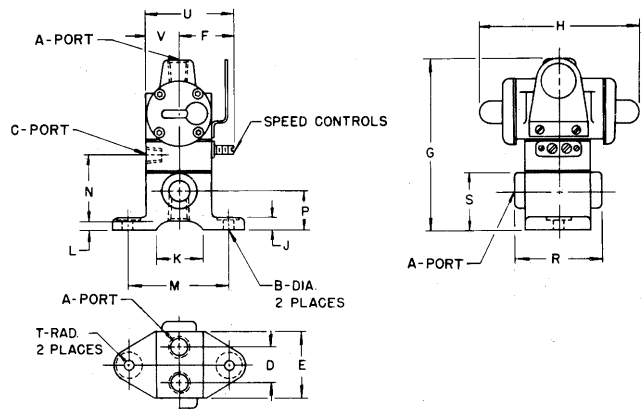
The B385 and B962 series Electroaire valves are available in 1/4 and 3/8 inch port sizes and come with voltages listed below. For use with 120/60 or 240/60 line voltage, step down transformers may be ordered. See wiring diagram for installation.

Mounting –

These valves may be oriented in any position and are designed to be bracket mounted or directly mounted to air motors. Brackets are equipped with four pipe tap ports for convenient panel or surface mounting and are furnished with two dry seal plugs for closing the two ports not used.

Operation –

A momentary electrical signal applied to one of the solenoids shifts the valve. The valve remains in this position until a momentary signal is applied to the opposite solenoid.



Model Selection

Port Size	1/4"	3/8"
Valve With Bracket	B385 2004 "XX"	B385 3004 "XX"
Valve Less Bracket	B962 2001 "XX"	B962 3001 "XX"
Bracket	B082 091	B082 090

Voltage Options "XX"

12V 60Hz	40
12VDC	45
24VDC	49

Dimensions

Port Size	1/4"		3/8"	
	Inch	mm	Inch	mm
A	1/4-18		3/8-18	
B	.28	7	.33	8
C	1/8-27		1/8-27	
D	.88	22	1.13	29
E	1.69	43	2.13	54
F	1.36	33	1.84	47
G	4.16	106	4.78	121
H	4.00	102	4.06	103
J	.31	8	.38	10
K	1.13	29	1.50	38
L	.25	6	.28	7
M	2.50	64	3.00	76
N	1.66	42	1.97	50
P	.94	24	1.09	28
R	2.13	54	2.63	67
S	1.44	37	1.66	42
T	.38	10	.44	11
U	2.19	56	2.91	74
V	.83	21	1.06	27



Description –

The Electroaire valve is a compact, air operated, electrically controlled 4-Way valve most widely used with an air motor. Electroaire valves can be remotely mounted for control of double acting cylinders and other air operated devices. Built in flow controls adjust cylinder rod speed in either or both directions.

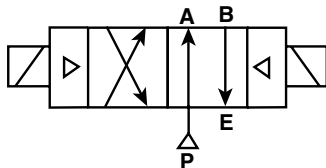
The B435 and B435 series Electroaire valves are available in 1/4 and 3/8 inch port sizes and come with voltages listed below. To use the B435 with 240/60 line voltage, step down transformers are needed. See wiring diagram for installation. B435, B425 and B972 series Electroair valves are equipped with junction boxes which are rated for NEMA 4 watertight service.

Mounting –

These valves may be oriented in any position and are designed to be bracket mounted or directly mounted to air motors. Brackets are equipped with four pipe tap ports for convenient panel or surface mounting and are furnished with two dry seal plugs for closing the two ports not used.

Operation –

A maintained electrical signal applied to the one of the solenoids shifts the valve. The valve remains in this position until a momentary signal is applied to the opposite solenoid.



Model Selection

Port Size	1/4"	3/8"
Valve With Junction Box And Bracket	B435 2004 "XX"	B435 3004 "XX"
Valve With Junction Box Less Bracket	B972 2005 "XX"	B972 3005 "XX"
Valve With Junction Box Manual Override And Bracket	B425 2004 "XX"	B425 3004 "XX"
Valve With Junction Box Manual Override Less Bracket	B972 2002 "XX"	B972 3002 "XX"
Bracket	B082 091	B082 090

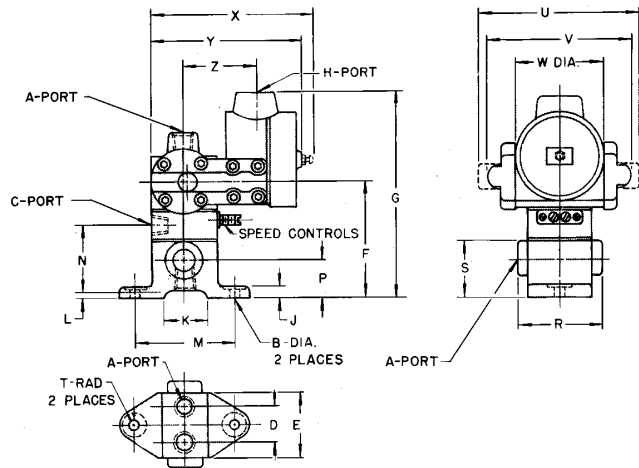
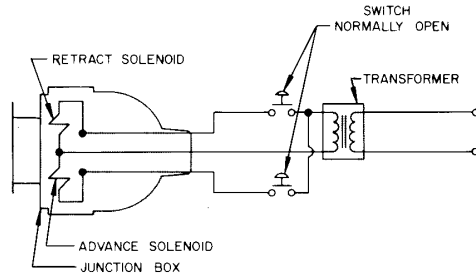
Voltage Options "XX"

12V 60Hz	40
120V 60Hz	53

Voltage Options "XX"

12VDC	45
24VDC	49

Wiring Diagram –



Dimensions

Port Size	1/4"		3/8"	
	Inch	mm	Inch	mm
A	1/4-18		3/8-18	
B	.28	7	.33	8
C	1/8-27		1/8-27	
D	.88	22	1.13	29
E	1.69	43	2.13	54
F	2.88	73	3.38	86
G	5.81	148	6.31	160
H	1/2-14		1/2-14	
J	.31	8	.38	10
K	1.13	29	1.50	38
L	.25	6	.28	7
M	2.50	64	3.00	76
N	1.66	42	1.97	50
P	.94	24	1.09	28
R	2.13	54	2.63	67
S	1.44	37	1.66	42
T	.38	10	.44	11
U	4.13	105	4.19	106
V	3.44	87	3.50	89
W	3.00	76	3.00	76
X	4.50	114	4.72	120
Y	4.06	103	4.28	109
Z	1.94	49	1.94	49



Description –

The Electroaire valve is a compact, air operated, electrically controlled 4-Way valve most widely used with an air motor. Electroaire valves can be remotely mounted for control of double acting cylinders and other air operated devices. Built in flow controls adjust cylinder rod speed in either or both directions.

The B415 and B902 series Electroaire valves are available in 1/4 and 3/8 inch port sizes and come with voltages listed below.

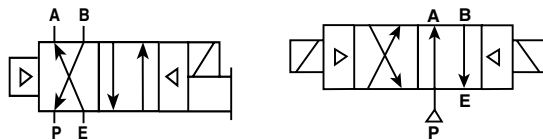
Mounting –

These valves may be oriented in any position and are designed to be bracket mounted or directly mounted to air motors. Brackets are equipped with four pipe tap ports for convenient panel or surface mounting and are furnished with two dry seal plugs for closing the two ports not used.

Operation –

Single Solenoid - A maintained electrical signal applied to the solenoid shifts the valve. When the signal is removed, internal air pressure returns the valve to its normal position.

Double Solenoid - A momentary electrical signal applied to one of the solenoids shifts the valve. The valve remains in this position until a momentary signal is applied to the opposite solenoid.

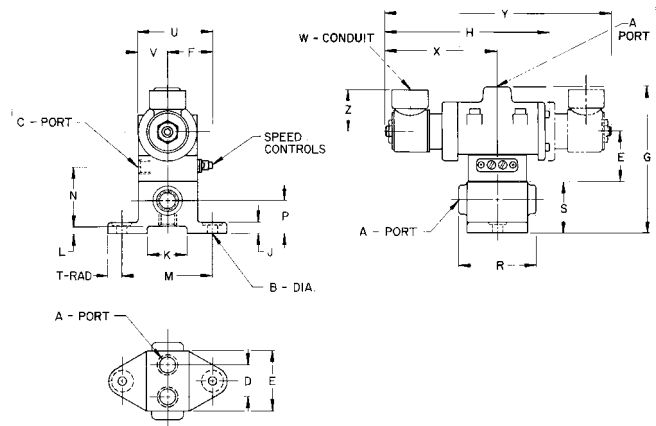


Model Selection

Port Size	1/4"	3/8"
Single Solenoid With Bracket	B415 2007 "XX"	B415 3007 "XX"
Single Solenoid Less Bracket	B902 2020 "XX"	B902 3023 "XX"
Double Solenoid With Bracket	B415 2008 "XX"	B415 3008 "XX"
Double Solenoid Less Bracket	B902 2021 "XX"	B902 3024 "XX"
Bracket	B082 091	B082 090

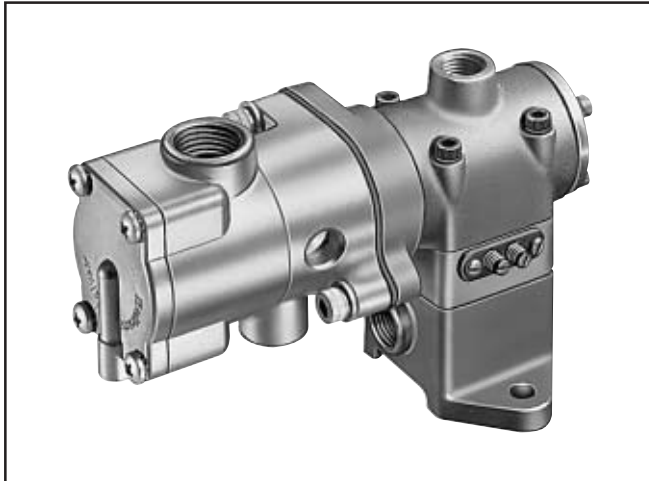
Voltage Options "XX"	
120V 60Hz	53
240V 60Hz	57
6VDC	41

Voltage Options "XX"	
12VDC	45
24VDC	49



Dimensions

Port Size	1/4"		3/8"	
	Inch	mm	Inch	mm
A	1/4-18		3/8-18	
B	.28	7	.33	8
C	1/8-27		1/8-27	
D	.88	22	1.12	28
E	1.44	37	1.72	44
F	1.36	33	1.84	47
G	4.12	105	4.78	121
H	4.55	116	4.61	117
J	.31	8	.38	10
K	1.12	28	1.50	38
L	.25	6	.28	7
M	2.50	64	3.00	76
N	1.66	42	1.97	50
P	.94	24	1.09	28
R	2.12	54	2.62	67
S	1.44	37	1.66	42
T	.38	10	.44	11
U	2.19	56	3.09	78
V	.83	21	1.25	32
W	1/2-14		1/2-14	
X	3.08	78	3.11	79
Y	6.14	156	6.20	157
Z	1.16	29	1.16	29



Description –

The Electroaire valve is a compact, air operated, electrically controlled 4-Way valve most widely used with an air motor. Electroaire valves can be remotely mounted for control of double acting cylinders and other air operated devices. Built in flow controls adjust cylinder rod speed in either or both directions.

The B405 and B902 series Electroaire valves are available in 1/4 and 3/8 inch port sizes and come with voltages listed below. For continuous energization or hazardous duty applications, please consult Customer Service.

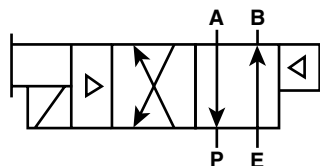
Mounting –

These valves may be oriented in any position and are designed to be bracket mounted or directly mounted to air motors. Brackets are equipped with four pipe tap ports for convenient panel or surface mounting and are furnished with two dry seal plugs for closing the two ports not used.

Operation –

Single Solenoid - A maintained electrical signal applied to the solenoid shifts the valve. When the signal is removed, internal air pressure returns the valve to its normal position.

Double Solenoid - Consult factory for **Double Solenoid Operated Valves**. A momentary electrical signal applied to one of the solenoids shifts the valve. The valve remains in this position until a momentary signal is applied to the opposite solenoid.

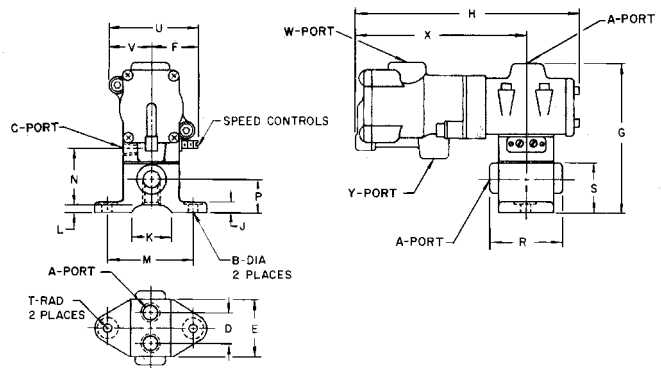


Model Selection

Port Size	1/4"	3/8"
Valve With Bracket*	B405 2101 "XX"	B405 3101 "XX"
Valve Less Bracket*	B902 2101 "XX"	B902 3101 "XX"
Bracket	B082 091	B082 090

*Consult factory for junction box, manual override and indicator light options.

Voltage Options "XX"		Voltage Options "XX"	
120V 60Hz	53	12VDC	45
240V 60Hz	57	24VDC	49
6VDC	41	120VDC	61



Dimensions

Port Size	1/4"		3/8"	
	Inch	mm	Inch	mm
A	1/4-18		3/8-18	
B	.28	7	.33	8
C	1/8-27		1/8-27	
D	.88	22	1.13	29
E	1.69	43	2.13	54
F	1.36	33	1.84	47
G	4.13	105	4.78	121
H	6.28	160	6.34	161
J	.31	8	.38	10
K	1.13	29	1.50	38
L	.25	6	.28	7
M	2.50	64	3.00	76
N	1.66	42	1.97	50
P	.94	24	1.09	28
R	2.13	54	2.63	67
S	1.44	37	1.66	42
T	.38	10	.44	11
U	2.61	66	3.09	78
V	1.25	31	1.25	31
W	1/2-14		1/2-14	
X	4.81	122	4.84	123
Y	1/4-18		1/4-18	



Description –

The Electroaire valve is a compact, air operated, pilot air controlled 4-Way valve most widely used with an air motor. Electroaire valves can be remotely mounted for control of double acting cylinders and other air operated devices. Built in flow controls adjust cylinder rod speed in either or both directions.

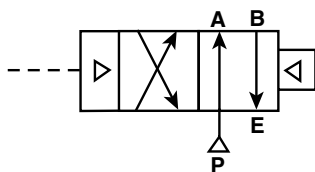
Mounting –

These valves may be oriented in any position and are designed to be bracket mounted or directly mounted to air motors. Brackets are equipped with four pipe tap ports for convenient panel or surface mounting and are furnished with two dry seal plugs for closing the two ports not used.

Operation –

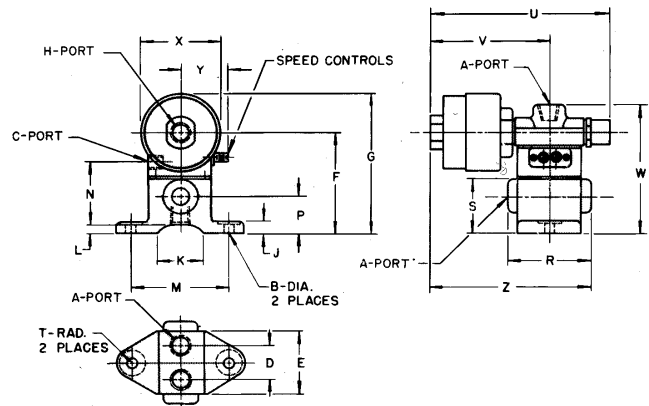
Single Pilot - A maintained air pilot signal applied to the pilot port shifts the valve. When the signal is removed, internal air pressure returns the valve to its normal position.

Double Pilot - Consult factory for **Double Pilot Operated Valves**. A momentary air pilot signal applied to one of the solenoids shifts the valve. The valve remains in this position until a momentary signal is applied to the opposite pilot.



Model Selection

Port Size	1/4"	3/8"
Valve With Bracket	B414 2004	B414 3004
Valve Less Bracket	B882 2001	B882 3001
Bracket	B082 091	B082 090



Dimensions

Port Size	1/4"		3/8"	
	Inch	mm	Inch	mm
A	1/4-18		3/8-18	
B	.28	7	.33	8
C	1/8-27		1/8-27	
D	.88	22	1.13	29
E	1.69	43	2.13	54
F	2.63	67	3.06	78
G	3.63	92	4.06	103
H	1/4-18		1/4-18	
J	.31	8	.38	10
K	1.13	29	1.50	38
L	.25	6	.28	7
M	2.50	64	3.00	76
N	1.66	42	1.97	50
P	.94	24	1.09	28
R	2.13	54	2.63	67
S	1.44	37	1.66	42
T	.38	10	.44	11
U	4.69	119	5.19	132
V	3.16	80	3.41	87
W	3.34	85	4.16	106
X	2.00	51	2.00	51
Y	1.34	34	1.84	47
Z	4.22	107	4.72	120



Description –

The B454 and F012 series Electroaire valves are compact, manually operated 4-Way valves most widely used with an air motor. These valves can be remotely mounted for control of double acting cylinders and other air operated devices. Built in speed controls adjust cylinder rod speed in either or both directions.

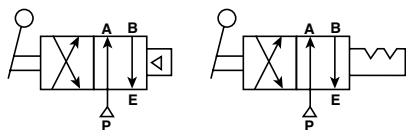
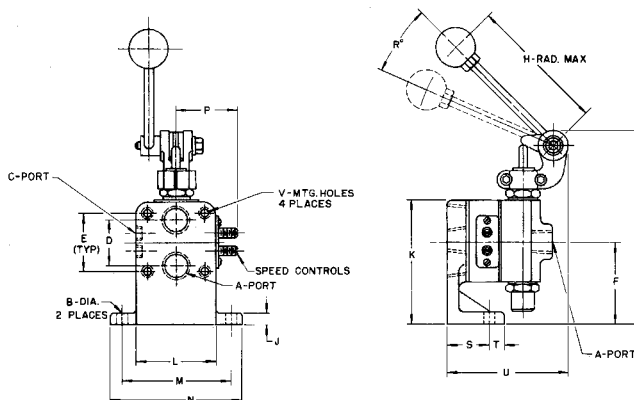
Mounting –

These valves may be oriented in any position and are designed for bracket mounting to a surface.

Operation –

Spring Return - By pressing and holding the lever, the valve shifts. Once the lever is released, internal air pressure returns the valve to its normal position.

Manual Return - Pressing the lever shifts the valve. The valve remains shifted until the lever is manually returned.



Dimensions

Port Size	1/4"		3/8"	
	Inch	mm	Inch	mm
A	1/4-18		3/8-18	
B	.34	9	.34	9
C	1/8-27		1/8-27	
D	.88	22	1.25	32
E	1.25	32	1.50	38
F	2.06	52	2.31	59
G	4.59	117	5.13	130
H	4.75	121	4.75	121
J	.38	10	.38	10
K	2.88	73	3.38	86
L	1.63	41	2.13	54
M	2.63	67	2.88	73
N	3.38	86	3.63	92
P	1.34	34	1.84	47
R	15°		20°	
S	1.19	30	1.19	30
T	.69	18	.69	18
U	2.84	72	3.06	78
V	10-32		1/4-28	

Model Selection

Port Size	1/4"	3/8"
Spring Return Valve With Bracket	B454 2001	B454 3001
Spring Return Valve Less Bracket	F012 2001	F012 3001
Manual Return Valve With Bracket	B454 2002	B454 3002
Manual Return Valve Less Bracket	F012 2002	F012 3002
Bracket	B183 128	B183 129

Service Limitations -

Series	Minimum PSIG (bar)	Maximum PSIG (bar)
B385 B425 B435 B454 B962 B972	10 (0.7)	150 (10.3)
B415	20 (1.4)	150 (10.3)
B405 B902	20 (1.4)	140 (9.6)
B414 B882	30 (2.0)	150 (10.3)

Temperature -

32°F to 125°F (0°C to 52°C)

⚠ Caution: If it is possible that the ambient temperature may fall below freezing, the medium must be moisture free to prevent internal damage or unpredictable behavior.

Electrical Characteristics -

Series	Voltage	Inrush (Amps)	Holding (Amps)	Power Consumption
B385 B435 B962 B972	12V 60Hz	1.54*	1.37*	7.2W
	12VDC	—	.90	10.8W
	24VDC	—	.50	14.0W
	B425	120V 60Hz	.16	.15
B415 B902	120V 60Hz	.13	.09	6.3W
	240V 60Hz	.06	.04	6.0W
	12VDC	—	.52	6.0W
	24VDC	—	.33	6.0W
B405 B902	120V 60Hz	.29	.18	9.0W
	240V 60Hz	.18	.12	13.0W
	12VDC	—	.66	8.0W
	24VDC	—	.32	8.0W

* Amperage at coil after transformer.

Lubrication -

For maximum service life, use clean lubricated air. Valves are shipped prelubricated and can be operated without additional lubrication with reduced service life.

Suggested Lubricant -

F442 Oil

Flow Rating - (Cv)

Port Size	P to A	P to B	A to E	B to E
1/4"	1.00	.90	.57	.57
3/8"	1.48	1.39	1.05	1.05

Service Kits -

Series	Body Service Kits*		Operator Service Kit
	1/4" Body	3/8" Body	
B385 B425 B435 B962 B972	B732 475	B732 476	N/A
B415 B902	B732 679	B732 680	N/A
B414 B882	B732 304	B732 305	N/A
B454	B732 301	B732 302	N/A
B405 B902	Single Solenoid	Double Solenoid	K352 166
	B732 478	B732 479	

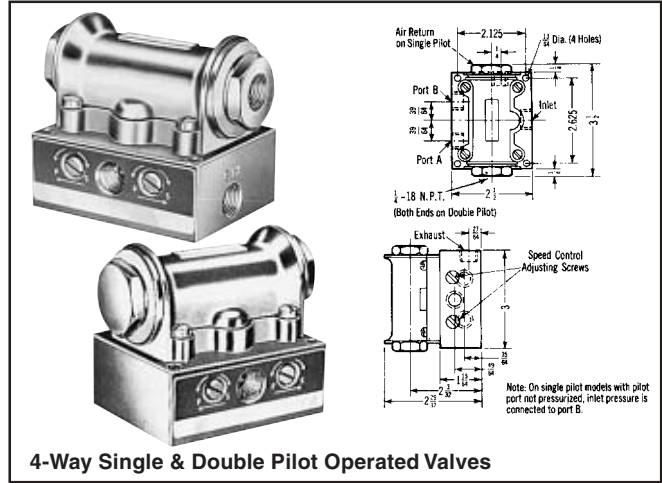
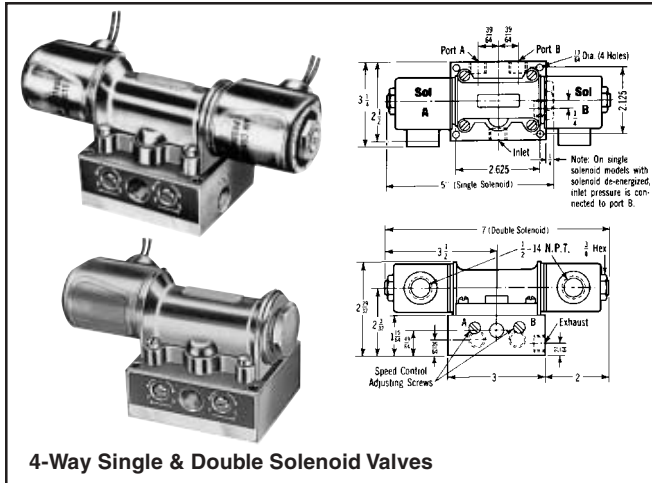
* Body Service Kits include all seals, gaskets and slide valve assembly.

Replacement Solenoids -

Series	Voltage	Operator (Control Unit)	Coil Only
B385 B962	12V 60Hz	(F062 1001)*	N/A
	12VDC	(F062 1020)*	N/A
	24VDC	(F062 1021)*	N/A
B425 B435 B972	12V 60Hz	(F062 2003)*	N/A
	120V 60Hz	(F062 2014)*	N/A
	12VDC	(F062 2026)*	N/A
	24VDC	(F062 2027)*	N/A
B415 B902	120V 60Hz	41000 8115	K593 158
	240V 60Hz	41000 8116	K593 159
	6VDC	41000 8121	K593 151
	12VDC	41000 8122	K593 154
	24VDC	41000 8123	K593 155
B405 B902	120V 60Hz	K065 1035 53†	K593 025
	240V 60Hz	K065 1035 57†	K593 035
	6VDC	K065 1035 41†	K593 003
	12VDC	K065 1035 45†	K593 010
	24VDC	K065 1035 49†	K593 014
	120VDC	K065 1035 61†	K593 041

* Control Unit includes housing with coil and gasket.

† Part numbers given are for standard pilot operators. Consult Customer Service for replacement operators with overrides, junction boxes, indicator lights, special service pilots or hazardous duty pilots.



Features –

- Built-in flow controls, to simplify piping.
- Simple, sliding seal construction with few moving parts.
- Threaded exhaust port, to allow muffler connection or use of air for ejection purposes.
- Subbase construction permits servicing without disturbing piping.
- Optional extended temperature packing available.
- May be used as N.O. or N.C. 3-Way valve.

Materials –

Seals: Buna N
 Internal Components: Aluminum, Stainless Steel, Filled Nylon and Plated Steel
 Body: Die Cast Aluminum

Operating Temperatures –

Standard Units: -15°F to 185°F
 Extended Temperature Option: -40°F to 300°F

Electrical Data (Solenoid Valves, 120V, 60Hz) –

Inrush Current: .288 amp.
 Holding Current: .180 amp.
 Nominal Power in Continuous Duty: 11 watts
 Coil Response Time: 10 milliseconds nominal
 Duty Cycle: Continuous

Note: To order valve with optional J.I.C. or hazardous duty enclosures, see "Ordering Information/Service Parts; Ordering & Replacement Parts" section.

Operating Speed (Solenoid Valves, 120V, 60Hz) –

Single and double solenoid valves capable of operating at 1000 cycles per minute on air service.

Media –

Air or similar non-corrosive gasses: oil (SAE 10)

Manifold Valve Installation –

This valve is also available in a manifold version that simplifies mounting and piping when using a number of valves on one installation. See "Ordering Information/Service Parts; Ordering & Replacement Parts" section.

Interchangeable Actuators –

- 31500 9110 Double Solenoid 120V, 60Hz
- 31501 9110 Single Solenoid 120V, 60Hz
- 31502 9500 Double Air Pilot - charge
- 31503 9500 Single Air Pilot - charge
- 31504 9500 Double Air Pilot - bleed (can be used with button operated bleed valve 31513 9000)

Operating Pressures (Solenoid Valves) -

Valve Type	Minimum Pressure Air or Oil	Maximum Air Pressure	SAE 10 Oil† Maximum Hydraulic Pressure
Single Solenoid	40 PSIG	150 PSIG	150 PSIG
Double Solenoid	25 PSIG	150 PSIG	150 PSIG

† Flow capacity 5 GPM at 150 PSIG with SAE 10 oil. Consult factory for hydraulic service modifications.

Ordering Information (Solenoid Valves) -

Port Size	Flow Capacity SCFM*	Voltage **	Model Number	
			Double Solenoid	Single Solenoid
1/4"	55	120V 60Hz	31505 0110	31506 0110
3/8"	55	120V 60Hz	31605 0110	31606 0110

* At 100 PSIG inlet Pressure.

** Coils shown 120V / 60Hz suitable for 110V / 50Hz. Other voltages and coils available. Consult Customer Service.

Operating Pressures (Pilot Valves) -

Valve Type	Minimum Pressure Air or Oil	Maximum Air Pressure	SAE 10 Oil† Maximum Hydraulic Pressure
Single Pilot (Charge)	40 PSIG	250 PSIG	300 PSIG
Double Pilot (Charge)	25 PSIG	250 PSIG	300 PSIG
Double Pilot (Bleed)	25 PSIG	250 PSIG	300 PSIG

† Flow capacity 5 GPM at 150 PSIG with SAE 10 oil. Consult Customer Service for hydraulic service modifications.

Minimum Pilot Pressure (Air or Oil Operation) -

Working Pressure	Double Pilot (Charge or Bleed)	Single Pilot
50 PSIG	15PSIG	40 PSIG
100 PSIG	25 PSIG	80 PSIG
150 PSIG	35 PSIG	120 PSIG
300 PSIG	60 PSIG	220 PSIG

Maximum Pilot Pressure must NEVER exceed working pressure.

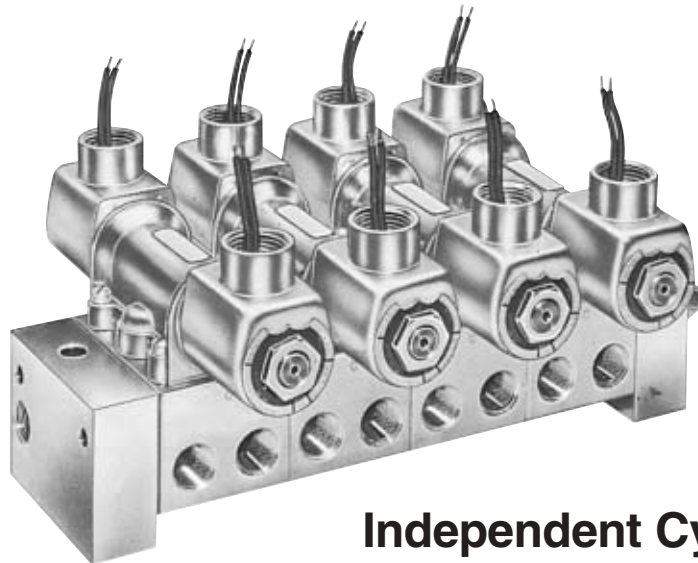
Ordering Information (Pilot Valves) -

Port Size	Flow Capacity SCFM*	Model Number		
		Single Pilot Charge	Double Pilot Charge	Double Pilot Bleed
1/4"	55	31508 9000	31507 9000	31509 9000
3/8"	55	31608 9000	31607 9000	31609 9000

* At 100 PSIG inlet Pressure.

One Inlet Port
 for complete manifold, one-pipe connection

One Exhaust Port
 for complete manifold, one-pipe connection

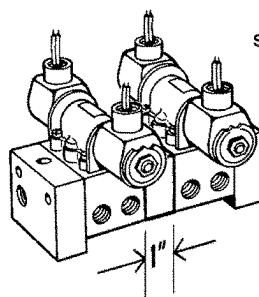
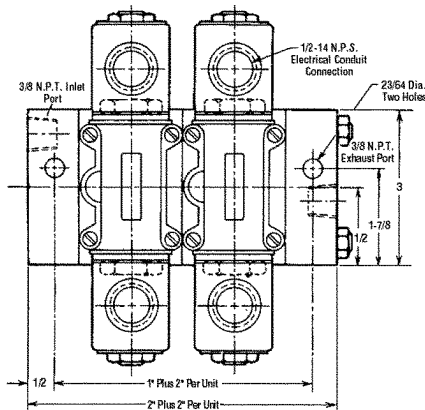


Features –

- Easily Mounted.
- Easily Piped.
- Easily Serviced.
- Flow capacity to 55 SCFM
- Centralized installation and control of multiple cylinders.
- Single inlet, single exhaust for simplified piping.
- Simple two bolt installation for up to a 10 station setup.
- Aluminum components for lightweight or mobile applications.
- Valve actuation change or maintenance simplified by removal of four screws.
- Building block feature permits addition of valves as required.

Independent Cylinder Ports
 for complete Flexible Control
Versatile can also be used as a 3-Way,
 Normally Open or Normally Closed valve

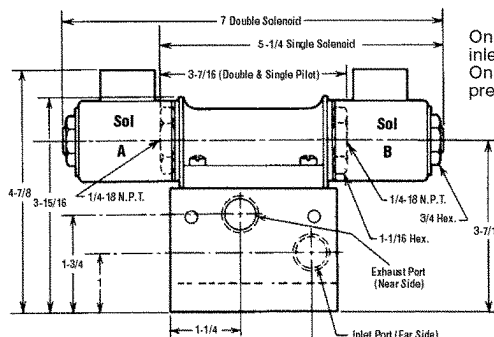
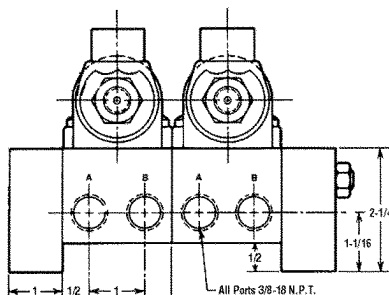
Manifold Valve Ordering Information



SPACER FOR MANIFOLD VALVE ASSEMBLY

This spacer block can be used where a greater distance is desired between manifold valve units. Spacer is complete with tie rod holes, air passages and captive "O" rings.

NUMBER 31715 8001 SPACER



On single pilot units with pilot parts not pressurized inlet pressure is connected to port B.
 On single solenoid units with solenoid de-energized, inlet pressure is connected to port B.

MANIFOLD VALVE REPLACEMENT PARTS

- INLET PLATE NO. 31705 7002
- BASE BLOCK NO. 31705 7001—Order 03454
- 0002 "O" Rings separately (2 Req'd)
- EXHAUST PLATE ASSEMBLY NO. 31705 8002 (Includes "O" rings)
- SPACER ASSEMBLY NO. 31715 8001 (Includes "O" rings)
- TIE ROD NO. 50001 (Specify length required)

For Identical Manifold Valves -

Coil Type	Manifold Valves	Coil Option and Spacer	Valve Type	Number of Stations	Voltage
31	7	0	5	2	000
Coil Type 31 Class "B" AC or 31 No Meaning if non-electric 32 Class "B" DC 35 Class "H" AC 36 Class "H" DC	Manifold Valves 7 Used for all Manifold Valves	Coil Option and Spacer 0 No Spacer for non-electric valves or 0 No Spacer with free venting solenoid enclosure 1 With Spacer for non-electric valves or 1 With Spacer and free venting solenoid enclosure 2 No Spacer with piped pilot exhaust 3 With Spacer and piped pilot exhaust 5 JIC enclosure with spacer block 8 No Spacer with explosion proof solenoid enclosure 9 With Spacer and explosion proof solenoid enclosure	Port Size 5 All Double Solenoids 6 All Single Solenoids 7 All Double Pilot Charge 8 All Single Pilot Charge 9 All Double Pilot Bleed	Number of Stations 2 2 Stations 3 3 Stations 4 4 Stations 5 5 Stations 6 6 Stations 7 7 Stations 8 8 Stations	Voltage 000 Non-Electric 012 12VDC 042 24V 110 120V 220 240V

Note:
For 9 or more stations, insert asterisk in place of this digit and specify number of stations required. (*11 Stations)

For Optional Solenoid Enclosures -

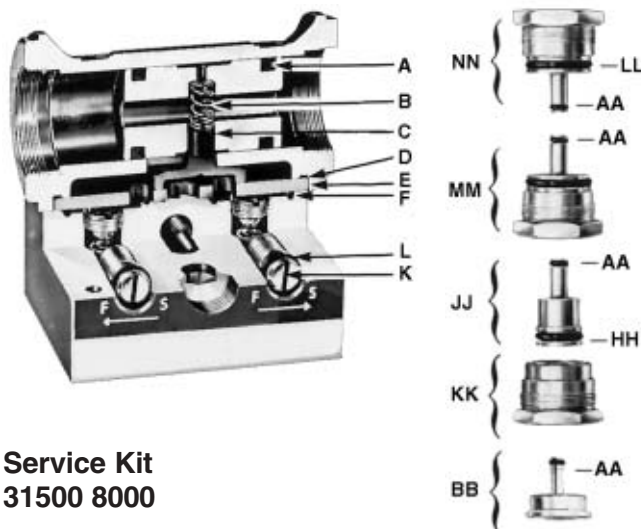
For Hazardous Duty: change the sixth digit in model number from 0 to 1. Example: Standard 31505 0110 becomes 31505 1110.

For JIC: change the sixth digit in model number from 0 to 3. Example: Standard 31505 0110 becomes 31505 3110.

For Mixed Manifold Valves -

One (1) only manifold valve complete, consisting of 6 stations and 5 spacer blocks. Actuations, (reading from the inlet port to the outlet port): (1) double solenoid 120V Class "B" coil - Free venting; (2 & 3) single solenoid 120V Class "B" coil - Free venting; (4) single pilot charge type; (5 & 6) double pilot charge type.

Multi-Purpose Replacement Parts -



**Service Kit
31500 8000**

For all Multi-Purpose 4-Way valves.

**Button Operated Bleed Valve
31513 9000**

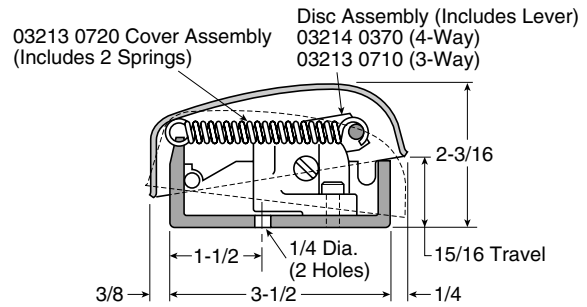
This 2-Way Normally Closed bleeder valve can be used with double pilot operated bleed valve type Multi-Purpose valves.

4-Way Valves -

Key	Description	Number	Quantity	
A	"U" Cup	Furnished in Service Kit	2	
B	Spring	31500 7007	1	
C	Seal	31500 7006	1	
D	Gasket	Furnished in Service Kit	1	
E	Plate	31500 7008	1	
F	O-Ring	Furnished in Service Kit	2	
K	Adj. Screw Assy.	31500 8005	2	
L	O-Ring	Furnished in Service Kit	2	
BB	Seat Assy. (Sol. Valves Only)	31500 8015	1/Solenoid	
Double Pilot Bleed Valves Only				
AA	O-Ring	Furnished in Service Kit	2	
LL	O-Ring	Furnished in Service Kit	2	
NN	Bleed Assembly	31504 8001	2	
Pilot Charge Valves Only				
Key	Description	Number	Double Pilot Charge Only	Single Pilot Charge Only
AA	O-Ring	Furnished in Service Kit	2	2
HH	O-Ring	Furnished in Service Kit	—	1
JJ	Pin Assy.	31501 8001	—	1
KK	Retainer	31501 7002	—	1
LL	O-Ring	Furnished in Service Kit	2	1
MM	Charge Assy.	31502 8001	2	1



Dimensions



Application

All-purpose foot operated valve has two springs which return the valve to its normal position. Easily actuated sliding seal control valve is housed in compact die-cast aluminum body. Valves should be used with filtered and lubricated air.

⚠ CAUTION: Foot operated valves must be protected against inadvertent operation that can cause serious bodily injury. Use of a foot guard is strongly recommended as it will reduce the likelihood of inadvertent operation. If this is not suitable in your application, utilize equivalent protection.

⚠ CAUTION: This valve shall not be used to activate a punch press. Do not use this valve on punch presses or press brakes. See OSHA 1910.217.

Operating Temperatures

-40°F to 212°F

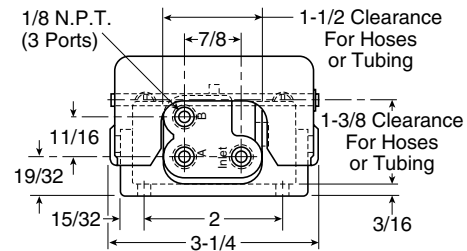
Operating Pressures

Maximum: 200 PSIG air only
 Minimum: 26" Hg vacuum

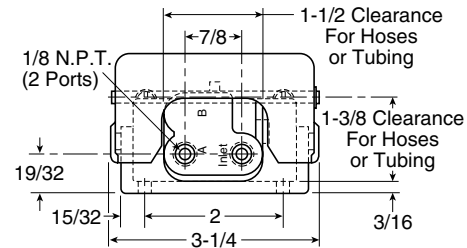
Materials

Seals: Buna N
 Internal Components: Brass, Stainless Steel
 Body: Die cast zinc with plated steel cover

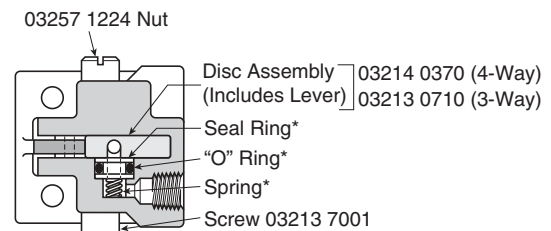
4-Way



3-Way

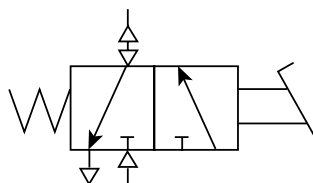


Replacement Parts

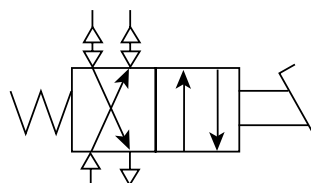


* Included in service kit listed below.

3-Way, 2-Position



4-Way, 2-Position



Model Selection and Performance Data

Port Size	Function	Model Number	Old Number	Cv (Avg)	Service Kit
1/8"	3-Way, 2-Position	03213 0759	3213K	0.54	03213 0899
1/8"	4-Way, 2-Position	03214 0399	3214K	0.54	03213 0899



Application

Disc-type valve with lever for hand or mechanical operation has positive stops. Handy for operating small single-acting cylinders, pilot valves and O.E.M. use. Valves should be used with filtered and lubricated air.

CAUTION: Install guards on all hand operated valves if accidental operation can cause personal injury.

Operating Temperatures

-40°F to 212°F

Operating Pressures

Maximum: 200 PSIG air only

Minimum: 26" Hg vacuum

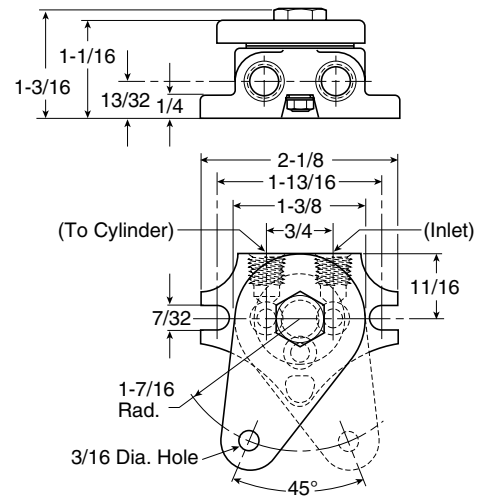
Materials:

Seals: Buna N

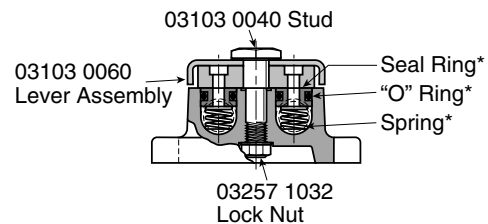
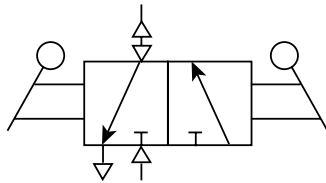
Internal Components: Brass, stainless steel

Body: Die cast zinc

Dimensions



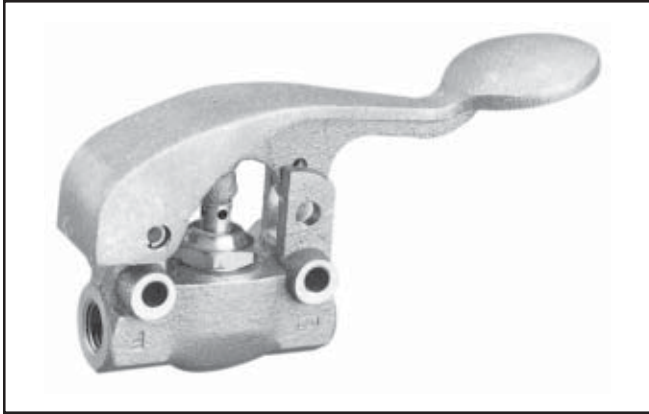
Replacement Parts



* Included in service kit listed below.

Model Selection and Performance Data

Port Size	Model Number	Old Number	Cv (Avg)	Service Kit
1/8"	03103 0099	3103	0.48	03213 0899



Application

Normally closed poppet valve with rugged brass body. Aluminum handle has large palm surface for easy actuation. Valves should be used with filtered and lubricated air.

⚠ CAUTION: Install guards on all hand operated valves if accidental operation can cause personal injury.

Operating Temperatures

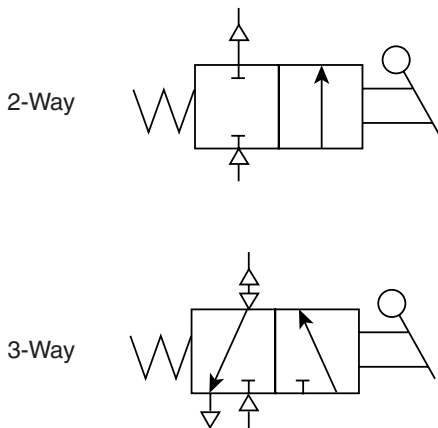
Standard units: 18°F to 200°F

Operating Pressures

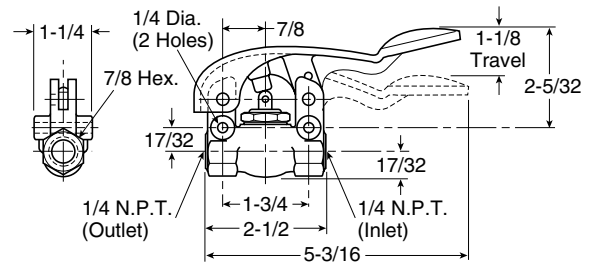
Maximum: 150 PSIG air only
 Minimum: 0 PSIG

Materials:

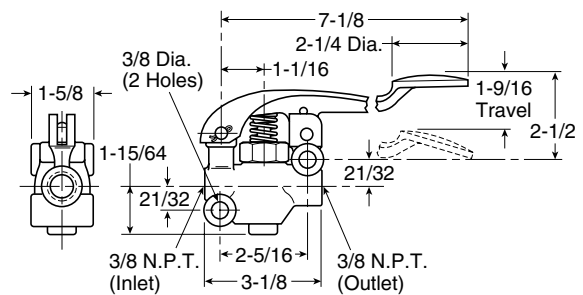
Seals: Buna N
 Internal Components: Brass, stainless and plated steel
 Body: Brass



Dimensions (1/4")



Dimensions (3/8")



Model Selection and Performance Data

Port Size	Function	Model Number	Old Number	Cv (Avg)	Service Kit*
1/4"	2-Way	03416 0099	3416	1.87	03413 0185
1/4"	3-Way	03420 0099	3420	1.87	03417 0159
3/8"	2-Way	01521 0439	1521W	4.55	01196 0095
3/8"	3-Way	01415 0099	1415W	4.55	01196 0095

* See Table of Contents for Replacement Parts.



Application

Positive acting poppet valve. Steel lockdown lever may be held in normally-open or normally-closed position for indefinite periods. Valves should be used with filtered and lubricated air.

CAUTION: Install guards on all hand operated valves if accidental operation can cause personal injury.

Operating Temperatures

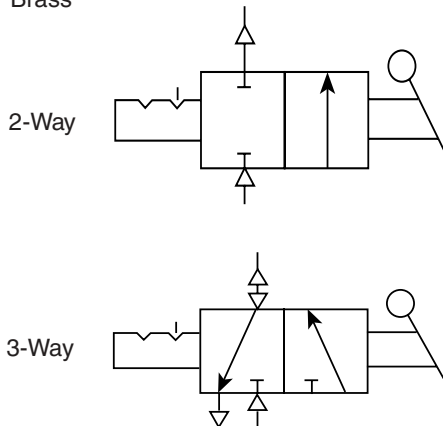
18°F to 200°F

Operating Pressures

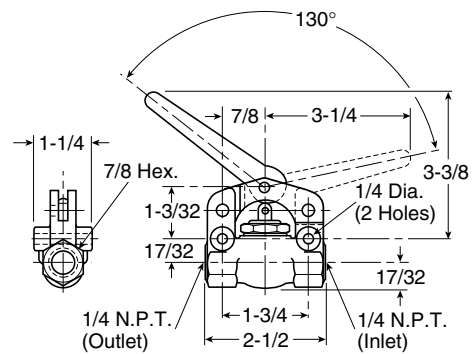
Maximum: 150 PSIG air only
 Minimum: 5 PSIG (01415 0069)

Materials:

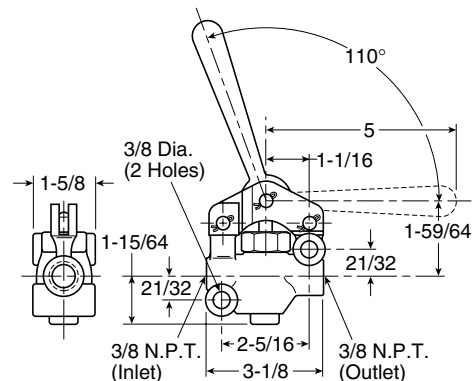
Seals: Buna N
 Internal Components: Brass, stainless and plated steel
 Body: Brass



Dimensions (1/4")



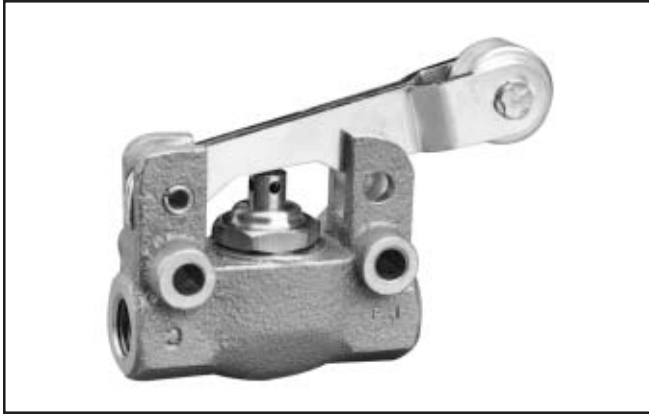
Dimensions (3/8")



Model Selection and Performance Data

Port Size	Function	Model Number	Old Number	Cv (Avg)	Service Kit*
1/4"	2-Way	03414 0099	3414	1.87	03413 0185
1/4"	3-Way	03418 0099	3418	1.87	03417 0159
3/8"	2-Way	01521 0145	1521AW	4.55	01196 0095
3/8"	3-Way	01415 0069	1415AW	4.55	01196 0095

* See Table of Contents for Replacement Parts.



Application

Normally closed poppet valve is actuated by steel lever. Free-turning roller riding on a cam provides long life by reducing friction. Valves should be used with filtered and lubricated air.

Operating Temperatures

Standard units: 18°F to 200°F

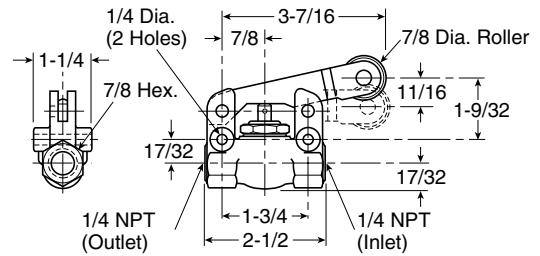
Operating Pressures

Maximum: 150 PSIG air only
 Minimum: 3 PSIG (01196 0089)
 0 PSIG (all others)

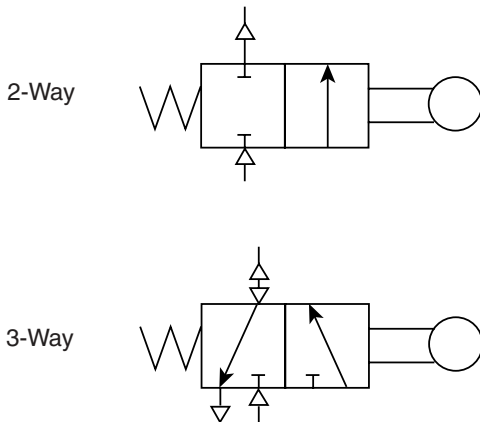
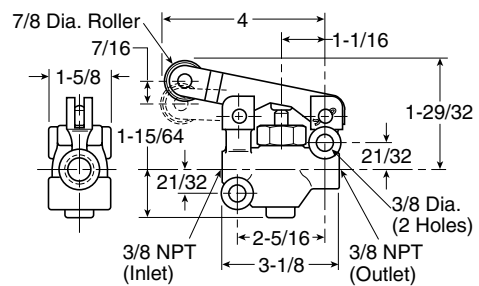
Materials:

Seals: Buna N
 Internal Components: Brass, stainless and plated steel
 Body: Brass

Dimensions (1/4")



Dimensions (3/8")



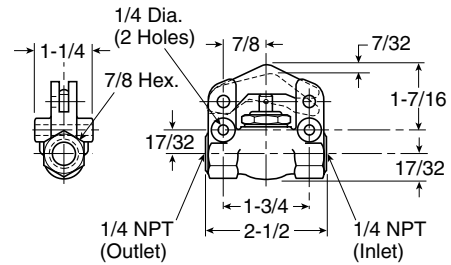
Model Selection and Performance Data

Port Size	Function	Model Number	Old Number	Cv (Avg)	Service Kit*
1/4"	2-Way	03415 0099	3415	1.87	03413 0185
1/4"	3-Way	03419 0099	3419	1.87	03417 0159
3/8"	2-Way	09264 0199	9264BW	4.55	01196 0095
3/8"	3-Way	01196 0089	1196BW	4.55	01196 0095

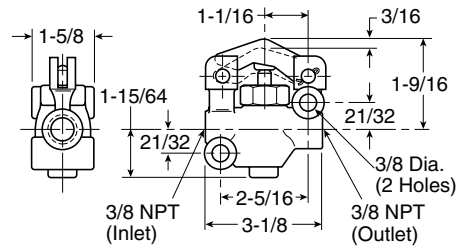
* See Table of Contents for Replacement Parts.



Dimensions (1/4")



Dimensions (3/8")



Application

Used with roller trippers shown below for low friction, long-life actuation. Solid steel lever operates normally-closed valve. Valves should be used with filtered and lubricated air.

Operating Temperatures

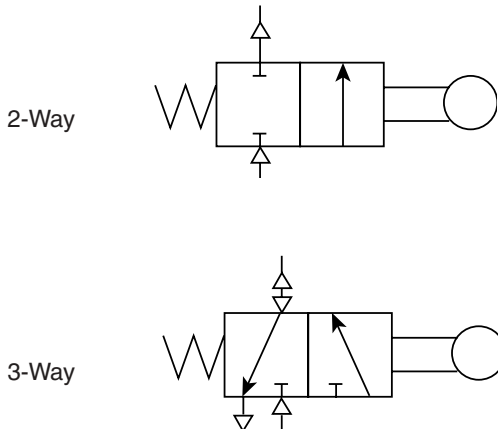
18°F to 200°F

Operating Pressures

Maximum: 150 PSIG air only
 Minimum: 5 PSIG (01196 0109)
 0 PSIG

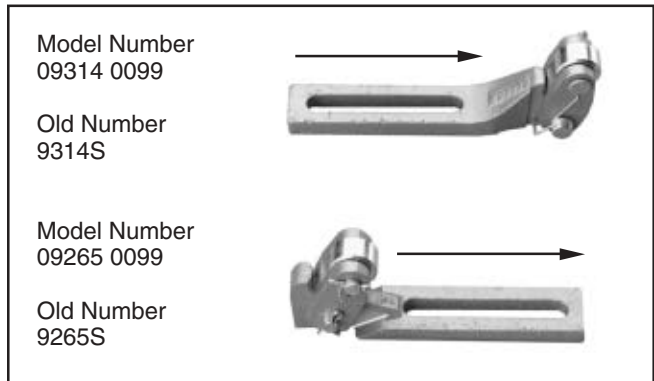
Materials:

Seals: Buna N
 Internal Components: Brass, stainless and plated steel
 Body: Brass



Roller Trippers

Roller trippers (shown below) operate valves with solid angle lever from one direction only by slide action. The slot in each type provides maximum latitude for easy mounting. Roller tripper actuates valve when moved in direction of arrow.

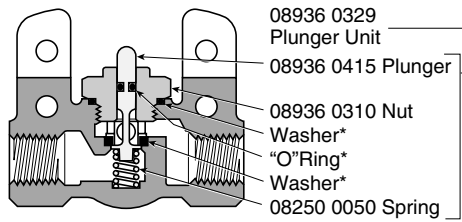


Model Selection and Performance Data

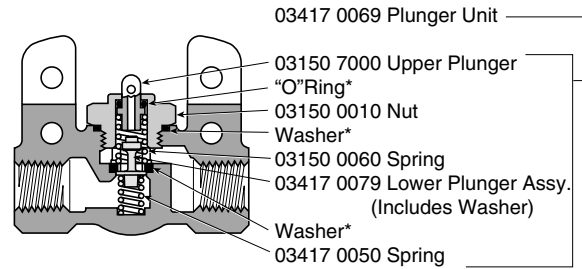
Port Size	Function	Model Number	Old Number	Cv (Avg)	Service Kit*
1/4"	2-Way	03413 0199	3413	1.87	03413 0185
1/4"	3-Way	03417 0099	3417	1.87	03417 0159
3/8"	2-Way	09264 0329	9264W	4.55	01196 0095
3/8"	3-Way	01196 0109	1196W	4.55	01196 0095

* See Table of Contents for Replacement Parts.

1/4" 2-Way Hand / Cam Operated Valves



1/4" 3-Way Hand / Cam Operated Valves



* Items contained in **Service Kit 03413 0185**
 For use with valves 03413 0199 03415 0099
 03414 0099 03416 0099

Actuating Levers

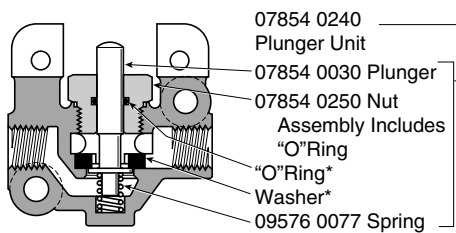
Type	Model Number
Cam (Angle)	03413 0109
HandLever	03416 0010
Lockdown Lever	03414 0010
Roller	03415 0079

* Items contained in **Service Kit 03417 0159**
 For use with valves 03417 0099 03419 0099
 03418 0099 03420 0099

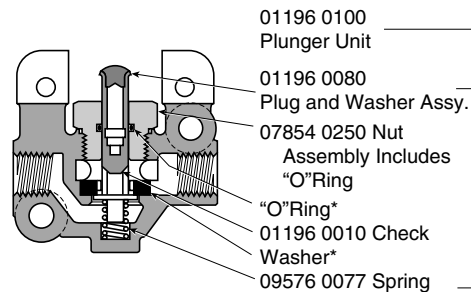
Actuating Levers

Type	Model Number
Cam (Angle)	03413 0109
Hand Lever	03416 0010
Lockdown Lever	03414 0010
Roller	03415 0079

3/8" 2-Way Hand / Cam Operated Valves



3/8" 3-Way Hand / Cam Operated Valves



* Items contained in **Service Kit 01196 0095**
 For use with valves 01521 0145 09264 0199
 01521 0439 09264 0329

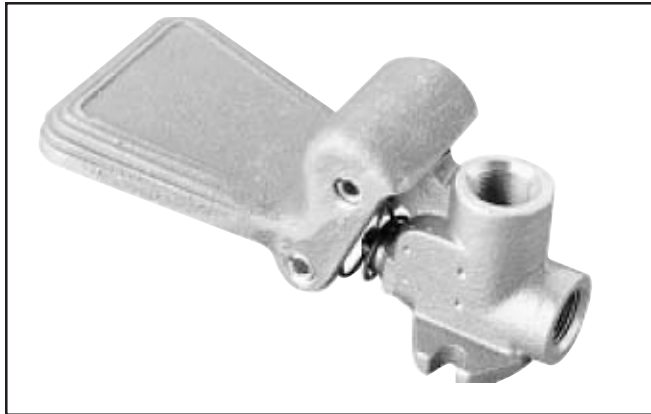
Actuating Levers

Type	Model Number
Cam (Angle)	09264 0020
HandLever	01415 0010
Lockdown Lever	01415 0040
Roller	09264 0160

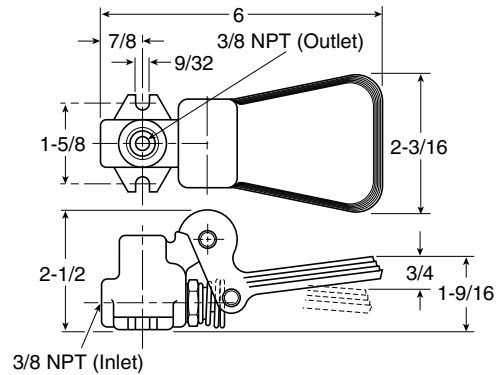
* Items contained in **Service Kit 01196 0095**
 For use with valves 01196 008 9 01415 0069
 01196 0109 01416 0099

Actuating Levers

Type	Model Number
Cam (Angle)	09264 0020
Hand Lever	01415 0010
Lockdown Lever	01415 0040
Roller	09264 0160



Dimensions



Application

Normally-closed poppet valve for mounting directly on the floor surface, especially where limited space is a factor.

CAUTION: Foot operated valves must be protected against inadvertent operation that can cause serious bodily injury. Use of a foot guard or equivalent protection is strongly recommended.

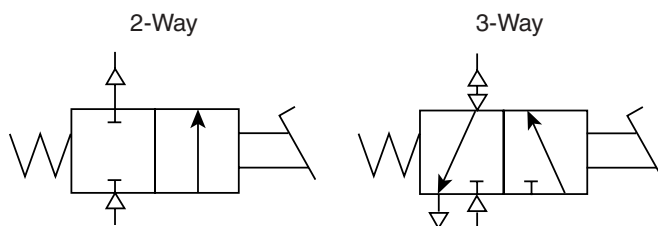
CAUTION: This valve shall not be used to activate a punch press. Do not use this valve on punch presses or press brakes. See OSHA 1910.217.

Operating Temperatures:
 18°F to 200°F

Operating Pressures:
 Maximum: 150 PSIG air only
 Minimum: 0 PSIG

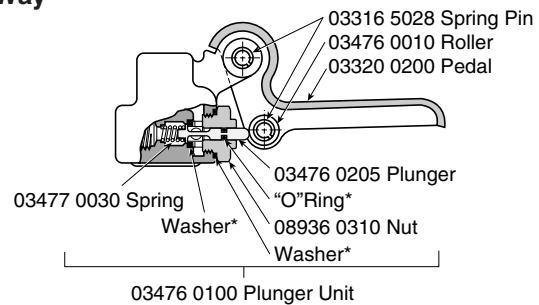
Materials:

Seals: Buna N
 Internal Components: Brass, stainless and plated steel
 Body: Brass
 Pedal: Aluminum

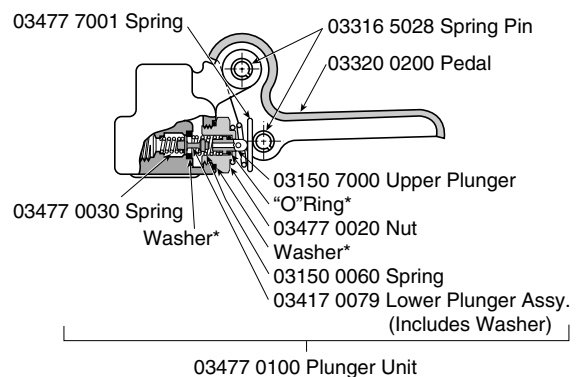


Replacement Parts

2-Way



3-Way



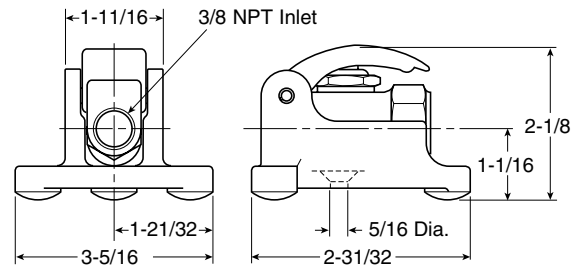
* Included in service kits listed below.

Model Selection and Performance Data

Port Size	Function	Model Number	Old Number	Cv (Avg)	Service Kit
3/8"	2-Way	03476 0099	3476	2.0	03413 0185
3/8"	3-Way	03477 0099	3477	2.0	03417 0159



Dimensions



Application

Normally-closed poppet valve hinged on a mounting bracket which may be bolted in a convenient position to deliver foot-controlled air blasts.

CAUTION: Foot operated valves must be protected against inadvertent operation that can cause serious bodily injury. Use of a foot guard or equivalent protection is strongly recommended.

CAUTION: This valve shall not be used to activate a punch press. Do not use this valve on punch presses or press brakes. See OSHA 1910.217.

Operating Temperatures:

18°F to 200°F

Operating Pressures:

Maximum: 150 PSIG air only

Minimum: 0 PSIG

Materials:

Seals: Buna N

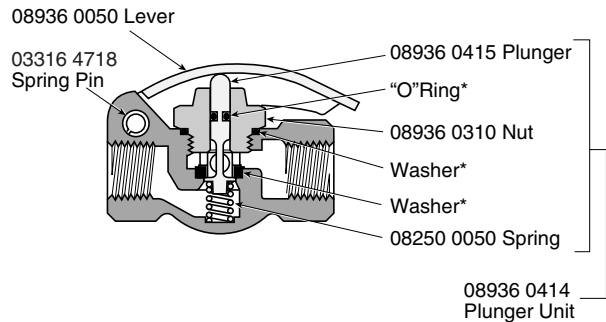
Internal Components: Brass, stainless and plated steel

Body: Brass with cast iron base

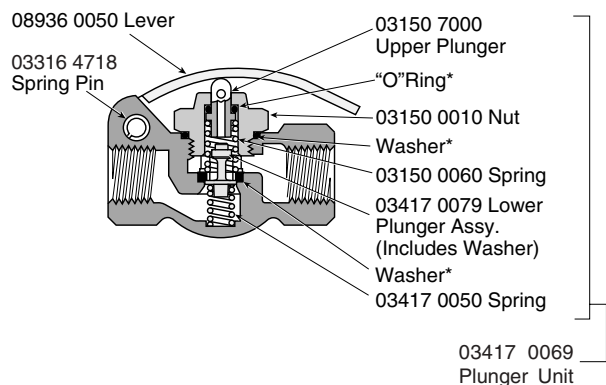
Pedal: Plated steel

Replacement Parts

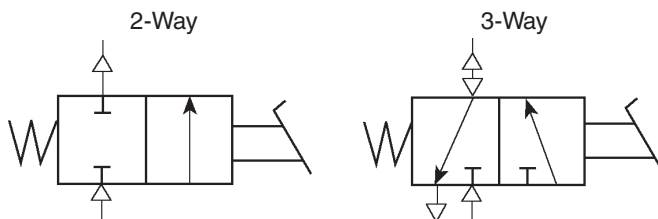
2-Way



3-Way



* Included in service kits listed below.

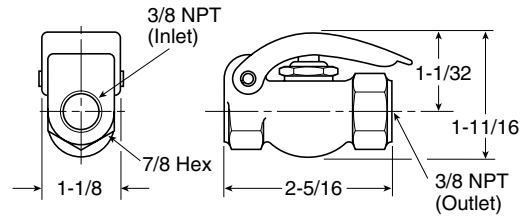


Model Selection and Performance Data

Port Size	Function	Model Number	Old Number	Cv (Avg)	Service Kit
3/8"	2-Way	01019 0049	1019W	2.40	03413 0185
3/8"	3-Way	03150 0259	3150F	2.40	03417 0159



Dimensions



Application

A handy, compact, normally-closed poppet valve for use on air lines. Lever provides effortless hand actuation.

CAUTION: Install guards on all lever operated valves if accidental operation can cause personal injury.

Operating Temperatures:

18°F to 200°F

Operating Pressures:

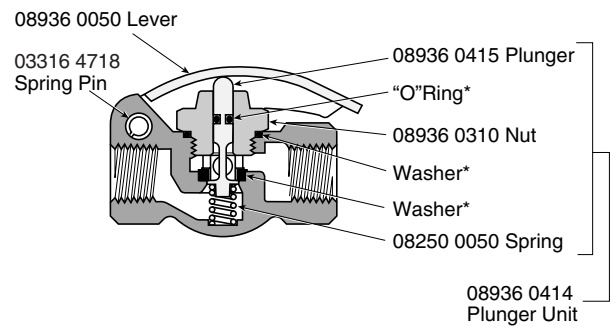
Maximum: 150 PSIG air only
 Minimum: 0 PSIG

Materials:

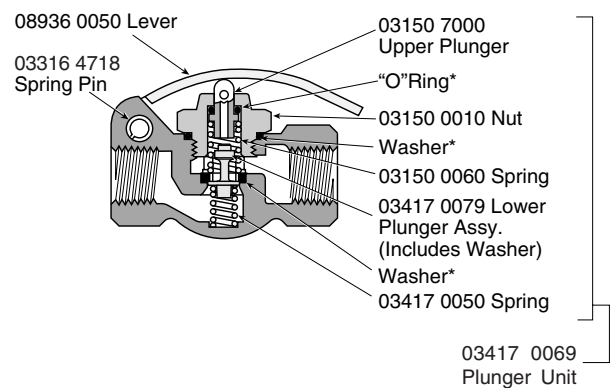
Seals: Buna N
 Internal Components: Brass, stainless and plated steel
 Body: Brass

Replacement Parts

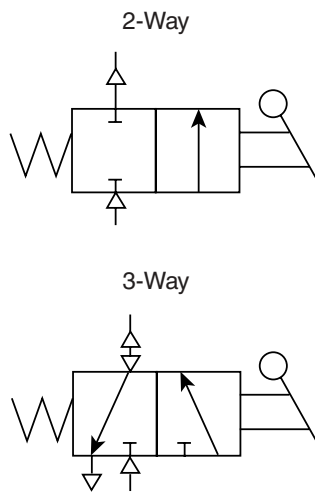
2-Way



3-Way



* Included in service kits listed below.



Model Selection and Performance Data

Port Size	Function	Model Number	Old Number	Cv (Avg)	Service Kit
3/8"	2-Way	08936 0369	8936W	2.40	03413 0185
3/8"	3-Way	03150 0199	3150	2.40	03417 0159

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7. **Special Tooling:** A tooling charge may be imposed for any special tooling, including without limitations, dies, fixtures, molds and patterns, acquired to manufacture items sold pursuant to this contract. Such special tooling shall be and remain Seller's property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in apparatus belonging to Seller which is utilized in the manufacture of the items sold hereunder, even if such apparatus has been specially converted or adapted for such manufacture and notwithstanding any

charges paid by Buyer. Unless otherwise agreed, Seller shall have the right to alter, discard or otherwise dispose of any special tooling or other property in its sole discretion at any time.

8. **Buyer's Property:** Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer, or any other items which become Buyer's property, may be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer placing an order for the items which are manufactured using such property. Seller shall not be responsible for any loss or damage to such property while it is in Seller's possession or control.

9. **Taxes:** Unless otherwise indicated on the face hereof, all prices and charges are exclusive of excise, sales, use, property, occupational or like taxes which may be imposed by any taxing authority upon the manufacture, sale or delivery of the items sold hereunder. If any such taxes must be paid by Seller or if Seller is liable for the collection of such tax, the amount thereof shall be in addition to the amounts for the items sold. Buyer agrees to pay all such taxes or to reimburse Seller therefore upon receipt of its invoice. If Buyer claims exemption from any sales, use or other tax imposed by any taxing authority, Buyer shall save Seller harmless from and against any such tax, together with any interest or penalties thereon which may be assessed if the items are held to be taxable.

10. **Indemnity For Infringement of Intellectual Property Rights:** Seller shall have no liability for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights except as provided in this Part 10. Seller will defend and indemnify Buyer against allegations of infringement of U.S. patents, U.S. trademarks, copyrights, trade dress and trade secrets (hereinafter "Intellectual Property Rights"). Seller will defend at its expense and will pay the cost of any settlement or damages awarded in an action brought against Buyer based on an allegation that an item sold pursuant to this contract infringes the Intellectual Property Rights of a third party. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of such allegations of infringement, and Seller having sole control over the defense of any allegations or actions including all negotiations for settlement or compromise. If an item sold hereunder is subject to a claim that it infringes the Intellectual Property Rights of a third party, Seller may, at its sole expense and option, procure for Buyer the right to continue using said item, replace or modify said item so as to make it noninfringing, or offer to accept return of said item and return the purchase price less a reasonable allowance for depreciation. Notwithstanding the foregoing, Seller shall have no liability for claims of infringement based on information provided by Buyer, or directed to items delivered hereunder for which the designs are specified in whole or part by Buyer, or infringements resulting from the modification, combination or use in a system of any item sold hereunder. The foregoing provisions of this Part 10 shall constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for infringement of Intellectual Property Rights.

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11. **Force Majeure:** Seller does not assume the risk of and shall not be liable for delay or failure to perform any of Seller's obligations by reason of circumstances beyond the reasonable control of Seller (hereinafter "Events of Force Majeure"). Events of Force Majeure shall include without limitation, accidents, acts of God, strikes or labor disputes, acts, laws, rules or regulations of any government or government agency, fires, floods, delays or failures in delivery of carriers or suppliers, shortages of materials and any other cause beyond Seller's control.

12. **Entire Agreement/Governing Law:** The terms and conditions set forth herein, together with any amendments, modifications and any different terms or conditions expressly accepted by Seller in writing, shall constitute the entire Agreement concerning the items sold, and there are no oral or other representations or agreements which pertain thereto. This Agreement shall be governed in all respects by the law of the State of Ohio. No actions arising out of sale of the items sold hereunder or this Agreement may be brought by either party more than two (2) years after the cause of action accrues.



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