

# SOFT SEAL VALVES

T-Spool®, Pneumatic, Directional Valves



3 WAY and 4 WAY (3/2, 4/2, 5/2, 5/3)  
1/8" to 1/2" Ports

Brochure N-201



# A Few Facts . . .

## **Superior “T” Seal Design**

The “T” seals are wear-compensating and pressure loaded; the sealing force increases with the pressure. Their design assures a long, effective cycle life and excellent wear characteristics.

## **Many Configurations**

Single or double solenoid, air operated designs, and sizes 1/8” - 1/2”. All directional applications: 3/2, 4/2, 5/2 and 5/3. Manifold mounting and BSPP (“G” thread) ports are available.

## **Easy To Service**

Because HERION valves have only one internal component (the spool), they are extremely easy to service and it is impossible to install them incorrectly. They also feature quick-change solenoids which take only seconds to replace.

## **Rugged, Compact Construction**

Bar stock body of high-grade aluminum alloy is anodized. Large orifice pilot valves. Body bore finish better than 5 RMS and anodized to extend seal and valve life. All main bore and port intersections are electro-chemically machined.

## **Solenoids Are Interchangeable**

Wide variety of solenoids available including hazardous duty with UL, CSA and other international listings. Coil can be changed in less than a minute!

## **High Air Flow Design**

The soft seal, lightweight, one-piece spool is designed to provide a direct, straight-through air path with large volume cross section. This unique design offers a fast response, 15 to 20 ms, minimum pressure drop, along with higher flow rate ( $C_v$ ) and zero leakage.

## **Operates With Or Without Lubricants**

HERION’S exclusive “T” seal design and roller burnished bore allow the valves to run efficiently on non-lubricated compressed air, eliminating messy polluting oil mists. Test results indicate that valves running on dry, non-lubricated air can operate efficiently for millions of cycles. They can also operate on a lubricated air system.

## **Reliable, Consistent Quality**

For over 25 years, HERION has manufactured and supplied millions of Soft Seal® Valves. Customers and Original Equipment Manufacturers demanding high-performance specify this product. By many it is considered to be one of “the best” air valves ever made.

## 3 WAY (3/2) SOLENOID OPERATED VALVE

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### VALVE SPECIFICATIONS:

Pilot Operated Solenoid Valve with Soft Seal Spool

**Port Sizes:** 1/4", 3/8" and 1/2" NPT

**Fluid:** Filtered air, lubricated or non-lubricated

**Fluid Temperature:** 15° to 105° F

**Ambient Temperature:** 15° to 140° F

**Materials:**

Housing: Clear anodized aluminum

Seals: BUNA-N

### FEATURES:

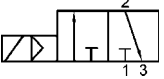
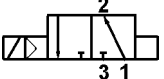
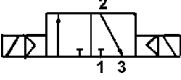
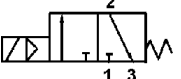
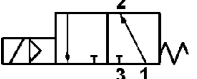
- Noise reduction through integrated pilot valve silencer
- High flow performance
- Simplified soft seal system, incorporating **HERION's** unique T-seal
- Low maintenance and easy to service
- Manual override standard on most models
- Quick change of solenoids
- Compact construction
- Many configurations - air return, spring return or double solenoids

### OPTIONS:

- Manifold mounting
- External pilot adapter
- Hazardous duty ("explosion-proof") solenoids with UL, CSA, CENELEC and other international listings
- "G" thread ports available (ISO 228/1)
- Polyurethane seals
- Different pilot valve / solenoid operators available for low power, intrinsically safe, etc.
- Variety of manual overrides: detent, non-detent, brass push button



# VALVE ORDER INFORMATION

Symbol	Description	Port Size (NPT)	Nom. Size (mm)	Cv Factor	Operating Pressure (PSI)	Dim. Dwg.	Cross Section Dwg.	Spare Parts Kit	Order No.	
									Valve	Solenoid
	3 Way (3/2) Solenoid – Air Return  Normally Closed	1/4"	6	1.4	25-150 25-120	22	19	8110816 8110816	8020770 8020775	.0247 .0240/.0241
		3/8"	10	2.6	30-150 30-120	22	19	8110817 8110817	8020870 8020870X01	.0247 .0240/.0241
		1/2"	12	3.5	30-150 30-120	22	19	8110817 8110817	8020871 8020875	.0247 .0240/.0241
	3 Way (3/2) Solenoid – Air Return  Normally Open	1/4"	6	1.4	25-150 25-120	22	19	8110816 8110816	8022770 8022775	.0247 .0240/.0241
		3/8"	10	2.6	30-150 30-120	22	19	8110817 8110817	8022870 8022870X01	.0247 .0240/.0241
		1/2"	12	3.5	30-150 30-120	22	19	8110817 8110817	8022871 8022875	.0247 .0240/.0241
	3 Way (3/2) Double Solenoid Impulse	1/4"	6	1.4	25-150 25-120	24	20	8110818 8110818	8021770 8021775	.0247 .0240/.0241
		3/8"	10	2.6	30-150 30-120	24	20	8110819 8110819	8021870 8021870X01	.0247 .0240/.0241
		1/2"	12	3.5	30-150 30-120	24	20	8110819 8110819	8021970 8021975	.0247 .0240/.0241
	3 Way (3/2) Solenoid – Spring Return  Normally Closed	1/4"	6	1.4	50-150 50-120	23	21	8110829 8110829	8110006 8110006X3	.0247 .0240/.0241
		3/8"	10	2.6	50-150 50-120	23	21	8110828 8110828	8110007 8110007X3	.0247 .0240/.0241
		1/2"	12	3.5	50-150 50-120	23	21	8110828 8110828	8110008 8110008X3	.0247 .0240/.0241
	3 Way (3/2) Solenoid – Spring Return  Normally Open	1/4"	6	1.4	50-150 50-120	23	21	8110829 8110829	8110006X01 8110006X32	.0247 .0240/.0241
		3/8"	10	2.6	50-150 50-120	23	21	8110828 8110828	8110007X01 8110007X32	.0247 .0240/.0241
		1/2"	12	3.5	50-150 50-120	23	21	8110828 8110828	8110008X01 8110008X32	.0247 .0240/.0241

## GENERAL PURPOSE APPLICATIONS

### Solenoid:

Solenoids are available for these valves in a wide variety of types and voltages. The following table gives a brief summary of the specifications of these solenoids. Additional information can be found in Brochure N-209.

Solenoid	Power Consumption			Remarks	NEMA Classification
	DC	AC			
		Inrush	Holding		
0247	7W	18 VA	10 VA	with DIN Connector	4
0240	3W	--	--		
0241	--	10 VA	5 VA		
0263	1.6W	--	--		

### Connector:

Solenoids are designed to be used with Mating DIN 43650 Cable Clamp Connector which are included with the 016X and 02XX solenoids. The connector/solenoid combination meets NEMA 4 specifications. Optional connectors may be selected from the following table:

Solenoid Series	Standard Cable Clamp	Optional Connector Part Numbers			
		1/2" NPT	Lighted - Cable Clamp		
			24 VAC, DC	120 VAC	220 VAC
02XX	0570275	0661374	0570818	0570816	0570817

Options such as lighted 1/2" NPT connectors are also available. See Brochure N-209.

## HAZARDOUS DUTY APPLICATIONS

Designed to be used with 1/2" NPT mating conduit, these solenoids meet **NEMA 4X, 7, 9** requirements and are rated for a 100% duty cycle. They comply with insulation class H (180° C), and are for use in Class I, Division 1,2 Groups A,B,C,D; Class II, Division 1,2 Groups E,F,G hazardous locations as defined in the National Electric Code. The solenoids are attached to the valve with a solenoid retaining nut. The electrical connection is made through three wire leads, (18" long). The two red leads are for power; the third lead (green with yellow stripe) is the ground. The solenoid is not polarity sensitive.

Solenoid	Power Consumption			Remarks	NEMA Classification
	DC	AC			
		Inrush	Holding		
3720	1.4W	--	--	1/2" NPT 18" Leads	4 X, 7, 9
3722	5W	--	--		
3723	--	6 VA	6 VA		
3726	13W	--	--		
3727	--	15 VA	15 VA		



3/2 Valve with 37XX Solenoid



**EXTERNAL PILOT ADAPTER:**

These solenoid operated valves require an air supply to the pilot valve which in turn is used to operate the main valve. (The pilot air is normally taken from the inlet supply pressure at port # 1 via a small internal hole in the valve housing.) There are times when it may be desirable to use an external source for the pilot air.

Some reasons for using an external pilot supply:

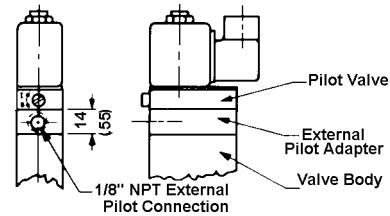
1. Inlet pressure drops below the minimum 30 psi required for internal pilot supply.
2. The supply to the valve may contain particles of a size that can safely pass through the valve but might block the smaller passages in the pilot valve.

**HERION** offers an external pilot adapter kit which can be factory or field mounted. One kit is required for each solenoid on a valve.

**ORDER INFORMATION:**

**Kit Part No.** 8110138 **Used for** All 1/4" to 1/2" Soft Seal Valves in this Brochure

**Note:** One kit is required for each solenoid on a valve.



External Pilot Location

**MANUAL OVERRIDE:**

Valves using the 02XX Series of solenoids have a manual override. This override can be used to operate the valve without energizing the solenoid. The pilot valves have a "1" and a "0" marked on them. The slot on the bottom or lever should point to "0" for normal solenoid operation. When pointing to "1", the valve is on manual override.

**CROSS SECTION AND PARTS LIST:**

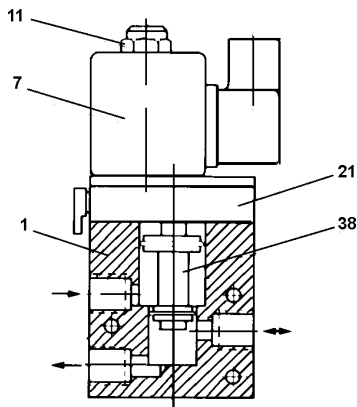


Fig. 19 Solenoid Air Return

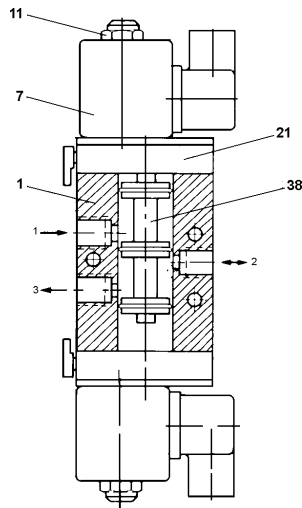


Fig. 20 Double Solenoid

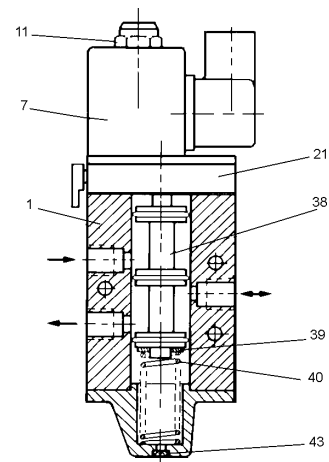


Fig. 21 Solenoid Spring Return

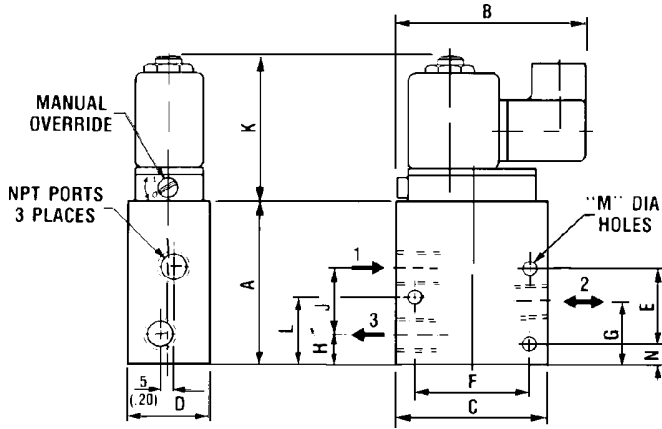
**Note:** 1/4" NPT Valve shown. 3/8" and 1/2" will differ slightly

**PARTS LIST:**

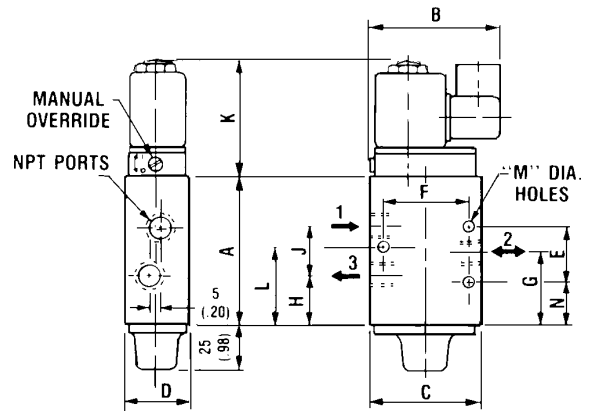
- |                  |                 |
|------------------|-----------------|
| 1. Housing       | 7. Solenoid     |
| 11. Solenoid Nut | 21. Pilot Valve |
| *38. Spool Assy. | 39. Washer      |
| *40. Spring      | 43. Filter      |

\* Parts marked with an asterisk are contained in the Spare Parts Kit.

**DIMENSION DRAWINGS:**

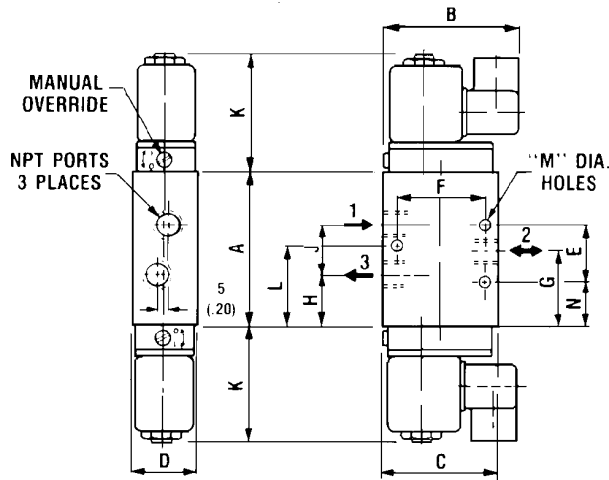


**Fig. 22** 1/4" - 1/2" Valve  
Solenoid - Air Return



**Fig. 23** 1/4" - 1/2" Valve  
Solenoid - Spring Return

**NOTE:** Normally closed valve shown for normally open valve ports #1 and #3 are reversed.



**Fig. 24** 1/4" - 1/2" Valve  
Double Solenoid - Impulse

Figure Number	Valve Size	DIMENSIONS												
		A	B	C	D	E	F	G	H	J	K	L	M	N
22	1/4"	59 (2.32)	66 (2.70)	55 (2.17)	30 (1.18)	27 (1.06)	41 (1.61)	23 (.91)	11 (.43)	24 (.94)	61 (2.40)	24.5 (.96)	5.5 (.22)	7.5 (.30)
	3/8"-1/2"	87 (3.43)	73 (2.87)	65 (2.56)	35 (1.38)	--	46 (1.81)	50 (1.97)	29 (1.14)	33 (1.30)	61 (2.40)	77.5 (3.05)	7 (.28)	31.5 (1.24)
23	1/4"	74 (2.91)	66 (2.70)	55 (2.17)	30 (1.18)	27 (1.06)	41 (1.61)	37 (1.46)	25 (.98)	24 (.94)	61 (2.40)	38.5 (1.52)	5.5 (.22)	21.5 (.85)
	3/8"-1/2"	83 (3.27)	73 (2.87)	65 (2.56)	35 (1.38)	--	46 (1.81)	44 (1.73)	25 (.98)	33 (1.30)	61 (2.40)	73.5 (2.89)	7 (.28)	27.5 (1.08)
24	1/4"	74 (2.91)	66 (2.70)	55 (2.17)	30 (1.18)	27 (1.06)	41 (1.61)	37 (1.46)	25 (.98)	24 (.94)	61 (2.40)	38.5 (1.52)	5.5 (.22)	21.5 (.85)
	3/8"-1/2"	83 (3.27)	73 (2.87)	65 (2.56)	35 (1.38)	--	46 (1.81)	44 (1.73)	25 (.98)	33 (1.30)	61 (2.40)	73.5 (2.89)	7 (.28)	27.5 (1.08)

**NOTE:** All dimensions in mm (inches).

# 3 WAY (3/2) AIR OPERATED VALVE

**VALVE SPECIFICATIONS:**

Air Pilot Operated Valve with Soft Seal spool  
**Port Sizes:** 1/4", 3/8", and 1/2" NPT  
**Fluid:** Filtered air, lubricated or non-lubricated  
**Fluid Temperature:** 15 to 105° F  
**Ambient Temperature:** 15 to 140° F  
**Materials:**  
     Housing: Clear anodized aluminum  
     Seals: BUNA-N

**FEATURES:**

- High flow performance
- Simplified soft seal system, incorporating **HERION's** unique T-Seal
- Low maintenance and easy to service
- Compact construction
- Many configurations - air return, spring return or double air operated
- Universal flow



**OPTIONS:**

- Manifold mounting
- "G" thread ports available (ISO 228/2)
- Polyurethane seals

**VALVE ORDER INFORMATION - 2 POSITION VALVES**

Symbol	Description	Port Size (NPT)	Nom. Size (mm)	Cv Factor	Operating Pressure (PSI)	Pilot Pressure (PSI)	Dim. Dwg.	Cross Section Dwg.	Spare Parts Kit	Valve Order No.
	3 Way (3/2)	1/4	6	1.4	25-230	25-230	40	36	8110816	4021370
	Air-Operated	3/8	10	2.6	30-230	30-230			8110817	4022070
	Air Return	1/2	12	3.6	30-230	30-230			8110817	4022071
	3 Way (3/2)	1/4	6	1.4	VAC-230	30-230	41	38	8110818	4021470
	Double-Air	3/8	10	2.6					8110819	4022170
	Impulse	1/2	12	3.6					8110819	4022171
	3 Way (3/2)	1/4	6	1.4	VAC-230	50-230	42	39	8110829	4021371
	Air-Operated	3/8	10	2.6					8110828	4022072
	Spring Return	1/2	12	3.6					8110828	4022073

**NOTE:** <sup>(1)</sup>Pilot pressure must be equal to or greater than system pressure.  
 Do not restrict exhaust port no. 3 on these valves.



**CROSS SECTION DRAWINGS:**

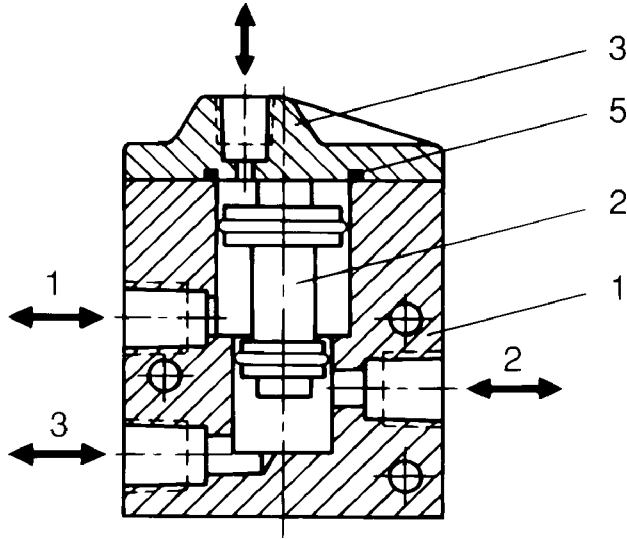


Fig. 36 1/4" Valve  
Single Air Pilot

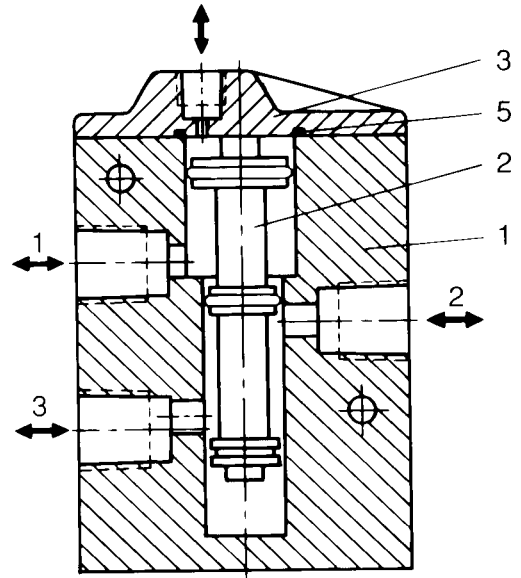


Fig. 37 3/8" and 1/2" Valves  
Single Air Pilot

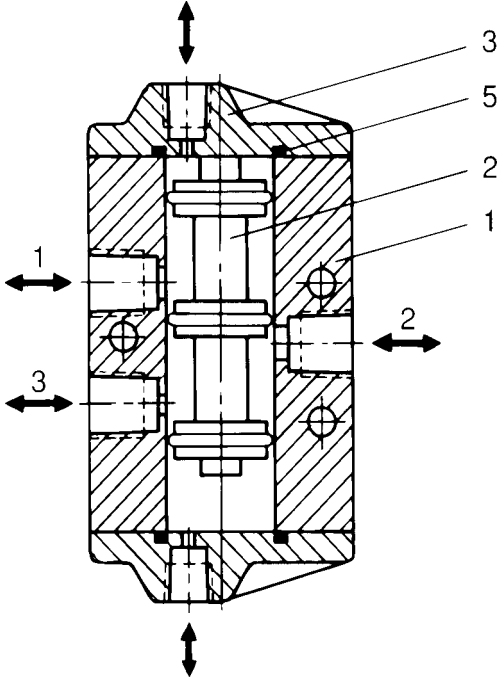


Fig. 38 1/4" to 1/2" Valve  
Double Air Pilot

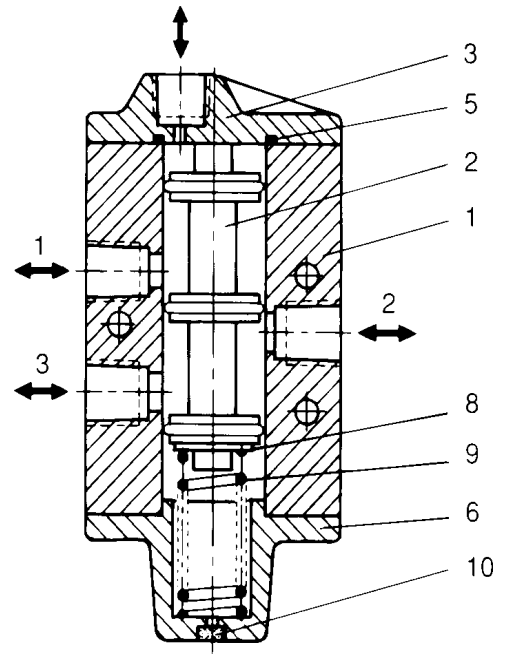


Fig. 39 1/4" to 1/2" Valve  
Air Pilot - Spring Return

**PARTS LIST**

- |                     |                     |
|---------------------|---------------------|
| 1 Housing           | 6 Bottom Flange     |
| *2 Spool Assembly   | 7 Screw (not shown) |
| 3 Flange            | 8 Flat Washer       |
| 4 Screw (not shown) | *9 Spring           |
| 5 Gasket Seal       | 10 Filter Disc      |

\* Parts marked with an asterisk are contained in the Spare Parts Kit.

**DIMENSION DRAWINGS:**

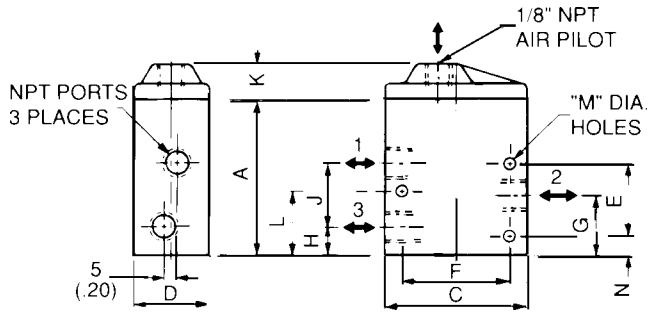


Fig. 40 Single Air Pilot

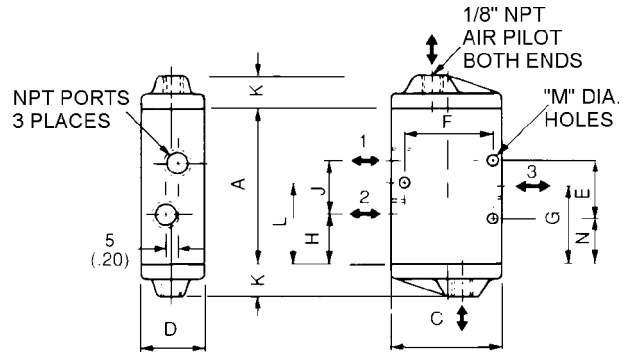


Fig. 41 Double Air Pilot

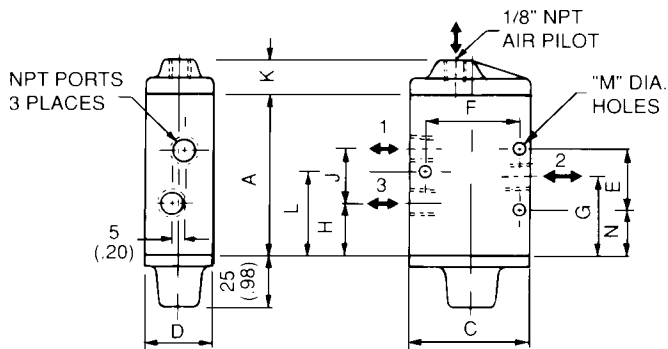


Fig. 42 Single Air Pilot - Spring Return

Figure Number	Valve Size	DIMENSIONS											
		A	C	D	E	F	G	H	J	K	L	M	N
40	1/4"	59 (2.32)	55 (2.17)	30 (1.18)	27 (1.06)	41 (1.61)	23 (.91)	11 (.43)	24 (.94)	16 (.63)	24.5 (.96)	5.5 (.22)	7.5 (.30)
	3/8"	87 (3.43)	65 (2.56)	35 (1.38)	--	46 (1.81)	50 (1.97)	29 (1.14)	33 (1.30)	16 (.63)	77.5 (3.05)	7 (.28)	31.5 (1.24)
	1/2"	74 (2.91)	55 (2.17)	30 (1.18)	27 (1.06)	41 (1.61)	37 (1.46)	25 (.98)	24 (.94)	16 (.63)	38.5 (1.52)	5.5 (.22)	21.5 (.85)
41	1/4"	83 (3.27)	65 (2.56)	35 (1.38)	--	46 (1.81)	44 (1.73)	25 (.98)	33 (1.30)	16 (.63)	73.5 (2.89)	7 (.28)	27.5 (1.08)
	3/8"	74 (2.91)	55 (2.17)	30 (1.18)	27 (1.06)	41 (1.61)	37 (1.46)	25 (.98)	24 (.94)	16 (.63)	38.5 (1.52)	5.5 (.22)	21.5 (.85)
	1/2"	83 (3.27)	65 (2.56)	35 (1.38)	--	46 (1.81)	44 (1.73)	25 (.98)	33 (1.30)	16 (.63)	73.5 (2.89)	7 (.28)	27.5 (1.08)
42	1/4"	74 (2.91)	55 (2.17)	30 (1.18)	27 (1.06)	41 (1.61)	37 (1.46)	25 (.98)	24 (.94)	16 (.63)	38.5 (1.52)	5.5 (.22)	21.5 (.85)
	3/8"	83 (3.27)	65 (2.56)	35 (1.38)	--	46 (1.81)	44 (1.73)	25 (.98)	33 (1.30)	16 (.63)	73.5 (2.89)	7 (.28)	27.5 (1.08)
	1/2"	74 (2.91)	55 (2.17)	30 (1.18)	27 (1.06)	41 (1.61)	37 (1.46)	25 (.98)	24 (.94)	16 (.63)	38.5 (1.52)	5.5 (.22)	21.5 (.85)

Note: All dimensions in mm (inches).

## 4 WAY (4/2, 5/2, 5/3) SOLENOID OPERATED VALVE

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### VALVE SPECIFICATIONS:

Pilot Operated Solenoid Valve with Soft Seal spool

**Port Sizes:** 1/8", 1/4", 3/8" and 1/2" NPT

**Fluid:** Filtered air, lubricated or non-lubricated

**Fluid Temperature:** 15 to 105°F

**Ambient Temperature:** 15 to 140°F

**Materials:**

Housing: Clear anodized aluminum

Seals: BUNA N

### FEATURES:

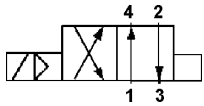
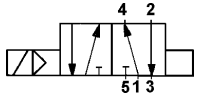
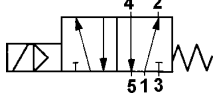
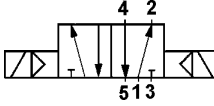
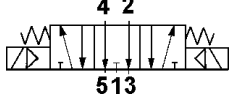
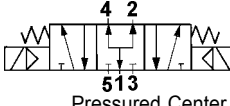
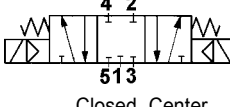
- Noise reduction through integrated pilot valve silencer
- High flow performance
- Simplified soft seal system, incorporating **HERION's** unique T-Seal
- Low Maintenance and easy to service
- Manual override standard on most models
- Quick change of solenoids
- Compact construction
- Many configurations - air return, spring return or double solenoids

### OPTIONS:

- Manifold mounting
- External pilot adapter
- Hazardous duty ("explosion-proof") solenoids with UL, CSA, CENELEC and other international listings
- "G" Thread ports available (ISO 228/1)
- Polyurethane seals
- Different pilot valve / solenoid operators available for low power, intrinsically safe, etc.
- Variety of manual overrides: detent, non-detent, brass push button



## VALVE ORDER INFORMATION

Symbol	Description	Port Size (NPT)	Nom. Size (mm)	Cv Factor	Operating Pressure (PSI)	Dim. Dwg.	Cross Section Dwg.	Spare Parts Kit	Order No.	
									Valve	Solenoid
	4 Way (4/2) Solenoid – Air Return	1/8"	4	0.5	25-150 25-150	2	9	8110767 8110767	2630670E 2630670X6	.0162 .0163
		1/4"	6	1.4	25-150	5	12	8110831	2636070	.0247
	4 Way (5/2) Solenoid – Air Return	3/8"	10	2.6	30-150	5	13	8110833	2637070	.0247
		1/2"	12	3.5	30-150	5	13	8110833	2637071	.0247
		1/8"	4	0.5	50-150 50-120	3	10	8110769 8110769	8110134E 8110134X6	.0162 .0163
	4 Way (5/2) Solenoid – Spring Return	1/4"	6	1.4	50-150	6	14	8110832	8110132	.0247
		3/8"	10	2.6	50-150	6	14	8110825	8110443	.0247
		1/2"	12	3.5	50-150	6	14	8110825	8110413	.0247
	4 Way (5/2) Double Solenoid Impulse	1/8"	4	0.5	25-150 25-120	4	11	8110768 8110768	2630770E 2630770X6	.0162 .0163
		1/4"	6	1.4	25-150	8	15	8110827	2636270	.0247
		3/8"	10	2.6	30-150	7	15	8110826	2637270	.0247
		1/2"	12	3.5	30-150	7A	15	8110826	2637271	.0247
	4 Way (5/3) Double Solenoid – Spring centered	1/4"	6	1.1	50-150	8A	16	557586X2	2636370	.0247
		1/2"	12	2.7	50-150	7A	17	8110756X1	2637370	.0247
	4 Way (5/3) Double Solenoid – Spring Centered	1/4"	6	1.1	50-150	8A	16	0557586X2	2636570	.0247
		1/2"	12	2.7	50-150	7A	17	8110756X1	2637570	.0247
	4 Way (5/3) Double Solenoid – Spring Centered	1/4"	6	1.1	50-150	8A	16	0557586X2	2636470	.0247
		1/2"	12	2.7	50-150	7A	17	8110756X1	2637470	.0247

## OPERATION OF 3 POSITION VALVES:

### CAUTION

Special precautions must be taken when using 3 position valves. This valve series was designed to provide tight sealing. However, in all three position valves, normal wear or a malfunction might cause valves to fail to shift, shift unexpectedly, or fail to maintain designed center position. Machine designers and valve users should not depend on the center position of 3 position valves in cases where possible injury or property damage could result if failure should occur. Other safeguards must be designed into the system or machine.

## OPERATION:

**Open Center:** With both control solenoids de-energized inlet 1 is closed. Outlets 2 and 4 are connected to exhaust ports 3 and 5 respectively.

**Pressured Center:** With both control solenoids de-energized inlet 1 is connected to ports 2 and 4. Ports 3 and 5 are blocked.

**Closed Center:** With both control solenoids de-energized, all ports are closed.

### External Pilot Adapter:

These solenoid operated valves require an air supply to the pilot valve which in turn is used to operate the main valve. (The pilot air is normally taken from the inlet supply pressure at port # 1 via a small internal hole in the valve housing.) There are times when it may be desirable to use an external source for the pilot air.

Some reasons for using an external pilot supply:

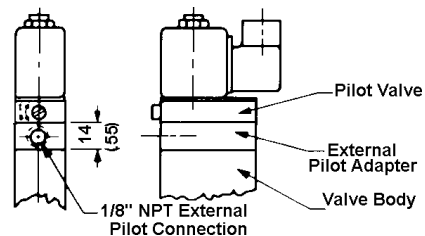
1. Inlet pressure drops below the minimum 30 psi required for internal pilot supply.
2. The supply to the valve may contain particles of a size that can safely pass through the valve but might block the smaller passages in the pilot valve.

**HERION** offers an external pilot adapter kit which can be factory or field mounted. One kit is required for each solenoid on a valve.

### Order Information:

Kit Part No.	Used for
8110796	all 1/8" Soft Seal Valves
8110138	all 1/4" to 1/2" soft seal valves except 5/3 position valves
8110138X01	1/2" 5/3 position valves only
8110138X02	1/4" 5/3 position valves only

**Note:** One kit is required for each solenoid on a valve.



External Pilot Location

## GENERAL PURPOSE APPLICATIONS

### Solenoid:

Solenoids are available for these valves in a wide variety of types and voltages. The following table gives a brief summary of the specifications of the more common solenoids. Additional information can be found in Brochure N-209.

Solenoid	Power Consumption			Remarks	NEMA Classification
	DC	AC			
		Inrush	Holding		
0160	5 W	–	–	with DIN Connector	4
0162	–	6 VA	6 VA		
0163	1.6 W	–	–		
0247	7 W	18 VA	10 VA		
0240	3 W	–	–		
0241	–	10 VA	5 VA		
0263	1.6 W	–	–		

### Connector:

Solenoids are designed to be used with a Mating DIN 43650 Cable Clamp Connector which are included with the 016X and 02XX solenoids. The connector / solenoid combination meets NEMA 4 specifications. Optional connectors may be selected from the following table:

Solenoid Series	Standard Cable Clamp	Optional Connector Part Numbers			
		1/2" NPT	Lighted – Cable Clamp		
			24 VAC, DC	120 VAC	220 VAC
02XX	0570275	0661374	0570818	0570816	0570817
016X	0664164	8110519	0664811	8110548	8110549

Options such as lighted 1/2" NPT connectors are also available. See Brochure N-209

## HAZARDOUS DUTY APPLICATIONS

Designed to be used with 1/2" NPT mating conduit, these solenoids meet **NEMA 4X, 7, 9** requirements and are rated for a 100% duty cycle. They comply with insulation class H (180° C), and are for use in Class I, Division 1,2 Groups A,B,C,D; Class II, Division 1,2 Groups E,F,G hazardous locations as defined in the National Electric Code. The solenoids are attached to the valve with a solenoid retaining nut. The electrical connection is made through three wire leads, (18" long.) The two red leads are for power; the third lead (green with yellow stripe) is the ground. The solenoid is not polarity sensitive.

Solenoid	Power Consumption			Remarks	NEMA Classification
	DC	AC			
		Inrush	Holding		
3720	1.4 W	–	–	1/2" NPT 18" Leads	4 X, 7, 9
3722	5 W	–	–		
3723	–	6 VA	6 VA		
3726	13 W	–	–		
3727	–	15 VA	15 VA		



5/2 Valve with 37XX Solenoid



**MANUAL OVERRIDE:**

Valves using the 016X and 02XX series of solenoids have a manual override. This override can be used to operate the valve without energizing the solenoid. The pilot valves have a "1" and an "0" market on them. The slot on the button or lever should point to "0" for normal solenoid operation. When pointing to "1", the valve is on manual override.

The 1/8" valves have a slotted button which can be depressed to momentarily operate the valve or depressed and turned to maintain the operation. the 1/4" to 1/2" valves have a slotted button or lever which can be turned to operate the valve. Operation will be maintained until turned to its original position. See the dimension drawings for details.

**DIMENSION DRAWINGS:**

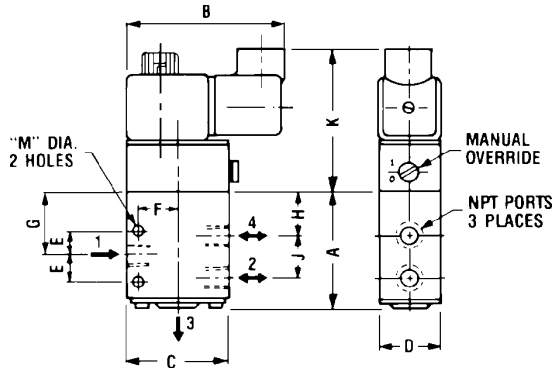


Fig. 2 1/8" Valve Solenoid-Air Return

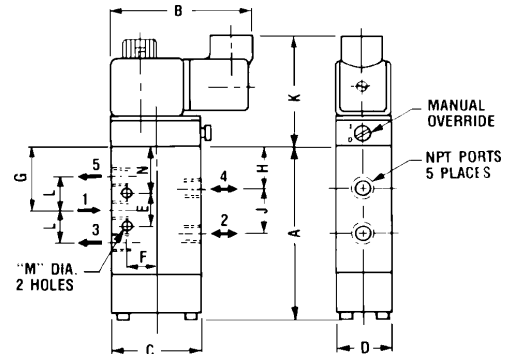


Fig. 3 1/8" Valve Solenoid-Spring Return

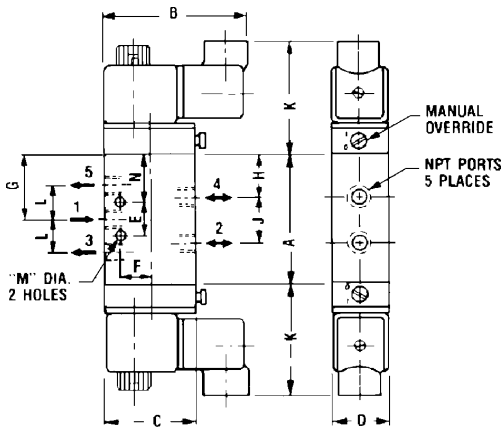


Fig. 4 1/8" Valve Double Solenoid

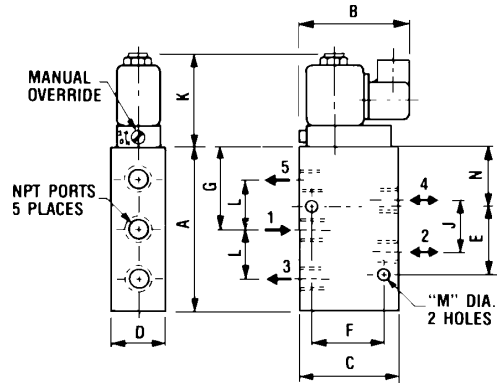


Fig. 5 1/4" - 1/2" Valves Solenoid-Air Return

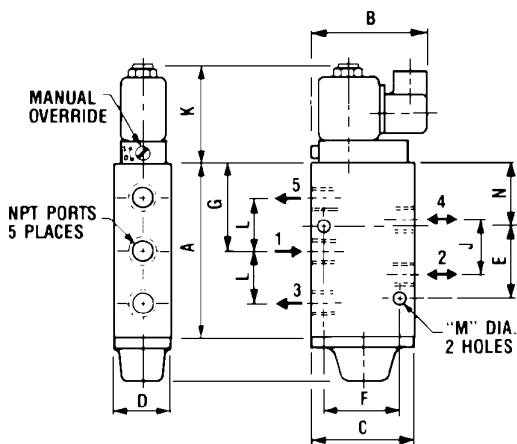


Fig. 6 1/4" - 1/2" Valves Solenoid-Spring Return

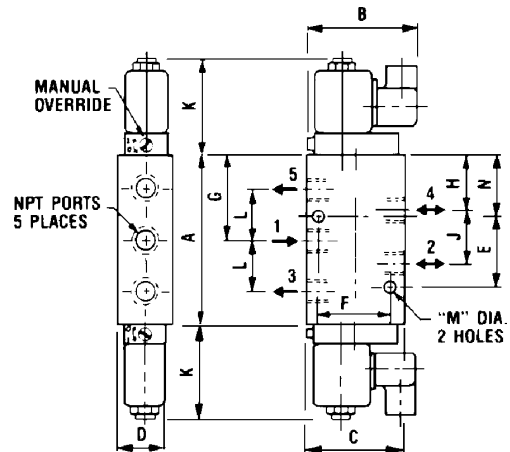


Fig. 7 3/8" - 1/2" Valves 2 Position Double Solenoid  
Fig. 7A 1/2" Valve 3 Position Double Solenoid

**DIMENSION DRAWING:**

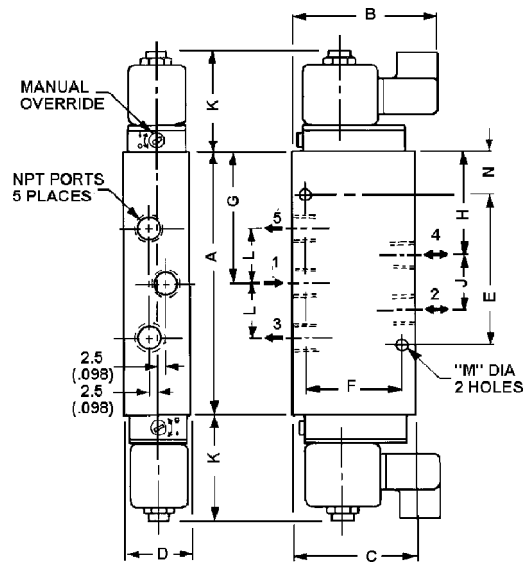


Fig. 8 1/4" Valve 2 Position Double Solenoid  
 Fig. 8A 1/4" Valve 3 Position Double Solenoid

FIGURE NUMBER	VALVE SIZE	DIMENSIONS												
		A	B	C	D	E	F	G	H	J	K	L	M	N
2	1/8"	47 (1.85)	80 (3.15)	40 (1.57)	25 (.98)	11 (.43)	14 (.55)	24 (.95)	15 (.59)	18 (.71)	67 (2.64)	--	5.5 (.22)	--
3	1/8"	84 (3.31)	80 (3.15)	40 (1.57)	25 (.98)	15.8 (.62)	14 (15.5)	30.3 (1.20)	21.3 (.84)	18 (.71)	67 (2.64)	16 (.63)	5.2 (.20)	22.4 (.88)
4	1/8"	60.5 (2.38)	80 (3.15)	40 (1.57)	25 (.98)	15.8 (.62)	14 (.55)	30.3 (1.20)	21.3 (.84)	18 (.71)	67 (2.64)	16 (.63)	5.2 (.20)	22.4 (.88)
5	1/4"	84 (3.31)	66 (2.60)	55 (2.17)	30 (1.18)	67 (2.64)	40 (1.57)	37 (1.46)	--	24 (.94)	61 (2.40)	24 (.94)	7 (.28)	12 (.47)
	3/8"	115 (4.53)	73 (2.87)	65 (2.56)	35 (1.38)	46 (1.81)	46 (1.81)	56 (2.20)	--	33 (1.30)	61 (2.40)	33 (1.30)	7 (.28)	39 (1.54)
	1/2"	115 (4.53)	73 (2.87)	65 (2.56)	35 (1.38)	46 (1.81)	46 (1.81)	56 (2.20)	--	33 (1.30)	61 (2.40)	33 (1.30)	7 (.28)	39 (1.54)
6	1/4"	102 (4.02)	66 (2.60)	55 (2.17)	30 (1.18)	67 (2.64)	40 (1.57)	51 (2.01)	--	24 (.94)	61 (2.40)	24 (.94)	7 (.28)	14 (.55)
	3/8"	111 (4.37)	73 (2.87)	65 (2.56)	35 (1.38)	46 (1.81)	46 (1.81)	56 (2.20)	--	33 (1.30)	61 (2.40)	33 (1.30)	7 (.28)	39 (1.54)
	1/2"	111 (4.37)	73 (2.87)	65 (2.56)	35 (1.38)	46 (1.81)	46 (1.81)	56 (2.20)	--	33 (1.30)	61 (2.40)	33 (1.30)	7 (.28)	39 (1.54)
7	3/8"	111 (4.37)	73 (2.87)	65 (2.56)	35 (1.38)	46 (1.81)	46 (1.81)	56 (2.20)	46 (1.81)	33 (1.30)	61 (2.40)	33 (1.30)	7 (.28)	39 (1.54)
	1/2"	111 (4.37)	73 (2.87)	65 (2.56)	35 (1.38)	46 (1.81)	46 (1.81)	56 (2.20)	46 (1.81)	33 (1.30)	61 (2.40)	33 (1.30)	7 (.28)	39 (1.54)
8	1/4"	102 (4.02)	66 (2.60)	55 (2.17)	30 (1.18)	67 (2.64)	40 (1.57)	51 (2.01)	39 (1.54)	24 (.94)	61 (2.40)	24 (.94)	7 (.28)	14 (.55)
7A	1/2"	174 (6.85)	74 (2.91)	70 (2.76)	40 (1.57)	50 (1.97)	50 (1.97)	87 (3.43)	71 (2.80)	33 (1.30)	61 (2.40)	33 (1.30)	7 (.28)	71 (2.80)
8A	1/4"	122 (4.80)	66 (2.60)	55 (2.17)	30 (1.18)	67 (2.64)	40 (1.57)	61 (2.41)	49 (1.93)	24 (.94)	61 (2.40)	24 (.94)	7 (.28)	25 (.98)



**CROSS SECTION DRAWINGS:**

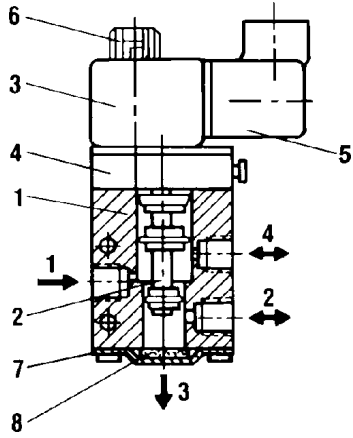


Fig. 9 1/8" Valve  
Solenoid-Air Return

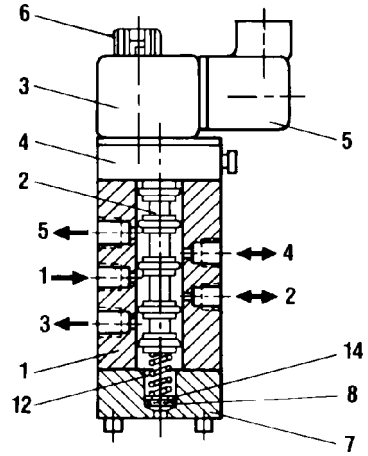


Fig. 10 1/8" Valve  
Solenoid-Spring Return

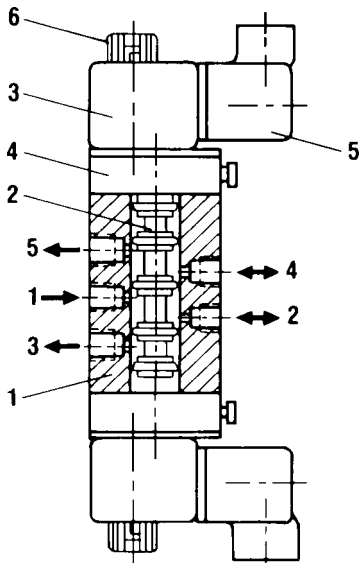


Fig. 11 1/8" Valve  
Double Solenoid

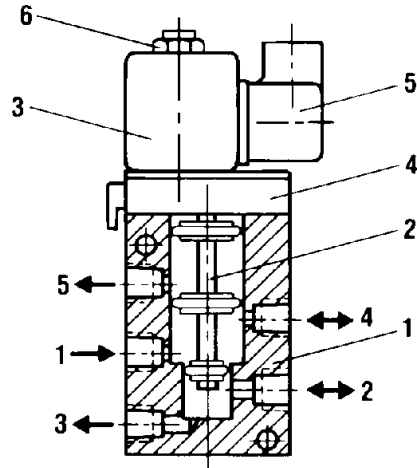


Fig. 12 1/4" Valve  
Solenoid-Air Return

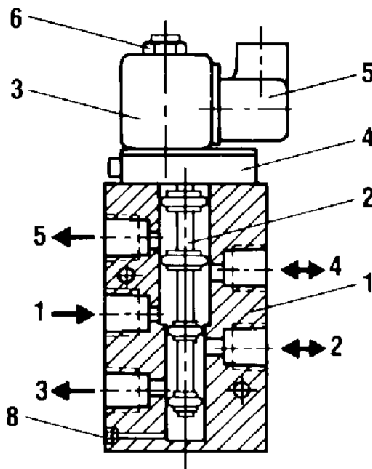


Fig. 13 3/8", 1/2" Valve  
Solenoid-Air Return

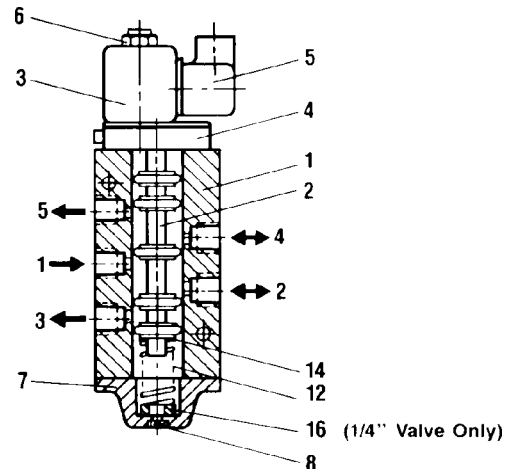


Fig. 14 1/4", 1/2" Valve  
Solenoid-Spring Return

CROSS SECTION DRAWINGS:

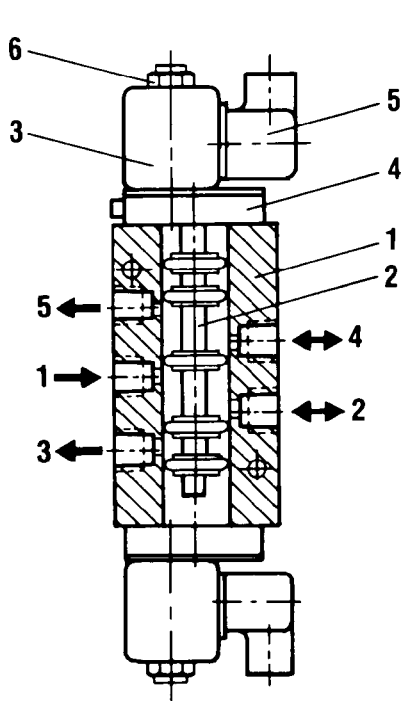


Fig.15 1/4" - 1/2" Valves Double Solenoid

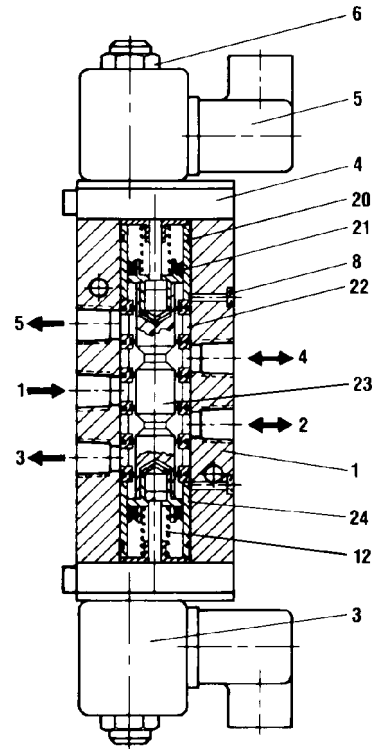


Fig.16 1/4" Valve 3 Position

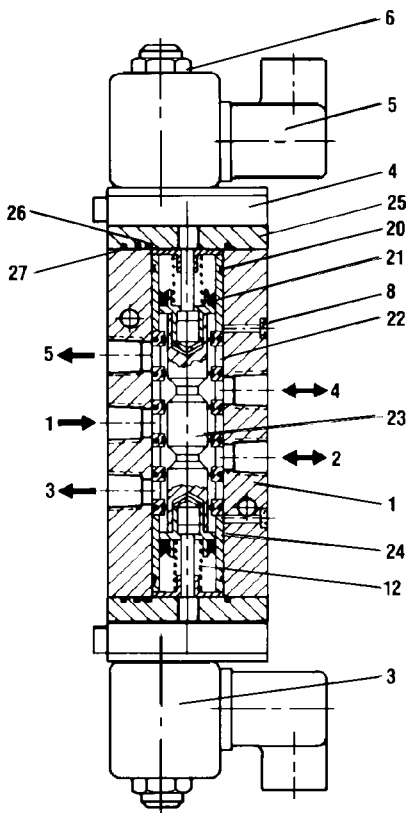


Fig.17 1/2" Valve 3 Position

**Parts List - 3 Position Valves**

- 1. Housing
- \*2. Spool Assembly
- 3. Solenoid
- 4. Pilot Valve
- 5. Connector
- 6. Solenoid Nut
- 7. Bottom Flange
- 8. Sinter Disc
- \*12. Spring
- 14. Washer
- 16. Spacer
- \*20. O-Ring
- \*21. Lip Ring
- \*22. Seal Assembly
- 23. Spindle
- 24. Sleeve
- 25. Adapter Flange
- \*26. O-Ring
- \*27. O-Ring

\* Parts marked with an asterisk are contained in the Spare Parts Kit.

# 4 WAY (4/2, 5/2, 5/3) AIR OPERATED VALVE

## VALVE SPECIFICATIONS:

Air Pilot Operated Valve with Soft Seal spool

**Port Sizes:** 1/8", 1/4", 3/8", and 1/2" NPT

**Fluid:** Filtered air, lubricated or non-lubricated

**Fluid Temperature:** 15° to 105°

**Ambient Temperature:** 15° to 140° F

**Materials:**

Housing: Clear anodized aluminum

Seals: BUNA-N

## FEATURES:

- High flow performance
- Simplified soft seal system, incorporating **HERION's** unique T-seal
- Low maintenance and easy to service
- Compact construction
- Many configurations - air return, spring return or double air operated

## OPTIONS:

- Manifold mounting
- "G" thread ports available (ISO 228/1)
- Polyurethane seals

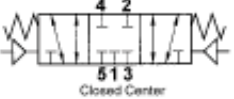
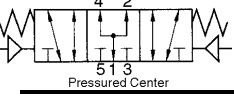
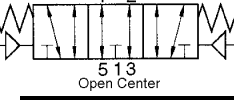


## VALVE ORDER INFORMATION

Symbol	Description	Port Size (NPT)	Nom. Size (mm)	C <sub>v</sub> Factor	Operating Pressure (PSI)	Pilot Pressure (PSI)	Wgt (lb.)	Dim. Dwg.	Cross Section Dwg.	Spare Parts Kit	Valve Order No.
(1)	Way (4/2) Air-Operated Air Return	1/8	4	0.5	25-230	25-230	0.4	25	30	8110820	4030670
(1)	4 Way (5/2) Air-Operated Air Return	1/4 3/8 1/2	6 10 12	1.4 2.6 3.5	25-230 30-230 30-230	25-230 30-230 30-230	0.8 1.4 1.4	27	31	8110831 8110833 8110833	4031370 4032070 4032071
	4 Way (5/2) Double Air Impulse	1/8 1/4 3/8 1/2	4 6 10 12	0.5 1.4 2.6 3.5	VAC-230 VAC-230 VAC-230 VAC-230	30-230 30-230 30-230 30-230	.6 1.1 1.7 1.7	26 29 29 29	32	8110830 8110827 8110826 8110826	4030770 4031470 4032170 4032171
	4 Way (5/2) Air-Operated Spring Return	1/4 3/8 1/2	6 10 12	1.4 2.6 3.5	VAC-230 VAC-230 VAC-230	50-230 50-230 50-230	1.2 1.8 1.8	28	33	8110832 8110825 8110825	4031371 4032072 4032073

Notes: (1) Pilot pressure must be equal to or greater than operating pressure.

## VALVE ORDER INFORMATION

Symbol	Description	Port Size (NPT)	Nom. Size (mm)	C <sub>v</sub> Factor	Operating Pressure (PSI)	Pilot Pressure (PSI)	Dim. Dwg.	Cross Section Dwg.	Spare Parts Kit	Valve Order No.
 Closed Center	4 Way (5/3) Air-Operated Spring Centered	1/4	6	1.1	VAC-230	50-230	10A	34	0557586	8110009
		1/2	12	2.7	VAC-230	50-230	10A	35	8110756	8110114
 Pressured Center	4 Way (5/3) Air-Operated Spring Centered	1/4	6	1.1	VAC-230	50-230	10A	34	0557586	8110012
		1/2	12	2.7	VAC-230	50-230	10A	35	8110756	8110116
 Open Center	4 Way (5/3) Air-Operated Spring Centered	1/4	6	1.1	VAC-230	50-230	10A	34	0557586	8110011
		1/2	12	2.7	VAC-230	50-230	10A	35	8110756	8110115

## VALVE DIMENSIONS

Figure Number	Valve Size	DIMENSIONS											
		A	C	D	E	F	G	H	J	K	L	M	N
25	1/8"	47	40	25	11	14	24	15	18	14	--	5.5	--
		(1.85)	(1.57)	(0.98)	(.43)	(.55)	(.95)	(.59)	(.71)	(.55)	--	(.22)	--
26	1/8"	60.5	40	25	15.8	14	30.3	21.3	18	14	16	5.5	22.4
		(2.38)	(1.57)	(.98)	(.62)	(.55)	(1.20)	(.84)	(.71)	(.55)	(.63)	(.22)	(.88)
27	1/4"	84	55	30	67	40	37	25	24	16	24	7	12
		(3.31)	(2.47)	(1.18)	(2.64)	(1.57)	(1.46)	(.98)	(.94)	(.63)	(.94)	(.28)	(.47)
	3/8"	115	65	35	46	46	56	39.5	33	16	33	7	39
		(4.53)	(2.56)	(1.38)	(1.81)	(1.81)	(2.20)	(1.56)	(1.30)	(.63)	(1.30)	(.28)	(1.54)
	1/2"	115	65	35	46	46	56	39.5	33	16	33	7	39
		(4.53)	(2.56)	(1.38)	(1.81)	(1.81)	(2.20)	(1.56)	(1.30)	(.63)	(1.30)	(.28)	(1.54)
28	1/4"	102	55	30	67	40	51	39	24	16	24	7	14
		(4.02)	(2.17)	(1.18)	(2.64)	(1.57)	(2.01)	(1.54)	(.94)	(.63)	(.94)	(.28)	(.55)
	3/8"	111	65	35	46	46	56	39.5	33	16	33	7	39
		(4.37)	(2.56)	(1.58)	(1.81)	(1.81)	(2.20)	(1.56)	(1.30)	(.63)	(1.30)	(.28)	(1.59)
	1/2"	111	65	35	46	46	56	39.5	33	16	33	7	39
		(4.31)	(2.56)	(1.38)	(1.81)	(1.81)	(2.20)	(1.56)	(1.30)	(.63)	(1.30)	(0.28)	(1.54)
29	1/4"	102	55	30	67	40	51	39	24	16	24	7	14
		(4.02)	(2.17)	(1.18)	(2.64)	(1.57)	(2.01)	(1.54)	(.94)	(.63)	(.94)	(.28)	(.55)
	3/8"	111	65	35	46	46	56	46	33	16	33	7	39
		(4.37)	(2.56)	(1.38)	(1.81)	(1.81)	(2.20)	(1.81)	(1.30)	(0.63)	(1.30)	(.28)	(1.54)
	1/2"	111	65	35	46	46	56	46	33	16	33	7	39
		(4.37)	(2.56)	(1.38)	(1.81)	(1.81)	(2.20)	(1.81)	(1.30)	(.63)	(1.30)	(0.28)	(1.54)
29A	1/4"	122	55	30	67	40	61	49	24	16	24	7	25
		(4.80)	(2.17)	(1.18)	(2.64)	(1.57)	(2.41)	(1.93)	(.94)	(.63)	(.94)	(.28)	(.98)
	1/2"	174	70	40	50	50	87	71	33	16	33	7	71
		(6.85)	(2.76)	(1.57)	(1.97)	(1.97)	(3.43)	(2.80)	(1.30)	(0.63)	(1.30)	(.28)	(2.80)

**DIMENSION DRAWINGS:**

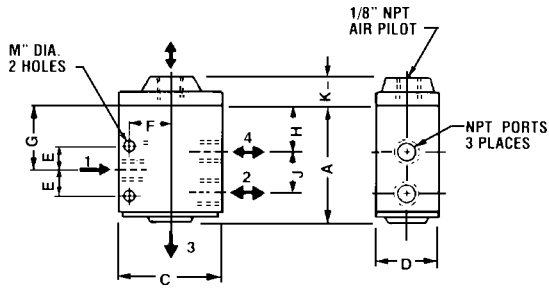


Fig. 25 1/8" Valve  
Single Air Pilot

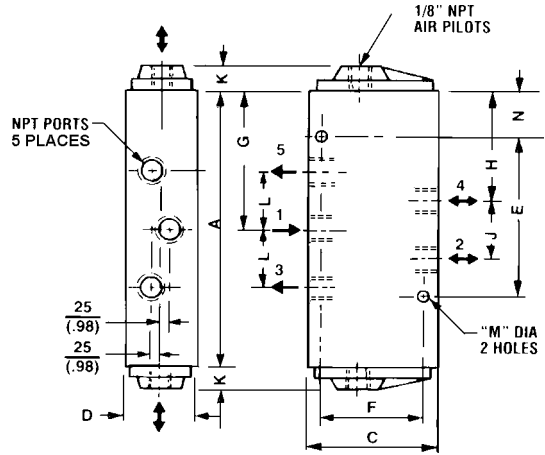


Fig. 26 1/8" Valve  
Double Air Pilot

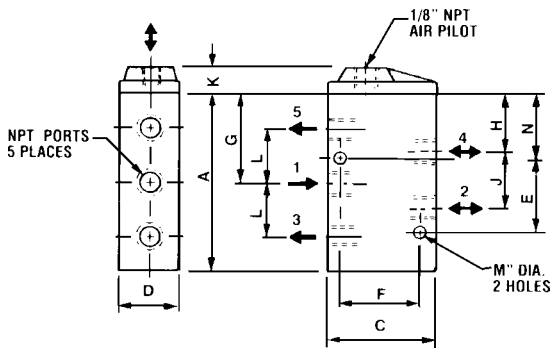


Fig. 27 1/4", 3/8", 1/2" Valve  
Single Air Pilot

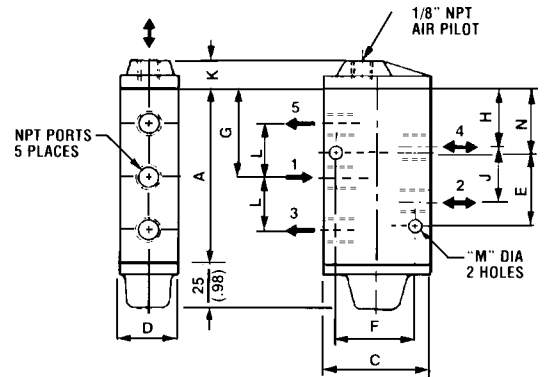


Fig. 28 1/4", 3/8", 1/2" Valve  
Single Air Pilot - Spring Return

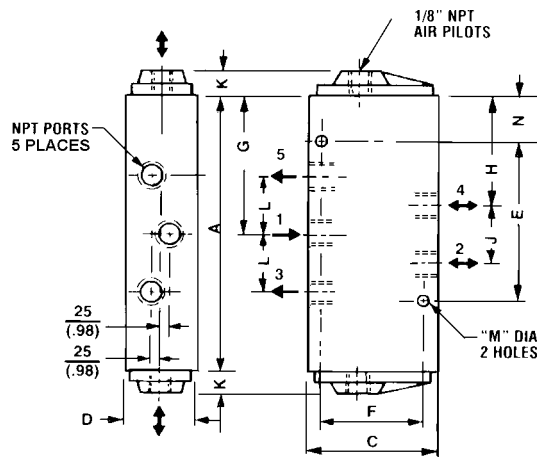


Fig. 29 1/4", 3/8", 1/2" - Double Air Pilot  
Fig. 29A 1/4", 1/2" - 3 Position Double Air Pilot

**CROSS SECTION DRAWINGS:**

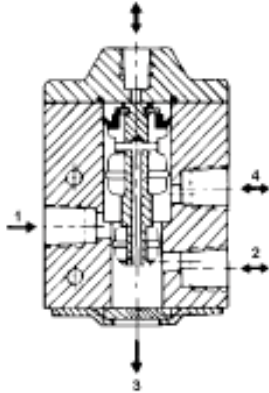


Fig. 30 1/8" Valve  
Single Air Pilot

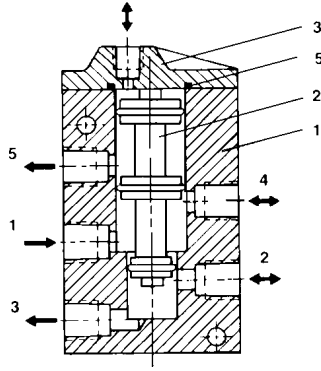


Fig. 31 1/4" - 1/2" Valve  
Single Air Pilot

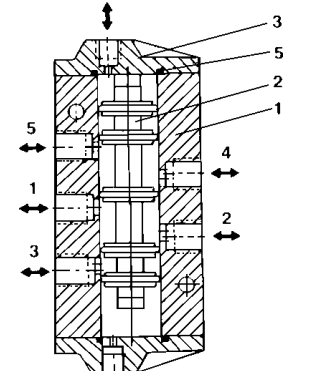


Fig. 32 1/8" - 1/2" Valve  
Double Air Pilot

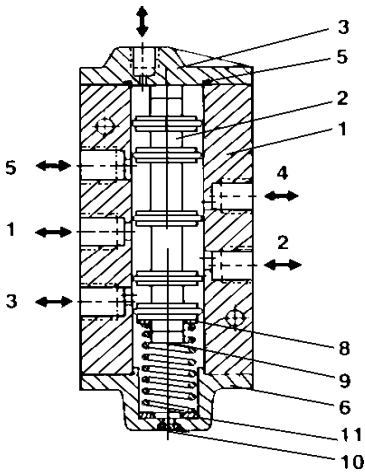


Fig. 33 1/4" - 1/2" Valve  
Air Pilot Spring Return

**PARTS LIST - 2 POSITION VALVES:**

- |                    |                  |
|--------------------|------------------|
| 1. Housing         | 6. Bottom Flange |
| *2. Spool Assembly | 7. Screw         |
| 3. Flange          | 8. Flat Washer   |
| 4. O-Ring          | *9. Spring       |
| 5. Gasket Seal     | 10. Filter Disc  |

\*The parts marked with an asterisk are contained in the spare parts kit.

**PARTS LIST- 3 POSITION VALVES:**

- |                     |                   |
|---------------------|-------------------|
| 1. Housing          | 10. Sintered Disc |
| *2. Spool Assembly  | 11. Washer        |
| 3. Flange (Air)     | 12. Lip Seal      |
| *4. O-Ring          | 13. Bushing       |
| 5. Gasket           | 14. O-Ring        |
| 6. Flange (Bottom)  | 15. Flange        |
| 8. Washer           | *16. O-ring       |
| *9. Spring Assembly |                   |

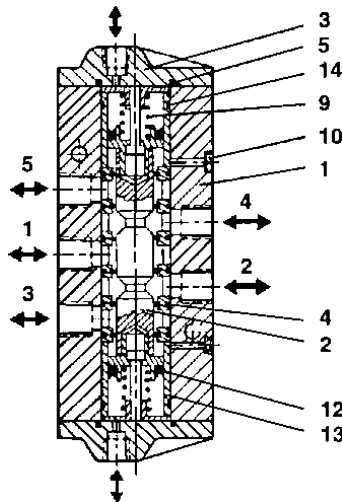


Fig. 34 1/4" Valve  
3 Position

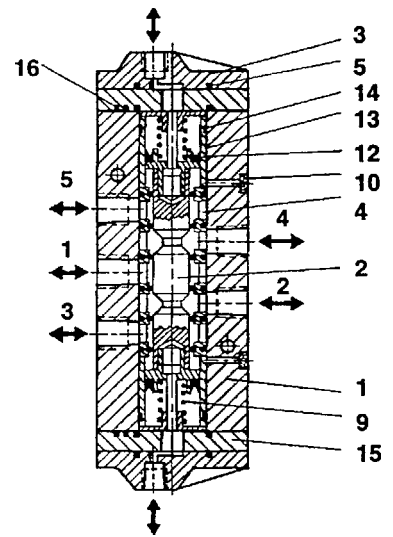


Fig. 35 1/2" Valve  
3 Position

\* Parts marked with an asterisk are contained in the Spare Parts Kit.

# MANIFOLD SYSTEM

## APPLICATION:

For installation with any **HERION** Softseal Inline Valves illustrated in this brochure including:

- |                     |                         |
|---------------------|-------------------------|
| 5/3 Solenoid Valves | 5/3 Air Actuated Valves |
| 5/2 Solenoid Valves | 5/2 Air Actuated Valves |
| 3/2 Solenoid Valves | 3/2 Air Actuated Valves |

## FEATURES:

### Manifold System

Allows space saving Manifolding for 2 to 16 valves.

### Common Supply Line

Standard manifold mounting with supply bar, which has 2 supply ports.

### Universal Mounting

Manifold bar can be rotated within the mounting brackets in 90° increments.

### Service

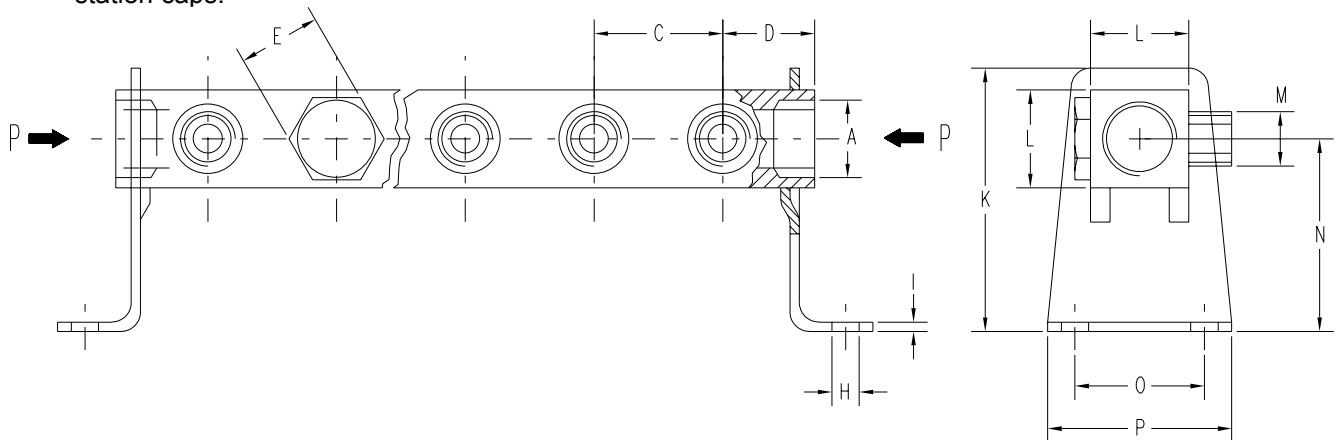
Each valve can be installed or removed easily.

### Simple Construction

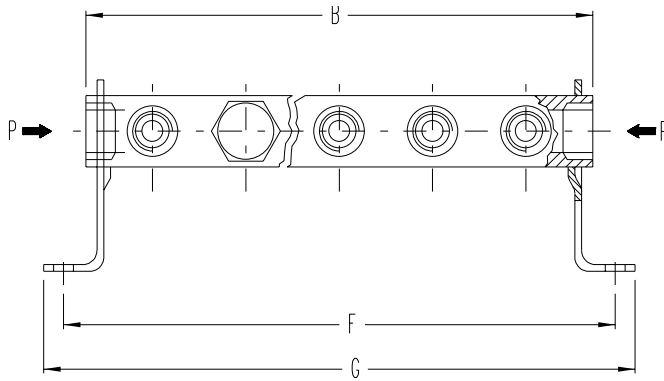
Allows room for installation of flow controls and exhaust silencers.

### Flexibility

Additional unused stations can be blocked with blank station caps.



GENERAL DIMENSIONS mm (inch)												
Valve Size	A	C	D	E	H	I	K	L	M	N	O	P
1/8	1/4 NPT	32 (1.26)	22 (0.87)	14 (0.55)	6.5 (0.26)	2.5 (0.10)	60 (2.36)	16 (0.63)	1/8 NPT	48 (1.89)	28 (1.10)	42 (1.65)
1/4	3/8 NPT	35 (1.38)	25 (0.98)	19 (0.75)	6.5 (0.26)	3 (0.12)	75 (2.95)	23 (0.90)	1/4 NPT	57 (2.24)	35 (1.38)	50 (1.97)
3/8	3/4 NPT	42 (1.65)	30 (1.18)	27 (1.06)	9 (0.35)	3 (0.35)	86 (3.39)	32 (1.26)	3/8 NPT	63 (2.48)	42 (1.65)	60 (2.36)
1/2	3/4 NPT	42 (1.65)	30 (1.18)	27 (1.06)	9 (0.35)	3 (0.12)	86 (3.39)	32 (1.26)	1/2 NPT	63 (2.48)	42 (1.65)	60 (2.36)



Manifold System include:  
 2 Mounting Brackets  
 1 Manifold Bar  
 n Manifold Screws  
 2n Seal Rings

Valve Size	Order Number	Number of Stations (n)	Station related dimensions mm (inch)		
			B	F	G
1/8	2639652	2	76 ( 2.99)	90 ( 3.54)	106 ( 4.17)
	2639653	3	108 ( 4.25)	122 ( 4.80)	138 ( 5.43)
	2639654	4	140 ( 5.51)	154 ( 6.06)	170 ( 6.69)
	2639655	5	172 ( 6.77)	186 ( 7.32)	202 ( 7.95)
	2639656	6	204 ( 8.03)	218 ( 8.58)	234 ( 9.21)
	2639657	7	236 ( 9.29)	250 ( 9.84)	266 (10.47)
	2639658	8	268 (10.55)	282 (11.10)	298 (11.73)
	2639659	9	300 (11.81)	314 (12.36)	330 (12.99)
	2639660	10	332 (13.07)	346 (13.62)	362 (14.25)
	2639662	12	396 (15.59)	410 (16.14)	426 (16.77)
1/4	2639452	2	85 ( 3.35)	100 ( 3.94)	116 ( 4.57)
	2639453	3	120 ( 4.72)	135 ( 5.31)	151 ( 5.94)
	2639454	4	155 ( 6.10)	170 ( 6.69)	186 ( 7.32)
	2639455	5	190 ( 7.48)	205 ( 8.07)	221 ( 8.70)
	2639456	6	225 ( 8.86)	240 ( 9.45)	256 (10.08)
	2639457	7	260 (10.24)	275 (10.83)	291 (11.46)
	2639458	8	295 (11.61)	310 (12.20)	326 (12.83)
	2639460	10	365 (14.37)	380 (14.96)	396 (15.59)
	2639462	12	435 (17.13)	450 (17.72)	466 (18.35)
	2639464	14	505 (19.88)	520 (20.47)	536 (21.10)
2639466	16	575 (22.64)	590 (23.23)	606 (23.86)	
3/8	2639752	2	102 ( 4.02)	120 ( 4.72)	138 ( 5.43)
	2639753	3	144 ( 5.67)	162 ( 6.38)	180 ( 7.09)
	2639754	4	186 ( 7.32)	204 ( 8.03)	222 ( 8.74)
	2639755	5	228 ( 8.98)	246 ( 9.69)	264 (10.39)
	2639756	6	270 (10.63)	286 (11.26)	306 (12.05)
	2639757	7	312 (12.28)	330 (12.99)	348 (13.70)
	2639758	8	354 (13.94)	372 (14.64)	390 (15.35)
	1/2"	2639552	2	102 ( 4.02)	120 ( 4.72)
2639553		3	144 ( 5.67)	162 ( 6.38)	180 ( 7.09)
2639554		4	186 ( 7.32)	204 ( 8.03)	222 ( 8.76)
2639555		5	228 ( 8.98)	246 ( 9.69)	264 (10.39)
2639556		6	270 (10.63)	286 (11.26)	306 (12.05)
2639557		7	312 (12.28)	330 (12.99)	348 (13.70)
2639558		8	354 (13.94)	372 (14.66)	390 (15.35)

\* "G" thread version available on request.



# MANIFOLD SYSTEM FOR HAZARDOUS DUTY APPLICATIONS

**APPLICATION:**

Suitable for use with all 1/4" through 1/2" valves and with the Hazardous Duty Solenoid (372X). Other valves can be used with this manifold .

**FEATURES:**

**Manifold System**

Additional spacing allows valves with Hazardous Duty coil to be manifold mounted.

**Common Supply Line**

Standard manifold mounting with supply bar, which has 2 supply ports.

**Universal Mounting**

Manifold bar can be rotated within the mounting brackets in 90° increments.

**Service**

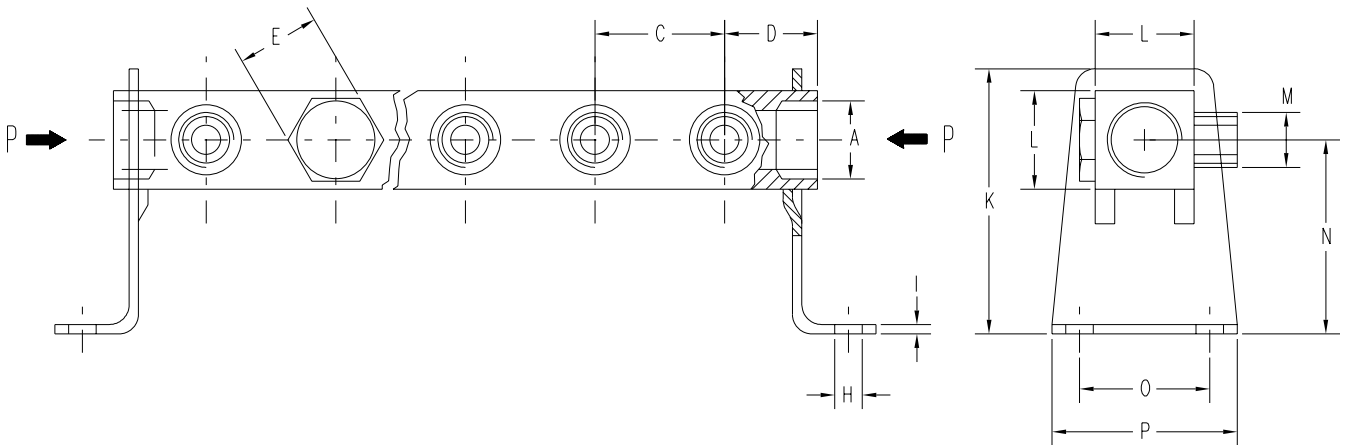
Each valve can be installed or removed easily.

**Simple Construction**

Allows room for installation of flow controls and exhaust silencers.

**Flexibility**

Additional unused stations can be blocked with blank station caps.



GENERAL DIMENSIONS mm (inch)												
Valve Size	A	C	D	E	H	I	K	L	M	N	O	P
1/4	3/8 NPT	45 (1.77)	25 (0.98)	19 (0.75)	6.5 (0.26)	3 (0.12)	75 (2.95)	23 (0.90)	1/4 NPT	57 (2.24)	35 (1.38)	50 (1.97)
3/8	3/4 NPT	45 (1.77)	30 (1.18)	27 (1.06)	9 (0.35)	3 (0.35)	86 (3.39)	32 (1.26)	3/8 NPT	63 (2.48)	42 (1.65)	60 (2.36)
1/2	3/4 NPT	45 (1.77)	30 (1.18)	27 (1.06)	9 (0.35)	3 (0.12)	86 (3.39)	32 (1.26)	1/2 NPT	63 (2.48)	42 (1.65)	60 (2.36)

**Blank Station Plug:**

For sealing additional, unused stations.

Valve Size	Order Number
1/8	05 586 03
1/4	05 561 56
3/8	05 562 45
1/2	05 562 47



**Manifold Screw:**

Valve Size	Order Number	Max Torque (lb. - ft)
1/8	05 586 02	12
1/4	05 561 55	22
3/8	05 562 46	28
1/2	05 562 48	32



**Installation Note:**

Do not exceed the maximum recommended torque for tightening the manifold screw.