

# NUMATICS®

## L2 Series

Solenoid Pilot, Air Pilot or Hand Lever Actuated Valves



[www.numatics.com](http://www.numatics.com)

## L2 Series

Technical and Operating Data	3-4
How to Order	5
Valve Dimensions	6-7
Manifold Assemblies	8-9
Hand Lever Valves	10
Speed Control Kit	11
Valve Service Kits and Parts	12-13
Internal/External Pilot Selection	14
Blank Station Plate Kit	14
Adaptor Kit	14
Blocking Plug Kit	14
Solenoid Assemblies	14

5 Ported, 2 and 3 position, 4-way, Spool & Sleeve

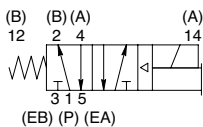
Cv: 1.7

- Solenoid air pilot or air pilot actuated
- Hand-lever valves available
- DIN plug-in solenoid and plug connector with indicator light
- Unlubricated or lubricated service
- In-line or manifold mounted
- Integral speed control available

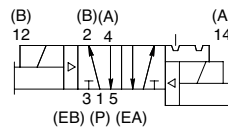


### Solenoid Air Pilot

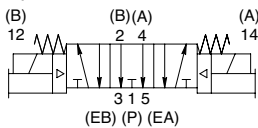
single solenoid air pilot  
2 position 4-way



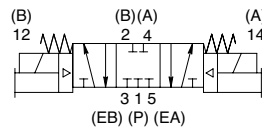
double solenoid air pilot  
2 position 4-way



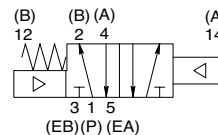
double solenoid air pilot  
3 position 4-way  
open center



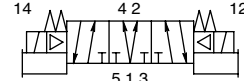
double solenoid air pilot  
3 position 4-way  
closed center



double air pilot  
2 position 4-way  
spring offset  
no override

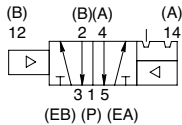


double solenoid pilot  
3 Position 4-Way (5/3),  
pressure center

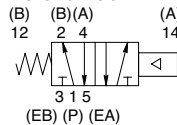


### Air Pilot

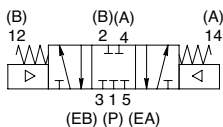
single air pilot  
2 position 4-way  
no override



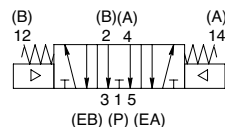
single air pilot  
2 position 4-way  
no override



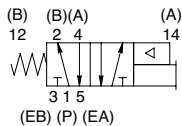
double air pilot  
3 position 4-way  
closed center  
no override



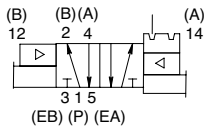
double air pilot  
3 position 4-way  
open center  
no override



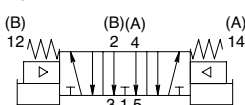
single air pilot  
2 position 4-way  
w/override



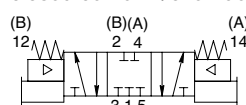
double air pilot  
2 position 4-way  
w/override



double air pilot  
3 position 4-way  
open center w/override



double air pilot  
3 position 4-way  
closed center w/override



### Hand Lever Operated

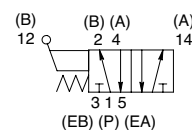
double air pilot  
3 Position 4-Way (5/3),  
pressure center



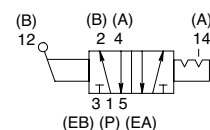
double air pilot  
3 Position 4-Way (5/3),  
pressure center



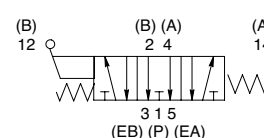
hand lever  
2 position 4-way  
w/spring return



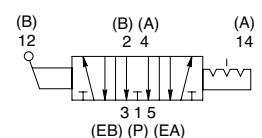
hand lever  
2 position 4-way  
w/detent



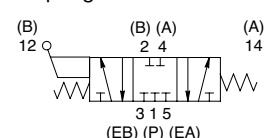
hand lever  
3 position 4-way  
open center  
w/spring center



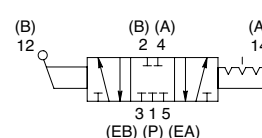
hand lever  
3 position 4-way  
open center  
w/detent



hand lever  
3 position 4-way  
closed center  
w/spring center



hand lever  
3 position 4-way  
closed center  
w/detent



**Technical Data**

Valve Data	English		Metric	
Cv	1/4 = 1.7	3/8 = 1.7	1/4 = 1.7	3/8 = 1.7
Flow Capacity	79 SCFM		1674 NI/m	
	Upstream pressure to atmosphere @80 PSIG		@ 6 bar upstream/5 bar downstream	
Main Valve Operating Pressure Range	28"Hg Vacuum to 150 PSIG		Vacuum to 10 bar	
Pilot Pressure Range: Internal and External	14.5 to 150 PSIG		1 to 10 bar	
Temperature range: Solenoid Pilot (ambient)	-10°F to +115°F		-23°C to +46°C	
Temperature Range: Air Pilot (ambient)	-10°F to +150°F		-23°C to +66°C	

**Operating Data**

All Solenoids Are Continuous Duty Rated		12 VDC	24 VDC	24 VAC 50 Hz	24 VAC 60 Hz	115 VAC 50 Hz	120 VAC 60 Hz	230 VAC 50 Hz	240 VAC 60 Hz
Power (Watts)		3.5	3.5	4.8	3.3	4.8	4.0	5.0	3.5
Holding Current (Amps.)		0.30	0.15	0.380	0.280	0.064	0.054	0.030	0.023
Inrush Current (Amps.)		N/A	N/A	0.500	0.420	0.087	0.082	0.042	0.036
Energize in seconds	2-Position, Single, Spring Return	0.010	0.010	0.007	0.007	0.007	0.007	0.007	0.007
	2-Position, Double, Detented	0.010	0.010	0.007	0.007	0.007	0.007	0.007	0.007
	3-Position, Spring Centered	0.010	0.010	0.007	0.007	0.007	0.007	0.007	0.007
De-energize in seconds	2-Position, Single, Spring Return	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
	2-Position, Double, Detented	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3-Position, Spring Centered	0.030	0.035	0.035	0.035	0.035	0.035	0.035	0.035

\*A 1.4 Watt DC solenoid is available. Add "17G" to the model number. EXAMPLE: L22BA452B017G61.  
Maximum pilot pressure is reduced to 116 PSIG (8 bar).

## How to Order

### Valves

**L22    JA    4    52    O    0    000    00**

**Valve Series & Port Size**  
 L22 = 1/4  
 L23 = 3/8

**Valve Type**  
 BA = Single Solenoid Air Pilot, Spring Return w/Flush Locking Override  
 BB = Double Solenoid Air Pilot w/Flush Locking Override  
 PA = Single Air Pilot Cap w/Spring Return  
 PP = Double Air Pilot Cap  
 PM = Double Air Pilot w/Spring Offset  
 JA = Single Air Pilot w/Flush Non-locking Override and Spring Return  
 JJ = Double Air Pilot w/Flush Non-locking Override  
 LA = Hand Lever w/Spring Return  
 LD = Hand Lever w/Detent

**Function**  
 4 = 2 Position, 4-Way  
 5 = 3 Position, 4-Way Open Center  
 6 = 3 Position, 4-Way Closed Center  
 7 = 3 Position 4-Way (5/3), Open to 4 (A) and 2 (B) in Center

**Mounting**  
 52 = Line Mounted

**Voltage**  
 20 = 24/50-60 VAC  
 30 = 110-120/50-60 VAC  
 40 = 220-240/50-60 VAC  
 60 = 12 VDC  
 61 = 24 VDC  
 00 = N/A (Use With Air Pilot or Hand Lever)

**Options**  
 14A = External Pilot Supply  
 17G = Low Watt Solenoid – 1.42 Watt  
 17P = Flush Non-locking Override  
 18D = Side Ports (see p. 6)

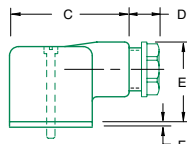
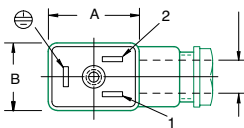
**Port Type**  
 0 = NPTF  
 G = G Tap

**Wiring Option**  
 B = DIN Plug-in DC Solenoid  
 O = DIN Plug-in AC Solenoid or Air Pilot or Handlever

NOTE: Plug connector is NOT included with DIN solenoid. Order plug-in connector assembly separately (see ordering information below)

### Plug Connector Assemblies

Per DIN Spec. NO 43650. Accepts cable diameter 0.240 to 0.310  
 11mm Industry Standard DIN Form B



Normal Polarity  
 1 = (+) Positive, High  
 2 = (-) Negative, Neutral  
 ⊕ = Chassis Ground

Plug Connector Description	Part No.
Grey (14 end solenoid) Plug Assembly	230-363
Black (12 end solenoid) Plug Assembly	230-364
Plug Assembly with 24 V Light	230-365
Plug Assembly with 110 V Light	230-366
Plug Assembly with 220 V Light	230-367

### Dimensions: Inches (mm)

A	B	C	D	E	F
1.12 (28.4)	0.83 (21.1)	1.57 (39.9)	0.40 (10.2)	1.10 (28.4)	0.06 (1.5)

### Manifold Assembly

**AK    0    3    D    0000    3    N    STD**

**Electrical/Electronics Type & Location**  
 0 = Standard

**Valve Line**  
 3 = L2 Series

**Number of Valve Stations**  
 B = 2    F = 6    J = 10  
 C = 3    G = 7    K = 11  
 D = 4    H = 8    L = 12  
 E = 5    I = 9

**Options**  
 Std = Standard (Common Supply and Exhaust)  
 A19 = Common Supply, Individual Exhaust

**Port Type**  
 N = NPTF  
 G = G Tap

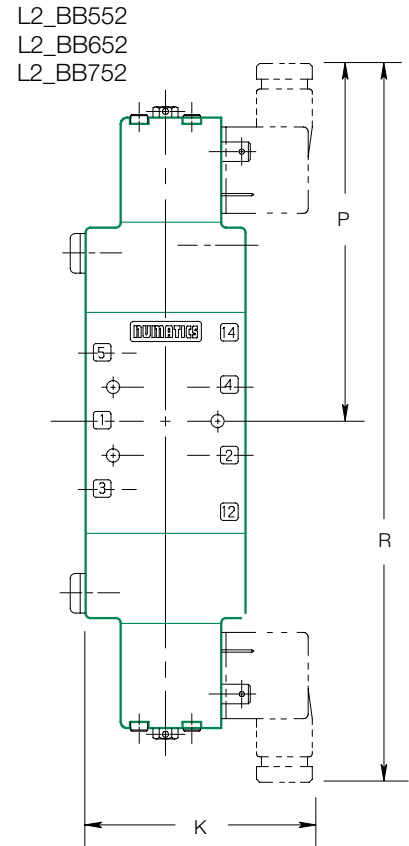
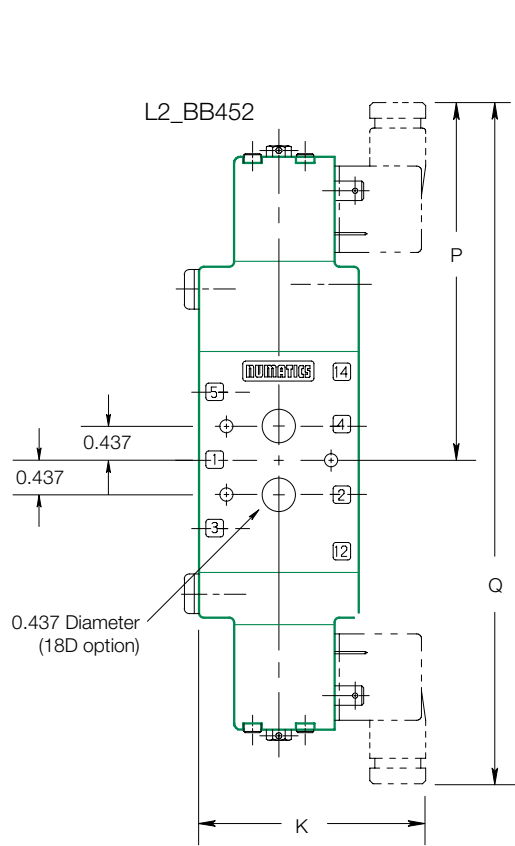
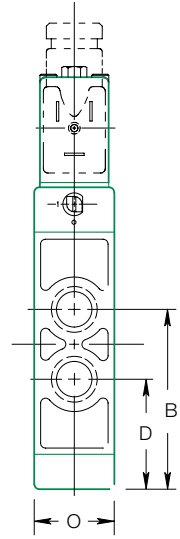
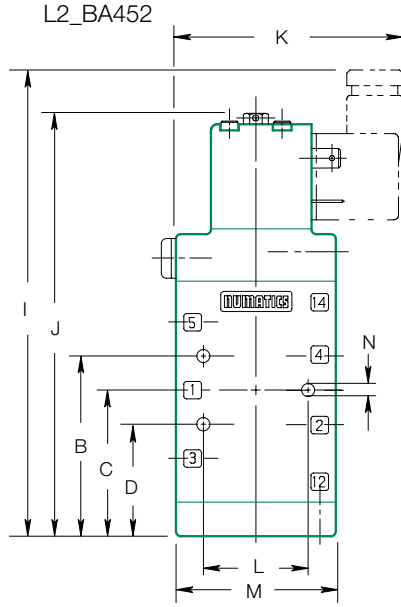
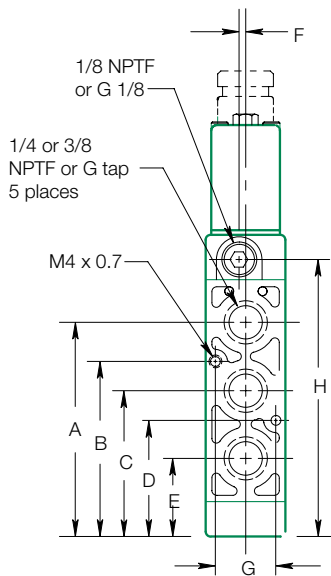
**End Plate Port Size**  
 3 = 3/8

#### Example order:

Assembly Kit: AK03D00003NSTD  
 Station 1: L23BB552O000030  
 Station 2: L23BA452O000030  
 Station 3: L23PP452O000000  
 Station 4: L23PA452O000000  
 ASSEMBLED

**Dimensions: Inches (mm)**

**Solenoid-Pilot Valve**

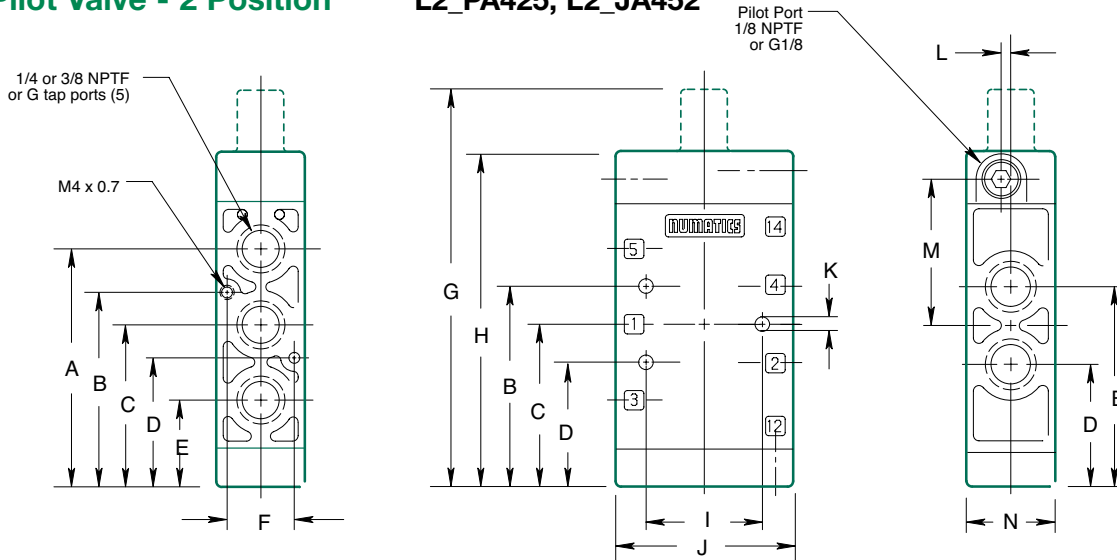


A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
2.72 (69.1)	2.28 (57.9)	1.85 (47.0)	1.41 (35.8)	0.97 (24.6)	0.08 (2.0)	0.75 (19.1)	3.53 (89.7)	5.99 (152.1)	5.38 (136.7)	2.89 (72.9)	1.27 (32.3)	2.00 (50.8)	0.17 (4.3)	1.00 (25.4)	4.66 (118.4)	8.78 (223.0)	9.32 (236.7)

**Dimensions: Inches (mm)**

**Air-Pilot Valve - 2 Position**

**L2\_PA425, L2\_JA452**



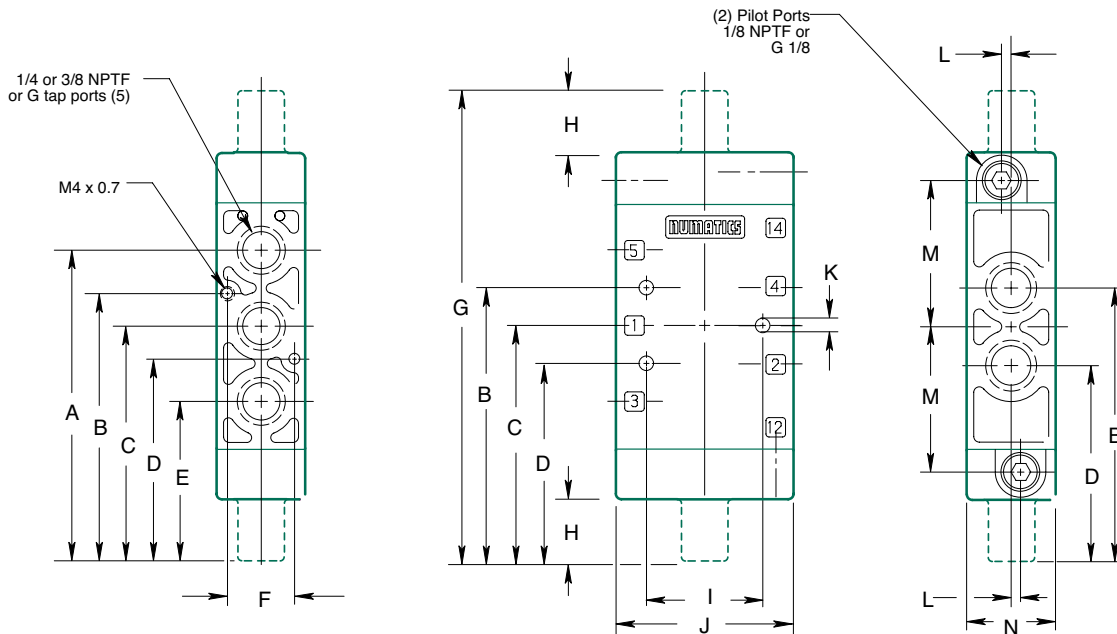
A	B	C	D	E	F	G	H	I	J	K	L	M	N
2.72 (69.1)	2.28 (57.9)	1.85 (47.0)	1.41 (35.8)	0.97 (24.6)	0.75 (19.1)	4.56 (115.8)	3.53 (89.7)	1.27 (32.3)	2.00 (50.8)	0.17 (4.3)	0.08 (2.1)	1.69 (42.9)	1.00 (25.4)

**Air-Pilot Valve**

**L2\_PP452, L2\_PP552, L2\_PP652**

**L2\_PP752, L2\_PM452, L2\_JJ452**

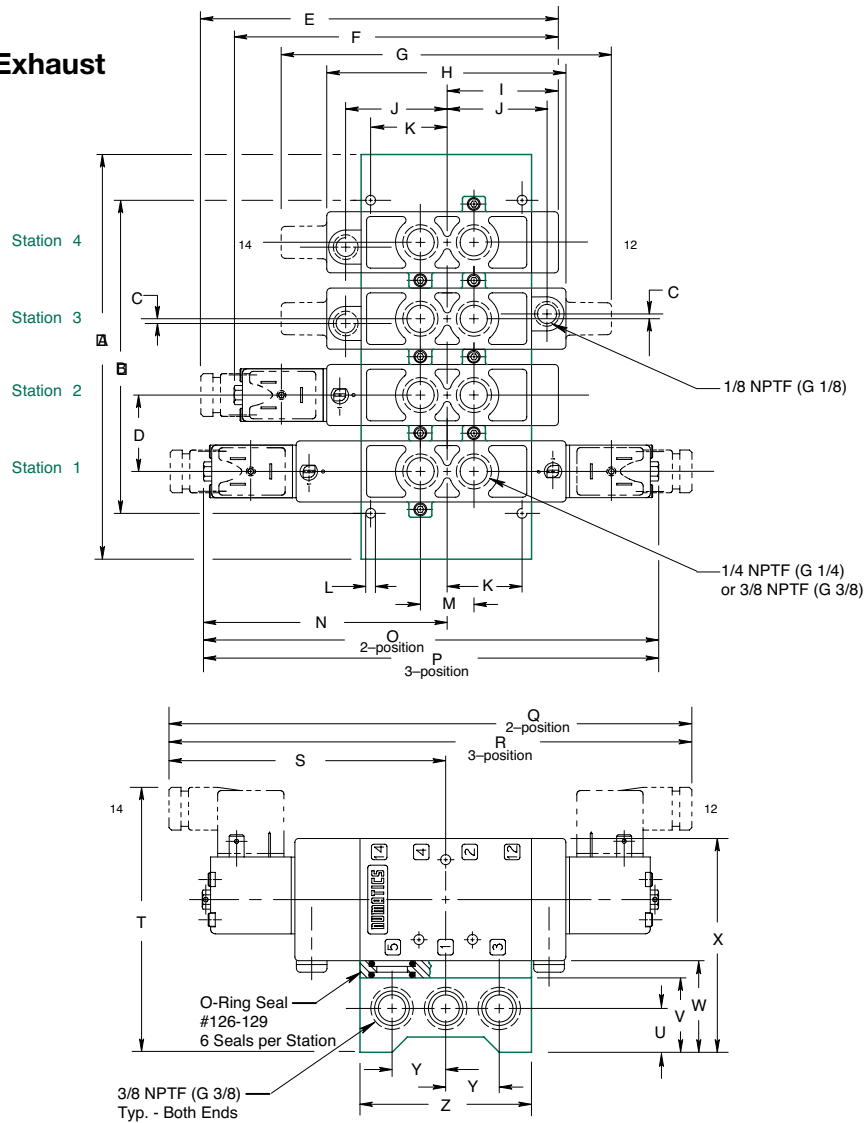
**L2\_JJ552, L2\_JJ652, L2\_JJ752**



A	B	C	D	E	F	G	H	I	J	K	L	M	N
3.59 (91.2)	3.15 (79.9)	2.71 (68.8)	2.28 (57.8)	1.84 (46.6)	0.75 (19.1)	5.43 (137.9)	0.71 (18.0)	1.27 (32.3)	2.00 (50.8)	0.17 (4.3)	0.08 (2.1)	1.69 (42.9)	1.00 (25.4)

Dimensions: Inches (mm)

Manifold Assembly  
Common Supply and Exhaust



A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
See Chart Below	See Chart Below	0.08 (2.0)	1.26 (32.0)	5.99 (152.1)	5.38 (136.6)	5.43 (137.9)	4.01 (101.9)	1.85 (47.0)	1.69 (42.9)	1.25 (31.8)	0.16 (4.1)	0.88 (22.4)	4.05 (102.9)	7.58 (192.5)	8.10 (205.7)

Q	R	S	T	U	V	W	X	Y	Z
8.78 (223.0)	9.32 (236.7)	4.66 (118.4)	4.35 (110.5)	0.72 (18.3)	1.20 (30.5)	1.48 (37.6)	3.48 (88.4)	0.88 (22.4)	2.78 (70.6)

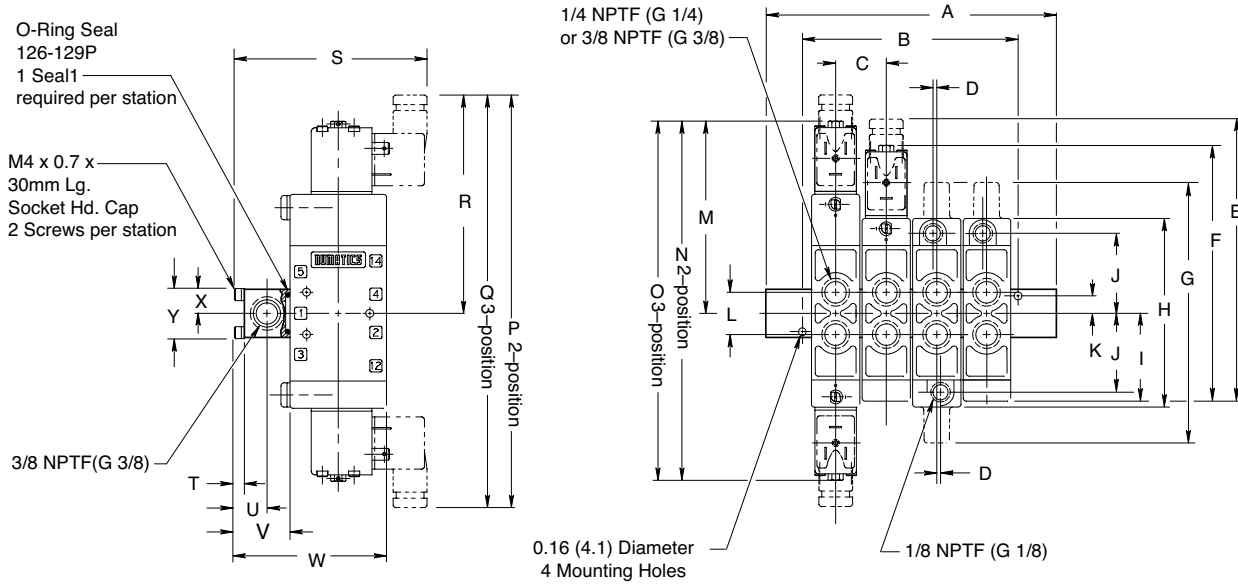
Manifold # Stations	Dim A	Dim B	3/8 NPTF Part No.	G 3/8 Part No.	Manifold # Stations	Dim A	Dim B	3/8 NPTF Part No.	G 3/8 Part No.
2 Stations	4.16 (105.7)	2.64 (67.1)	106-704	106-715	8 Stations	11.72 (299.7)	10.20 (259.1)	106-710	106-721
3 Stations	5.42 (137.7)	3.90 (99.1)	106-705	106-716	9 Stations	12.98 (329.7)	11.46 (291.1)	106-711	106-722
4 Stations	6.68 (169.7)	5.16 (131.1)	106-706	106-717	10 Stations	14.24 (361.7)	12.72 (323.1)	106-712	106-723
5 Stations	7.94 (201.7)	6.42 (163.1)	106-707	106-718	11 Stations	15.50 (393.7)	13.98 (355.1)	106-713	106-724
6 Stations	9.20 (233.7)	7.68 (195.1)	106-708	106-719	12 Stations	16.76 (425.7)	15.24 (387.1)	106-714	106-725
7 Stations	10.46 (265.7)	8.94 (227.1)	106-709	106-720	Adaptor Kit	Order (1) adaptor kit for each station on the manifold. Includes all seals and screws.		239-312	



## Dimensions: Inches (mm)

### Manifold Assembly

#### Common Supply and Individual Exhaust



A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
See Chart Below	See Chart Below	1.03 (26.2)	0.08 (2.1)	5.99 (152.1)	5.38 (136.6)	5.43 (137.9)	4.01 (101.9)	1.85 (46.9)	1.69 (42.9)	0.38 (9.5)	0.88 (22.2)	4.05 (102.9)	7.58 (192.6)	8.10 (205.7)	8.78 (223.0)

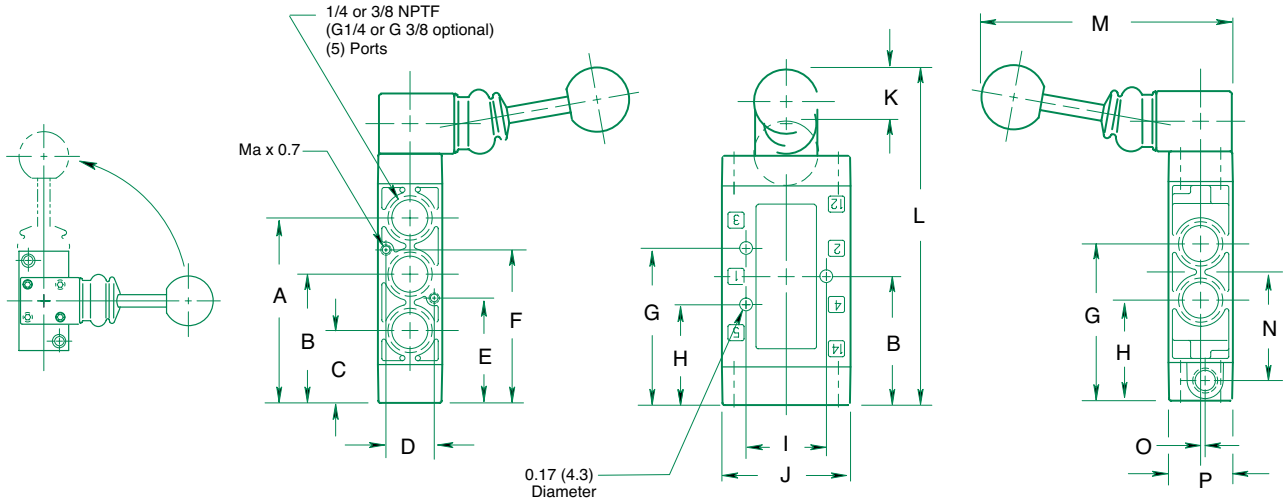
Q	R	S	T	U	V	W	X	Y
9.32 (236.7)	4.66 (118.4)	3.77 (95.8)	0.20 (5.2)	0.45 (11.4)	0.90 (22.9)	3.10 (78.9)	0.48 (12.3)	0.97 (24.6)

Manifold # Stations	Dim A	Dim B	3/8 NPTF Part No.	G 3/8 Part No.
2 Stations	3.92 (99.2)	2.40 (60.9)	229-946	229-957
3 Stations	4.95 (125.7)	3.43 (87.1)	229-947	229-958
4 Stations	5.98 (151.9)	4.46 (113.3)	229-948	229-959
5 Stations	7.01 (178.1)	5.49 (139.5)	229-949	229-960
6 Stations	8.04 (204.2)	6.52 (165.6)	229-950	229-961
7 Stations	9.07 (230.4)	7.55 (191.8)	229-951	229-962

Manifold # Stations	Dim A	Dim B	3/8 NPTF Part No.	G 3/8 Part No.
8 Stations	10.10 (256.5)	8.58 (217.9)	229-952	229-963
9 Stations	11.13 (282.7)	9.61 (244.1)	229-953	229-964
10 Stations	12.16 (308.9)	10.64 (270.3)	229-954	229-965
11 Stations	13.16 (335.0)	11.67 (296.4)	229-955	229-966
12 Stations	14.22 (361.2)	12.70 (322.6)	229-956	229-967

Dimensions: Inches (mm)

Hand Lever Valve

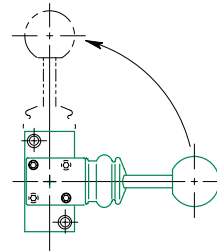


A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
2.88 (73.2)	2.00 (50.8)	1.13 (28.7)	0.75 (19.1)	1.63 (41.4)	2.38 (60.5)	2.44 (62.0)	1.57 (39.9)	1.27 (32.3)	2.00 (50.8)	0.72 (18.3)	5.18 (131.6)	3.93 (99.8)	1.68 (42.7)	0.08 (2.0)	1.00 (25.4)

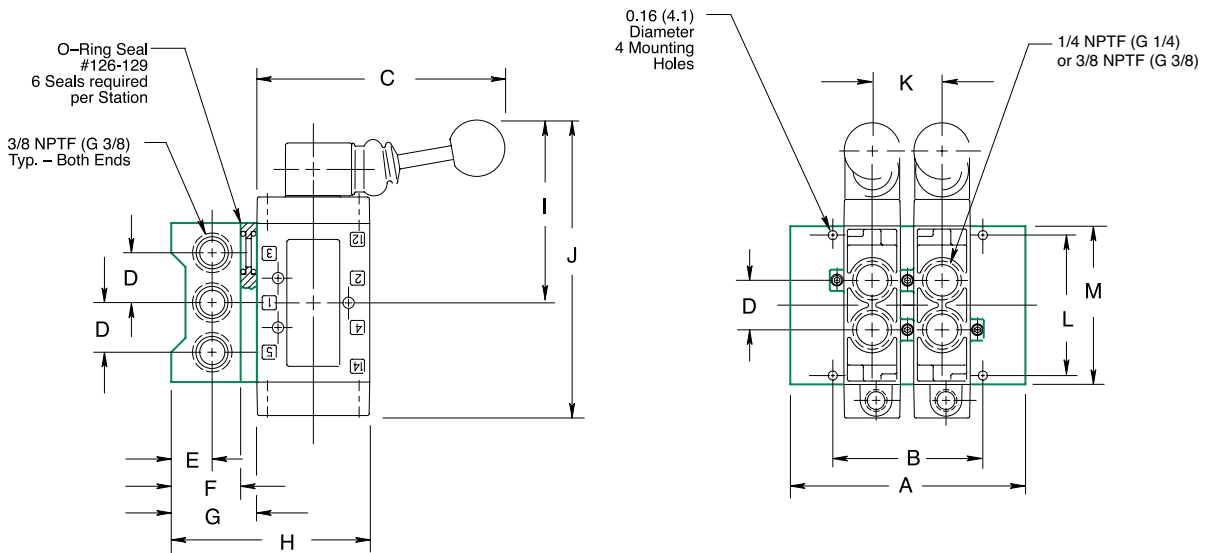
Lever Rotation Procedure

The Numatics L22 & L23 Hand Lever Series allows for the rotation of the lever 90° to become parallel with the valve cylinder ports.

Remove (2) M3 socket head screws from lever bracket and rotate 90° in either direction. Re-assemble screws and tighten securely.



Hand Lever Valve Manifold Assembly

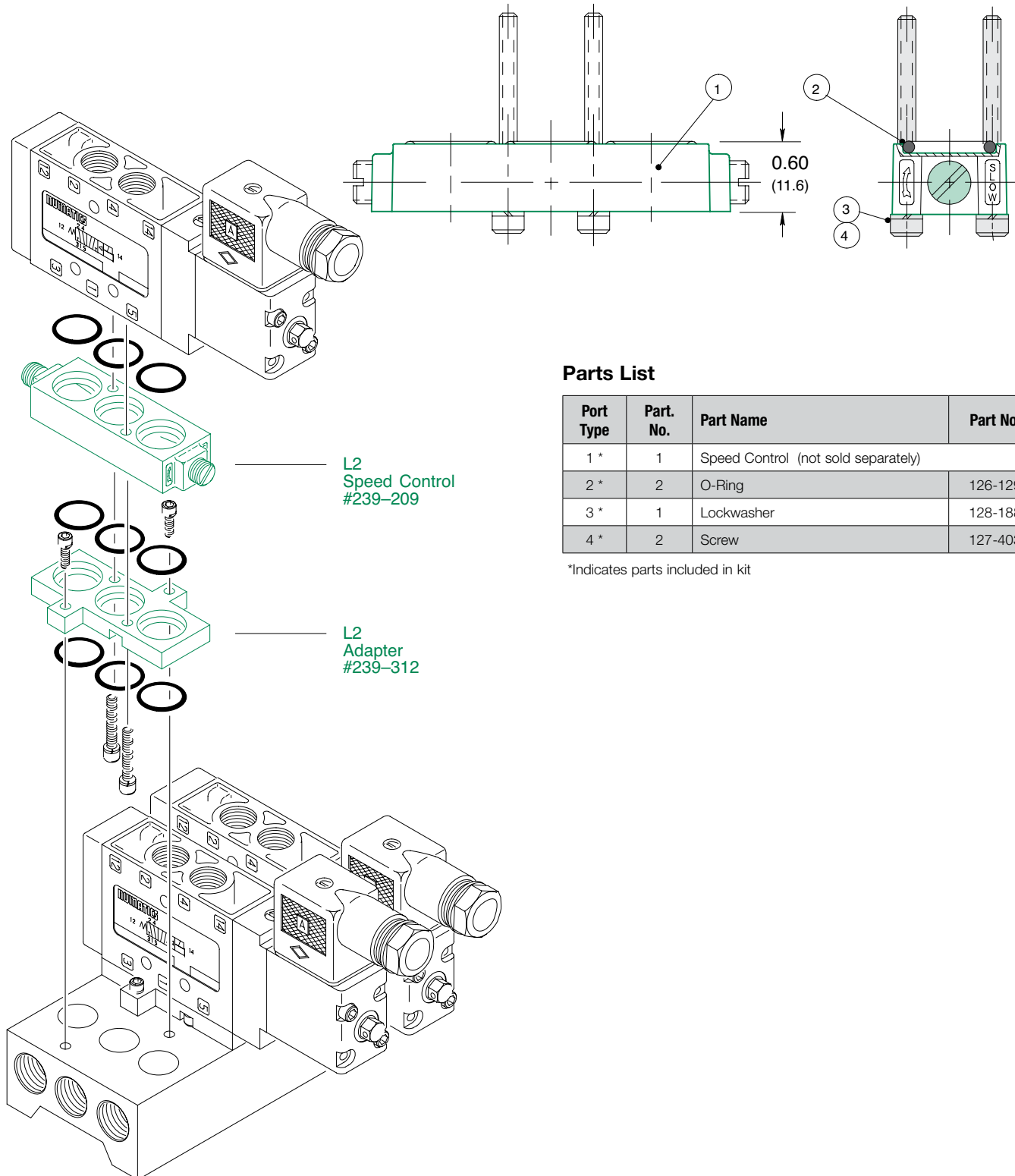


A	B	C	D	E	F	G	H	I	J	K	L	M
See chart on pg. 6	See chart on pg. 6	4.43 (112.5)	0.88 (22.4)	0.72 (18.3)	1.20 (30.5)	1.48 (37.6)	3.48 (88.4)	3.18 (80.8)	5.18 (131.6)	1.26 (32.0)	2.49 (63.2)	2.78 (70.6)

## Speed Control Kit - Side Mounted

239-209

The L2 speed control mounts between any L2 Series valve and die cast adaptor using (3) O-rings from the speed control kit and (3) O-rings and (2) screws from the adaptor kit. This assembly then mounts to a 3-gallery manifold by using the remaining (3) O-rings and (2) screws from the adaptor kit.



### Parts List

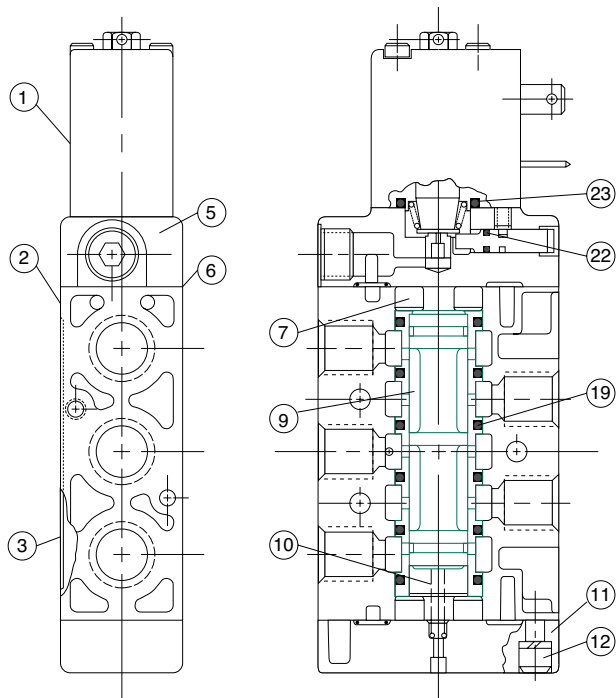
Port Type	Part No.	Part Name	Part No.
1 *	1	Speed Control (not sold separately)	
2 *	2	O-Ring	126-129
3 *	1	Lockwasher	128-188
4 *	2	Screw	127-403

\*Indicates parts included in kit

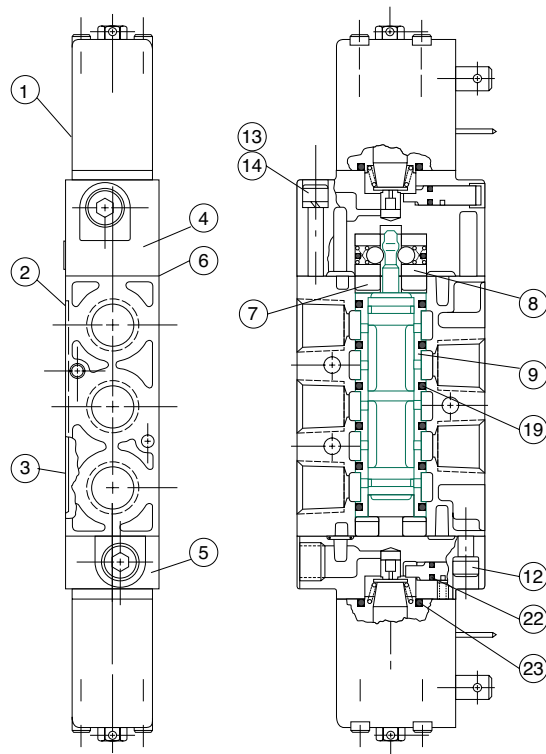
**Valve Service Kits and Parts – 2 Position**

**Solenoid-Pilot Actuated**

**Kit No. L2-K1 (For Models L22BA4, L23BA4)**

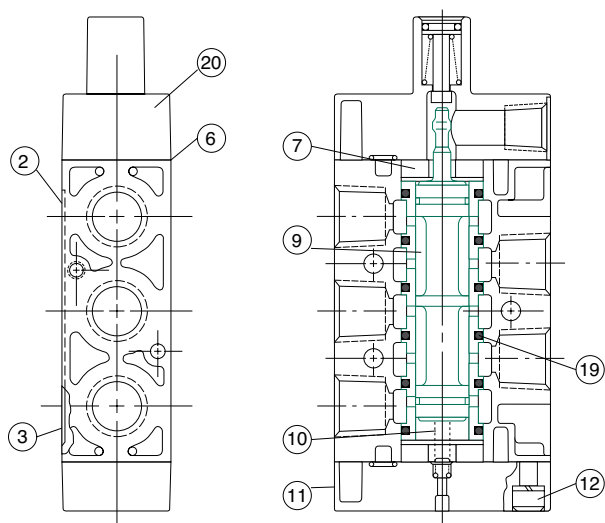


**Kit No. L2-K2 (For Models L22BB4, L23BB4)**

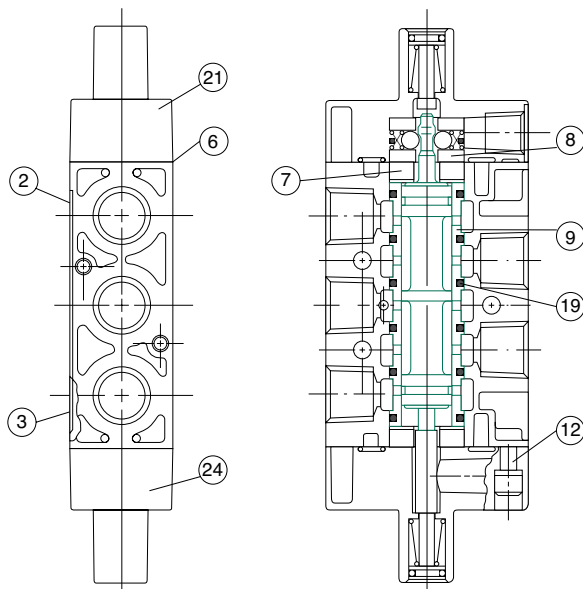


**Air-Pilot Actuated**

**Kit No. L2-K1 (For Models L2\_PA4, L2\_JA4)**



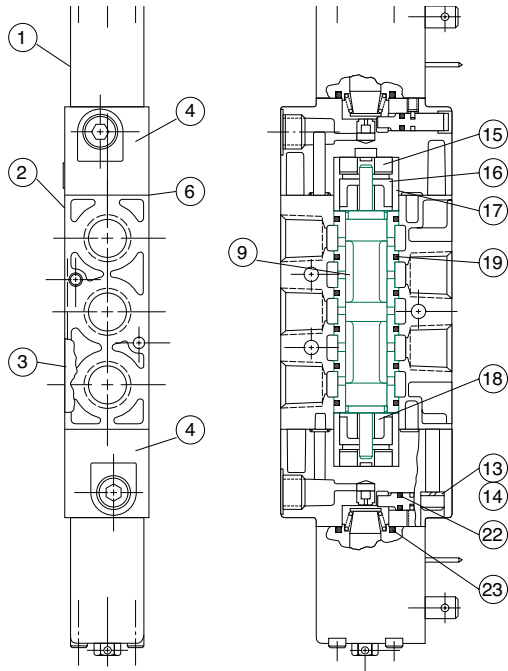
**Kit No. L2-K2 (For Models L2\_PP4, L2\_JJ4)**



## Valve Service Kits and Parts – 3 Position

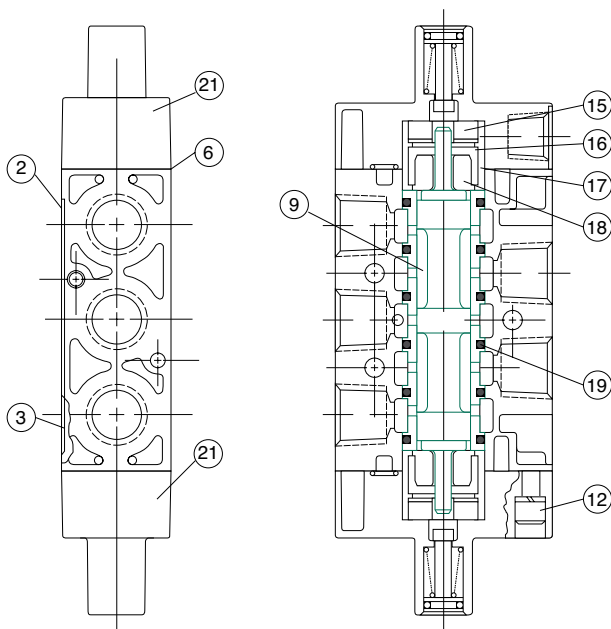
### Solenoid-Pilot Actuated

Kit No. L2-K3 (For Models L2\_BB5, L2\_BB6, L2\_BB7)



### Air-Pilot Actuated

Kit No. L2-K3 (For Models L2\_PP5, L2\_PP6, L2\_PP7, L2\_JJ5, L2\_JJ6, L2\_JJ7)



### Parts List

Port Type	Part No.	Part Name	Part No.
1	1	Solenoid Capsule Assembly	See p. 14
2	1	Valve Body (not sold separately)	
3	1	Nameplate	122-940
4	>	Adaptor Assembly	219-129
5	1	Adaptor Assembly	219-127
6 *	2	Gasket	113-313
7 ~	2	Bumper	114-147
8 ***	1	Detent Assembly	210-116
9	1	Sleeve Assembly w/Seals ‡ for models: L2-BA4 L2-BB4, JA4, PA4 L2-BB5, JJ5, PP5 L2-BB6, JJ6, PP6 L2-BB7, JJ7, PP7	209-323 209-327 209-370 209-371 209-372
10 **	1	Spring	115-248
11	1	Spring Cover Assembly	204-393
12	<	Screw Assembly	127-396
13	•	Lockwasher	128-190
14	2	Screw	127-400
15 ****	2	Bumper	114-148
16 ****	2	Spring	115-247
17 ****	2	Spacer	116-341
18 ****	2	Spring Retainer	116-340
19 *	6	O-Ring Seal	126-204
20	1	Pilot Cap Assembly	204-404
21	>	Pilot Cap Assembly	204-408
22 *	2	Seal (override)	126-163
23	2	Seal (solenoid-pilot)	126-203
24	1	Pilot Cap Assembly	204-406

\* indicates parts in L2-K1, L2-K2, and L2-K3

\*\* indicates part in L2-K1 only

\*\*\* indicates part in L2-K2 only

\*\*\*\* indicates part in L2-K3 only

~ indicates part in L2-K1 and L2-K2 only

‡ Spool & sleeve assemblies are precision matched sets & include (6) 126-204 seals; spools are not interchangeable.

> (1) for 2-position models; (2) for 3-position models

< (4) for L2-BA4, (2) for L2-BB4

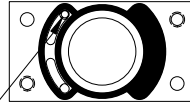
• (2) for 2-position models; (4) for 3-position models

### Internal / External Pilot Selection

NOTE: On double solenoid-pilot valves, both ends must be converted.

External pilot supply must be used if pressure is supplied to any port except No.1.

INTERNAL  
PILOT SUPPLY



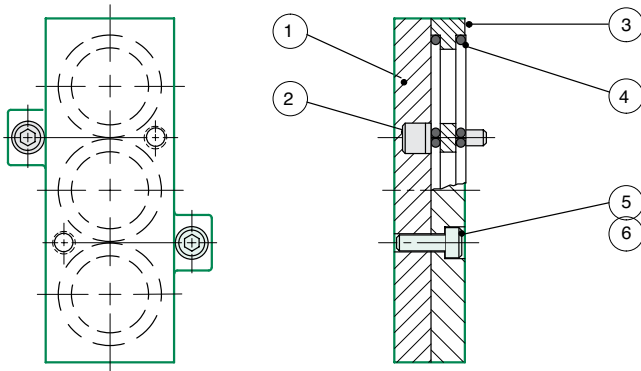
PILOT SUPPLY HOLE MUST  
BE VISIBLE BOTH ENDS

EXTERNAL  
PILOT SUPPLY



ROTATE GASKET TO COVER  
PILOT SUPPLY HOLE.  
REMOVE PIPE PLUG  
(PART NO. 129-100)

### Blank Station Plate Kit



Manifold Type	Part No.
Common Supply, Common Exhaust (shown)	239-471
Common Supply, Individual Exhaust (not shown)	229-990

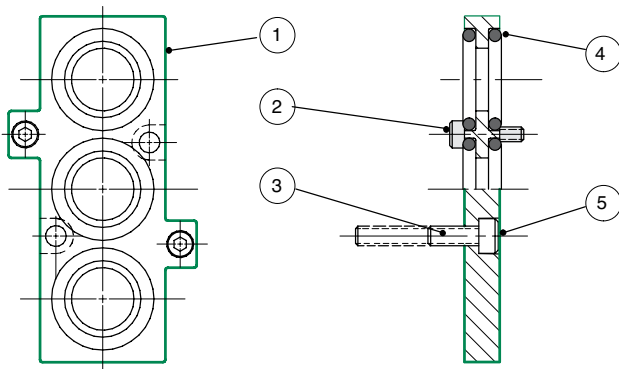
#### Parts List

Det. No.	No. Req'd	Part Name	239-471 Part No.	229-990 Part No.
1 *	1	Blank Station Plate (not sold separately)		
2 *	2	Screw Assembly	127-570	N/A
3 *	1	Adaptor (not sold separately)		
4 *	6	O-Ring	126-129	126-129
5 *	2	Screw	127-710	127-361
6 *	2	Lockwasher	128-190	128-188

\*Indicates parts included in kit

### Adaptor Kit

239-312

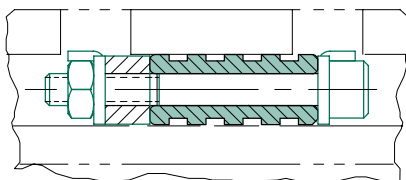


#### Parts List

Det. No.	No. Req'd	Part Name	Part No.
1 *	2	Adaptor (not sold separately)	
2 *	2	Screw	127-577
3 *	2	Screw	127-570
4 *	6	O-Ring	126-129
5 *	2	Screw (shipped loose)	127-400

\*Indicates parts included in kit

### Blocking Plug Kit



Manifold Type	Part No.
Common Supply, Common Exhaust (shown)	239-516
Common Supply, Individual Exhaust (not shown)	239-250
Kit includes (2) blocking plug spacer, rubber spacer, nut and screw	

### Solenoid Assemblies

Standard Voltages	100-115/50 115-120/60 VAC	200-240/50 220-240/60 VAC	24/50-60	12 VDC	24VDC
Part No.	237-569	237-570	237-568	226-737	226-749



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## World Headquarters

### **USA Numatics, Incorporated**

46280 Dylan Drive  
Novi, Michigan 48377

P: 248-596-3200  
F: 248-596-3201

### **Canada Numatics, Ltd**

P: 519-758-2700  
F: 519-758-5540

### **México - Ascomatica SA de CV**

P: 52 55 58 09 56 40 (DF y Area metropolitana)  
P: 01 800 000 ASCO (2726) (Interior de la República)  
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### **Brazil Ascoval Ind.e Comercio Ltda**

P: (55) 11-4208-1700  
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